

Chapter 22

Gender and the Imaginary of Forestry in Boreal Ecosystems



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Abstract In this chapter, we examine forestry work in two boreal regions—Canada and Sweden—where gender mainstreaming has long been established in government policy. Despite having policies that support gender equality in both countries, the roles, opportunities, remuneration, and expectations of women and men engaged in forestry work are highly differentiated by gender. We explain this discrepancy by considering the way in which forestry work has been and continues to be imagined. The narrow interpretation of forestry as “tree cutting” has reduced the visibility of women and continues to narrow the range of activities deemed valuable to the forestry sector. By asking questions about how forestry has been imagined, we seek to catalyze fresh thinking about the nature of forestry work and the capacity of the forest industry in both countries to adapt to climate change.

22.1 Introduction

For many years, scholars from the global North have described the industrial forest sector as characterized by a highly gendered division of labor, which has contributed to (and even valorized) a masculine identity built on dangerous, physically demanding, “dirty” work associated with timber harvesting or “piling up the timber” (e.g., Ager, 2014; Lidestav et al., 2019; Reed, 2003a). Men working in forestry in boreal regions in the early twentieth century were described as “robust, hardy and able to bear up against natural forces like rain, snow, storms and frost”

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(Brandth & Haugen, 2005, pp. 16–17). Although they too have long worked in forests, women and the work they undertook have largely remained invisible or, at best, have been characterized as helpmates to male workers (Johansson, 1994; Östlund et al., 2020).

In the second half of the twentieth century onward, the work of forestry was no longer the job of individual, hardy men. Restructuring of the forest industry, the introduction of mechanization and new technologies, economic globalization and the outsourcing of operations, and the enhanced regulation of the industry to demonstrate its environmental sustainability led to other competencies and skill sets being identified and required in forestry (Ager, 2014; Hayter, 2000; Ross, 1997). Social reorganization of employment and family structures also created greater demand for employment opportunities for diverse groups previously excluded from the forest economy, including women and Indigenous Peoples. By the late twentieth century, new employment avenues opened up in information science, planning, monitoring, regulation, management, and policymaking for professionals—experts and supervisors with appropriate academic degrees—who could, more or less, perform their job from offices in urban environments rather than in the field and the rural environments of traditional forestry (Brandth & Haugen, 2005; Reed, 2003a). Governments took a greater interest in forest management and planning and promoted their position through new policy statements about sustainable forest management (Canadian Council of Forest Ministers, 2003; Sveriges Riksdag, 2008). While the location of key decisions about forests has moved to company boardrooms, government offices, and computer labs, the iconic image of forestry remains the rough-and-ready, male logger. Indeed, forestry is an industry with a highly gendered division of labor in which men dominate across a range of key activities, including harvesting, production, silviculture, and regulation and management (Häggström et al., 2013; Johansson, 2020; Reed, 2003a; Wyatt et al., 2021). Unless this pattern changes, this male dominance will also have implications for who determines climate-related adaptation measures in forestry and may affect the capacity to engage in innovative and effective adaptation strategies.

In this chapter, we explain the emergence and persistence of gendered roles, relationships, and identities in the forest sector in two boreal regions—Canada and Sweden. We have selected these two countries because of the shared importance of boreal forests to the respective national economies and the shared significance of forests more generally to their cultural identity. Additionally, federal governments of both countries have made public commitments to gender equality in all sectors. We use the term *imaginary* to help explain how forestry work is imagined. This idea follows other political and sociological theorists such as Steger and James (2013, p. 23) who explain imaginaries as “patterned convocations of the social whole. These deep-seated modes of understanding provide largely pre-reflexive parameters within which people imagine their social existence.” In our case, the imaginary of forestry establishes expectations of what kinds of work qualify as forestry, who undertakes that work, and how it is accomplished.

In both countries, a narrow set of masculine and feminine norms have long undergirded the industrial model of forestry. Although forest ownership and management

practices differ in each country, the industrial model of forestry continues to shape the perception that forestry is man's work—and not just any man's work, but a man who exhibits particular characteristics of masculinity. The values and assumptions associated with these characteristics, then, help define who is considered a legitimate worker in the forest and helps form a masculine imaginary of forestry. By reviewing the history and persistence of masculinity in forestry, we reveal underlying assumptions and explore both opportunities and constraints to establishing a forest sector that is both environmentally and socially sustainable.

We have organized our chapter in the following way. First, we characterize the sector in both countries, demonstrating the presence of imbalances between women and men in key occupational categories in each country. Next, we explore how forestry has shaped gender roles, relationships, and identities, revealing a distinctive form of masculinity associated with forestry work. We call this the *forestry imaginary*. We then argue for the need to consider fundamental research questions to better understand how the forestry imaginary has restricted the discussion of forestry and gender to a rudimentary counting of women and men. We pose questions of our own to help explain dominant perceptions of gender and forestry. We consider how these perceptions also affect key socioenvironmental issues, such as the need for the industry in both countries to adapt to climatic change. Finally, we invite our readers to pose their own questions and begin questioning the fundamental assumptions that have shaped the contemporary forestry identity in boreal regions. By offering alternative framings of forestry, we seek to catalyze fresh thinking about the nature of forestry work and the capacity of the forest industry in both countries to adapt to climate change.

22.2 A Tale of Two Countries: Characterizing the Gender Balance in the Forest Sectors in Canada and Sweden

22.2.1 *Canada*

Approximately 28% or 307 million ha of the world's boreal forest is located in Canada (NRC, 2020). In fact, the boreal forest makes up 75% of Canada's forest lands, encompassing all but three of Canada's provinces. The vast majority of these forests are located on public lands where provincial governments grant licenses to, and regulate the activities of, large-scale, often multinational, forest companies.¹ Although employment in the forestry sector has declined in the twenty-first century, the 2016 census revealed that about 205,890 workers are considered part of Canada's forestry workforce. Additionally, although Indigenous people make up about 4.9% of Canada's population, approximately 70% of Indigenous communities are located in

¹ For the country as a whole, 94% of commercial forest land is publicly owned and managed. The largest proportion of private forest land ownership is in the Atlantic provinces. In British Columbia, 2% of the forest land has been dedicated to community forest licenses.

Canada's forested regions. Forests are important for Indigenous Peoples and communities for cultural, spiritual, and economic reasons (Sherry et al., 2005). Indeed, census data revealed that in 2016, 7% of forest sector employees were Indigenous compared with 4% for the total Canadian workforce (Wyatt et al., 2021).

Despite changes in the structure of the industry, forestry has been remarkably male dominated. It is not possible to separate out jobs data in the boreal region from the country as a whole; however, there is no reason to believe that the structure of the industry is different for commercial boreal forests than for other commercial forests in Canada. Data from the 2016 census show that women make up only 17% of forestry jobs in Canada. These data have not changed much since 1996, when 14% of employees in all forest industries were female. Women working in all parts of the forest industry have, on average, higher levels of formal education than men. Yet, they continue to be overrepresented in clerical and administrative occupations and underrepresented in operations, scientific, and management categories. For example, according to Statistics Canada, women represent 91% of accounting and related clerks and 92% of executive assistants in the forest sector. Men, on the other hand, represent 98% of logging-machine operators, 93% of sawmill-machine operators, and 92% of supervisors in logging and forestry. Women are also underrepresented in professional and managerial roles in both the private and public sectors. Within the total cohort of women in the sector, about 20% across the country are registered professional foresters,² and many leave the profession over the course of their working lives. For example, data collected by the Association of BC Forest Professionals for 2021 indicate that in British Columbia, whereas just over 40% of professional foresters under the age of 30 are women, approximately 12% are women over the age of 50 (Christine Gelowitz, personal communication, February 2021).

