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Arbetsrapport 330 2011

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Tfn: 090-786 81 00

ISSN 1401–1204
ISRN SLU–SRG–AR–330–SE

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Utgivningsort: Umeå
Utgivningsår: 2011

ISSN 1401–1204
ISRN SLU–SRG–AR–330–SE

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SAMMANFATTNING

I Sverige finns ca 228 000 enskilt ägda fastigheter med skog, fortsättningsvis kallade familjeägda skogsgårdar. Potentialen för såväl konventionella verksamheter som utveckling av nya verksamheter är betydande vilket gör den familjeägda skogsgården till en värdefull resurs för utvecklingen på landsbygden. Traditionella uppfattningar om ägande och skötsel, i samverkan med existerande föreställningar om kön, kan dock hämma utvecklingen av nytt företagande. På motsvarande sätt som arbetsmarknaden generellt sett är könssegregerad, med många kvinnor inom serviceyrken som vård och utbildning, har få kvinnor etablerat sig inom traditionellt virkesbruk. Detta till trots ägs många familjeskogsbruk helt eller delvis av kvinnor.

Aktuella socioekonomiska trender medför en ökande efterfrågan på produkter och tjänster som inte är direkt kopplade till ett traditionellt skogsbruk. I det avseendet utgör familjeskogsgården en resurs som ännu inte utnyttjas till fullo. Det stora antalet kvinnliga skogsägare antas därmed kunna främja affärsmöjligheter med skogsgården som bas och således ytterligare bidra till utvecklingen av landsbygden. Syftet med denna studie är därför att undersöka förekomsten av existerande och potentiella affärsverksamheter med den familjeägda skogsgården som bas. Dessutom undersöks i vilken utsträckning som kvinnor förekommer som operativ ledare i olika verksamheter.

Genom en analys av data från LRF:s medlemsdatabas avseende existerande och potentiella verksamheter som drivs av skogsägande medlemmar, prövar vi vårt antagande att ju mindre traditionell en viss verksamhet är, desto större är andelen kvinnor som utövar den. Studiens resultat bekräftar vårt antagande. Relativt få kvinnor återfinns som operativa ledare inom traditionella verksamheter som exempelvis skogsentreprenad och träförädling. Andelen kvinnor som driver verksamheter som i mindre grad är traditionella, som exempelvis verksamheter inom turism, är högre. ”Hälsa” är den enda verksamhet där kvinnor är har en högre representation än deras andel som ägare till skogsgårdar. Avseende upplevd möjlighet att utveckla skogsgårdens existerande eller potentiella verksamheter visar att kvinnor är optimistiska i fråga om utsikterna att kunna utveckla företagandet med skogsgården som bas.

KEYWORDS: kön, medlemundersökning, alternativa skogsprodukter och -tjänster, Sverige

1. INTRODUCTION

1.1 Problem statement and aim of the study

Swedish forests comprise a valuable natural resource that supports the wood and fibre industry. In addition, forests are important to individual private forest owners who own approximately 50 % of the total forest land in Sweden (Skogsstyrelsen 2009). Forest utilization in Sweden has also had (and continues to have) a major impact on the landscape and local economies (Kardell and Wennerberg 2004; Kardell et al. 2003). In pre-industrial farming societies, forests provided a valuable component of the household economy, contributing both to the self-sufficiency of the households and the production of commercial products. Even today, the family forest farm (hereafter abbreviated FFF[1]) provides considerable economic and social benefits for their owners, ranging from a purely emotional attachment to the forest to its strict use as an economic resource (Lidestav and Nordfjell 2005). There are many potential business opportunities for forest owners aiming to increase the value of their forests. Furthermore, as a result of social and economic developments, the environmental, biological and recreational aspects of forestry have become increasingly important, the recreational aspects being particularly significant in more densely populated areas (Janse and Ottitsch 2005). Consequently, there are many additional opportunities for forest owners to exploit multiple uses of their FFFs through the development of commercial activities other than traditional timber production. For example, hunting and fishing tourism has considerable potential to support the sustainable management of fish and wildlife populations, whilst providing economically viable activities based on existing resources. Such activities also allow forest owners to diversify their income sources (Mattsson et al. 2007). These alternative commercial opportunities are not only important for individual FFFs, but they can also help in the redevelopment of rural areas, many of which have experienced substantial population declines over the last fifty years, resulting in reduced public services and employment opportunities (Isacson 2009). However, in order to develop FFFs and the rural areas where they are located, more information is needed on the present business activities conducted by FFFs and the potential viability of further opportunities.

One problematic aspect of rural population declines in Sweden is that more women are permanently moving away from rural areas than men, generally to gain an education or seek employment, particularly in service professions (Statistics Sweden 2010b). However, improvements in gender equality in Swedish society have increased the representation of women in most contexts, and many current forest owners are women. According to official statistics, 38 % of all private forest owners are women (Skogsstyrelsen 2009). Nevertheless, it is clear that women are less socialized into traditional family forestry than men (Brandth et al. 2004; Lidestav and Nordfjell 2005), although many female forest owners are challenging the perception that forest management is only suitable employment for men (Lidestav 2010). In

[1] The term *family forest farm* (FFF) is used here since the study focuses on private forests owned and managed within families (cf. the use of the term in Lidestav and Nordfjell, 2005).

addition, the gender order, which is a feature of traditional forestry (ibid.) has reduced or changed in response to the emergence of new business practices. Therefore we hypothesise that women are more likely to develop FFF-based businesses that do not involve traditional activities, particularly novel business activities such as eco-tourism and 'green care' or 'green rehabilitation' (i.e. exploitation of the medical rehabilitation potential of human involvement with the natural world; (Nordh et al. 2009). Such activities may be an easier point of entry for female forestry owners looking for income opportunities in rural areas, than what traditional forestry businesses would be.

If our hypothesis is correct, female FFF-owners may be more involved in non-traditional activities, and to perceive more opportunities in them, than men. Therefore, the presented study examines differences in current and potentially envisaged business activities between FFFs where the operations managers are men and women. In addition to presenting the findings they are discussed in relation to published theories relating to family forestry as a social practice, including gender and rural development issues.

1.2 Private forests in Sweden

Currently there are approximately 330 000 private forest owners and 228 000 FFFs in Sweden (Skogsstyrelsen 2010). The productive forest land on these FFFs has a market value of approximately 282 billion SEK and provides the Swedish forestry industry with 40-50 million m^3 of round wood per year (Ibid). Approximately half of these forest owners live permanently on their forest farm, but the number of owners living away from their farm has risen in recent years (Lidestav and Nordfjell 2002). The average age of a Swedish forest owner is 53 years and the average size of a forest holding is 55 hectares (Ibid.) . Most forest farms (64 %) have been purchased, gifted or inherited from parents or relatives. It is increasingly common for a forest to have multiple owners or for forests to be owned by more than one household. Many forest owners have acquired the knowledge of how to manage their forest from their fathers, or are self-taught. Most FFF owners consider themselves as the main person responsible for the overall decision-making processes related to activities and day-to-day operations on their farms. The level of self-employment is high, especially for tasks such as planting, clearing and dealing with wood buyers (Lidestav and Nordfjell 2005).

