SUSTAINABLE FORESTRY AND WOODLOT LICENCES IN BC

by

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Abstract

Currently the vast majority of Crown forestland in BC is managed by large private forest corporations who hold industrial tenures. Concerns over the long term ecological and social implications of forest management have generated increased support for small scale forestry such as woodlot licences. Woodlots are the smallest tenure available in the province, typically held by individuals, families, small corporations, and First Nations. While many practitioners, academics, and environmentalists assert that small landholder forest operations offer a comprehensive approach to forest management, there is a gap between the supposed benefits of small scale forestry and empirical conclusive evidence. The aim of this thesis is to fill this gap. Efforts made by woodlot licence holders to implement sustainable forest management are examined. In addition challenges experienced by licencees in their attempts at sustainable forestry initiatives are analyzed. All woodlot licence holders in the province were surveyed via a mail out questionnaire. 211 of the 813 licencees answered the survey. The according response rate of 25.9 % is considered acceptable to make inferences about woodlots across the province. Results indicate that the average woodlot operator undertakes a number of voluntary measures that often surpass provincial requirements intended to institute more ecologically sound and socially responsible forestry. The indicators of sustainable forest management woodlot operators fall short of meeting are recognizing and consulting First Nations regarding their rights to traditional lands and resources, and managing and marketing diverse forest products. Licence holders identified administrative and operating costs imposed by current provincial regulations, as the most significant barrier undermining voluntary sustainable forestry practices. A number of recommendations to address identified barriers were proposed by licencees. The most common proposal was the provincial adoption of cost saving incentive driven administrative requirements that reward operators applying sustainable measures of forest stewardship. The findings of this research suggest that if appropriate revisions are made to woodlot regulations, the expansion of the Woodlot Licence Program will encourage more sustainable forest management of Crown land throughout the province.
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I would like to acknowledge the financial assistance provided by my supervisor, George Hoberg, and the Sustainable Forest Management Network (SFMN). In particular this research is intended to inform a broader SFMN funded research project examining the relationship between tenure arrangements and policies designed to achieve sustainable forest management objectives.
Dedication

This thesis is dedicated to my daughter Sabina Rosaliah. I hope to inspire you to learn and to believe as much as you have inspired me. I would also like to acknowledge Hugo Mendoza Soto for all of his support over the past two years.
Chapter 1 – Introduction and Background

1.1 Introduction

1.1.1 Sustainable Forest Management

Since the environmental and social justice movements of the 1970s industrial forestry has received increasing public attention and scrutiny. Escalating concerns over biodiversity, First Nations rights to traditional territories and natural resources, and the stability and prosperity of forest dependent communities have become prominent issues of public concern. More comprehensive approaches to forestry are being sought to replace the conventional sustained yield management model currently applied by public agencies and the forest industry. The interdependence of forest ecosystems and human communities, and the need to expand the goals of forest management beyond economics, is acknowledged in the concept of sustainable forest management (SFM).

Guided by the principles of sustainable development, outlined in the Brundtland Commission’s Report (WCED1987), sustainable forest management is based on the link between environmental integrity and economic development to address the needs of current and future generations. Like sustainable development, SFM is often portrayed as an image of three overlapping circles - the centre representing the desired balance between ecological, social, and economic values used in forest management (Figure 1). In a report titled “The State of British Columbia’s Forests - 2004” by the BC Ministry of Forests and Range (MoFR 2004) a definition of SFM is derived from Canada’s National Forest Strategy (NFSC 2003).

![Figure 1. Image of the three aspects of sustainable forest management.](image)

The long term health of Canada’s forests will be maintained and enhanced for the benefit of all living things, and for the social, cultural, environmental, and economic well being of all Canadians now and in the future.
The concept of sustainable forestry is constantly evolving, responding to changing social values, practical experience, and increased scientific and traditional knowledge. As such defining what is “sustainable” in the realm of forestry requires a continuous process of reviewing and articulation. This process has catalyzed diverse forest stakeholders to support the examination of alternative forest stewardship models in the hopes of expanding the industrial status quo approach to forestry. Small scale forestry is one such alternative.

1.1.2 Small Scale Forestry

Since the early 1980s there has been a growing trend of centralized governments devolving forest management responsibilities to local organizations and individuals. Advantages of local forest management are described as far reaching: a means of reducing costs for overextended government agencies, enabling more sustainable resources management, increasing the stream of benefits generated by resource management to locals, and implementing more democratic bottom-up planning rooted in local interests (Edmunds and Wollenberg 2003).

While a large proportion of "local" forest management is undertaken by communities, access and rights to forest resources may be devolved even further to individuals. Such forest management is often referred to as small scale forestry or smallholder forestry, farm forests, small forest enterprises or woodlots. These enterprises may also be referred to as “non industrial” referring to the fact that there are no major processing facilities on site (FBCWA 2006). Small scale forestry is often characterized as a small forest area (relative to industrial managed areas) attended by individuals, families, or small businesses. The average size of smallholder forests vary between jurisdictions ranging from as large as 1000 hectares in the US, to 25-40 hectares in Northern Europe, to as small as 2 hectares or less in Japan (Harrison et al. 2002).

The popularity of small scale forestry is rooted in the ecological and social benefits associated with such an approach. In particular small forest operations are thought to demonstrate a broader spectrum of management objectives beyond the single motivation of timber production characteristic of industrial forestry. Small landholder forests are also believed to apply more innovative and ecosystem based management practices (Burda...
and provide a forum through which local forest interests can be addressed (Harrison et al. 2002; Reedy 1999). It is also argued that the small scale of production of landholder forestry provides the ideal conditions to produce more diversified value added timber products (Reedy 1999). The potential for small operations to contribute to the economic development of their local communities is also noteworthy (Mitchell-Banks 2001; Clogg 1997).

1.1.3 The Woodlot Licence Program

Perhaps one of the most innovative small scale forestry initiatives warranting further investigation is that of the Woodlot Licence Program in the province of British Columbia. This program is unique in Canada as it provides small private forest owners access to parcels of Crown land. Administered by the provincial government, a woodlot licence is the legal agreement between a licence holder and the Ministry of Forests and Range (MoFR). It gives the licensee the right to manage and harvest designated Crown forestland assigned in the licence. In order to hold this tenure, applicants must agree to manage both Crown land and privately owned land according to provincial forestry legislation.

Woodlots remain the smallest scale forest tenure available in the province, and until recently they have largely been overlooked in the apportionment of Crown lands. Currently there are 813 woodlot licences province wide with a total allowable annual cut of approximately 1.24 million cubic meters (McNaughton 2006). This volume accounts for less than 1.5 per cent of the provincial timber supply (Haley 2006).

1.2 Study Objectives

Specifically this study aims to:

- Identify who holds woodlot licences.
- Analyze the efforts made by woodlot licence holders to practice sustainable forest management.
- Assess the benefits woodlots provide, and the challenges licencees encounter as they endeavor to practice sustainable forestry.
- Recommend changes to existing tenures and regulations resulting from this study.
This thesis is divided into seven chapters. The remainder of this first chapter describes the background of woodlot and industrial forestry in BC. The theoretical framework underlying small scale forestry and the rationale for this study are also introduced in this chapter. The second chapter examines the provincial tenure framework and regulations specific to woodlot licences. Chapter three describes the methodology followed in this study. In chapters four to six the study results are reported and discussed under the following headings: characteristics of licence holders and perceived benefits of woodlot forestry, efforts to implement sustainable forest management, and identified challenges and recommendations. The final chapter summarizes the thesis findings and makes recommendations.

1.3 Background

1.3.1 Industrial Forestry in BC

Of the 95 million hectares of land that make up the province of BC, the provincial government owns 94 per cent. Three per cent of the land base is owned by the forest industry, one per cent is privately owned, one per cent is apportioned as First Nations reserves, and the remaining per cent lies in federal parks. Over 65 per cent of the province is forested, with an estimated 18-21 million hectares of operable productive forest remaining after inoperable, inaccessible, and protected areas are subtracted (NRC 2005). It is not surprising that forestry is the driving force of BC's economy, providing 14 % of all employment and 15 % of all economic activity (MoFR 2004).

Like most jurisdictions with large amounts of publicly owned forests, the BC provincial government has historically granted access rights and management authority to large scale private forest companies through industrial forest tenures. The extent of provincial allocation of harvesting rights has been dominated almost exclusively by industrial licences. Presently major forest companies have been allocated roughly 75 per cent of the harvest from provincial forests through large scale industrial area and volume based tenures (MoFR 2003).
In order to stay competitive in the international timber market, companies have merged resulting in fewer and larger integrated companies controlling greater tracts of public land. From 1976 to the mid 1990's cutting rights to Crown land held by the twenty largest forest companies increased from 74 per cent to 86 per cent (Marchak 1999). This trend has continued. Currently only six forest corporations hold the cutting rights to approximately 39 % of the provincial AAC (MoFR 2006).

The consolidation and mechanization of forest companies and the production based approach on which industrial tenures are founded have for decades been criticized as failing to meet the public's interests and, more recently, failing to meet sustainable forest management objectives. Three key issues have been identified as the source of forest policy failure rooted in forest tenures, including: 1) failure to recognize and protect non-timber forest values, and move beyond the sustained yield forest management approach; 2) lack of efficient utilization and production of forest resources; and 3) unmet provision of economic stability and growth (Burda 1997).

1.3.2 Protecting Non-timber Forest Values

Industrial forest tenures are managed under a sustained yield management model. With the aim of sustaining timber production, the provincial Chief Forester determines the Allowable Annual Cut (AAC) for each tenure. While this single use approach to forest management has long been criticized, attempts at expanding the interests and values of management objectives to include the protection of biodiversity, wildlife, and water resources and riparian areas, have largely been ineffective (Tollefson 1998). Such initiatives are viewed as unsuccessful as they have not adequately addressed the concentrated production oriented industrial tenure system (Forest Resources Comission 1991).

For example, amendments to the Forest Act, to include cultural, spiritual, recreational, and scenic values in Crown land management, instead of decreasing the rate of timber harvesting, resulted in increasing AACs due to industry pressure (Howlett 2001). Similarly some Land Resource Management Plans are considered to have failed at establishing more integrated resource management as regulations resulting from this process, that should have restricted timber harvesting in designated areas, were never introduced (McGonigle 1998). Finally the impact of the Forest Practices Code, to "balance the productive, spiritual,
ecological, and recreational values of forests to meet the economic and cultural needs of people and communities" (Forests "Forest Practices Code of Bc Act") (MoFR 1995). was significantly limited since Code regulations prohibited reducing a tenure's AAC by more than six per cent (Hoberg 2001). In short, the shared industry-government goal of maintaining timber production has undermined the transition from sustained yield to sustainable forest management. As a result non-timber forest values have continuously received secondary consideration.