As a consequence of this division of labor and a myriad of other social factors, women across all job categories have always earned significantly less than men in the forestry workforce (Baruah, 2018). For example, in a survey of 500 women working in the forest sector and arboriculture across Canada and the United States, 60% of female respondents reported earning less than their male counterparts (Bardekjian et al., 2018). Calculations of wages in natural resource sectors as a whole (including mining and forestry) indicate that the average weekly wage for women has increased over time from \$666 in 2000 to \$938 in 2015, whereas men's weekly wages have increased from \$1,342 to \$1,608 over the same period (Baruah, 2018). There is also evidence that women progress through the pay hierarchy more slowly than men. Data from surveys conducted by the Association of BC Forest Professionals show that among professional foresters in that province, men have higher salaries than women who graduated at the same time. Compounding the fact that women take home less money during good times, past recessions have revealed that women are also more likely than men to lose their jobs or take pay cuts during economic restructuring

² Professional foresters are regulated by the provinces. Some provinces do not report by gender, but it appears that the proportions of women working as professional foresters vary between 15% in Québec and 21% in British Columbia.

(Barnes et al., 1999; Commission on Resources and Environment, 1994; Hayter, 2000).

Inequities also persist for Indigenous Peoples who have sought forestry employment as a means for economic well-being. While Indigenous Peoples appear to be employed in forestry in higher numbers than their population might suggest, Indigenous workers continue to face job segregation, with their jobs typically concentrated in forest activities (forest management, logging) and wood product manufacturing, which are often lower paid and less secure than other occupations. Indigenous women are doubly disadvantaged. More than twice as many Indigenous women in the forest sector hold university degrees, trade school certificates, or college diplomas as Indigenous men, and yet they are typically hired in more precarious positions, such as working in nurseries or gathering always closed up (except non-analog, non-native) timber forest products, e.g., mushrooms. They have even been excluded from typically female-dominated occupations, such as clerical and secretarial services, which are mostly dominated by white women (Mills, 2006). Indigenous men and women also continue to face challenges as a consequence of stereotyping, discrimination, and a lack of accessible training (Proulx et al., 2020).

22.2.2 *Sweden*

Similar to Canada, the boreal forest is a main feature of the Swedish landscape and represents an important resource for processing industries and export income. Of the 28 million ha covered by different types of forests (corresponding to 69% of the Swedish land surface), 24 million ha is considered productive forest. Dissimilar to Canada, less than a quarter of the forestland is publicly owned, and another quarter is owned by large-scale private companies, leaving 52% to some 330,000 small-scale private forest landowners (SLU, 2019). Yet the large-scale industrial forestry model has influenced and been “incorporated” by this land and ownership.

In terms of Indigenous communities, the 51 reindeer-herding communities in northern Sweden have grazing rights on all forest land within their reindeer-herding districts.³ These communities are organized into about 1,000 enterprises with some 4,600 reindeer owners. Of these owners, 2,500 depend on incomes generated from reindeer husbandry (Sametinget, 2020). This means that about 10% of the Samí people (who have the exclusive right to reindeer husbandry) are associated with forest land use through reindeer husbandry. In comparison, about 3% of the entire Swedish population⁴ (of whom some are Samí) are forest owners, and their combined

³ Reindeer husbandry can be carried out on 22.6 million ha of mountain and forest land equal to 55% of the Swedish land base, and more than 50% of the productive forest land. As reindeer husbandry is always carried out in conjunction with other land uses, forestry has a major impact on the conditions for reindeer husbandry and for maintaining a reindeer husbandry-based Sami culture (Buchanan et al. 2016; Sandström 2015).

⁴ Sweden does not categorize citizens by ethnicity.

work in their own forest is estimated at 6,345 days of full-time work, which corresponds to 38% of the total day labor in forest operations. However, most work, both in terms of area and volume, is done by contractors and their employees (8,762 or 55%). In addition, there are 1,249 employees (7%) in large-scale forestry (Skogsstyrelsen, 2020). When including the timber processing industries, transportation, and the other logistic and required services, there are nearly 60,000 people directly employed in the forestry sector. With subcontractors, there are about 200,000 employees who make up 4% of the Swedish workforce. All in all, the primary production of trees, the secondary production of timber (harvesting and transportation), and tertiary production of forestry-derived products makes Sweden the world's third-largest exporter of pulp, paper, and sawed wood products (Skogssverige, 2020).

While societal influences on gender equality have brought about an increase in the number of women forest owners from 20% in 1976 (Lidestav & Ekström, 2000) to 38% four decades later (Follo et al., 2017), women's participation in the forest workforce remains low and focuses on particular segments of the sector (Johansson et al., 2020). In self-employed forestry work, for example, harvesting is much more likely to be done by men, whereas in planting and desk work, the involvement of women and men is more equal (Lidestav & Nordfjell, 2005).

Of the total workforce in forest contracting firms working in silviculture (planting and cleaning), only 4% are women (Häggström et al., 2013; Wide & Nordin, 2019). In large-scale forestry companies and forest-owner associations, 15% of the staff are women, who, to a large extent, have an academic education in forestry or a similar program. Indeed, in academia, women have made up approximately 20% and 33% of students enrolled in bachelor and master programs in forestry, respectively, over the last two decades (SLU, 2015). Despite a growing number of women having training in forestry, patterns of gender segregation in employment, work tasks, and roles remain. For example, women are more involved in training/consultancy, administration, and forest preservation, whereas men numerically dominate work that is more closely associated with production-oriented forestry, e.g., harvesting and wood processing (Lidestav et al., 2011).

It is difficult to directly compare education and employment prospects between Sweden and Canada because the structures of the industry differ between the two countries, and official sources collect different types of data. Nevertheless, it is evident that the industrial model of forestry has created a strong division of labor whereby timber harvesting defines forest management and remains "men's work," whereas administrative work, which appears less distinctive to forestry (involving secretarial, accounting, or human resource-related tasks), remains "women's work." How this division of labor has come about and established the forestry imaginary has been theorized through a series of explanations, as described below.