While FFFs produce a significant amount of timber in Sweden, the forest is only a minor source of supplementary income for most FFF-households (Törnqvist 1995). However, the (generally marginal) economic value of forests for households may not be the primary reason for owning the forest. Instead, it might provide a certain livelihood or lifestyle choice, since the FFF represents a physical space with strong social, cultural and economic values. Indeed, typically the primary objective of Swedish forest owners is to preserve and develop the forest land (Lönnstedt 1997), and an FFF can be regarded as a project spanning multiple generations, providing a key link connecting past and present owners (Törnqvist 1995).

1.3 Family forestry as a social practice

As in human interactions generally, private forest ownership is affected by the relationships between individuals and their relationships with the society in which they live. Lidestav & Nordfjell (2005) developed a conceptual model for understanding the social practice of family forestry. The model incorporates six concepts or institutions: property rights, inheritance, marriage, work, taxes and gender. These model components surround the land and are connected by social practices that form a 'web' (Figure 1). *Land* is the crucial component as it is the basic physical resource that supports the family forest. With the ownership of land follows *property rights*. The concept of property rights comprises the rights and regulations prescribed by law or common practice. As land is long-lasting relative to the lifespan of humans, the transfer of land to successive generations is very important and provides the next concept for the web model; *inheritance*. *Marriage* has an important impact on forest ownership. Marriage can join property from two families together and, assuming the marriage results in children, often leads to the land being transferred to one or more of the children and its passage to successive generations. The concept of g*ender*, representing the social and cultural aspects of being a man or woman, is also included in the model because differences may be found between male and female forest owners, which may include variations in property size and unequal ownership distribution.
Taxes are an additional component of the model. Besides constituting a system with a forest policy purpose the prevailing taxation system affects the transfer of private forest land since the level of taxation depends on whether the forest land is transferred as a gift, acquired within the family, or purchased. Finally, *work* has to be conducted in the forest holding in order to obtain revenue from the invested capital, or to increase the value of the forest. Work generally refers to self-employment for the forest owner; including decision-making and practical work by the owner and the family members.

As a whole, the concepts and institutions connected by the social practice may be visualized as a web, depicting the social structure of family forestry and the links between the included concepts and institutions. The model illustrates how the institutions affect forest owners' actions, identities and social practices. It has been applied to contemporary family forestry in Sweden by Lidestav (2010) and Lidestav and Nordfjell (2005), who have shown its utility as a theoretical framework from which hypotheses can be generated and for interpreting data related to family forestry in countries with social conditions such as those in Sweden.

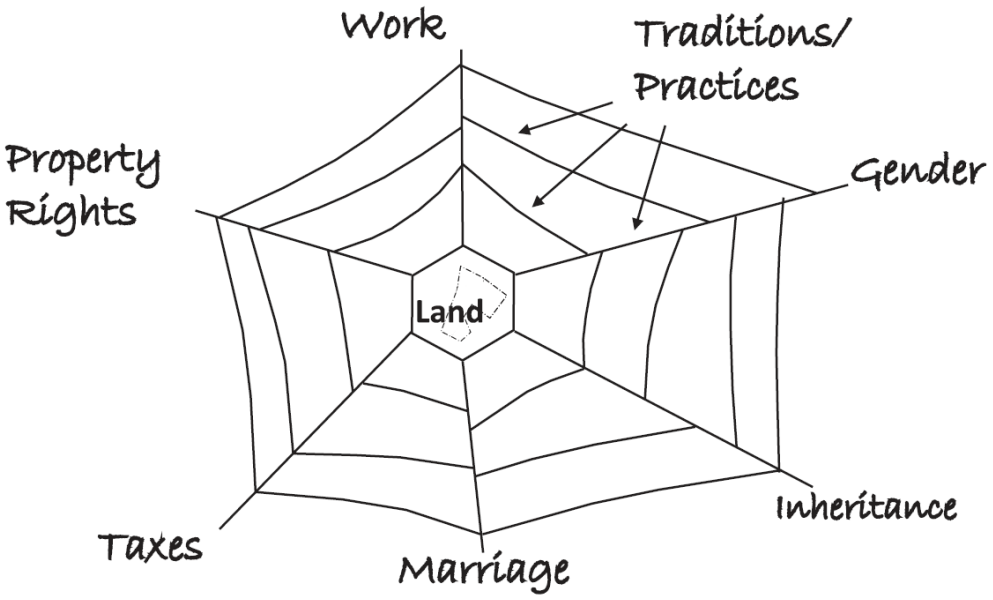

Figure 1. A conceptual model for understanding social practices in family forestry (Lidestav and Nordfjell 2005). "Self employment" is interpreted here as "work".

1.4 Women in Swedish forestry

The traditional gender order has long affected Swedish family forestry, and this tradition continues to the present day (Lidestav 2008). Although the proportion of female forest owners has increased considerably in recent decades, forestry is still largely perceived as a masculine activity, even though: 1) forests can now be largely managed from a desk and 2) practical forest work has become easier through the use of machinery (Törnqvist 1995). The persistent image of the forest owner has long been the middle-aged or older man, and women's presence in forestry has often been explained by the support of male mentors (Lidestav and Sjölander 2007). Furthermore, according to Torstensson (2009), male forest owners rely mostly on their own abilities and skills for managing the forest farm, while women rely to a greater extent on forestry officials or consultants.

Another important social element is that there is a long, persisting tradition of men inheriting the family farm. Generally, parents actively select one of their sons to become the heir of the farm, encouraging him from an early age to actively participate in the work, thereby increasing his interest and justifying, through the invested time, his subsequent inheritance of the farm; (Flygare 2001). The role of women in agriculture on the farm has generally been as a replacement - the standard applied was that women could only take on male tasks when no man was available to undertake them (ibid.). In addition, women only rarely participated in forest work, with the exception of collecting and chopping firewood, a task that did not have high status among men (Johansson 2000).