1.3.3 Poor Use of Forest Resources

The concentration of vertically integrated forest companies has been identified as the cause of decreasing forest product diversification, limiting value added production, and in association, reducing jobs in the forest sector. The industrial monopoly on timber harvesting rights precludes non-tenure holding companies from stimulating market-based competition to promote these objectives (McGonigle 1998; Burda et al. 1997). Furthermore, the aim of improving efficiency of timber extraction and processing has resulted in a forestry industry that invests heavily in mechanization, supporting a shrinking labour force and producing cheap commodity forest products. In 1996 low value products such as pulp, newsprint, and dimension lumber comprised 88 per cent of forest exports (Burda and Gale 1996).

1.3.4 Economic Instability

Conditions of industrial tenures and the boom and bust cycles of export driven forestry have also led to community economic instability in many rural BC towns. Timber harvesting in some regions of the province has been so intense, forest resources are no longer able to support an industry (Marchak et al. 1999). While employment per unit of wood harvested has fluctuated over the past few decades, declining in the 1980's and increasing in the 1990s, environmentalists claim employment levels will steadily fall as a result of declining markets, lack of competition in the forest industry, shrinking accessible forest resources, and technological advancements (Marchak et al. 1999; Sierra Legal Defense Fund 1998).

Industrial tenures have also recently seen the relaxing of tenure transfer regulations. New regulations make it easier for forest companies to transfer their licences when one company takes over another. In an effort to remain competitive in a global market there has been a wave of corporate consolidation in the BC forest industry over the past decade. The
consolidation of forest companies has dramatic implications for forest based communities as mills are often closed when companies merge to free up fiber to another mill in need of timber. To many small scale forestry supporters woodlot tenures appear to offer a number of key ecological and social advantages relative to industrial licences.

1.4 Small Scale Forestry

1.4.1 Theoretical Framework

The theoretical framework promoting the perceived benefits of small scale forestry is rooted in the concepts of bioregionalism, and political ecology. These theories underpin social movements with a similar goal: more sustainable local communities through more sustainable resource use (Carr 2004, McGonigle 1998)

**Bioregionalism**

Bioregionalism in essence means "life place". The theory is based on the hypothesis that people who live in place will care more deeply for that place, will develop place-based awareness, and knowledge, and will have a vested interest in ensuring the long term health and well being of that place (Thayer 2004). When applied to forest management, such an approach suggests that woodlot licence holders who live close to the forests they manage may be considerate forest stewards.

The significant wealth of hands on experience and place based knowledge gained by micro forest operators allows managers to make informed operating decisions and observe the results of their actions over time (Reedy 1999). Such results based management fits within the bounds of bioregionalism. Advocates of this approach assert that stewards of natural resources require a combination of place-based knowledge and scientific information, grounded in active participation (Carr 2004).

The economic scale of land holder forestry is in line with a bioregional philosophy. In response to an increasing dependence on a global economy, a rapid influx of migration to urban centres, and a growing disconnect between natural ecosystems and human
communities, one of the key goals of bioregionalism is the development of small scale community based economic systems where individuals work towards self sufficiency by harvesting and marketing goods (Carr 2004).

**Political Ecology**

A political ecology approach to forestry supports many of the same ideas as bioregionalism. Political ecologists call for the restructuring of established hierarchies of political power in order to maintain ecosystem health. They advocate for the reallocation of industrial tenures to small scale forestry operations, arguing that the scale, objectives and philosophies of such operations will facilitate more ecosystem-based management of Crown forests.

This concept is founded on the principles of ecosystem-based forestry which aims to adapt economic activity to the natural limits that fully functioning forest ecosystems can support over time (Burda 1997). It is also based on the premise that the values and structures of the existing system have sought to sustain timber extraction instead of sustaining forests (McGonigle 1998).

The devolution of control over public forests to local communities and individuals is also thought to facilitate more democratic and locally beneficial approaches to forest management (Edmunds 2003; Martin 1998). A political ecology approach asserts that small operations have a greater potential to practice ecosystem based, socially responsible, economically viable forestry, than industrial licence holders, as individual and community forest operations are better informed, and more connected to the forests they manage and the communities they live in (Mitchell-Banks 2001; Reedy 1999).

**1.4.2 The Federation of BC Woodlot Associations**

Perhaps the most dedicated promoter of small scale forestry in BC is the Federation of BC Woodlot Associations (FBCWA). The FBCWA represents 25 woodlot associations throughout the province, whose members include woodlot licences and small private woodland owners. The organization aims to promote sustainable forest management by
small scale forests and expand micro forestry enterprises throughout the province. As such the Federation and its network of woodlot associations provide extension services to small scale forest members and represent the interests of landholder forest operations to public agencies.

As advocates of small scale forestry, the FBCWA has identified a number of key benefits provided by such forestry operations. In particular woodlots are described as having stabilizing effects on their local economies and significantly contributing to BC’s forest economy. The significant economic role of woodlots is exemplified by the Boundary Woodlot Association. According to recent calculations of the Boundary Woodlot Association, the 32 woodlot licences in the Boundary Timber Supply Area have an AAC of 30 237 m$^3$, generating an annual average of $1 935 168. Most of this money stays within the local communities and is used to pay for administration, logging, trucking, and fuel (FBCWA and WPDC 2006).

In addition to providing local employment and leadership in BC’s rural communities, woodlots can also provide optimal viewscapes, softening the transition from urban to rural settings. Further, the FBCWA asserts that an increase in the number of small scale tenures in the province will stimulate innovative forest management practices and encourage environmental protection. Attention is also drawn to woodlot’s potential to produce a diversity of high quality forest products in concert with diversifying the log trade and supporting the expansion of value added wood processing. Perhaps the most distinguishing feature of woodlots identified by the FBCWA, is the opportunities they provide to citizens to represent their own interests, and participate and contribute to the forest sector (FBCWA 2006).

1.4.3 Lessons from the Private Woodlot Experience

Exploring the results of small scale forestry on private land provides insight as to the potential for sustainable forest management by woodlot licence holders. While private and public woodlots operate under substantially different legislation there are numerous similarities in the benefits and constraints they offer. Figure 2 below describes the trends of small forest enterprises in Canada, the United States, and Sweden, where such initiatives play a significant role in forest management.
Canada

In Canada roughly 18 million hectares of timber productive land is held by non-industrial private woodlots (Rotherham 2003). These lands belong to over 450,000 families in small parcels averaging 43 hectares per family. In most provinces family owned forests play a valuable role in supporting provincial timber supplies contributing, on average between 10-20 per cent to provincial AACs. The national annual revenues generated from private family woodlots is estimated to be $1.5 billion. Family woodlots in BC account for roughly six per cent of provincial AACs, accounting for half of the provincial harvest generated by private landholders (CFA 1994). While timber warrants the greatest profits, benefits of non-timber forest products (NTFPs) are also highly valued by private Canadian woodlots. In eastern Canada maple syrup and Christmas trees production generate significant profits while berry and mushroom cultivation provide supplementary incomes to some private small forest owners across the country (Dansereau and deMarch 2003).

A well established network of woodlot associations plays a key role in supporting small scale forest stewardship in Canada. The nine provincial associations provide programs and services to licence holders including collective marketing, management of silviculture programs, education and training, government lobbying, and partnership development. These associations support more responsible forestry by small enterprises, as poor private forest management has been linked to lack of forestry knowledge, lack of funding, and a preference for independent management activities. Additionally, the forestry practices elected by some private forest owners demonstrate their commitment to sustainability principles. A study conducted by the North Island Woodlot Association in BC found the majority of private forestland owners prefer practicing some degree of selective logging; had no plans to clearcut their land; and processed most of their timber products locally (NIWA 1994). Other private woodlot owners are using their forests as eco-forestry demonstration centres. Some of these include Wildwoods on Vancouver Island, Windhorse Farm in Nova Scotia, and the Woodlot Stewardship Cooperative in New Brunswick.

United States

Roughly two thirds of US forests are privately owned. In total 10.3 million families are estimated to own 262 million acres of forestland. In the US, and Canada research has shown that the more forestland owned, the more active landowners are in timber management (Butler and Leatherberr 2004; Hyberg and Holthausen 1989). This relationship explains why the majority of US private landowners holding less than 50 acres of forestland, do not actively manage for timber production. Associated to this, a recent survey of US family forests found that the most common reasons for owning forestland were driven by non-timber forest interests including the protection of nature and biological diversity; the passing of forestland onto their families; and the enjoyment of forest beauty/scenery (Butler and Leatherberr 2004). An additional study of small forest owners in Vermont, New Hampshire, and western Massachusetts found landowner attitudes favoured an ecological based approach to forest management using indices of property sensitivity, landscape-scale perspectives, and temporal vision (Belin 2005).

Sweden

In Sweden approximately 250,000 private land owners manage 50 per cent of the country’s forests in landholdings averaging 50 hectares. Cumulatively these enterprises account for approximately 61 per cent of national forest production with total harvests averaging 30-35 million m3 per year (Bengt and Bengtsson 1997). While historically forest management on private lands has focused on timber production, reforms to the Forest Act in the late 1990s assigned biodiversity preservation equal status to timber production. Similar to Canada, most private forest owners in Sweden belong to regional woodlot associations which aim to safeguard private forestry interests, integrate biodiversity and commercial issues, and improve profitability of member forest organizations. The establishment of integrated small scale initiatives in Sweden is also supported by innovative small scale specific technology in harvesting, transporting, and processing. In addition, forestland owners have built on the tradition of integrated small scale business and the blending of formal and informal economies to overcome the boom and bust cycles of the open market by introducing local forest producer and manufacturer cooperatives (Bengt and Bengtsson 1997).

Figure 2. Summary of small scale private forestry in Canada, the US, and Sweden
In reviewing the private woodlot management literature in Canada, the US, and Sweden a number of key issues emerge to inform the inquiry of woodlot licence sustainability on public lands. First many jurisdictions rely on woodlots as a significant contributor to their regional timber supply. Investment and interest in forest management may be dependent on the size of the woodlot, the household income needs, and the support provided by collective small scale forest organizations. Secondly NTFPs may provide supplemental incomes to woodlots. Additionally, well structured proactive woodlot associations play a key role in the economic and ecological success of woodlots. Finally, the application of innovative management and manufacturing initiatives assist woodlots to be more economically viable and environmentally sound.