22.3 Explanations for the Gendered Aspects of Forestry

These observable differences in the opportunities and experiences of women and men in the forest sector have been interpreted through different theories and concepts. For example, *labor-market segmentation theory* was first developed outside of forestry to explain employment and income disparities by distinguishing between primary and secondary sectors, with the primary segment characterized by “high wages, good working conditions, employment stability, chances of advancement, equity, and due process in the administration of work rules” and the secondary segment having “low wages and fringe benefits, poor conditions, high labor turnover, little chance of advancement, and often arbitrary and capricious supervision” (Doeringer & Piore, 1971, p. 165). This theory has been applied to forestry to explain employment and income opportunities for women and men in forestry. Jobs in primary resource extraction and processing have typically been classified as primary, and they have been characterized by trade unions that have secured high wages, a seniority system, and relative job security for men. Jobs in administrative and service segments of the industry have been considered secondary. They have typically not been unionized and confer lower wages and more precarious employment opportunities for women (Reed, 2003a, 2003b; 2008).

Additionally, the concepts of *gender order* and *workplace culture* were advanced by feminist scholars to explain women’s disadvantage in “nontraditional work settings,” explaining that organizational rules and values are responsible for creating and perpetuating perceptions of *maleness* and *femaleness*—perceptions that can reinforce barriers to the inclusion of women as equal partners in the workforce (Gherardi & Poggio, 2001, p. 246; Johansson, 2020). In Canada’s forest sector, this “traditional” division of labor of the male breadwinner and the female homemaker has remained remarkably persistent (both empirically and discursively), particularly in rural areas where many of the “primary jobs” are located. This scenario is true even where women have been engaged in paid work, as they continue to carry a disproportionate share of childcare and other domestic duties (Martz et al., 2006; Preston et al., 2000). Both labor-market and gender-order theories have been used to explain the masculinized work culture, systemic discrimination and harassment, and barriers to advancement and training in forestry and in the cognate resource sector of mining (Cox & Mills, 2015; Mills et al., 2013; Parmenter, 2011; Reed, 2003b). But these findings are not unique to Canada. An international survey of gender in forestry conducted by the “Team of Specialists on Gender and Forestry for the United Nations Economic Commission for Europe” also revealed that “a gendered organizational logic [was] at work, which not only reproduces a structure of gender division but also, paradoxically, and simultaneously, makes gender invisible” (FAO, 2006, p. 1).

Masculinity theories have also been used to understand how the organization of forestry work over time has shaped different ideals of masculinity. For example, Nordin (2006) identified four modes of masculinity that have emerged as forestry work has been restructured: the combat pilot (machine operator linked to technology and performance), the man of the forest (manual laborer working close to nature and

freedom), the business executive (organizational and management expertise), and the contractor in crisis (an entrepreneur with very limited opportunities to control his own, and his employees' work situations). Similarly, Brandth and Haugen (2000) argued that the dominant representations of masculinity in Norwegian forestry have changed over time from the logger, who is a nature-mastering man with a body marked by hard work, to the machine operator mastering chain saws and tractors, to the organizational man with his business management skills. These studies suggest that as forestry work has changed, the significance of gendered stereotypes has not diminished. Rather, the number of masculine norms has multiplied, drawing on different forms of knowledge of forestry: practical/manual, technological, and theoretical/administrative. To some extent, these theoretical concepts have a longitudinal dimension in the sense that manual labor implies *traditional* forestry and theoretical/administrative work implies *modern* forestry. However, these concepts are best understood as overlapping, as technological developments have not eliminated the ideals and assumptions regarding the "real" work of forestry.

Associated with these depictions are the ways in which skill sets have been gendered. For example, men have been ascribed technical job skills and are assumed to be competent in them. By contrast, women are assumed not to have such skills. Hence, they still have to prove that they are capable more frequently than their male colleagues (Lu & Sexton, 2010; Navarro-Astor et al., 2017; Smith, 2013). Research about women in "nontraditional" employment sectors has demonstrated that women are perceived as having stronger emotional and supporting skills; hence, they have been viewed as having a positive effect on men's behavior, which in turn is likely to have an effect on the overall productivity of the company (Eveline & Booth, 2002). Using policy analyses, Mayes and Pini (2014) argued that the "business case" for gender equality used in the mining industry in Australia describes women as bringing something different from men, such as other types of communication and decision-making. Similar conditions in Swedish forestry work organizations have been reported by Johansson and Ringblom (2017). These kinds of findings suggest that women are viewed as having the potential to "civilize the workforce and the workplace" (Mayes & Pini, 2014, p. 538). These depictions ultimately do not challenge gendered values, skills, and division of labor; instead, they potentially burden women professionals with the requirement and responsibility to change dominant discourses.

Lastly, the concept of *intersectionality* now encourages researchers to examine labor-market inequalities in resource sectors by considering how a range of social identity factors, as well as institutions, structures, norms, and power dynamics at different scales, operate to create advantages or disadvantages for different social groups (Cox & Mills, 2015; Hankivsky, 2014; Manning, 2014; Mills et al., 2013; Parmenter, 2011; Ringblom & Johansson, 2020). Consideration of intersecting factors in forestry is revealing. Mills (2007), for example, used census data to compare the employment profiles of Indigenous and non-Indigenous men and women within the forest industry in Saskatchewan, Canada. She found evidence that gender, class, and racialized identity work together to the general disadvantage of women and to

the greater detriment of Indigenous women and men. Such a disadvantage is demonstrated in the employment opportunities and job security offered to them and in the wage differentials they experience.

While these theories and concepts help us to understand possible root causes and impacts of gender inequality in the forest sector, we also need to recognize that official statistics, and the ways in which these data are used, reflect, and influence societal values (Waring, 1988). For example, for years national forestry associations have collected data without accounting for gender, reflecting and reinforcing the view that gender is not important and/or that gender bias in the workforce does not exist. In Canada, we have a very sketchy picture of the diversity of social groups employed in the forest industry, and national data have not historically been collated by resource sector, job classification, location, and gender. Reliable, commensurable data can provide more detailed information about who is working in the forest sector, where jobs and workers are, and what training or retention strategies might be needed. Uncritical use of data has contributed to *gender-neutral* policies and programs that have typically favored men and maintained an ongoing cycle of marginalization of certain groups (Reed, 2008; Walker et al., 2019).

22.4 The Making of Men and Women in Industrial Forestry

Empirical research has employed these theories to understand how forestry work is gendered. Such research moves well beyond documenting the numbers of women and men employed in the forestry sector. Rather, it helps us consider how forestry is *imagined*, how this imaginary “makes” male and female forestry workers, and how it ascribes value to the work they undertake.

In Sweden, forestry has been represented as a modernizing force that lifted the country, particularly the northern part, from poverty by the end of the nineteenth century to prosperity 50 years later (Kardell, 2004). This large-scale activity, although geographically scattered across state, company, and private lands, became a way for up to 200,000 men, both locals and migrant male workers, to support themselves through seasonal work in harvesting operations during winter and log-driving during spring and summer (Johansson, 1994). In contrast to the traditional farmer society, forestry work was organized in such a way that it offered freedom from paternalistic relationships between landed and landless men and gave the latter access to an independent and equal social and economic status. The piece-rate system, i.e., payment by performance in terms of logs or “piece” processed per day’s work, increased the predictability of income and recognized meritorious conduct. The lumberjacks who worked hardest and were considered most skillful were able to pile up the largest stack of timber and thereby received the most earnings. The “contracts for harvesting,” on the one hand between the forest company and the contractor (log driver) and, on the other hand, between the contractor (log driver) and the lumberjacks, were the cornerstone of forestry work and economic organization. The piece-rate-system also decisively influenced the social organization in the forest camp (Ager, 2014). According

to Johansson (1994), in these seemingly all-male settings out in the forest, a new type of masculinity was constructed on the basis of the individual work performance rather than on class and property. Thus, men in forestry defined the *modern man*⁵ and rural masculinity as being closely associated with the male body and the capacity to master harsh working conditions. Such a man not only tolerated but even glorified the crowded and unhealthy living conditions in the forest hut.⁶ As a large part of the male population in northern Sweden was involved in winter logging operations, this critical mass induced a material and mental change in the perception of man and manhood, i.e., an individual, who by his own ability and performance, mastered the environment and thereby contributed to the co-construction and imaginary of gender in forestry.