From a historical perspective, it is only relatively recently that married women have had equal ownership and management rights. Indeed, a law that was not abolished until 1950 held that any real estate owned by a woman who was married before 1920 was to be managed by the male spouse. Hence, many current forest owners have grown up in families where a woman's right to manage the family forest was not taken for granted (Lidestav et al. 2000), and it seems reasonable to assume that this perception still affects women's willingness and ability to manage FFFs (S:son-Wigren 2004). In support of this assumption, the proportion of women who are actively involved in forestry activities is low, especially relative to the ownership proportions of men and women (Lindroos 2005). This difference is less pronounced for some forest management activities, such as planting and pre-commercial thinning, while it is more pronounced for other activities such as cutting and wood extraction.

Despite the lingering effects of the traditions described above, in recent decades there have been marked shifts in gender-related aspects of forestry. In the last 30 years female forest ownership has nearly doubled, from approximately 20 % in 1976 to 38 % in 2008 (Lidestav 2008; Skogsstyrelsen 2009). Furthermore, gender division of labour fosters solidarity among women (Connell 1987), and the increase in the number of female owners has been accompanied by the expansion since the 1990s of networks for female forest owners (Arvidsson et al. 2007) In addition, many women have chosen not to wait for other changes, but have led them. In contrast to Flygare's (2001) findings in a study of Swedish farmers in the 20th century, Lidestav (2010) found that current female forest owners are challenging the supposed male-only roles in forest management by: actively taking over the family farm,

competing with male relatives, actively engaging in forest management and/or setting new terms for the operations at the FFF (ibid.).

1.5 Family farming and forestry in a rural Swedish context

From a rural development perspective, family farms in forested areas contain a large resource, not only trees but also other types of land, buildings, housing and other material assets (Törnqvist 1995).
Because of owner knowledge and enterprise capability, FFFs are a valuable source for further development and the adaptation of rural communities.

The use of the term 'rural' is highly dependent on how human activities are organized in the area. Forestry and agriculture provide means of livelihood, but they also involve sustainably managing natural resources that provide the foundation for all social and economic activity (Westholm and Waldenström 2008). Thus, a comprehensive perspective of rural development should include a vision of a viable and sustainable countryside with job opportunities, good services and a pleasant environment. These conditions can be achieved through the coordination of resources between diverse sectors of society and the development of small-scale and locally adapted production systems (Turunen 2004). In a political context, rural development is strongly associated with preventing or reducing population declines, i.e. encouraging people to stay in the countryside (Myrdal 2008b). However, from a research perspective, rural development doesn't necessarily require the maintenance of a certain number of resident inhabitants, but instead should focus on the adaptation of society to changing conditions (Myrdal 2008a).

The development of society has changed the relationship between rural and urban areas. Today, most people in western countries live in densely populated cities, and this urbanization has affected people's perceptions of rural areas. The living conditions in urban environments tend to be considered normal, while rural areas are often seen as poor, deprived areas, where opportunities and long-term resources are not fully or appropriately exploited. The political debate in rural communities also tends to focus on the negative issues rather than the possibilities (Westholm and Waldenström 2008)

Due to the physical, social and conceptual transformations in Swedish society that have followed industrialization, and the accompanying urbanization, the conditions for the population in the rural areas of Sweden have changed dramatically. As a result, rural areas, especially in the northern and inner parts of Sweden, are facing difficult challenges. Rural livelihoods have fundamentally changed over the past 50 years (Isacson 2009). As in many other western countries, industrialization has encouraged people to move from the countryside to the cities. In 1900, 4 million of the 5.1 million Swedish population lived and worked in rural areas (Statistics Sweden 2010b). This pattern has now reversed, and approximately 2 million of the 9 million Swedish people currently live in rural areas (Westholm and Waldenström 2008). Reduced employment due to rationalization and the mechanization of

agriculture and forestry have not, despite the growth of the tourism and service sectors, been balanced by a corresponding expansion of other industries or businesses (Isacson 1995)

To understand the changes in FFF activities over the last century, a summary of the events that have changed the conditions for forest farm owners is required.

Swedish forests have always been an important resource for rural livelihoods. In pre-historic and early historical times, the most important function of the forest for human societies was the provision of food, shelter and fuel for heating and cooking. The forest provided both farmers and their livestock with an abundant food resource, while the wood was used for a variety of purposes. In combination with the development of technology, wood products became more important trade commodities (Kardell and Wennerberg 2004; Kardell et al. 2003). People in rural areas developed a way of life characterized by great adaptability to change, flexibility in the utilization of natural resources for subsistence, and the ability to create products for trade or for cultural expression (Johansson 2002). This diverse system for household subsistence was common in the past. A modern term for this multiple use of resources is multifunctionality, which refers to the provision of numerous functions or services from a limited area or single farm (Myrdal 2008b).

In comparison with the plains of southern Sweden, agriculture was a less essential part of the household economy in the forest-dominated areas of the northern and inner parts of Sweden. In these areas, cattle breeding, hunting and fishing were widely practiced, highlighting the importance of forest land (Kardell and Wennerberg 2004; Kardell et al. 2003; Persson 1995). For rural populations, the pre-industrial household economy was complex and diverse activities were carried out at different times during the year. Households were very flexible and all potential opportunities were exploited (Johansson 2002).

In the 19th century the demand for sawn timber increased, especially from foreign countries, resulting in the establishment of large sawmills on the coast of northern Sweden. By the turn of the following century, the demand for forest raw materials increased further through increased demand from the pulp and paper industries. This in turn resulted in the development of a modernized, large-scale forestry system in Sweden (Kardell and Wennerberg 2004). In the rural areas, the greater value and exploitation of the forest land enhanced employment opportunities and income from timber sales, to the benefit of both the landowners and their employees (Törnqvist 1995).

In the 1950s, rationalization and mechanization of both agriculture and forestry began to intensify. The forestry companies mechanized forest work and introduced full-year employment opportunities (Törnqvist 1995). Until this point, the rural areas had been labour-intensive production landscapes, but henceforth they began to be partially orientated towards leisure activities (Isacson 2008).The final transformation of Sweden from a farming society to an industrial society changed people's lives in rural areas. The previous customary organization of work on the multifunctional farm was often replaced by half or full-time employment away from the farm (Lindgren et al. 2000). Both agricultural and forestry

policies promoted a rapid transition to large, rationally managed properties (Isacson 2009). However, while agricultural management was mechanized and rationalized in most areas, private family forests were never subjected to any rationalization in terms of size. Unlike agricultural land, which for the most part was leased and merged to form larger units, forest land still comprised disconnected patches managed by non-farmers (Törnqvist 1995).
In the early stages of rationalization, the farm workers (non-owners) were primarily those who were forced to find new sources of income, often through employment in industries with higher wages (Morell 2001). By the mid-1900s, the number of full-time farmers also started to decline rapidly (Törnqvist 1995). In general, the farmers either specialized, making heavy investments in production, or they abandoned traditional farming for other employment. Although some women were able to find employment in modern forestry operations, such as planting or cooking for one of the many teams of forestry workers, many women found work within other industries or in the expanding public sector (Isacson 2009).