1.5 History of Woodlot Licences

Farm woodlot licences were first developed in 1948 in anticipation of supplying pulp mills with wood as practiced by private farm-forests in Eastern Canada and the Southern US. Introduced in 1979, the Woodlot Licence Program was created as a means to encourage improved management of private lands on farm woodlots (Pearse 1976).

Calls to expand the number of small land holder tenures in the province based on the prospective benefits they generate, have originated from academics (McGonigle 1998; Clogg 1997) and practitioners (McNauhton 2006; Burda et al. 1997). Additionally provincial forest commission reports have recognized the lack of access to public forestlands by small scale operations, and the potential opportunity to generate economic benefits from these initiatives as an issue for decades. In the 1956 Royal Commission Report Gordon Sloan recommended increasing the number of farm-woodlots in the province, which at the time totaled 37 (Sloan 1956).

Two decades later with no additional farm woodlots in the province, Peter Pearse identified the limited opportunity for small scale forestry as one of the most significant forestry issues in BC (Pearse 1976). Pearse advised the provincial government to substantially revise farm
woodlot tenures to meet the needs of small scale enterprises and permit small scale forestry on Crown land. Recommendations included the restructuring of licences to allocate parcels of land large enough to employ an individual, a family, or part time seasonal help.

In 1990 the Forest Resource Commission advised the province to reallocate 50 per cent of the AAC held under corporate tenures to a public forest management body or to small area based tenures managed by woodlot operators, communities, or First Nations bands (Forest Resources Commission 1991). This recommendation was made on the grounds that: 1) the vast majority of provincial timber is allocated to inefficient large scale tenures; 2) the recent failed attempts of introducing integrated resource management into the industrial tenure system; and 3) these alternative tenures would better reflect societies changing values.

Recent changes to provincial and national forest policy acknowledge the socioeconomic benefits of small scale forestry and call for the expansion of landholder tenures. In 2003 under the Forest Revitalization Plan, the provincial government announced that the number of woodlots in the province would be doubled by reallocating a portion of the 20 per cent retraction of industrial licences currently underway (MoFR 2003). At a broader level Canada's 2003-2008 National Forest Strategy highlights the emerging importance of increasing small scale forest tenures as a means of supporting rural communities.

1.6 Study Rationale

In advance of the future increase in woodlot licence allocations, the provincial government is reviewing and revising the Woodlot Licence Program in an initiative led by the Woodlot Administrative Review and Recommendations Team. Under this initiative the Ministry of Forests and Range (MoFR) will make recommendations to streamline and improve the cost effectiveness of the Woodlot Licence Program's provincial administrative requirements. Prospective changes will likely occur in the evaluation criteria used to award licences, among other revisions.
Despite the forthcoming expansion of small scale forest tenures throughout the province and the predicted changes to the Woodlot Licence Program, there is a significant lack of information regarding the capacity of woodlot licences to provide the benefits expected of them. Very few formal studies have examined the outcomes and experiences of small scale forestry on public land in BC. The studies that have indicate a number of key challenges faced by woodlot licence holders in meeting social, ecological, and economic objectives. The root of many of these issues may lie in provincial legislation.

Although over the past seven years planning and practice regulations have been designed specifically for woodlots, studies and practical experience suggest that administrative requirements continue to be onerous and costly for licence holders (McNaughton 2005; Reedy 1999; Burda 1997). Indeed many licencees in different forest districts struggle to meet changing requirements with inconsistent ministry support (Brown 2006). The economic viability of some licence holders may be further burdened by limited access to markets due to increased consolidation of the forest industry. Furthermore various studies and reports over the past decade assert that the streamlining of provincial planning and practice regulations may in fact compromise a woodlot licence holders’ ability to practice innovative and/or ecosystem based forest management (McNaughton 2006; Clogg 2007; Burda 1997). Not surprisingly all reports reviewing the Woodlot Licence Program maintain that policy modifications are necessary for the benefits of small scale forestry to be realized.

While such reviews highlight the implications of provincial woodlot legislation on small landholder forestry, many of these assessments are dated, normative in scope, and/or base their analysis on interviews with a limited number of licence holders. Given the future expansion and modification of the Woodlot Licence Program, it is important to assess the potential for more sustainable forest management provided by the current program.
Chapter 2 – Woodlot Tenures and Provincial Regulations

In order to examine the impact of the tenure system and provincial regulations on the sustainability of woodlot licence holders across the province, it is first necessary to become familiar with these regulatory regimes. To do this the following items are examined here: 1) the terms of woodlot licence tenures, 2) the provincial regulations developed for these tenures, 3) the Woodlot Licence Program's objectives and eligibility criteria; and 4) issues related to the processing and marketing of woodlot timber.

References used in this section include Sections 44-47 of the Forest Act (2004), which dictates the terms and conditions of woodlot licences, as well as the Woodlot Licence Planning and Practices Regulations (2005), under the Forest and Range Practices Act, which establishes how licence holders practice forestry on the ground.

2.1 Terms and Conditions of Woodlot Tenures

A framework originally designed to compare specific forest tenure characteristics across Canada (Haley and Luckert 1990) provides a practical medium to examine the attributes of woodlot licences (Table 1).

While woodlot licencees are granted exclusive, often long term rights to harvest timber on Crown land, these rights may be significantly restricted by numerous administrative, management, and operational stipulations and controls. Some of these requirements make it challenging for woodlot licence holders to practice ecosystem based forest management, to apply innovative silviculture techniques, to access markets, and in some cases to secure a profit.
Table 1. Woodlot licence tenure characteristics and regulations

<table>
<thead>
<tr>
<th>Tenure Characteristic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comprehensiveness</td>
<td>Rights to harvest timber on the Crown land within the licence.</td>
</tr>
<tr>
<td>Duration and Renewability</td>
<td>Granted for a term not exceeding 20 years. Provided that the licence holder has complied with all requirements of the Forest Act, the Forest and Range Practices Act, and the WLPPR, the regional manager or district manager may offer the licencee a replacement licence six months before the tenth anniversary of the licence.</td>
</tr>
<tr>
<td>Transferability</td>
<td>The minister will consent to the transfer of licences providing that 1) written notification is provided to the minister by both parties, 2) all fees have been paid to the provincial government by the former licencee, 3) any private land within the licence area remains subject to the licence upon being transferred, and 4) licence recipients are eligible woodlot licence holders (an individual, band, or small corporation).</td>
</tr>
<tr>
<td>Exclusiveness</td>
<td>Licence holders have exclusive rights to harvest timber on Crown land within the licence.</td>
</tr>
<tr>
<td>Right to Economic Benefits</td>
<td>Returns generated from the sale of timber may be limited by government imposed fees including: 1) stumpage - a system by which the government collects revenues from tenure holders based on harvest volumes of Crown timber; 2) annual rent - an annual fee of $0.50 per cubic metre of allowable annual cut as determined by the regional or district manager; 3) application fees for permits such as cutting or road building permits; and 4) payments to Professional Foresters to certify alternative performance requirements of management objectives instead of accepting the defined default performance requirements.</td>
</tr>
<tr>
<td>Use Restrictions</td>
<td>Timber harvesting may be limited on Crown land that is considered to be a cultural heritage resource by an aboriginal people. Export restrictions also apply whereby all timber and wood residue products from the licence must be harvested within BC. Export under permit may require an export fee to be paid to the government.</td>
</tr>
<tr>
<td>Size Specification</td>
<td>Crown land apportioned to licences must not exceed more than 800 hectares if located in the Coast Forest Region, and 1200 hectares of land within the Southern or Northern Interior Forest Regions.</td>
</tr>
<tr>
<td>Allotment Type</td>
<td>Timber harvesting rights are area based – pertaining to the specific geographical location of the designated Crown land in the licence.</td>
</tr>
<tr>
<td>Mutability</td>
<td>Tenure conditions may change upon the replacement of the licence. The district or regional manager may include additional terms and conditions in the new licence as long as they are consistent with the Forest Act, Forest and Range Practices Act, and the WLPPR.</td>
</tr>
<tr>
<td>Management Stipulations</td>
<td>Licences are required to construct, maintain, and deactivate roads; prepare and submit resource inventories of timber; conserve non-timber values and forest health; protect against and suppress forest fires; and carry out reforestation and stand tending activities to ensure free growing stands on harvest areas.</td>
</tr>
<tr>
<td>Harvesting Stipulations</td>
<td>If licence holders with a term of five years or less have harvested a total volume at the end of their licence that exceeds the maximum harvestable volume specified in the licence, the licencee must pay the government the dollar value of the excess volume. Licence holders with a term greater than five years are permitted to have the sum of annual harvest volumes over a five year cut control period equal up to 120% of the allowable annual cuts assigned for that period, with the excess 20% volume subtracted from the next cut control period. If the licence has cut more than 120% at the end of the cut control period, the tenure holder must pay the government the dollar value of the excess volume. If licencees harvest less than 100% of the allocated volume at the end of the cut control period, the unharvested volume may be granted to a person other than the licencee.</td>
</tr>
<tr>
<td>Processing Stipulations</td>
<td>A licence holder has the option of operating a timber processing facility but is not obliged to do so under licence regulations.</td>
</tr>
<tr>
<td>Operational Controls</td>
<td>To ensure that licences comply with operational stipulations licence holders must prepare and submit a Woodlot Licence Plan that addresses the entire licence area. Prior to harvesting in a specific area the licencees must obtain a cutting permit from the district manager; prepare a pre-harvest map of established free growing areas; and it is recommended that licences prepare a site plan document. Random monitoring visits by the Ministry of Forests and Range Compliance and Enforcement Board check to ensure licence holders comply with all provincial regulations.</td>
</tr>
</tbody>
</table>
2.1.1 Defined Harvest Volumes

Current harvest stipulations promote mainstream silviculture practices and advance sustained yield forestry. Legislation that allocates a woodlot’s allowable annual cut (AAC) ensures licence holders cut their allotted harvest volume over a five year period by penalizing licencees that do not. According to Division 3.1, article 75.8 of the Forest Act, a licence holder harvests less than 100% of the volume allocated to their licence at the end of the cut control (five year) period the unharvested volume of timber within the woodlot may be awarded to another party (MoFR 2005a). Since AAC levels are calculated based on sustained yield principles, this legislation forces licence holders to harvest timber volumes that may be in excess of sustainable limits. Such requirements discriminate against licencees that would prefer to harvest less than the prescribed AAC limits. Furthermore woodlots face the same cut control regulations as large scale replaceable licence holders such as Tree Farm Licences and Forest Licences, with the exception that major licencees have a slightly lower threshold of allowable overharvesting.