Major changes from the 1950s to today, i.e., mechanization and digitalization, mean that some tasks can now be organized and executed from the office instead of the field (Ager, 2014). These changes have, to some extent, modified the perception of the *forest man* and his performance. Yet, the volume of timber produced remains a central feature of “performance in forestry” (Hugosson, 1999). Furthermore, the “management masculinity” described by Brandth and Haugen (2000) and the four modes of contractor masculinity identified by Nordin (2006) continuously emphasize physical capacity, technical skills, and practical experience of physical forest work associated with logging. These features continue to be central aspects of forestry work, and they persist in bringing legitimacy to the carrier of those attributes in contemporary forestry work organizations (Brandth & Haugen, 2000, 2005; Nordin, 2006). Similar attributes and conceptions are found within small-scale family forestry. Although self-employment in forestry operations is declining, the image of the active forest owner as male still represents the norm, and the division of work between women and men forest owners is significant (Lidestav, 2001; Lidestav & Nordfjell, 2005; Westin et al., 2017).

Therefore, if forestry is about men’s work, male collectivism, and male interactions, how have women been represented in the core activities in forestry? According to Ella Johansson (1994), a lack of visibility and recognition⁷ of women in forestry work should not be understood as their nonexistence. Rather, it should be interpreted as “women in forestry work appear to have crossed a boundary in at least the male classification system,” and the idea of them as women becomes preposterous and therefore something to conceal (Johansson, 1994, p. 135). She argued that logging represents the kind of hard work that requires periods of rest, e.g., evenings and Sundays, for men. In the then rural society, however, a “proper woman” was never

⁵ Here, we consider a *modern man* as an individual who explores and transforms nature in accordance with the idea that planning, calculation, and rational decisions will lead to progress, a better life, and a better society.

⁶ A forest hut was a simple log house for 5 to 15 men who had to share beds and cooking facilities, with a fireplace serving as the only source of heat.

⁷ In the nearly 200 narratives about forestry that constitute the main source of Ella Johansson’s thesis research (1994), women and girls are mentioned in only a handful of occasions. Yet, she refers to other records that describe women hauling timber, barking, and even fulfilling the husband’s logging contract if he became ill. There is also photographic evidence of women and girls doing afforestation.

supposed to rest, and therefore a women logger became an anomaly. Accordingly, if a woman rested, she would act unwomanly and above all violate her own self-respect. In contrast, if she worked longer days in the forest than men, the men would seem unmanly. Consequently, we can assume that there was a mutual interest of women and men *not* to mention or pay tribute to women who worked in the forest.

Other research focused on more recent times have also found evidence that both men and women in forestry share a common interest in gender invisibility (Lidestav & Sjölander, 2007). In practice, this means that women active in forestry should try to look like men and effectively uphold the male imaginary. Such efforts have an important effect on where we find women and men in the forestry workforce. Johansson (2020, p. 4) found that “when the ideal image of the forestry worker or forestry professional is based on the male body, women are not assumed to possess the right kind of skills or experiences, are expected to need additional help and thereby are not understood as carriers of knowledge.” Consequently, the spaces that are accessible for women in forestry are constrained; “women are more often found to work in areas related to forest preservation, communication, or administration and in public organisations such as Swedish Forestry Agency while they are less likely to work in harvesting, processing, or as managers”(Johansson, 2020, p. 4). Although these findings are from Sweden, Canadian census data reveal a similar division of labor.

In Canada, while land ownership and corporate structures are quite different, there remain important similarities to how *the modern man* was created in northern Sweden and in the consequences for the division of labor in the sector. In keeping with other natural resource sectors in Canada, Quam-Wickham (1999) argued that the acquisition and practice of skills in the lumber, mining, and oil industries have been the pivotal means by which male workers construct their masculinity. For example, during the 1930s and the Great Depression, the government of British Columbia (a province where forestry has long dominated the economy) promoted its forestry work programs on the grounds that “this forestry programme offers them [young men] useful work under conditions that must benefit them physically and mentally, leaving them more self-reliant and with a saner outlook towards the future.” (cited by Ekers, 2009, p. 309). Similarly, its report of the newly established Young Men’s Forestry Training program involved “all outdoor work, well calculated to improve young men mentally and physically and to develop initiative and self-reliance” (Department of Lands 1936; cited by Ekers, 2009, p. 309). Ekers’ review of these programs (2009, p. 309) revealed that

it was not simply being in nature that engendered this construction of identity, but rather, it was getting men out of cities and having them work in nature that was deemed expedient. It was working in jobs that were traditionally—and continue to be masculinized—that conferred the central features of masculinity onto the subjects who laboured.

Furthermore, according to Ekers (2009, p. 309) “‘nature’ was assumed to have essential (rather than socially constructed) characteristics that would aid the men in finding their ‘true’ masculine selves.”

Histories of more recent events have built on these ideas by describing how forestry cultures have established monolithic ideals of masculinity—intersecting with those

of ethnicity and gender—that delineate clear lines of inclusion and exclusion (Dunk, 1991; Mills, 2006). For example, Coen et al., (2013, p. 98) described masculinity in a forestry town in northern British Columbia, wherein they argued, “in many ways the idealized Prince George man and the cold, rugged landscape merged and mirrored each other: the iconic male was strong, indefatigable, impenetrable; he commanded nature, extracting natural resources and turning them into consumer products.” Perhaps surprisingly, Coen et al. (2013) found that these old stereotypes continued to be reproduced by men and women living in forestry towns and contributed to both depression and the unwillingness of men to seek outside help to address their mental health. Their research reinforces that the dominant framing of masculinity is not a “natural” creation nor merely a historical anecdote but one forged from human ideals and normative structures that persist well into the twenty-first century. Another consequence has been the erasure, marginalization, and discrimination of women and nonconforming men (including Indigenous Peoples) from the dominant narrative of forestry work.

22.5 More Fundamental Questions: Seeing the Forest and not just the Trees

These examples illustrate that despite economic and technological change in forestry, an enduring imaginary of masculinity pervades the industry. This imaginary then influences where and how women and men are employed in the forest sector. We pose questions about the aims and activities of forestry that attempt to challenge dominant masculine norms and consider the implications of a male-dominated workforce for the forestry sector to adapt to climate change:

Why is forestry in boreal ecosystems still defined by cutting trees and not by planting trees?
How does this *imaginary* impact on how women and men identify themselves with forestry?