The need for labour has dramatically declined since the 1970s, when efficient forest machinery was introduced (Törnqvist 1995). Employee numbers have gradually declined in forestry, even though the same amount of round wood has been produced (Lindgren et al. 2000). In addition, the full-time employment by forest companies has mainly been replaced by a system of contractors with their own machinery (Törnqvist 1995).

In the mid-1940s, there were nearly 300 000 agricultural farms in Sweden with at least two hectares of land. Today, the number of farms has fallen to approximately 72 000, and only a quarter of these farms are run on a full-time basis (Statistics Sweden 2010a). Many of the full-time farms would not survive unless someone in the household received income from some other source (Myrdal 2001). The proportion of employment in agriculture and subsidiary businesses has fallen since the 1940s from 25 to just under two percent. Modern cities provide greater employment opportunities, a higher standard of housing, merchandise and services, and therefore have attracted people to move from the rural areas (Isacson 2008). Furthermore, due to gender segregation in the labour market, women faced greater difficulties finding paid employment in the rural areas before the expansion of the health and social care sectors, prompting women to move to urban areas earlier and to a greater extent than men (Isacson 2009).

Thus, socio-economic developments have resulted in the relocation of people as well as activities in Sweden. The rural areas have gradually been transformed, becoming sites for the production and extraction of raw materials and utilities (such as timber, electricity and food) that are currently managed by very few people. Despite the low levels of employment in rural areas, the quantity of material produced still matches that needed by industry and the population. The rural areas have also been partly transformed to recreational areas, especially in regions that are easily accessible from cities (Isacson 2008; Törnqvist 1995).

For the rural municipality, forests represent a large, but for various reasons, underdeveloped resource. A major shortcoming according to Holmgren (2006) is that present day forestry, in combination with the current tax system, does not provide incentives for the local

municipality to consider local forest resources as a development opportunity. Through the introduction of mechanized harvesting machinery into small-scale forestry, along with the parallel closure of most small-scale agricultural businesses, the forest farm owner's role has changed from running a multifunctional enterprise using his or her own labour to that of an owner of a forest farm run as a passive business (Holmgren 2006; Törnqvist 1995). This means that the revenue that most forest owners' receive from forest harvesting is taxed as capital income, which is exclusively collected as a state tax, leaving the municipality without any tax income from the forest (Holmgren 2006). However, much of the FFF owner's revenue is reinvested in the property. This stimulates both local enterprises and the public sector and can be seen as the main benefit of forestry for the municipality (Holmgren et al. 2005). From a local development perspective, resident FFF owners are preferable for the municipality, since the resident owners in general are more active and they usually put more money back into the forestry business. Resident FFF owners are also thought to generate more economic and social activity within the municipality than non-resident FFF owners.
For many forest owners the FFF provides an attractive living environment that fosters a desire to stay at the farm, even though they cannot make a living from timber production alone (Thellbro and Lidestav 2006). However, forest land is a resource that provides additional income opportunities, since a private forest has both market and amenity values. These values are not necessarily complementary; economically effective timber production and harvesting may conflict with the provision of high-quality amenity benefits, such as scenic value or wildlife habitats (Majumdar et al. 2008). Private forest owners must therefore take into account the importance of forest values other than timber production in order to manage their forest appropriately. Other values include not only the beauty of the forest for personal enjoyment by the owner or products directly connected to the production of wood and fibre, but also other business opportunities, such as recreational/wildlife tourism, guided hunting and fishing trips, locations for horse riding and green care or green rehabilitation. Forest owners are increasingly recognizing the economic possibilities of Non-Wood Forest Products and Services (NWFPS) (Janse and Ottitsch 2005). In Sweden, NWFPS may potentially maintain or create an income stream from the forest farm and thereby enable the owners to live permanently in a rural area. The FFFs are therefore important from a rural development perspective. People also generally desire to create an income stream where they want to live, rather than vice versa (Thellbro and Lidestav 2006), hence the FFFs are valuable resources in the development of rural areas.

Although few FFF owners are able to rely solely on forestry for a living (Holmgren et al. 2005), there is increasing interest in NWFPS that present new or extended opportunities for FFF owners. Due to the possibility of using the FFF to supplement owner incomes from outside the farm, the wide range of potential businesses connected to the farm and the possibility to distribute the work seasonally, FFFs provide a foundation for flexibility and the opportunity to adapt businesses according to personal capabilities and interests. Myrdal (2001) reported a major change in the relationship between mankind and nature, including an increased effort to take responsibility for natural resources. This change in attitude towards nature could be beneficial for many entrepreneurial FFF owners. Not only is it possible to exploit the increased demand for eco-tourism, but the management of Swedish land in

accordance with cultural and ecological objectives could be more economically profitable in the future if society recognizes that the ecosystems and cultural landscapes could be more effectively conserved. In addition, as mentioned above there is increasing interest in nature's effect on human health, not least in connection to medical rehabilitation (Nordh et al. 2009). Some rural families whose members are largely employed outside their estate are already engaged in other business activities at their farms (Isacson 2008), implying that many businesses could be developed further with the right incentives, such as better understanding of the potential for the FFFs or through appropriate stimuli from the public or state.

2. MATERIALS AND METHODS

In order to examine whether gender has an impact on FFF-based activities, we used data from the Federation of Swedish Farmers (hereafter the Swedish abbreviation; LRF). LRF has acknowledged the increased demand for products and services from the green industry and is currently collecting data from its 168 000 members, many of whom are forest owners, through an annual survey (Lantbrukarnas riksförbund 2009). The survey asks members to specify what business activities they currently conduct on their farm and what business activities they believe could be developed within the next 3-5 years. The members are also asked to state whether the operations manager of the business (or businesses) is a man or a woman or if the management includes representatives of both sexes. In this study, the LRF member survey data from 2009 were used. Approximately 100 000 questionnaires were sent out the main members (one member per household). This survey had a response rate of approximately 67 % (67 218 respondents).

The gender of the respondents is unknown.
To analyze the frequencies of different forest-related business activities relative to the gender of the operations managers, we used the answers from those LRF members who stated in their responses:

a) that they manage forest land (regardless of the size of the managed land);
b) that they are currently running one or more forest-related businesses and/or that they consider it possible to develop such business activities further within the next 3-5 years;
c) the gender of the operations manager.