Licence holder control over the volume of timber they harvest is further compromised if a portion of their woodlot is infested with mountain pine beetles. Under current legislation pine trees either infested, or with the potential of being infested, must be harvested by forest tenure holders. As such the Ministry of Forests and Range are increasing the AACs of relevant tenure holders, requiring licencees to harvest pines as soon as possible. Licences composed primarily of pine are having to liquidate their entire woodlot. While the future economic and ecological implications of such actions are enormous, presently there are no concessions available to licence holders that will soon find themselves without a woodlot generated income.

2.1.2 Cutting Permits

Additionally, current legislation may pose challenges to woodlot licence holders seeking to apply ecosystem based forest management practices. Prior to harvesting in a particular area of the woodlot, licencees must apply for a cutting permit from their Ministry of Forests and Range district manager as stated in Division 3, article 58.1 of the Forest Act. The application process requires licence holders to pay for the cutting permit and to wait varying lengths of time for district manager approval. Once approved, permits are valid for four
years. Though one of the greatest potential benefits of small scale forestry is the flexibility operators have to meet fast changing market demands (Mitchell-Banks 2001) the often slow paced district approval of permits can impede licencees from accessing such markets. The cost and administration of cutting permits further discourages licence holders from applying innovative ecosystem based management practices which often require the removal of a small amount of timber over a number of years. The current system makes it far more cost effective and timely for licencees to apply for one cutting permit and use conventional silviculture practices such as clearcutting or clearcutting with reserves where the allotted AAC is harvested at one time. While harvesting and operational controls have long been identified as limiting factors in the course of woodlots carrying out more economically viable and ecosystem based forestry (Burda 1997), little has been done to address these issues over the past 15 years.

2.1.3 Location

A licence holder’s access to economic benefits hinges on the productive area of forest land managed and the extent of government imposed fees, including stumpage, rent, application fees, and professional certification fees. The location of woodlots can pose economic constraints on licence holders both in terms of increased management responsibility and forest productivity. Some woodlots are granted in areas that are ecologically sensitive or socially contentious such as community watersheds (McNaughton 2006; Burda 1997). These cases require special management attention that licencees may or may not have the capacity or resources to administer. Burda (1997) claims that many woodlots are located in young second growth and poor quality forests which significantly limits the short term economic viability of these tenures.

2.1.4 Stumpage Fees

The stumpage system, by which the provincial government collects revenues from tenure holders based on harvest volumes, may be one of the greatest economic barriers to woodlots (McNaughton 2006). While the province assigns lower stumpage rates to low volume harvesting tenure holders (those with AACs under 3 000 m3 in the interior of province, and under 10 000 m3 on the coast) - referred to as the Low Volume Cost Additive (LVCA) – shifting log prices cause even cost adjusted stumpage to undermine the economic
viability of many woodlots. Indeed the limited size of woodlots poses barriers unique to small scale tenure holders. When stumpage rates unpredictably rise woodlots may lose a significant amount of profit, or even be forced to shut down as a result of meeting stumpage payments (Reedy 1999).

2.1.5 Managing for NTFPs

Further the limited comprehensiveness of woodlot tenures may also constrain licence holders from earning a profit. As Section 45 of the Forest Act states, licencees are only permitted to harvest and sell timber from their woodlots (MoFR 2005b). As such they are restricted from accessing benefits generated from the production and sale of non-timber forest products (NTFPs). Rights to harvest and sell NTFPs could play a major role in supplementing the incomes of woodlot managers as has been the case in private small forest enterprises across the country (Dansereau 2003).

2.2 Regulatory Framework

Over the past decade woodlots have seen the introduction of three different sets of provincial regulations. Presently licence holders are transitioning from the Forest Practices Act Woodlot Licence Forest Management Regulations (first introduced in 1998), to the Woodlot Licence Planning and Practice Regulations (WLPPR), established under the 2004 Forest and Range Practices Act (FRPA). Though both regulations are designed specifically for woodlot licences, the latter is founded on a results-based Act arguably intended for large scale industrial tenures (Brown 2006). FRPA regulations increase the accountability of both forest tenure holders and resource professionals. Unfortunately instead of granting licencees greater management freedom, in some cases devolved responsibilities may increase the administrative obligations of woodlot licence holders. According to the Federation of BC Woodlot Associations the off-loading of administrative requirements prescribed in current regulations could undermine the financial viability of small forest operations (McNaughton 2006).
2.2.1 Default Performance Requirements

The introduction of default performance requirements defined in the WLPPR may also pose a number of challenges to licence holders wanting to operate outside of the scope of provincial regulations. Default performance requirements are specific, often quantitative, operating procedures that prescribe how woodlots across the province should manage forest health and mapping, soils, biodiversity, wildlife and fish, and watersheds and riparian areas. These requirements are outlined in Part 3, Division 1-6 of the WLPPR (MoFR 2005c). Licence holders wishing to apply management procedures beyond the default performance requirements must define and justify their alternative performance measures, as required in Division 2: 13-1 of the WLPPR, and pay for the certification of that practice by a professional forester. Developed with the intention of streamlining woodlot administrative procedures, the restrictions imposed by default performance requirements may reduce the potential for the innovative management of woodlots by imposing economic and bureaucratic hurdles to licencees who deviate from default requirements.

2.2.2 Electronic Submissions

A more recent requirement expected to substantially increase administrative costs for some woodlots is the new government-wide electronic submissions policy. Under this policy licence holders are required to electronically submit and receive all forest management documentation, with the exception of the Woodlot Stewardship Plan, to MoFR. This initiative is expected to have major financial implications for many woodlot licence holders who are not computer savvy or who do not have ready access to computers (McNaughton 2006). A survey carried out by the Federation of BC Woodlot Associations (FBCWA) in 2004 found that 8% of licence holders did not have a telephone, and an additional 40% did not own a computer or have reasonable internet access (FBCWA and WPCD 2006b). Such licence holders will be forced to pay consultants to develop and submit cutting and road building permits on their behalf. Relying on consultants to administer woodlots could reduce the amount of control licence holders have over the management of their tenure.
2.3 Program Objectives and Eligibility Criteria

A review of the current Woodlot Licence Program objectives and licence application criteria provides insight into the capacity of licence holders to fulfill social, ecological, and economic characteristics expected of local forest management. The objectives of the program described in the 2001-2002 Woodlot Licence Program Annual Report are shown in Figure 3.

<table>
<thead>
<tr>
<th>Woodlot Licence Program Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>• To increase the amount of private forestland under sustained yield management and to improve the productivity of that land;</td>
</tr>
<tr>
<td>• To improve the productivity of small parcels of Crown forest land;</td>
</tr>
<tr>
<td>• To increase the opportunity for private citizens to participate directly in small-scale forest management operations;</td>
</tr>
<tr>
<td>• To promote local employment opportunities; and</td>
</tr>
<tr>
<td>• To promote excellence in forest resource management</td>
</tr>
</tbody>
</table>

To obtain a woodlot licence prospective licence holders must apply through an advertised competitive application process administered by the MoFR. Three criteria are used to identify suitable applicants: 1) the applicant’s education and personal experience relevant to managing a woodlot licence; 2) the amount and quality of private forest land that the applicant is proposing to include in the woodlot licence; and 3) commitment as to how the woodlot licence will be managed if the applicant is successful.

The main theme driving program objectives and eligibility criteria used to award licences appears to be increasing the productivity of Crown and private forest land. While additional goals include the provision of opportunities for employing knowledgeable and experienced citizens to manage Crown and private land in line with provincial regulations, these objectives appear to be less important in the vagueness by which they are described. For example woodlot licences aim to promote excellence in forest management and are awarded based on how prospective licencees will manage their woodlot. However no indication is given as to what “excellent forest management” entails or which management objectives are considered favourable for prospective licencees to hold. Additionally, as previously noted the capacity of licence holders to practice more ecosystem based forestry may be compromised by the explicitly stated provincial goal of applying sustained yield management to private and public forest lands within woodlots.
2.4 Processing and Marketing

Small scale forest enterprises such as woodlots are best suited to supply timber to value added niche markets (Mitchell-Banks 2001; Reedy 1999). In BC however few woodlots have the opportunity to do so. Provincial regulations, industrial interests, and technological advancements have combined to create a provincial log market controlled by large scale integrated forest companies who operate processing facilities that typically produce low value commodity products – favouring quantity over quality (Howlett 2001; Marchak 1999). Most woodlots sell to these large scale mills as there are limited independent small timber processing facilities throughout the province and most woodlots cannot afford to transport logs to them. Log buyers for major forest companies do not often sort out high value logs for value added processing, making it difficult for the few small scale processors to find and purchase high quality logs from industry sort yards (Reedy 1999).

2.5 Chapter Summary

In summary the Woodlot Licence Program was first developed with the intention of supporting small scale enterprises that could individually generate enough revenue to support the livelihood of one person or a family. However over the past thirty years the operational and planning costs imposed through tenure terms and regulatory structures have made it increasingly difficult for woodlots to be economically viable, innovative, and ecologically sound. Though woodlots are defined as a distinct tenure with unique planning and practice regulations, licence holders are required to meet many of the same conditions and requirements as large scale industrial tenures. With a smaller land base and fewer resources from which to draw from, some woodlots may struggle to make their forest management efforts profitable while managing for ecological and social interests.
Chapter 3 – Methodology

3.1 Survey Design

Information for this study was collected by a mail survey of all woodlot licence holders in the province (see the Appendix). The survey was conducted from June to September 2005. A complete list of licence holders was obtained from the Tenures Branch of the MoFR. To ensure maximum response rates, Dillman’s total design method (Dillman 1978) was applied to implement the survey. Following this approach, a questionnaire, cover letter, and business reply envelope were sent to each licence holder. Two weeks later a reminder letter was sent to woodlot operators who had not yet completed the survey. One month after the first package of information was sent to licences, a second package was sent, containing the questionnaire, a business reply envelope, and a final letter asking for their participation, only to operators who still had not yet taken part in the study.

The survey was separated into a number of thematic sections in order to collect information to meet the study objectives. The first section inquired as to the characteristics of woodlot licence holders including their age, level of education, occupation, and duration of licence experience. Additional information collected included annual operating costs and income generated from woodlots.