These questions are highly relevant when we consider that reforestation has been a core activity in Swedish forestry for more than a century. A review of the Swedish situation reveals a somewhat different trajectory around tree planting than in North America. Since the advent of the first modern forestry act in 1903, it has been compulsory to reforest land that has been clear-cut, and reforestation by planting has been the dominant method since the 1950s (Enander, 2007). Prior to that period, great efforts were made by public and private organizations to reforest large areas that had been deforested because of grazing and firewood chopping (Enander, 2007). Thus, from a legal and policy point of view, and also from a business perspective, tree planting could be regarded as both a profitable investment (assuming revenues from future harvesting) and a prerequisite for timber harvesting, i.e., an integrated and indispensable activity of forestry. Yet, the status of tree planting and tree planters is inferior to that of harvesting and transporting timber. The forestry imaginary, therefore, appears to be colored by a principle that the closer you get in time and space to a full-grown tree (timber), and thus the harvest, the more valuable the associated

work. This, in turn, can be understood by the dominant forest economy approach, in which a log represents income in the near future, whereas a seedling represents a cost that hopefully will pay off in the long run.

The organization of tree planting in Sweden presents both similarities and differences with planting and harvesting. Major similarities are the employment of contractors and the piece-rate system, whereby payment is provided according to performance (trees planted). A key difference is that whereas planting is still carried out manually, harvesting is almost all mechanized, completed by operators with harvesters and forwarders (Ager, 2014). Hence, planting remains hard, physical work. Until two decades ago, local young women and men were recruited for this summer seasonal work, but recently they have been replaced by migrant workers from Eastern Europe who are considered to be used to hard physical labor (Ager, 2016). In this regard, there are apparent similarities with the working conditions of the logging camps a century ago, and it would be very interesting to study (and compare with Johansson, 1994) how masculinity is constructed in this context.

In Sweden, while there are stories of *logger heroes* that connect logging with stereotypical male characteristics, the same cannot be said for *planting heroes*. Given the higher proportion of women in tree planting, does the lower status of tree planting reflect the perceived qualifications for undertaking the work? For example, no specific education or previous training is required for individuals to be hired for forest planting, whereas there have always been educational requirements for machine operators. To work as a harvest operator in Sweden is considered a highly qualified task because of the range and number of decisions that the operator must make, and according to Nordin (2006), some operators make the comparison with that of a combat pilot. This reference not only reflects the notion of the interacting stressors of the work but also expresses the construction of masculinity and the gendering of forestry work. According to our knowledge, there are no similar metaphoric references related to the forest planter, and very little research has been carried out regarding regenerating work (force) as compared with harvesting work (force). Without negating the difficulties of logging work, we also note that perceptions of the necessary qualifications for and intensity of particular work tasks are also gendered.

In Canada, tree planting also has gender dimensions, although these dimensions play out somewhat differently. As in Sweden, tree planting is undertaken through independent contractors and employs a large proportion of women, although workers are not necessarily local or rural. Young people, typically from middle-class or upper-class socioeconomic backgrounds, take up the physical and precarious work during summer months, often while pursuing higher education (Ekers & Farnan, 2010; Sweeney, 2009a). The volume of research about tree planting is a minute fraction of that about timber harvesting (Sweeney, 2009b), leading Sweeney (2009b, p. 47) to assert that “researchers have all but ignored the workers who plant the trees.” Research that touches on gender in tree planting explains that the proportion of women planters is higher than for the forest sector as a whole; however, specific numbers for the sector are not provided. Current estimates by promotional outlets suggest that at least 30% of tree planters are women, and the proportion

is growing (Silviculture Canada, 2022). Nevertheless, researchers also suggest that tree planting activities reinforce gendered identities of the larger forestry culture. For example, researchers have explained how women have negotiated their roles within a masculine-dominated industry, aimed to work like men, and addressed explicit forms of gender-based discrimination and sexual objectification and even violence (e.g., Long, 2021; Main, 2009). While the findings of Main's research may appear dated, current news reports and research related to gender-based violence in tree planting worksites suggest that objectification of women tree planters remains significant today (Long, 2021; Trumpener, 2020).

The overall lack of workforce research on tree planting in boreal forestry (including gender-disaggregated data) in both Sweden and Canada means that questions relating to how the status of tree planting impacts how women and men identify themselves with forestry cannot be answered. However, the theories introduced above can guide us to make assumptions, set up hypotheses, specify research questions, search for "hidden" data, and interpret our findings.

These reflections might also shape the readiness of the forest sector to adapt to climate change. *What are the implications of the forestry imaginary for the sector's ability to adapt to climate change?* Despite legislation and policy commitments to gender equality in Canada and Sweden, the forest sectors in both countries continue to limit the engagement of women in forestry work and management decisions. For example, a recent Canadian report used census data to explain that "in 2016 women occupied 17% of the jobs in Canada's forest sector. This is an improvement over 1996 but maintaining the same rate of change suggests that it would take another 200 years to reach parity" (Wyatt et al., 2021, p. 1). The proportion of women working in decision-making positions is even lower. The minimal representation of women (and of Indigenous and other racialized peoples) is coupled with how forest management is viewed as a highly technical exercise whereby forest companies are granted licenses to meet annual harvesting targets. As detailed above when describing *management masculinity*, such technical expertise and narrow focus have been demonstrated in both Canada and Scandinavia to be characteristics of a masculine enterprise (Brandth & Haugen, 2005; Reed, 2003b), effectively restricting who is deemed to have appropriate expertise to contribute to management decisions. This narrow problem formulation and assessment of appropriate expertise may limit the capacity of the sector to adapt to rapidly changing circumstances. For example, the demands to assess the vulnerabilities associated with climate change and to determine adaptation or mitigation strategies are urgent. Yet, criticisms have been leveled at the pace of adaptation in both countries. In Sweden, for example, following a study involving 15 forest organizations across Sweden's forest sector, Andersson and Keskitalo (2018) remained pessimistic about the capacity of the sector to adapt, suggesting that "business-as-usual remains the logical choice in Swedish forestry" (p. 75) for the near future. Similarly, Andersson et al. (2017) provide a long list of social and institutional barriers to taking up bold climate adaptation measures (particularly those that might not conform to the present economic logic), including a lack of relevant expertise and alternative management practices for forest owners. In Canada, Johnston and Hesseln (2012) also found several institutional and financial

barriers related to tenure and regulations and investment that limited the capacity of forest managers to adapt to climate change. A more recent review by Williamson et al. (2019) is more optimistic but indicates that adaptation measures related to policy, practices, and approaches remain in their early stages. They argue that to enable adaptation would require (1) engaging with Indigenous Peoples through collaboration; (2) revising institutions such as regulations, tenure structures, and definitions of sustainable forest management; (3) improving communication between scientists and decision-makers; (4) raising awareness within and beyond forest companies; (5) and providing resources and leadership for local innovation and experimentation.