Eight business activities were identified from the member survey, which were primarily related to the use of forest land. All activities related to the use of farmland/cultivated land were excluded from the analysis presented here, which focuses on activities with various degrees of novelty: *forestry*, *forest energy primary products*, *energy*, *forestry contracting*, *wood processing*, *aquaculture and game farming*, *tourism* and *green care*. Some of the activities are strictly clusters of similar business activities that were separated in the survey, but have been merged for our analysis (Table 1).

Among the respondents to the LRF survey, 50 244 stated that they own forest land and that they are currently running at least one of the eight business activities at their forest farm and/or that they consider it possible to develop such activities further within the next 3-5 years. Among this group, 11 452 members provided valid data regarding the gender of the operations manager. The data from these members constitute the subset of the entire survey data that were used for the analysis (Figure 2).

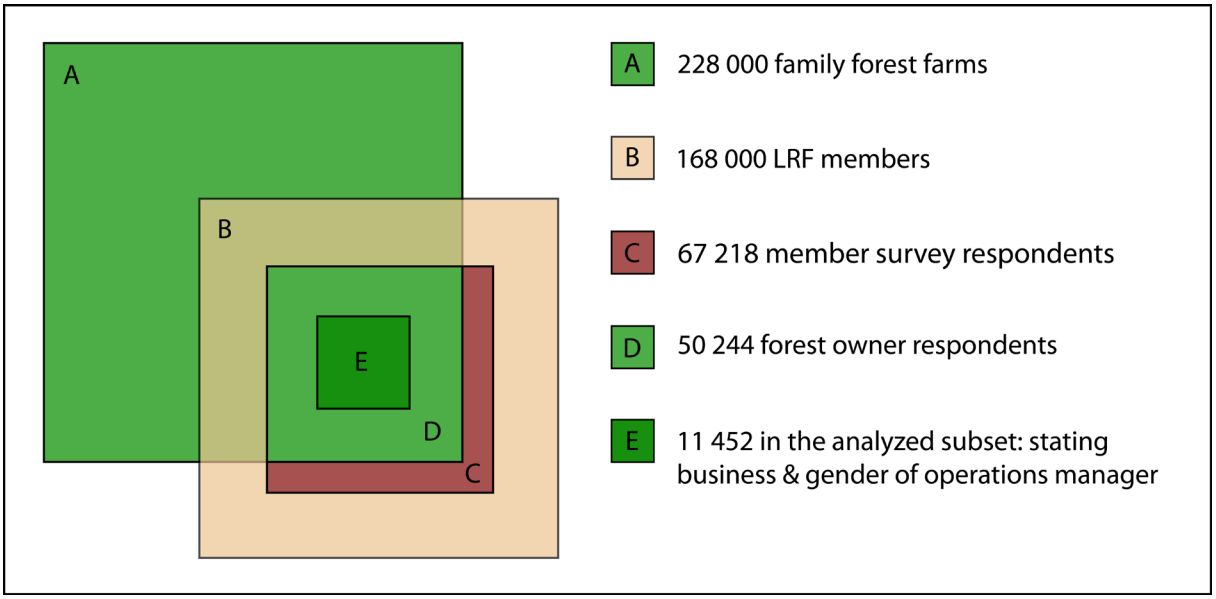

Figure 2. The subset of data selected for the analysis.
The sizes of the squares in the figure are proportional to the sample size. There is incomplete overlap between the FFF owners and the LRF members.

Table 1. Business activities included in the study

Business activity	**Activities included (as named in the LRF mail survey)**
Forestry	Forestry
Forestry contracting	Forestry contracting
Wood processing	Wood processing – carpentry Wood processing – saw mill Wood processing – other
Forest energy primary products	Forest energy primary products
Energy	Energy – heating ready for delivery (farm energy) Energy – processing (firewood, chips, pellets, biogas etc.)
Aquaculture and farmed game	Aquaculture (e.g. fish and crayfish farming) Farmed game – deer, mouflon, wild boar
Tourism	Tourism – fishing (including leasing) Tourism – hunting (including leasing) Tourism – other experiences
Health	Health – green care Health – green rehabilitation

3. RESULTS

3.1 Business activities at the forest farms

The 11 452 forest owners reported 17 349 business activities within the group of eight activities. In total, 7.7 % (880) reported a woman to be the sole operations manager of the business at the farm, while 62.9 % (7198) stated that the business was managed by a man, and 29.5 % (3374) stated that both sexes served as operations managers (Table 2).

Table 2. Forest-related business activities and the sex of the operations manager among 11 452 LRF members with forest holdings

	In total		A woman is the operations manager		A man is the operations manager		Both a woman and a man act as the operations manager	
Business activity	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*
Forestry								
Existing business	6608	74.7	418	6.3	4270	64.6	1920	29.1
Business poss. to dev.	147	1.7	24	16.3	80	54.4	43	29.3
Existing + poss. to dev.	2091	23.6	135	6.5	1371	65.6	585	28.0
Total	8846	100.0	577	6.5	5721	64.7	2548	28.8
Forestry contracting								
Existing business	663	53.7	20	3.0	491	74.1	152	22.9
Business poss. to dev.	250	20.2	9	3.6	176	70.4	65	26.0
Existing + poss. to dev.	322	26.1	2	0.6	253	78.6	67	20.8
Total	1235	100.0	31	2.5	920	74.5	284	23.0
Wood processing								
Existing business	389	41.4	9	2.3	267	68.6	113	29.0
Business poss. to dev.	351	37.4	14	4.0	224	63.8	113	32.2
Existing + poss. to dev.	199	21.2	2	1.0	132	66.3	65	32.7
Total	939	100.0	25	2.7	623	66.3	291	31.0
Forest energy primary products								
Existing business	1397	57.5	78	5.6	904	64.7	415	29.7
Business poss. to dev.	669	27.5	24	3.6	463	69.2	182	27.2
Existing + poss. to dev.	363	14.9	21	5.8	171	47.1	171	47.1
Total	2429	100.0	123	5.1	1538	63.3	768	31.6
Energy								
Existing business	718	41.4	42	5.8	459	63.9	217	30.2
Business poss. to dev.	604	34.9	26	4.3	403	66.7	175	29.0
Existing + poss. to dev.	411	23.7	12	2.9	274	66.7	125	30.4
Total	1733	100.0	80	4.6	1136	65.6	517	29.8
Aquaculture and farmed game								
Existing business	177	32.7	5	2.8	110	62.1	62	35.0
Business poss. to dev.	277	51.2	16	5.8	175	63.2	86	31.0
Existing + poss. to dev.	87	16.1	3	3.4	50	57.5	34	39.1
Total	541	100.0	24	4.4	335	61.9	182	33.6
Tourism								
Existing business	406	29.1	40	9.9	235	57.9	131	32.3
Business poss. to dev.	685	49.1	58	8.5	375	54.7	252	36.8
Existing + poss. to dev.	305	21.8	22	7.2	173	56.7	110	36.1
Total	1396	100.0	120	8.6	783	56.1	493	35.3
Health								
Existing business	37	16.1	7	18.9	13	35.1	17	45.9
Business poss. to dev.	172	74.8	42	24.4	53	30.8	77	44.8
Existing + poss. to dev.	21	9.1	3	14.3	6	28.6	12	57.1
Total	230	100.0	52	22.6	72	31.3	106	46.1

Existing business = business activity is currently being conducted by the forest owner but no possibility to develop the business further within 3-5 years was stated.
Business poss. to dev. = business activity is not currently being conducted but the forest owner sees the potential for developing it within 3-5 years.
Existing + poss. to dev. = the forest owner has stated that business activity is currently being conducted and that there is the potential to develop it further within 3-5 years.