The second section asked licencees about management priorities and practices. In order to examine woodlot licence efforts towards sustainable forest management, a list of indicators and associated measures was developed (See Table 2 below) representing social, ecological, and economic aspects of sustainable forest management. As such, the survey collected information regarding a licencee’s forest management objectives, public engagement and First Nation consultation, silviculture practices, reserve and old growth management, forest certification, producing, marketing and processing of woodlot products, changes in profitability over time, and management of non-timber forest products (NTFPs). As shown in Table 2 the indicators and measures used to examine sustainable forestry efforts were derived from a number of Forest Stewardship Council (FSC) criteria (FSC 2002).
Table 2. List of sustainable forestry management indicators and measures used in the study

<table>
<thead>
<tr>
<th>FSC Criteria</th>
<th>Indicator</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1: Indigenous people shall control forest management on their lands and territories unless they delegate control with free and informed consent to other agencies</td>
<td>Efforts to consult with local First Nations</td>
<td>Description of efforts to consult local First Nations</td>
</tr>
<tr>
<td>4.4: Management planning and operations shall incorporate the results of evaluations of social impact. Consultations shall be maintained with people and groups (both men and women) directly affected by management operations.</td>
<td>Incorporation of stakeholder interests in forest management</td>
<td>Type and extent of stakeholder interests considered</td>
</tr>
<tr>
<td>7.4: While respecting the confidentiality of information, forest managers should make publicly available a summary of the primary elements of the management plan...</td>
<td>Methods used to inform the public of management activities</td>
<td>Type of information methods used to inform the public of management activities</td>
</tr>
<tr>
<td>4.1: The communities within, or adjacent to the forest management area should be given opportunities for employment, training, and other services</td>
<td>Extent of employment opportunities provided to the local community</td>
<td>Proportion of forest management related work undertaken by different contributors</td>
</tr>
<tr>
<td>5.1: Forest management should strive toward economic viability while taking into account the full environmental, social, and operational costs of production, and ensuring the investments necessary to maintain the ecological productivity of the forests.</td>
<td>Management objectives that include economic, social, and environmental objectives</td>
<td>Level of importance given to a list of diverse management objectives</td>
</tr>
<tr>
<td>5.2: Forest management and marketing operations should encourage the optimal use and local processing of the forest's diversity of products</td>
<td>Dominant harvesting systems</td>
<td>Type and proportion of harvesting systems used</td>
</tr>
<tr>
<td>5.4: Forest management should strive to strengthen and diversity the local economy, avoiding dependence on a single forest product</td>
<td>Products generated</td>
<td>Type and proportion of timber products produced</td>
</tr>
<tr>
<td>1.6: Forest management should demonstrate a long-term commitment to adhere to third party forest certification requirements</td>
<td>Achievement of third party forest certification</td>
<td>Presence of third party forest certification</td>
</tr>
<tr>
<td>6.4: Representative samples of existing ecosystems within the landscape are protected in their natural state</td>
<td>Allocation of reserve areas</td>
<td>Voluntary allocation of reserve areas, for wildlife patches, riparian areas, or sensitive ecosystems, beyond legal requirements to set aside reserves</td>
</tr>
<tr>
<td></td>
<td>Extent of reserve areas</td>
<td>Proportion of total forest area reserved from harvesting</td>
</tr>
<tr>
<td></td>
<td>Conservation of old growth forests</td>
<td>Voluntary measures taken to conserve old growth forests beyond legal requirements</td>
</tr>
<tr>
<td>6.3: Ecological functions and values shall be maintained intact, enhanced, or restored, including: forest regeneration and succession, genetic, species, and ecosystem diversity, and natural cycles that affect the productivity of the forest ecosystem</td>
<td>Investment in silviculture</td>
<td>Voluntary investment in silviculture treatments beyond legal requirements</td>
</tr>
<tr>
<td></td>
<td>Extent of investment in silviculture</td>
<td>The total amount of dollars spent on voluntary silviculture activities</td>
</tr>
<tr>
<td>8.1: The frequency and intensity of monitoring should be determined by the scale and intensity of forest management operations...</td>
<td>Use of local knowledge for monitoring activities</td>
<td>Voluntary informal surveys undertaken to inform forest management</td>
</tr>
<tr>
<td></td>
<td>Extent of local knowledge for monitoring activities</td>
<td>Number of hours per month spent carrying out informal surveys</td>
</tr>
</tbody>
</table>
The third section examined the benefits woodlots provide, and the challenges they encounter in their effort to practice sustainable forestry. Woodlot manager perceptions were gathered to examine these objectives, and to recommend changes to address identified challenges.

The survey was designed to gather both quantitative and qualitative information from licence holders. Open ended questions in addition to Lickert scales of preferences were used to collect information in the survey. Responses to open ended questions were coded (Miles and Huberman 1984) to identify key themes and in some cases frequency distributions were computed to determine the proportion of recurring themes. Where Lickert scales of preferences were used descriptive statistics were calculated to analyze quantitative data. Where applicable, ninety five per cent confidence intervals were calculated to draw inferences for the entire population.

### 3.2 Response Rate

Of the 813 licencees that were surveyed, 211 completed and returned the questionnaire. Accordingly the response rate was 25.9%. This is considered to be an acceptable response rate (Miller 1978) to make inferences on the population of woodlot licence holders throughout the province of BC. In addition, the geographic location of survey respondents closely approximates the regional distribution of woodlot licence holders throughout BC, as shown in Table 3.

<table>
<thead>
<tr>
<th>Forest Regions</th>
<th>Provincial Woodlot Licence Distribution (%)</th>
<th>Survey Respondent Distribution (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Interior</td>
<td>49.9</td>
<td>41.9</td>
</tr>
<tr>
<td>Southern Interior</td>
<td>40.9</td>
<td>40.8</td>
</tr>
<tr>
<td>Coast</td>
<td>9.4</td>
<td>14.7</td>
</tr>
</tbody>
</table>

Table 3 Survey respondent and provincial licence holder distribution by forest region.
Chapter 4 – Characteristics of Licence Holders and Perceived Benefits of Woodlot Forestry

The key results of this study are presented and discussed in the following three chapters. As noted in the chapter heading, this chapter describes woodlot licence holder characteristics and the benefits they believe woodlots offer. Chapter five presents and discusses the measures licence holders take to implement sustainable forestry on their woodlots. The sixth chapter reports the challenges licence holders have encountered in practicing sustainable forestry and discusses recommendations made by licencees to address these challenges.

4.1 Who Are Woodlot Licence Holders?

To facilitate an examination of the ethics and practices of forest management by woodlot licencees, it is first important to determine who currently holds these tenures. Woodlot licence holders are predominantly middle aged. As shown in Figure 4, approximately 87% of licencees are between 40-60 years old.

The duration of respondent's experience as woodlot managers reflects the expansion of the woodlot licence program over the last 25 years. The two spikes of licence experience (between 6-10 years and
between 16-20 years) corresponds with the expansion of the Woodlot Licence Program, first in the mid 1980's and again between 1996-2000. Roughly 45% of respondents have held their licences between 6-10 years (Figure 5).

The FBCWA reports private non-industrial woodlots in the province are owned and managed by citizens with diverse backgrounds, education, and occupations (FBCWA 2006). This trend also appears to be present in woodlot licence holders. The survey indicates operators have a wide range of education experience. Approximately 90% of all respondents have completed high school, 46.3% hold a bachelor degree, and 11.2% have a graduate degree. Many licence holders have studied forestry and/or work in the forest sector. Roughly one third of respondents hold applied forestry credentials: 27.8% are Registered Professional Foresters and 4.4% are Registered Forest Technicians (Table 4).

Table 4. All levels of education held by woodlot

<table>
<thead>
<tr>
<th>Type of Education</th>
<th>All Levels of Education Completed (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some High School</td>
<td>100</td>
</tr>
<tr>
<td>High School</td>
<td>89.8</td>
</tr>
<tr>
<td>Some University or College</td>
<td>80</td>
</tr>
<tr>
<td>Bachelors Degree</td>
<td>46.3</td>
</tr>
<tr>
<td>Graduate Degree</td>
<td>11.2</td>
</tr>
<tr>
<td>Registered Professional Forester</td>
<td>27.8</td>
</tr>
<tr>
<td>Registered Forest Technician</td>
<td>4.4</td>
</tr>
</tbody>
</table>

The majority of licence holders manage their woodlot in addition to their primary occupation. Only 33% of all respondents consider woodlot management to be their main occupation. The remaining respondents identified their main occupation to be a forest industry related job (44%), ranching (10%), other (10%), or retired (4%).

When asked to identify the individual or group that holds the licence, 66% of respondents identified themselves as an individual or family, 28% represented a small corporation, 4% were held by First Nations, and less than 2% reported belonging to a society or educational group. These averages may not reflect the genuine diversity of woodlot licence holders in the province due to the fact that the survey asked licencees to identify themselves with only one licence holder group while many licencees may belong to more than one group. For example, there may be more First Nations licence holders than was noted, if they identified themselves as a small corporation.
4.2 What Benefits Do Woodlots Provide?

Respondents were asked to rate their level of agreement with statements about the benefits woodlots provide. A five point interval scale ranging from "1 – strongly agree" to "5 – strongly disagree" was used (Figure 6). Y error bars (95 % confidence intervals) were computed to extrapolate the mean level of agreement for each statement by woodlot licencees across the province.

Operators either mostly or strongly agreed with all of the statements with the exception of two. Many licencees had a neutral attitude regarding their ability to respond quickly to market demands and to develop long term trusting relationships with local First Nations. Of all of the benefits described, the most significant perceived by licence holders are diversifying forest tenures on Crown land, contributing to local economies, and the sustainable management practiced by licencees intimately connected to their forests.

![Figure 6. Mean levels of agreement with statements of benefits provided by woodlots](image)

In an open ended question licence holders were asked to identify other benefits provided by woodlots in addition to those listed in the five point interval scale. Respondents identified the following assets: managing for wildlife, providing more local hands-on control over public forest resources, and offering a number of benefits to the local community. Protecting and improving wildlife habitats and providing winter habitat were also recognized advantages of...
woodlots, stemming from the long term concentrated knowledge licence holders have of their woodlots. In addition woodlots are viewed as providing an opportunity for families to work together as forest stewards, for being accountable and approachable to their local communities, and accordingly, for considering citizens values in forest management.

Many respondents also believe woodlots provide more jobs to local residents than industrial forestry. Operators drew attention to the stabilizing effects they believe woodlots have on local economies through the generation, investment, and circulation of woodlot profits. Small scale tenures are also perceived to provide a forum for forestry education and sustainable forestry demonstration and training programs.