Interestingly, in quite a separate literature, research has found that a more diverse workforce is more likely to embrace innovation and change. For example, a recent study by McKinsey & Company (2020, p. ii) argued that “diverse teams have been shown to be more likely to radically innovate and anticipate consumer needs and consumption patterns—helping their companies to gain a competitive edge.” In Canada, at least, there is a change in the proportions of women seeking forestry training, at least within the professional job categories. For example, the proportion of women graduating from professional programs in forestry was 48% in 2020 (Wyatt et al., 2021). If coupled with strategies that encourage the retention of women and a rethinking of the managerial models of forestry, improvements in equity, diversity, and inclusion around decision-making tables may also enhance the capacity of the forest sector to adapt to climate change.

22.6 Conclusions

In this chapter, we have reviewed research from Canada and Scandinavia that has demonstrated that although the nature of forestry work has changed through economic and technological restructuring, the significance of gender has not diminished. Rather than reducing the salience of *masculinity*, restructuring has resulted in the multiplication of masculine norms and ideals, with different forms of knowledge (practical, technological, administrative) being reimagined through a masculine lens. New forms of masculinity have emerged, and yet an overall *imaginary* remains that continues to valorize timber production over a broader suite of possible forestry activities. Furthermore, despite multiple opportunities to engage and employ women, the industry remains remarkably male dominated and women continue to be subjected to discrimination, sexualization, and harassment (Johansson et al., 2018, 2019; Long, 2021; Trumpener, 2020). These findings are true in Canada and Sweden, two countries where boreal forests dominate and where governments pride themselves on supporting gender equality.

There is hope that public demands to address climate change and embrace a broader agenda for forest management are starting to be realized through certification requirements and policy changes. Nevertheless, if we continue to promote *suitable men* in the roles of producers, decision-makers, and managers, women will remain

grossly underrepresented in these positions, and the forest industry's capacity to adapt and innovate may be stifled.

This is no time for complacency. Feminist theories and empirical analyses to date have unpacked the assumptions of this imaginary and have documented material consequences for the sector and the workers who labor in it. While feminist scholars have discovered an extensive literature filled with male *heroes*, they have not found a corresponding literature about women who work in the sector. While the value of representing individuals as heroes and heroines may be disputed, the task of documenting the critical roles played by women through the phases and levels of industrial practice is just beginning. Perhaps even more necessary is the need to open the sector to women in roles that can help shape the industry's capacity to adapt to urgent priorities such as climate change. By combining feminist theories with stories of women who work in different aspects of forestry, we can render women's expertise and contributions to the forest sector more visible, while also addressing some of the fundamental questions related to what forests produce and how forest companies can adapt to climate change. We hope that readers of this chapter also begin unpacking assumptions that have yet to be questioned. We invite you to use our reflections to generate more fundamental questions of your own and pursue a deeper agenda with respect to gender and forestry across boreal landscapes.

References

- Ager, B. (2014). *The humanisation and rationalisation of forestry work, from 1900 and onwards* [in Swedish]. Ph.D. thesis, Luleå University of Technology.
- Ager, B. (2016). *Structural and organisational renewal of forestry operations-history and future*. Department of Forest Biomaterials and Technology, Swedish University of Agricultural Sciences.
- Andersson, E., & Keskitalo, E. C. H. (2018). Adaptation to climate change? Why business-as-usual remains the logical choice in Swedish forestry. *Global Environmental Change*, 48, 76–85. <https://doi.org/10.1016/j.gloenvcha.2017.11.004>.
- Andersson, E., Keskitalo, E. C. H., & Lawrence, A. (2017). Adaptation to climate change in forestry: A perspective on forest ownership and adaptation responses. *Forests*, 8(12), 493. <https://doi.org/10.3390/f8120493>.
- Bardekjian, A., Nesbitt, L., Konijnendijk, C., et al. (2018). Girls talk trees: Examining barriers to women in arboriculture and urban forestry across Canada and the United States. In *World forum on urban forestry: Changing the nature of cities*. Mantua
- Barnes, T. J., Hayter, R., & Hay, E. (1999). "Too young to retire, too bloody old to work": Forest industry restructuring and community response in Port Alberni, British Columbia. *The Forestry Chronicle*, 75(5), 781–787. <https://doi.org/10.5558/tfc75781-5>.
- Baruah, B. (2018). *Barriers and opportunities for women's employment in natural resources industries in Canada*. Ottawa: Natural Resources Canada.
- Brandth, B., & Haugen, M. S. (2000). From lumberjack to business manager: Masculinity in the Norwegian forestry press. *Journal of Rural Studies*, 16(3), 343–355. [https://doi.org/10.1016/S0743-0167\(00\)00002-4](https://doi.org/10.1016/S0743-0167(00)00002-4).
- Brandth, B., & Haugen, M. (2005). Text, body and tools: Changing mediations of rural masculinity. *Men and Masculinities*, 8, 148–163. <https://doi.org/10.1177/1097184X05277716>.

- Buchanan, A., Reed, M. G., & Lidestav, G. (2016). What's counted as a reindeer herder? Gender and the adaptive capacity of Sami reindeer herding communities in Sweden. *Ambio*, 45, 352–362. <https://doi.org/10.1007/s13280-016-0834-1>.
- Canadian Council of Forest Ministers (CCFM). (2003). *Defining sustainable forest management in Canada: Criteria and indicators*. Ottawa: Canadian Council of Forest Ministers, Natural Resources Canada.
- Coen, S. E., Oliffe, J. L., Johnson, J. L., et al. (2013). Looking for Mr. PG: Masculinities and men's depression in a northern resource-based Canadian community. *Health & Place*, 21, 94–101. <https://doi.org/10.1016/j.healthplace.2013.01.011>.
- Commission on Resources and Environment. (1994). Vancouver Island land use plan. Victoria: *BC commission on resources and environment*.
- Cox, D., & Mills, S. (2015). Gendering environmental assessment: Women's participation and employment outcomes at Voisey's Bay. *Arctic*, 68(2), 246–260. <https://doi.org/10.14430/arctic4478>.
- Doeringer, P. B., & Piore, M. J. (1971). *Internal labor markets and manpower analysis* (p. 214). Lexington: DC Heath & Company.
- Dunk, T. W. (1991). *It's a working man's town. Male working-class culture in northwestern Ontario*. Montréal: McGill-Queen's University Press.
- Ekers, M. (2009). The political ecology of hegemony in depression-era British Columbia, Canada: Masculinities, work and the production of the forestscape. *Geoforum*, 40(3), 303–315. <https://doi.org/10.1016/j.geoforum.2008.09.011>.
- Ekers, M., & Farnan, M. (2010). Planting the nation: Tree planting art and the endurance of Canadian nationalism. *Space and Culture*, 13(1), 95–120. <https://doi.org/10.1177/1206331209358348>.
- Enander, K. G. (2007). *Skogsbruk på samhällets villkor. Skogsskötsel och skogspolitik under 150 år Umeå* [in Swedish]. Umeå: Department of Forest Ecology and Management, Swedish University of Agricultural Sciences.
- Eveline, J., & Booth, M. (2002). Gender and sexuality in discourses of managerial control: The case of women miners. *Gender, Work and Organization*, 9(5), 556–578. <https://doi.org/10.1111/1468-0432.00175>.
- Follo, G., Lidestav, G., Ludvig, A., et al. (2017). Gender in European forest ownership and management: Reflections on women as “new forest owners”. *Scandinavian Journal of Forest Research*, 32(2), 174–184. <https://doi.org/10.1080/02827581.2016.1195866>.
- Food and Agriculture Organization of the United Nations (FAO). (2006). *UNECE FAO team of specialists on gender and forestry: Time for action changing the gender situation in forestry* (p. 186). Rome: Food and Agriculture Organization of the United Nations.
- Gherardi, S., & Poggio, B. (2001). Creating and recreating gender order in organizations. *Journal of World Business*, 36(3), 245–259. [https://doi.org/10.1016/s1090-9516\(01\)00054-2](https://doi.org/10.1016/s1090-9516(01)00054-2).
- Häggström, C., Kawasaki, A., & Lidestav, G. (2013). Profiles of forestry contractors and development of the forestry-contracting sector in Sweden. *Scandinavian Journal of Forest Research*, 28(4), 395–404. <https://doi.org/10.1080/02827581.2012.738826>.
- Hankivsky, O. (2014). *Intersectionality 101*. The Institute for Intersectionality Research & Policy, Burnaby: Simon Fraser University.
- Hayter, R. (2000). *Flexible crossroads: The restructuring of British Columbia's forest economy* (p. 448). Vancouver: UBC Press.
- Hugosson, M. (1999). *Constructing cultural patterns from actors' views on industrial forestry in Sweden: An interpretive study based on assessments of conceptualizations and definitions in organizational culture theory*. Ph.D. thesis, Acta Universitatis Agriculturae Sueciae Silvestria 113 (Swedish University of Agricultural Sciences).
- Johansson, E. (1994). *The free sons of the forests: Masculinity and modernity in forest work of Norrland* [in Swedish]. Stockholm: Nordiska Museet.
- Johansson, K., Andersson, E., Johansson, M., et al. (2019). The discursive resistance of men to gender-equality interventions: Negotiating “unjustness” and “unnecessity” in Swedish forestry. *Men and Masculinities*, 22(2), 177–196. <https://doi.org/10.1177/1097184x17706400>.