3.2 Women as operations managers within existing businesses

Forestry is still the most widely practiced business for forest owners. Since forestry is one of the most traditional activities conducted at forest farms we used it as a starting point in the analysis, and began with the total sum of both existing and anticipated businesses. We found that the operations manager was a woman in 6.5 % of the businesses where forestry was conducted. In most other business activities, except tourism and health, the proportion of sole female operations managers was lower than in forestry. Considerably lower proportions of women are operations managers of forestry contracting and wood processing business activities, while they are notably more frequently operations managers of tourism business activities than in forestry. Health was the business activity that differed the most with respect to the gender of the operations manager; more than 20 % of the forest owners stated that a woman was the sole operations manager for an existing or possible health business activity. However, the actual number of businesses associated with health was relatively low (Figure 3).

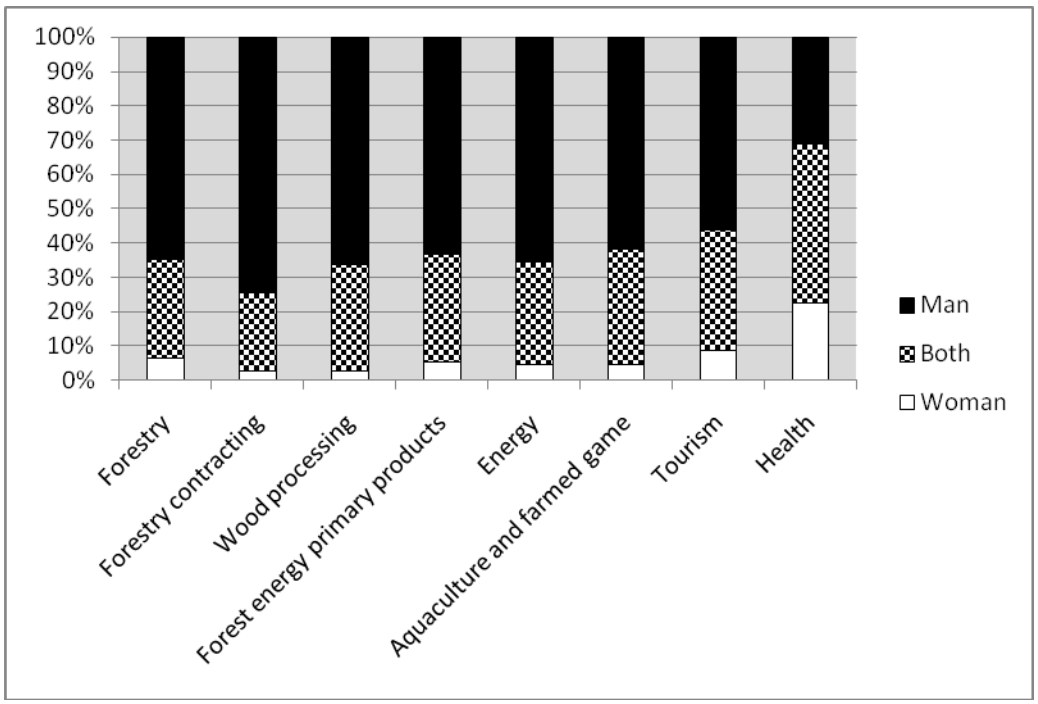

Figure 3. The gender of the operations manager(s) for the eight studied business activities (existing and potential).

3.3 Recognized future opportunities for developing businesses related to the different activities

We evaluated the future business opportunities that might be developed by comparing the existing business activities, the existing activities with potential for development and the potential development of new activities. Work within forestry and wood processing, along with the production and selling of more traditional forest products and services, such as contracting and energy-related activities, seem to have already reached their full potential according to the forest owners. The proportion of these existing business activities is relatively high, and relatively few owners see the possibility of further development in these areas in the near future. However, the owners see the potential for growth of less traditional activities, such as aquaculture and game farming, tourism and health. For these activities, many owners reported the potential for developing such businesses in the near future.