These perceived benefits coincide with the expected advantages identified in both small scale forestry and local forest management literature. They also exemplify the social and ecological aspects of sustainable forest management. An obvious question that follows is are woodlots implementing these benefits. In other words, are they practicing sustainable forest management on the ground?
Chapter 5 - Efforts to Implement Sustainable Forest Management

5.1 Ecological Indicators

5.1.1 Management Objectives

Licence holders were asked to rate the importance of a list of management objectives in the management of their woodlot. A five point interval scale ranging from "1 – strongly agree" to "5 – strongly disagree" was used (Figure 7). Y error bars (95% confidence intervals) were calculated to draw inferences for licence holders across the province.

Figure 7. The importance of forest management objectives to woodlot licence holders.
An examination of woodlot licence holder performance against a number of SFM indicators suggests that the average woodlot licence holder is committed, and attempts to implement, SFM on the private and Crown forestlands they manage. Woodlot managers appear to value a diverse set of management objectives. Of the 18 objectives, 13 were identified as important to licence holders with mean values and confidence intervals greater than 3. Of these management objectives licence holders consider the following to be very important in the management of their woodlots: maintaining the productive capacity of the forest (4.4 +/- 0.13); protecting water resource and riparian ecosystems (4.37 +/- 0.12); leaving a legacy for future generations (4.24 +/- 0.14); and making a profit (4.13 +/- 0.13). This wide range of significant management objectives portrays woodlot operator commitment to ecologically sound, socially responsible, and economically viable forestry over a long term.

Other objectives identified as "important" by licence holders portray a general approach to forestry founded on ecosystem based management (EBM) principles. EBM is rooted in sustainable forestry, and has been defined as:

"an adaptive approach to human activities that seeks to ensure the coexistence of healthy fully functioning ecosystems and human communities...The intent is to maintain those spatial and temporal characteristics of ecosystems such that component species and ecological processes can be sustained, and human well-being supported and improved" (CIT 2004).

In other words, forest managers applying EBM attempt to manage for and maintain the multiple functions and interconnectedness of forest ecosystems. Important management objectives identified by woodlot licence holders demonstrate such an approach. These objectives included minimizing soil disturbance and damage to sensitive ecosystems, understanding natural disturbance processes, managing for diverse tree species and age classes, and protecting endangered species.

Those objectives reported to be less important (noted as 'slightly important', with mean values approaching 2 included harvesting to access the most valuable timber (2.76 + 0.16), and consulting with local First Nations (2.4 + 0.16)
5.1.2 Voluntary Stewardship Initiatives

The survey asked about voluntary measures taken by licence holders to manage for areas reserved from harvesting, old growth trees, and silviculture treatments. 65% of licence holders surveyed have set aside areas reserved from harvesting beyond legal requirements to allocate reserves. Licence holders designate these areas as wildlife patches, riparian areas, or sensitive ecosystems. The majority of these licence holders (49%) have allocated up to 5% of their woodlots to such reserves. An additional 26.8% of woodlots with voluntary reserves have designated reserve areas on 6-10% of their woodlot (Table 5).

Table 5. Proportion of reserve areas voluntarily set aside by woodlot licence holders

<table>
<thead>
<tr>
<th>Percent of Total Forest Area (%)</th>
<th>Proportion of Licence Holders (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5</td>
<td>29.1</td>
</tr>
<tr>
<td>6-10</td>
<td>26.8</td>
</tr>
<tr>
<td>11-15</td>
<td>13.4</td>
</tr>
<tr>
<td>16-20</td>
<td>3.6</td>
</tr>
<tr>
<td>&gt; 20</td>
<td>7.1</td>
</tr>
</tbody>
</table>

75% of respondents that have old growth on their woodlot take special measures to protect old growth trees and stands beyond those legally required. The most common reason reported for not applying protective measures was the presence of mountain pine beetle infestation in old growth trees.

Between 2000-2004 58% of survey respondents applied silviculture treatments beyond what is legally required. There appears to be a wide range of investment made. Of the operators that did voluntarily invest in silviculture, approximately 30% reported spending between $1 000-$5 000. Roughly 18% invested between $6 000-$10 000 and 15% of licences paid between $16 000-$20 000 on silviculture treatments beyond provincial regulations (Figure 8).
Perhaps one of the most impressive indicators of woodlot operator efforts to practice SFM is the voluntary measures many take to ensure their forests are healthy, functioning, and diverse. While licence holders must adhere to provincial regulations regarding the allocation of areas reserved from harvesting, managing old growth trees, and applying silviculture treatments, the majority of licencees go beyond what is legally required of these particular stewardship responsibilities.

5.1.3 Harvest Systems

Licence holders were asked to identify the dominant harvesting methods used on their woodlot from 2000-2004, from a list of harvesting systems. Respondents reported applying a variety of harvesting systems (Figure 9). The most commonly used included clearcutting with reserve (28.3), selective cutting (22.5), clearcutting, (19.1) and patch cuts (14.4).
The harvesting systems applied by woodlot operators further demonstrates a trend in voluntary forest stewardship initiatives taken. While licencees are required to harvest their allocated AAC, there are few regulations prescribing how trees should be cut. In this way licence holders have a limited autonomy to decide what harvest treatments to apply.

Applying diverse harvesting systems and using clearcutting sparingly, coincides with recommended ecosystem based harvesting practices for BC (Hammond 1991). Such recommendations are founded on the basis that: 1) a variety of harvesting treatments should be applied in order to maintain the diversity of age classes, tree species, and forest ecosystems across the province; and 2) the historical application of large scale clearcuts have had devastating ecological implications on the forests on which they were applied (Hammond 1991).

5.1.4 Local Knowledge

Another voluntary measure carried out by almost all woodlot managers is informal surveying of their woodlots. Approximately 94 % of licence holders spend an average of 12.3 hours a month walking through their forests. Whether they note the location of a bear hibernation site, the health of newly planted seedlings, or the date an ephemeral stream starts to flow, licence holders agree that this voluntary monitoring significantly contributes to how they manage their woodlots. It is this place-based knowledge of forests that is claimed to be one of the greatest assets wielded by small forest managers in their efforts to practice responsible forestry (Hammond 1991).

5.1.5 Third Party Certification

In contrast, very few respondents are certified by a third party sustainable forest certification scheme. Approximately 4 % of all woodlots surveyed have certified their woodlot: 3 % hold Forest Stewardship council certificates and 1 % are certified by the Sustainable Forest Initiative.
It may be argued that third party forest certification by a sustainable forest certification scheme is the ultimate voluntary commitment to practice SFM an individual forest manager or forest company can achieve. Given the other voluntary initiatives and investments made by licences, it is surprising that so few are FSC or SFI certified. One explanation for this trend is that third party forest certification may not be an appropriate indicator to judge SFM by woodlots.

The growing popularity of forest certification over the past decade has inspired research focused on the disparity of access to forest certification. In particular a number of studies argue that forest certification is unachievable for small forest enterprises owing to the length of certification standards, and the administrative costs of applying for, and renewing, certificates (Higman and Nussbaum 2002.; Nussbaum et al 2001). In an attempt to address these barriers to certification, in 2003 the FSC introduced the Small and Low Intensity Forest Management (SLIMF) standard (FSC 2003), designed specifically for small forest enterprises. The BC specific SLIMF standard (FSC Canada 2005) is currently being tested in field trials across the province and may prove to make FSC certification more accessible to woodlots in the future. Until then, woodlot achievement of forest certification appears to be an inadequate SFM measure.

5.2 Social Indicators

Indicators used in this study to examine the social aspects of SFM efforts by woodlot operators included relationships with local First Nations, consideration of stakeholder interests, methods of disseminating woodlot information, and contributions to local employment. These indicators are measured in SFM literature such that: First Nations legal and customary rights to their land and resources should be recognized and respected (FSC 2002); First Nations and other individuals and/or groups affected by forest management should be consulted (FSC 2002; CCFM 2003). forest managers should proactively contact people that could be directly affected by forest operations in a manner that allows them to
understand potential impacts (FSC Canada 2005). and forest operations should provide employment opportunities to local communities (FSC 2002). The study results show that on average woodlot operators implement many of these SFM measures and in so doing, surpass some provincial regulation requirements for consultation.

5.2.1 Stakeholder Interests

Licence holders were asked to rate the degree to which they valued the interests of a number of given stakeholders on a five point interval scale (1 – not considered, 5 – highly valued). Licencees consider the interests of a number of stakeholders. The interests of groups that have the greatest contact with woodlots, either geographically or administratively are considered more by operators than other stakeholders. Respondents reported valuing MoFR district managers and neighbors interests the most. On average licencees moderately consider community members and local First Nations interests. Operators usually do not consider the interests of environmental organizations, industry, or the municipal government (Figure 10).

When asked how licencees inform the public about their woodlot, 80 % of respondents reported using informal conversations. Woodlot operators appear to use a number of other resources to inform the public about their woodlot. Field visits (38.5 %), educational tours (26 %), and public meetings (21 %) were also used by licencees (Table 6).
Table 6. Information methods used by licence holders to inform the public of management activities

<table>
<thead>
<tr>
<th>Information Methods Used</th>
<th>Percent of Licence Holders (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informal conversations/visits</td>
<td>80.0</td>
</tr>
<tr>
<td>Public meetings</td>
<td>21.0</td>
</tr>
<tr>
<td>Open houses</td>
<td>18.0</td>
</tr>
<tr>
<td>Field visits/tours</td>
<td>38.5</td>
</tr>
<tr>
<td>Educational tours with school/community groups</td>
<td>26.0</td>
</tr>
<tr>
<td>Steering Committees</td>
<td>10.0</td>
</tr>
<tr>
<td>Other</td>
<td>17.0</td>
</tr>
</tbody>
</table>

According to these results most licence holders exceed provincial regulations regarding the methods used to inform the public about woodlot operations. As stated by Division 3, Section 17 of the WLPPR, the only public information requirement of woodlots is to advertise a notice of their woodlot licence plan in a local newspaper, prior to submitting their plan to MoFR for approval (MoFR 2005c).

The extent of voluntary consultation methods applied by licence operators suggests that they are sincerely interested in informing their local communities about forest operations. Further, informal conversations, field visits, and woodlot tours are far more engaging approaches to convey information, providing a forum for licencees and locals to discuss operations, relative to a newspaper advertisement.