- Johansson, K., Andersson, E., Johansson, M., et al. (2020). Conditioned openings and restraints: The meaning-making of women professionals breaking into the male-dominated sector of forestry. *Gender, Work and Organization*, 27(6), 927–943. <https://doi.org/10.1111/gwao.12403>.
- Johansson, M. (2020). *Business as usual?: Doing gender equality in Swedish forestry work organisations*. Ph.D. thesis, Luleå University of Technology.
- Johansson, M., & Ringblom, L. (2017). The business case of gender equality in Swedish forestry and mining—restricting or enabling organizational change. *Gender, Work and Organization*, 24(6), 628–642. <https://doi.org/10.1111/gwao.12187>.
- Johansson, M., Johansson, K., & Andersson, E. (2018). #Metoo in the Swedish forest sector: Testimonies from harassed women on sexualised forms of male control. *Scandinavian Journal of Forest Research*, 33(5), 419–425. <https://doi.org/10.1080/02827581.2018.1474248>.
- Johnston, M., & Hesselin, H. (2012). Climate change adaptive capacity of the Canadian forest sector. *Forest Policy and Economics*, 24, 29–34. <https://doi.org/10.1016/j.forpol.2012.06.001>.
- Kardell, L. (2004). *Svenskarna och skogen* [in Swedish] (p. 303). Jönköping: Skogsstyrelsens förl.
- Lidestav, G. (2001). Does the forest demand men, or will a woman do? [in Swedish]. In B. Liljewall, K. Niskanen, & M. Sjöberg (Eds.), *Kvinnor och jord. Arbete och ägande från medeltid till nutid. Skrifter om skogs-och lanbrukshistoria nr. 15* (pp. 159–173). Lund: Nordiska museets förlag.
- Lidestav, G., & Ekström, M. (2000). Introducing gender in studies on management behaviour among non-industrial private forest owners. *Scandinavian Journal of Forest Research*, 15(3), 378–386. <https://doi.org/10.1080/028275800448011>.
- Lidestav, G., & Nordfjell, T. (2005). A conceptual model for understanding social practices in family forestry. *Small-scale Forest Economics, Management and Policy*, 4(4), 391–408. <https://doi.org/10.1007/s11842-005-0024-7>.
- Lidestav, G., & Sjölander, A. (2007). Gender and forestry: A critical discourse analysis of forestry professions in Sweden. *Scandinavian Journal of Forest Research*, 22(4), 351–362. <https://doi.org/10.1080/02827580701504928>.
- Lidestav, G., Andersson, E., Lejon, S. B., et al. (2011). *Jämställt arbetsliv i skogssektorn* [in Swedish]. Umeå: Swedish University of Agricultural Sciences.
- Lidestav, G., Johansson, M., & Huff, E. S. (2019). Gender perspectives on forest services in the rise of a bioeconomy discourse. In T. Hujala, A. J. Toppinen, & B. Butler (Eds.), *Services in family forestry* (pp. 307–325). Cham: Springer International Publishing.
- Long, J. (2021). *Not so clear cut: Gender-based violence in BC's tree planting industry*. M.A. thesis, University of Victoria.
- Lu, S. L., & Sexton, M. (2010). Career journeys and turning points of senior female managers in small construction firms. *Construction Management and Economics*, 28(2), 125–139. <https://doi.org/10.1080/01446190903280450>.
- Main, C. (2009). *The experiences of women tree planters in northern Ontario*. M.A. thesis, Lakehead University.
- Manning, S. (2014). *A FemNorthNet fact sheet. Feminist intersectional policy analysis: Resource development and extraction framework* (p. 4). Ottawa: Canadian Research Institute for the Advancement of Women.
- Martz, D., Reed, M. G., Brueckner, I., et al. (2006). *Hidden actors, muted voices: The employment of rural women in Canadian forestry and agri-food industries*. Ottawa: Policy Research Fund.
- Mayes, R., & Pini, B. (2014). The Australian mining industry and the ideal mining woman: Mobilizing a public business case for gender equality. *Journal of Industrial Relations*, 56(4), 527–546. <https://doi.org/10.1177/0022185613514206>.
- McKinsey & Company. (2020). *Diversity wins: How inclusion matters* (p. 52). London: McKinsey & Company.
- Mills, S., Dowsley, M., & Cameron, E. (2013). *Gender in research on northern resource development*. Gap analysis report #14. Whitehorse: Resources and Sustainable Development in the Arctic (ReSDA).
- Mills, S. E. (2006). Segregation of women and aboriginal people within Canada's forest sector by industry and occupation. *The Canadian Journal of Native Studies*, 26, 147–171.