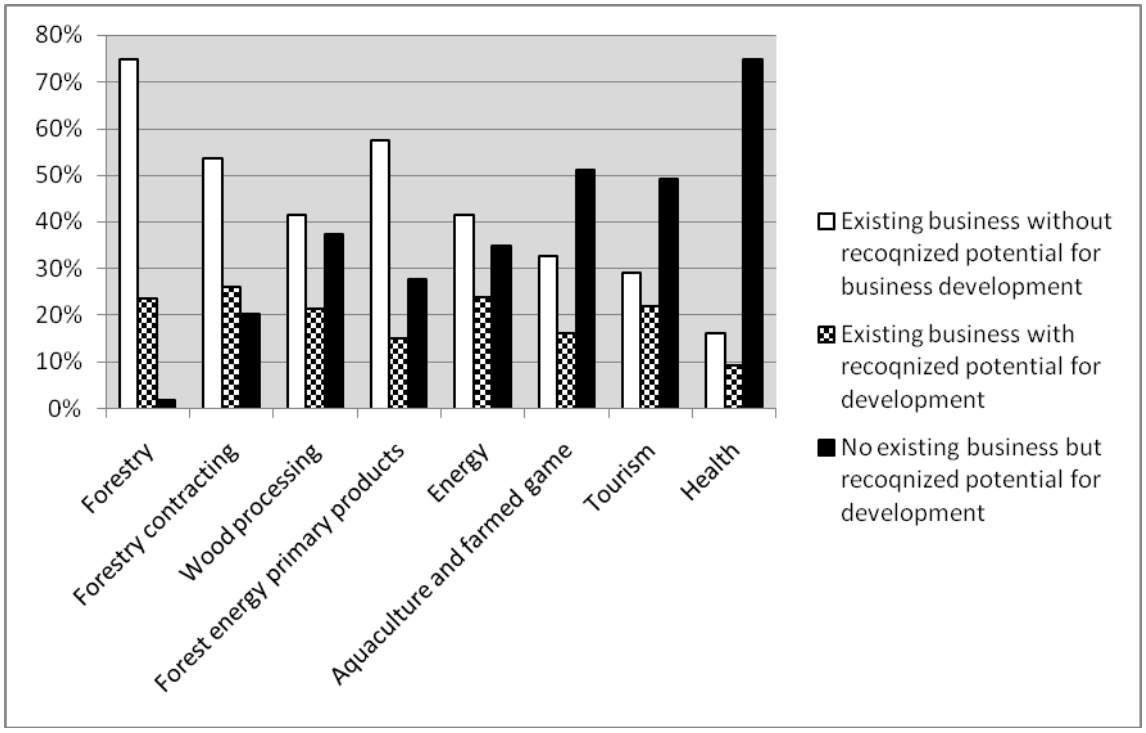

Figure 4. Recognized future opportunities; the reported status for each business activity (total, irrespective of the gender of the operations manager).

3.4 Differences in recognized future opportunities between male and female respondents

In order to evaluate our assumption that women are more likely to pursue less traditional activities, we examined the differences in proportions of businesses that had women and men as the operations manager.

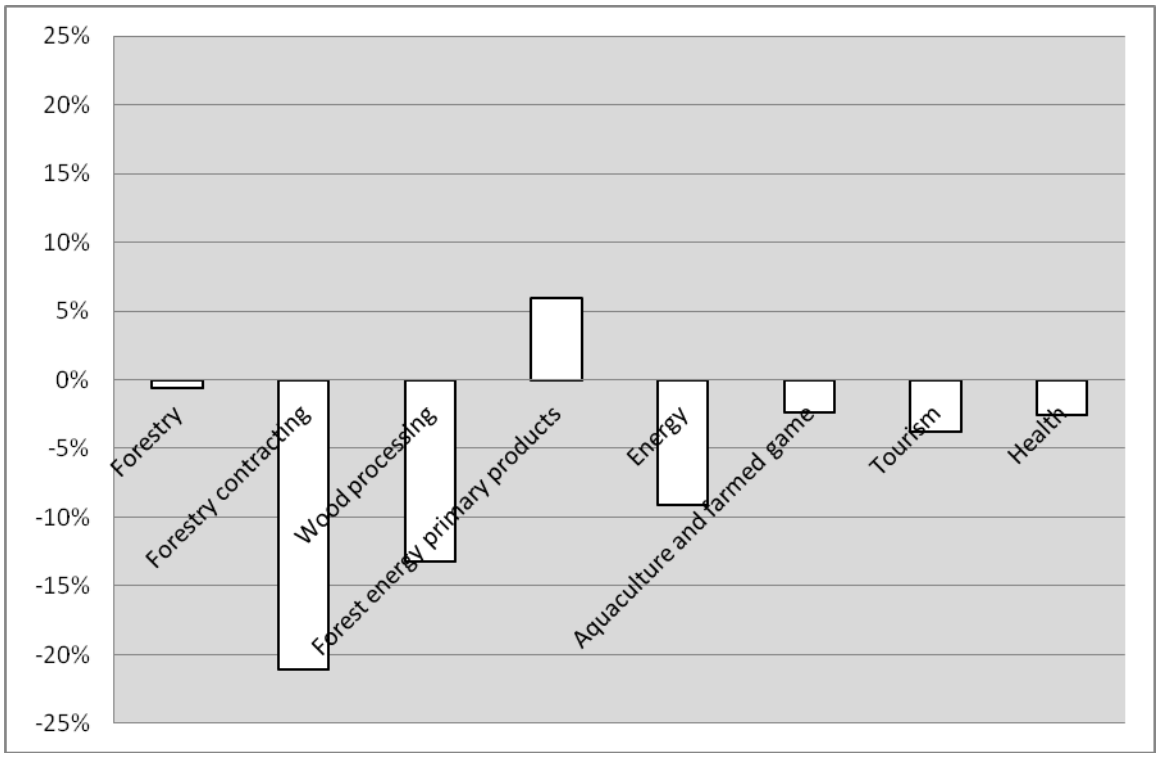

Figure 5. Gender-related differences in recognition of the development potential of existing businesses. Positive and negative values indicate higher recognition of the development potential among businesses for which a woman is the sole manager, and among businesses for which a man is the sole manager, respectively.

In general, a potential for developing existing business activities is less frequently reported in cases when a woman is stated to be the operations manager (Figure 5). However, the difference in this respect for forestry activities was negligible, and the production of primary forest energy products was the only activity for which women were more optimistic about the future prospects than men. The traditional business activities, forestry contracting and wood processing, stand out as activities that women were much less likely to see as potential areas for growth, while the gender differences for less traditional activities were small.

The results show that for businesses where a woman was the sole operations manager there was generally more optimism regarding the potential for developing new business activities than in cases where a man was the sole operations manager, except for forest energy primary products and energy production (Figure 6). Thus, the gender-related differences in perceived development potential for future businesses were generally the reverse of those reported for

existing businesses. When comparing the optimism with respect to the development of existing activities, forest energy primary products was the only activity that deviated from the general pattern; for all other forest farm business activities women were more optimistic than men in cases where there was no existing business activity in that particular area.