5.2.2 Local Employment

When asked who has contributed to the management of the woodlot between 2000-2004, licence holders reported apportioning much of the workload to locals. On average respondents reported doing 57% of the work. Almost all other tasks were carried out by locals including professionals and family members. Respondents reported employing non-locals to carry out only 2% of the work done on their woodlots (Table 7). These results confirm the claim made by the Boundary Woodlot Association (FBCWA WPDC 2006b), that woodlots across the province generate employment for their local communities as almost all work done on woodlots is carried out by licence holders, their families, and hired locals.
Table 7. Distribution of contributors to working on the woodlot

<table>
<thead>
<tr>
<th>Contributors to Woodlot Management</th>
<th>Percent of Work Done (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woodlot licence holder</td>
<td>57.0</td>
</tr>
<tr>
<td>Family members</td>
<td>13.3</td>
</tr>
<tr>
<td>Hired Locals</td>
<td>17.3</td>
</tr>
<tr>
<td>Hired non-locals</td>
<td>2.0</td>
</tr>
<tr>
<td>Professionals</td>
<td>15.1</td>
</tr>
</tbody>
</table>

5.2.3 Relationships with First Nations

Licence holders were asked to describe their relationship with local First Nations from a defined list of options. Responses show that acknowledging First Nations customary rights and proactively consulting local First Nations is one of the few SFM measures woodlots appear to fall short of meeting. While 33% of respondents recognize First Nations rights to their traditional territories and resources, only 41% incorporate the interests and concerns of First Nations into their management plans.

Survey results suggest that many woodlot operators may disagree with the very limited consultation requirements in the WLPPR (Division 3, Section 17:3.1), to make "reasonable efforts" to meet with first nation groups affected by the woodlot licence plan in order to discuss or amend it. Approximately 38.6% of respondents don’t think licence holders should have to consult First Nations. Related to this, licence holders appear to have limited interaction with First Nations groups. Only 28% of operators described their relationship with local First Nations as ongoing and established (Table 8).

Table 8. Woodlot licence holder description of their relationship with local First Nations

<table>
<thead>
<tr>
<th>Description of Relationship</th>
<th>Per cent of Licence Holders (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I respect and recognize First Nations legal and customary rights to traditional territories and resources</td>
<td>33.3</td>
</tr>
<tr>
<td>I meet the legal requirements and consult with local First Nations band(s) about my Forest Development Plan</td>
<td>63.3</td>
</tr>
<tr>
<td>I incorporate First Nations interests and concerns into the Forest Development Plan</td>
<td>41.1</td>
</tr>
<tr>
<td>I have an ongoing relationship based on mutual respect with local First Nations</td>
<td>28.0</td>
</tr>
<tr>
<td>I don’t think woodlot managers should have to consult with First Nations about forest management</td>
<td>38.6</td>
</tr>
</tbody>
</table>
The lack of licence holder conviction to consult with First Nations was evident in operator responses throughout the survey. In defining the benefits woodlots provide, many operators reported a neutral attitude regarding their ability to develop long term trusting relationships with local First Nations (Figure 11). Additionally, when asked to rate the importance of consulting with local First Nations as one of 18 forest management objectives, on average it was rated as the least important objective, receiving an average rating of only "slightly important" in forest management (Figure 7).

5.3 Economic Indicators

Economic indicators of SFM that woodlot operators were measured against characterize sustainable forestry as 1) forest management that strives towards economic viability while accounting for social, environmental, and operating costs, and 2) forest management and marketing of a diversity of forest products, avoiding dependence on a single forest product (FSC 2002). Economic viability was measured in the study via indicators of profitability, percent of household income generated by the woodlot, and operational costs. The diversity of forest products harvested and sold by woodlot operators was measured with indicators of percentage of product type sold and processed, and interest in managing for NTFPs.

5.3.1 Economic Viability

Results showed that most woodlots have been economically viable over the past five years, in that the majority of woodlots (85%) have been profitable between 2000-2004. Fewer licences anticipate they will make a profit in the near future. When asked to project what the next five years will hold, 76.2% of respondents estimated their woodlot would generate a profit.
Estimated annual operating costs varied substantially between woodlot licence holders. While 25.7% of respondents spent > $75,000 annually between 2000-2004, 15.1% reported spending < $10,000 a year over the same time period. Projected annual operating costs for 2005-2009 showed similar variation (Table 9). The extreme differences in annual operating costs illustrates that the profits woodlot operators enjoy may vary significantly throughout the province.

Table 9. Annual woodlot operating costs between 2000-2009

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>&lt; 10,000</td>
<td>15.1</td>
<td>14.9</td>
</tr>
<tr>
<td>10,000 - 24,999</td>
<td>23.6</td>
<td>18.3</td>
</tr>
<tr>
<td>25,000 - 34,999</td>
<td>15.7</td>
<td>16.1</td>
</tr>
<tr>
<td>35,000 - 49,999</td>
<td>10.3</td>
<td>11.4</td>
</tr>
<tr>
<td>50,000 - 75,000</td>
<td>13.1</td>
<td>11.4</td>
</tr>
<tr>
<td>&gt; 75,000</td>
<td>25.7</td>
<td>26.9</td>
</tr>
</tbody>
</table>

While the majority of woodlots turn a profit, the small size of these tenures significantly limits the amount of income they generate. The majority of respondents rely on woodlot profits to supplement other sources of household income. Approximately 75% of respondents stated that their woodlots contributed between 0-50% of their annual household income between 2000-2004. Only 12.6% of respondents rely on their licences to generate 75-100% of their annual family income (Figure 11). The limited profits generated by woodlots is further exemplified in that two thirds of licence holders describe their main occupation as something other than woodlot management.

![Figure 11. Contribution of household income generated by woodlot licences](image-url)
5.3.2 Products and Markets

Between 2000-2004 98% of timber harvested on woodlots was sold as round logs. Value added products produced by woodlot licences made up 1%, and lumber made up less than 1%. The survey also asked what percent of annual woodlot harvests are sold to particular processing facilities. On average respondents sold 78% of their annual harvests to mills owned by major forest companies and 12.3% to mills owned by small forest companies. 6.2% of timber harvested was sold to value added manufacturers, and roughly 3.5% was processed on site.

Study results show that woodlot operators clearly fail to meet the SFM objective of managing and marketing a diversity of forest products in order to avoid dependence on a single product. Almost all timber harvested on woodlots is sold as round logs, for the most part to major forest companies.

The most obvious explanation for this trend lies in the limited comprehensiveness of woodlot licences defined in the Forest Act, which legally restricts operators from harvesting or selling forest products other than timber from their woodlots. However there are no regulatory barriers limiting operators from value added processing or from selling to value added processors. In fact current regulations allow woodlot licences the option of operating their own processing facilities on site. Given this option, it is surprising that such a small quantity of the timber harvested by woodlots is sold to value added manufacturers, and even less is processed by licencee operated mills. Since it can be assumed operators would receive greater economic returns if they sold to value added manufactures rather than large scale processing facilities, these results suggest that the former manufacturers either are not available to licence holders, or they do not yet exist.

Results showed many operators are interested in expanding management rights beyond timber. When asked if there would be interest in managing for non-timber forest products (NTFPs), should they become regulated, 24.6% of respondents reported interest. Over half of licencees answered that they may be interested, suggesting that their keenness to undertake NTFP management would dependent on how such products would be regulated.
The remaining 25.1% of respondents answered that they are not interested in NTFP management. Products respondents are most interested to manage include mushrooms, medicinal herbs, tree boughs, floral greens, and berries (Table 10). It should be noted that the study did not ask licence holders if they were interested in managing for recreational or spiritual NTFPs such as camping or ecotourism.

Table 10. Proportion of licencees interested in managing for different NTFPs

<table>
<thead>
<tr>
<th>Type of NTFP</th>
<th>Proportion of Licence Holders (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mushrooms</td>
<td>33</td>
</tr>
<tr>
<td>Berries</td>
<td>21</td>
</tr>
<tr>
<td>Honey</td>
<td>9</td>
</tr>
<tr>
<td>Boughs</td>
<td>27</td>
</tr>
<tr>
<td>Floral Greens,</td>
<td>26</td>
</tr>
<tr>
<td>Nuts</td>
<td>2</td>
</tr>
<tr>
<td>Medicinal Herbs</td>
<td>28</td>
</tr>
<tr>
<td>Alder</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>9</td>
</tr>
</tbody>
</table>

5.4 Chapter Summary

In short, an assessment of woodlot licence holders' efforts to practice sustainable forestry indicates that the average woodlot operator undertakes a number of voluntary measures that often surpass provincial requirements intended to institute more ecologically sound and socially responsible forestry. These initiatives include allocating reserve areas, managing for old growth, investing in silviculture, monitoring, applying diverse harvesting practices, consulting a number of forest stakeholders, and using a variety of methods to disseminate information about their woodlots. These actions demonstrate that many woodlot licence holders are committed to implementing a variety of SFM practices on the private and Crown forestlands they manage.

These results provide an empirical foundation that supports the perceived benefits of small scale forestry, and woodlot forestry in particular. These tenures often provide a number of benefits to their local communities such as offering employment, profit sharing, and an opportunity for citizen's values to be expressed in the management of Crown forests. As small scale forestry advocates would assert, many woodlot operators appear to be responsible forest stewards dedicated to maintaining the health and integrity of their woodlots by applying innovative practices, and taking special measures to manage for...
sensitive ecosystems and old growth forests. According to the findings of this research, the assumptions that licence holders implement many sustainable forestry practices due to the place based knowledge they have, and the relationships they have cultivated within their local communities, appears to be a reasonable explanation for their actions.

There are however a number of sustainable forestry indicators that woodlots appear to fall short of meeting. These include recognizing and consulting First Nations regarding their rights to traditional lands and resources, and managing and marketing diverse forest products. Not surprisingly these issues were identified by woodlot operators as challenges to practicing sustainable forestry. In the following chapter the roots of these, and other obstacles, are discussed and actions are recommended to address them.
Chapter 6 – Identified Challenges and Recommendations

In order to identify the major barriers licence holders face in implementing sustainable forestry, the survey asked licence holders two questions. The first listed ten factors describing potential challenges experienced by woodlot licence holders, and inquired as to the extent of difficulty experienced. Operators selected their responses from a five-point Likert scale ranging from “1 – not at all challenging” to “5 – extremely challenging” (Figure 12).

Listed in order from most challenging to approaching neutral, operators identified the following factors as challenging: electronic submission requirements, the timber pricing system, administrative requirements, stumpage payments, the planning process, accessing markets, and the permit application process. Education and training, landbase productivity, and silviculture obligations are in general viewed to be significantly less constraining with scores for these factors ranging from slightly to somewhat challenging.

![Figure 12. Mean levels of challenges encountered by woodlots](image-url)
The second query was formatted as an open ended question that asked licencees to describe the barriers they have encountered in attempting to implement sustainable forestry on their woodlots. Of the 211 respondents, 190 licence holders answered this question. Operator responses were coded and then averaged in order to identify key themes in the perceived challenges. Responses echoed the findings of the previous Likert scale inquiry, and provided further insight as to the specific sustainability issues faced by licence holders. These issues are presented below.