- Mills, S. E. (2007). *Women's experiences and representations of diversity management and organizational restructuring in a multinational forest company*. Ph.D. thesis, University of Saskatchewan.
- Natural Resources Canada (NRC). (2020). 8 facts about Canada's boreal forest. Ottawa: Natural Resources Canada. <https://www.nrcan.gc.ca/our-natural-resources/forests-forestry/sustainable-forest-management/boreal-forest/8-facts-about-canadas-boreal-forest/17394>.
- Navarro-Astor, E., Román-Onsalo, M., & Infante-Perea, M. (2017). Women's career development in the construction industry across 15 years: Main barriers. *Journal of Engineering, Design and Technology*, 15(2), 199–221. <https://doi.org/10.1108/jedt-07-2016-0046>.
- Nordin, M. H. (2006). *'They use to compare it to a fighter pilot': Notions of work environments and risks in forestry machine work* [in Swedish]. Ph.D. thesis, Umeå University.
- Östlund, L., Öbom, A., Löfdahl, A., et al. (2020). Women in forestry in the early twentieth century—new opportunities for young women to work and gain their freedom in a traditional agrarian society. *Scandinavian Journal of Forest Research*, 35(7), 403–416. <https://doi.org/10.1080/02827581.2020.1808054>.
- Parmenter, J. (2011). Experiences of Indigenous women in the Australian mining industry. In K. Lahiri-Dutt (Ed.), *Gendering the field: Towards sustainable livelihoods for mining communities* (pp. 67–86). ANU Press.
- Preston, V., Rose, D., Norcliffe, G., et al. (2000). Shift work, childcare and domestic work: Divisions of labour in Canadian paper mill communities. *Gender, Place and Culture*, 7(1), 5–29. <https://doi.org/10.1080/09663690024843>.
- Proulx, G., Beaudoin, J.-M., Asselin, H., et al. (2020). Untapped potential? Attitudes and behaviours of forestry employers toward the Indigenous workforce in Quebec, Canada. *Canadian Journal of Forest Research*, 50(4), 413–421. <https://doi.org/10.1139/cjfr-2019-0230>.
- Quam-Wickham, N. (1999). Rereading man's conquest of nature. *Men and Masculinities*, 2(2), 135–151. <https://doi.org/10.1177/1097184x99002002002>.
- Reed, M. G. (2003a). Marginality and gender at work in forestry communities of British Columbia, Canada. *Journal of Rural Studies*, 19(3), 373–389. [https://doi.org/10.1016/s0743-0167\(03\)00021-4](https://doi.org/10.1016/s0743-0167(03)00021-4).
- Reed, M. G. (2003b). *Taking stands*. Vancouver: UBC Press.
- Reed, M. G. (2008). Reproducing the gender order in Canadian forestry: The role of statistical representation. *Scandinavian Journal of Forest Research*, 23(1), 78–91. <https://doi.org/10.1080/02827580701745778>.
- Richardson, K. (2008). *A gendered perspective of learning and representation on forest management advisory committees in Canada*. Master of Natural Resources Management, University of Manitoba.
- Ringblom, L., & Johansson, M. (2020). Who needs to be 'more equal' and why? Doing gender equality in male-dominated industries. *Equality, Diversity and Inclusion: An International Journal*, 39, 337–353. <https://doi.org/10.1108/EDI-01-2019-0042>.
- Ross, M. (1997). *A history of forest legislation in Canada 1867–1996*. Occasional Paper No. 2. Calgary: Canadian Institute of Resources Law.
- Sametinget (Sami Parliament). (2020). *Sametinget*. Giron/Kiruna: Sametinget.
- Sandström, P. (2015). *A toolbox for co-production of knowledge and improved land use dialogues—the perspective of reindeer husbandry*. Ph.D. thesis, Swedish University of Agricultural Sciences.
- Sherry, E., Halseth, R., Fondahl, G., et al. (2005). Local-level criteria and indicators: An Aboriginal perspective on sustainable forest management. *Forestry*, 78(5), 513–539. <https://doi.org/10.1093/forestry/cpi048>.
- Silviculture Canada. (2022). Tree planting: It's a tough job but somebody has to do it. Silviculture Canada. Retrieved March 30, 2022, from <http://www.silviculturecanada.ca/treeplanting.html#:~:text=What%20does%20a%20typical%20Canadian,becoming%20more%20balanced%20every%20year>.
- Skogsstyrelsen. (2020). *Sysselsättning I Skogsbruket*. Jönköping: Skogsstyrelsen.
- Skogssverige. (2020). *Skogen & ekonomin*. Stockholm: Skogssverige.

- Smith, L. (2013). Working hard with gender: Gendered labour for women in male dominated occupations of manual trades and information technology (IT). *Equality, Diversity and Inclusion: An International Journal*, 32(6), 592–603. <https://doi.org/10.1108/edi-12-2012-0116>.
- Steger, M. B., & James, P. (2013). Levels of subjective globalization: Ideologies, imaginaries, ontologies. *Perspectives on Global Development and Technology*, 12(1–2), 17–40. <https://doi.org/10.1163/15691497-12341240>.
- Sveriges Riksdag. (2008). *Regeringens proposition 2007/08:108*. En skogspolitik i takt med tiden Prop., Stockholm.
- Swedish University of Agricultural Sciences (SLU). (2015). *Plan för lika villkor 2015–2017–Fakulteten för skogsvetenskap [Equality plan for the Faculty of forest science 2015 – 2017]. Steering document*. Uppsala: Swedish University of Agricultural Sciences.
- Swedish University of Agricultural Sciences (SLU). (2019). *Forest statistics 2019 official statistics of Sweden*. Umeå: Swedish University of Agricultural Sciences.
- Sweeney, B. (2009a). Sixty years on the margin: The evolution of Ontario's tree planting industry and labour force: 1945–2007. *Labour/Le Travail*, 63, 47–78.
- Sweeney, B. (2009b). Producing liminal space: Gender, age and class in northern Ontario's tree planting industry. *Gender, Place and Culture*, 16(5), 569–586. <https://doi.org/10.1080/09663690903148432>.
- Trumpener, B. (2020). Accounts of sex assaults in B.C. tree planter camps 'deeply disturbing' CBC News, January 31, 2020, Prince George.
- Walker, H. M., Culham, A., Fletcher, A. J., et al. (2019). Social dimensions of climate hazards in rural communities of the global north: An intersectionality framework. *Journal of Rural Studies*, 72, 1–10. <https://doi.org/10.1016/j.jrurstud.2019.09.012>.
- Waring, M. (1988). *If women counted*. San Francisco: Harper & Row.
- Westin, K., Eriksson, L., Lidestav, G., et al. (2017). Individual forest owners in context. In E. Keskitalo (Ed.), *Globalisation and change in forest ownership and forest use: Natural resource management in transition* (pp. 57–95). London: Palgrave Macmillan.
- Wide, R., & Nordin, M. H. (2019). *Jämställd skogssektor*. Jönköping: Skogsstyrelsen.
- Williamson, T. B., Johnston, M. H., Nelson, H. W., et al. (2019). Adapting to climate change in Canadian forest management: Past, present and future. *The Forestry Chronicle*, 95(2), 76–90. <https://doi.org/10.5558/tfc2019-015>.
- Wyatt, S., Reed, M., Feng, X., et al. (2021). *Evidence on diversity in Canada's forest sector* (p. 43). Ottawa: Forest Products Association of Canada and Canadian Institute of Forestry.

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