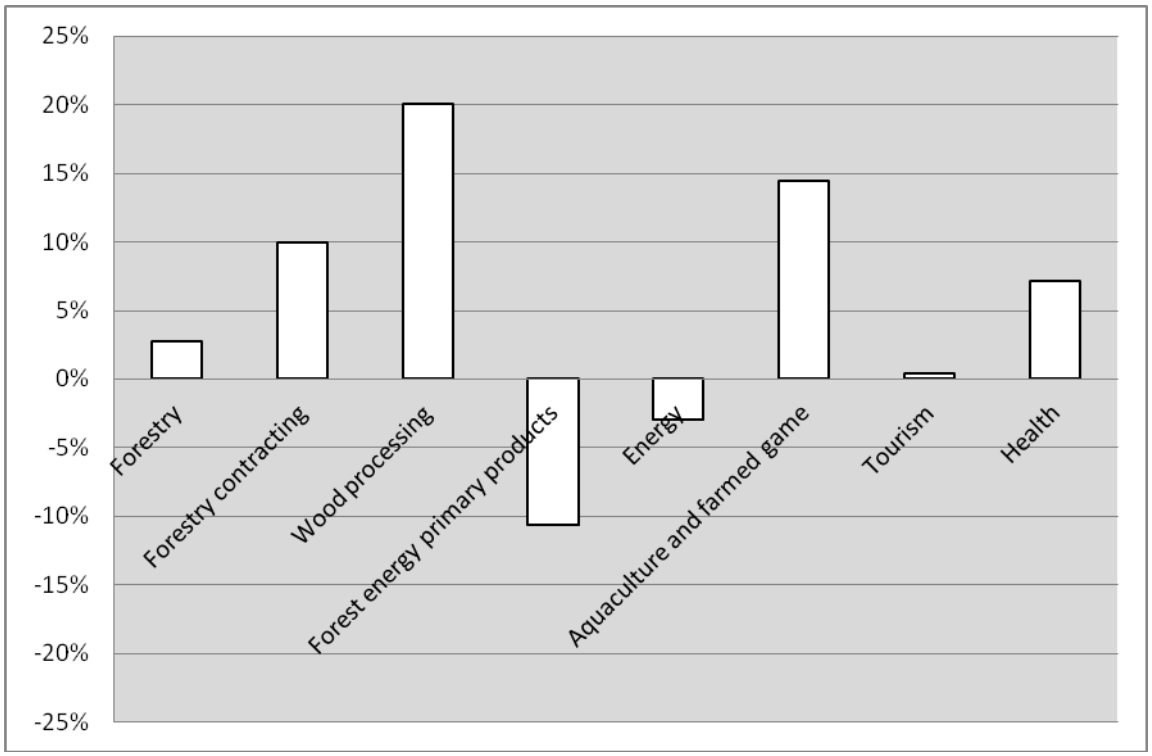

Figure 6. Gender-related differences in recognition of the development potential of businesses that are not currently conducted. Positive and negative values indicate higher recognition of the development potential among businesses for which a woman is the sole manager, and among businesses for which a man is the sole manager, respectively.

4. DISCUSSION

The results presented here are based on abundant data, provided by a large number of forest farm owners from all parts of Sweden, although it is important to note that not all forest owners are members of the LRF. There were also some inconsistencies in the use of terms in the survey and limited instructions were provided to the respondents, which may explain why so few respondents (22.8 % of the 50 244 forest owners) stated the sex of the operations manager. However, we believe that these inconsistencies and gaps in the data are unlikely to have biased the results, since the study was comparative. In addition, in this study the business activities have been analyzed as separate, independent activities, although in reality they are often combined (a facet that will be addressed in a future study).

Despite the high level of female ownership of Swedish private forests (38 %), women were considerably underrepresented as operations managers in all considered business activities except health, indicating that gender influences choices of business activities in this context. Assuming that women are roughly equally represented in cases where both genders participate in the operative management of the respondents' FFF activities, we found that women were represented in the operational management of 45.7% of health-related businesses, while the next highest representation of women was found in the tourism category (26.3 %). Health is a business activity with a high degree of novelty for forest farms, which supports our assumption that women are more likely to run less traditional businesses.

Women are relatively well represented within the tourism sector, although the difference in their representation relative to their representation in more traditional activities is not as large as we expected, possibly because the three additional tourism activities specified in the survey (housing, food and drink, and horse-riding) were excluded from the analysis, while the traditionally male activities hunting and fishing were included.

Women were the most underrepresented as operations mangers in forestry contracting and wood processing activities, which are traditionally performed by men. The comparatively low representation of women in these activities further strengthens our assumption that women are more involved in less traditional businesses. Therefore, gender has clearly affected the choice of the forest farm business activities currently performed, showing that women have primarily positioned themselves in less traditional activities.

The higher recognition of development potential among women who are already running non-traditional business activities provides additional support for our hypothesis that women are more involved in novel businesses than men. Although generally less optimistic than men, women tend to see greater possibilities for the development of more novel activities in the future, compared to more traditional activities.

Although female forest farm owners appear to have a stronger preference than men for novel business activities, our results indicate that the situation is somewhat more complex than this single finding suggests for several reasons. Firstly, a relatively high proportion of the

operations managers engaged in traditional, generally male-dominated forestry business activities were women. Our interpretation of this observation is that forestry is normally the first business activity that a new FFF owner needs to address, since it is already established and the constantly growing forest needs to be managed. Forestry is also an activity that the FFF owner usually manages, even if most of the practical work is conducted by contractors, hence it is a relatively easy entry level business activity (in contrast to forestry contracting and wood processing; traditional activities that normally require investment in machinery, making these activities less easily accessible to inexperienced forest owners). Secondly, we found that women were generally less optimistic about the future development potential of an existing business. This appears to conflict somewhat with the finding that women were more optimistic about the prospects for developing new business activities, even traditional business activities, such as forest contracting and wood processing. The apparent discrepancy might be due to women still being affected by gender order. However, women are seriously challenging male dominance within forest farm businesses by not allowing traditions to restrain their choice of future business activities. Thus, we conclude that gender is likely to be a less discriminatory factor in the choice of forest farm business activities in the future.

From a rural development perspective, the future opportunities recognized by the surveyed FFF owners are encouraging. Many of the current business activities (up to 25 %) are regarded as having the potential for future development. In addition, even more activities that are not presently operating are being considered for development within 3-5 years, showing that many new activities could be initiated if the right conditions and incentives were created or provided. The FFFs are clearly considered by their owners to have many development possibilities, many of which would provide self-employment for the owners, thus providing benefits for the local community. With continued rationalization and increased productivity, employment within forestry will be further reduced. Thus, if the forest resource continues to be used traditionally, i.e. for the production of timber and pulp wood, its significance for the local economy will continue to decline (Lindgren et al. 2000). Given the large number of potential activities that can, or could, be undertaken at FFFs, the local community could greatly benefit from an increased focus on them as a means for development. The support of female FFF owners could provide especially high yields, given their comparatively optimistic views regarding potential developments of new activities.

To summarize, FFF businesses are still markedly influenced by gender, resulting in an underrepresentation of women in general, but particularly in more traditional business activities. However, there is clear evidence that women are entering this male-dominated sector and becoming involved in traditional activities, such as forestry contracting and wood processing.
The development of FFF-based businesses could benefit from an increased understanding of private forest owners' aims and objectives for owning and managing their forests, as well as the performance of other forest-based business activities. It is particularly important to focus on the circumstances that make forest-based businesses successful. If the FFF businesses are developed further, thereby generating increased revenues for the municipalities, it would be easier for the local communities to focus on the FFFs as an important resource in the development of local rural areas.

ACKNOWLEDGEMENTS

This study was undertaken as part of the research project “Local development perspectives on business practices based on family forest farms (FFF) – constraints and potentials for future development”, funded by The Swedish Research Council Formas. The authors would like to thank the LRF for providing access to the anonymous data from the survey of its members.

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