6.1 Increasing Costs and Declining Control

50.5 ± 7% (95% confidence intervals) of respondents identified administrative issues and/or requirements as major barriers. Specific issues included 1) increasing administration costs, 2) frequently changing requirements, and 3) the costs and decreased control imposed by electronic submission requirements.

Many operators feel current regulations diminish their capacity to employ their individual or local interests and knowledge in the administration and management of their woodlots. The streamlining of woodlot planning and practice regulations, and the shift to a results based code has increased the rigidity of administrative requirements and further reduced the control many licencees feel they have as forest stewards. Study results showed many woodlot operators are frustrated at the lack of recognition of the diverse interests, skills, and backgrounds amongst licence holders ignored by electronic document submission requirements and default performance requirements.

Electronic submission requirements were also identified as a major financial burden by woodlot managers who are not computer literate. Such licencees will be forced to pay forestry consultants to develop and submit operational documents on their behalf. The inherent issues with this new regulation are captured in the following quote: "Electronic submissions will make me dependent on others and increase my administration costs". Licence holder experience with default performance requirements suggests similar constraints.
6.1.1 Recommendations

To address administrative requirements regarding issues of diversity between woodlot licence holders, many respondents recommended greater flexibility be provided in reporting requirements, such as making electronic document submissions optional. Many licence holders also suggested that fees for challenging default performance requirements could be waived if licencees demonstrate responsible forest management.

6.1.2 Analysis

In attempting to streamline woodlot management, through default performance requirements, and electronic reporting requirements, MoFR has elected expediency over acknowledging the diverse interests and skill sets of woodlot licence holders. While these requirements surely relieve the administrative duties of the provincial government, they will likely increase administrative costs for many licence holders. Additionally it seems reasonable to believe that the imposed costs and bureaucracy of challenging default performance requirements will likely discourage operators both from deviating from such requirements, and implementing alternative innovative approaches to forest management.

Though escalated costs are intended to be only temporary as operators adapt to the new reporting protocol (Haley 2006), considering the upgrading and learning that many licence holders will have to undertake in order to implement these requirements, it is uncertain how long the transition period could take. Though not suggested by licence holders, additional recommendations that could be adopted to ease the cost of electronic reporting include 1) allowing an interim period of time where electronic submissions would be optional and 2) providing computer training courses offered by the Federation of BC Woodlot Associations and funded by the MoFR.
6.2 Forced to Choose Profits Over Ecosystem Based Forestry

38.4 ± 6 % of licence holders identified challenges associated with woodlot management practices and requirements. Many licencees felt provincial regulations constrained their ability to respond quickly to local markets and to use innovative ecologically sensitive management practices. Contributing factors included the often excessive length of time to approve cutting permits, site plans, and forest development plans, as well as the limited duration of cutting permits.

Some operators feel the increased costs and limited capacity to generate revenues resulting from such regulations force them to make tradeoffs between economic viability and more sustainable forest management practices. As one licence holder claimed “Current regulations prevent practicing good forest management”. In an attempt to recover costs, licencees often forgo, or struggle to implement, voluntary ecologically or socially beneficial management activities.

The high costs associated with alternative to clear cut silviculture systems, currently unrecognized and unrewarded by the province, were also singled out as an example. Some licencees reported that horse logging or selective logging, two ecosystem based silviculture practices, are not economically viable given current regulatory requirements. As stated by one licence holder “It is very hard to be more socially and ecologically sound without economic backup”. Respondents frequently noted that their constrained economic situations forced them to operate as major licencees do.

6.2.1 Recommendations

Many licence holders believe provincial woodlot regulations should adopt cost saving incentive driven requirements that reward licencees for practicing more ecologically and socially based forest management. For example woodlots that demonstrate responsible forest management could be granted longer term cutting permits or multiple cutting permits could be eliminated by allowing one permit to cover an entire woodlot. Other proposals included streamlining the application process for cutting permits and appraisals by introducing a web based system.
6.2.3 Analysis

Results of this study show that most woodlot operators undertake a number of voluntary measures that are socially responsible and protect the integrity of forest ecosystems. These measures are often more costly and time consuming, and surpass provincial requirements. Such measures should be encouraged. Recommendations to adopt incentive based regulations, that reward responsible forest management by decreasing administrative costs and requirements for these licences, seem favorable over command and control regulations, which penalize tenure holder who do not comply with government set requirements. In this way sustainable forestry performance could be used to prove whether a woodlot operator is eligible for reduced administrative obligations. The underlying argument of these recommendations is that responsible forest management should be encouraged by regulations that allow licence holders to enjoy more of the administrative and management freedoms associated with private forest management.

6.3 Inappropriate Regulations

33.7 ± 7% of respondents asserted that woodlot legislation does not recognize the unique benefits and challenges presented by small scale forestry. Some of these challenges are related to economies of scale. For example many respondents described their woodlots as being increasingly less profitable as a result of periodic harvesting and a limited landbase size that constrains economic viability.

Other challenges are related to the perception that woodlots operate within a regulatory system designed for large scale industrial tenures. In particular respondents noted constantly changing legislation, limited access to log markets, and mountain pine beetle harvesting legislation as significant barriers.

6.3.1 Recommendations

Recommendations to stabilize profits generated by woodlots included increasing the size of the licences. Respondents suggested awarding additional Crown forestland to current licence holders to support at least one or two full time employees. Others proposed
providing additional land to licencees that could prove they take special measure to manage their woodlots more sustainably. Many operators also asserted that outreach services provided by MoFR and provincial regulations should be revised in order to recognize the unique challenges of small scale forestry.

6.3.2 Analysis

Given that the vast majority of woodlots appear to be making a profit on a sustainable basis, it seems contentious that many licence holders argue that greater tracts of land should be allocated to woodlots in order to ensure their licences are economically viable. The cause of such a demand is that many licence holders want their woodlots to generate more profits than they currently do. As this study has shown, though most woodlots turn a profit, the majority of licence holders rely on these profits only as supplemental income. The call to increase the size of woodlots in order to generate a core source of income was first made in 1976 in the Pearse Royal Commission Report, where Peter Pearse recommended that woodlot tenures should be large enough to employ an individual or family (Pearse 1976). Furthermore, considering the enormous profits made by forest companies holding large scale forest tenures, it could be argued that small scale tenures should provide more economic benefits than a source of supplemental income.

Given the current redistribution of land formerly allocated to industrial tenures, the proposals to increase the area of some woodlots, or to provide concessions to infested woodlots in the form of access to greater areas of Crown land, may be timely recommendations. In reviewing the current Woodlot Licence Program, the economic intention of woodlot licences should be clarified.

Additionally it is not surprising that issues such as constantly changing legislation, limited access to log markets, and mountain pine beetle harvesting legislation were singled out by licencees as major challenges. Woodlots and major licence holders operate under the same legislative requirements for each of these factors. Relative to Tree Farm Licences and Forest Licences, woodlots are much more vulnerable, incur greater costs, and require more resources to adapt to regulatory changes and natural disasters than large scale tenures.
6.4 Severe Mountain Pine Beetle Control

32.6 ± 5 % of woodlots identified present and future costs resulting from mountain pine beetle regulations as challenging. The following issues were singled out by operators as significantly challenging 1) low log prices resulting from selling to a flooded market, 2) the imminent overcut and inability to generate future profits, and 3) the disregard for social and ecological impacts of high harvest levels.

6.4.1 Recommendations

To reduce economic losses expected of woodlots infected with mountain pine beetle, respondents consistently asserted that the MoFR should provide concessions to these licence holders. Suggestions included increasing or exchanging Crown land devastated by beetles and providing multiple species of trees to reforest beetle killed forests.

6.4.2 Analysis

The economic implications of mountain pine beetle infestations and provincial harvesting requirements may devastate some licences to the point where they will be forced to give up their licence. Unlike large scale tenure holders, small scale licences do not have other licences or larger tracts of land with trees species other than pine, from which to draw on. Recommendations made by survey respondents to have MoFR provide concessions to licence holders who otherwise may lose their licences appear to be valid.

6.5 Limited Marketing Opportunities

Challenges associated with log markets were also identified by 32.1 ± 7 % of respondents. Marketing specific issues included lack of marketing opportunities for logs and value added products and consistently low log prices driven by reduced competition in the log markets. A related barrier also singled out by respondents was the prohibition of value based log sorting imposed by some major forest companies to whom woodlots sell their logs.
In the case of market access, respondents listed the lack of value added markets available to woodlots and the often isolated location of woodlots as major factors forcing most licence holders to sell their logs to the mills and sort yards of major forest companies. As such many operators stated they are extremely limited in the products they can sell (round logs), and the economic returns they generate.

6.5.1 Recommendations

Recommendations to increase marketing opportunities for woodlots included creating lumber brokerage firms, log or product cooperatives, or a website to connect producers and consumers of value added products. Additional recommendations included adopting regulations that would encourage the local processing of small sales such as local sort yards or the increased use of portable on-site saw mills.

6.5.2 Analysis

Throughout this study lack of value added processing and marketing by licence holders have been identified numerous times as key challenges to implementing more sustainable forestry. Study results show that woodlot operators are keenly aware of these issues and desire to produce higher value products and access markets for such products. Though these challenges are obviously caused by the limited number and location of value added manufactures, another contributing factor is the lack of marketing knowledge and experience of woodlot operators. Woodlot tenures require licence holders to have a broad range of skills. It would not be surprising that licencees may have more experience managing forests than marketing products.

Proposals to collaborate and share resources as a means of accessing value added markets, such as creating lumber brokerage firms, product co-operatives, and local sort yards, may be extremely beneficial for woodlot operators as such initiatives have proven to be successful for small forest operators in other jurisdictions such as Sweden (Bengt 1997). An additional recommendation not mentioned by respondents is the need for further research to identify why so few current licence holders operate on-site processing facilities.
6.6 Unpredictable Stumpage Rates

Many respondents (23.7 ± 5 %) noted the unpredictable variation in stumpage rates and the often disproportionate relationship between these rates and log prices. Respondents stated that these factors make it difficult for licence holders to plan and implement profit generating harvesting activities. Numerous licence holders used the term "cost price squeeze" to describe the limited profits they receive as a result of low log prices and high stumpage rates.

6.6.1 Recommendations

Diverse recommendations were identified to address stumpage and market regulations that cause a "cost price squeeze" so often experienced by woodlot licence holders. Respondents suggested altering the stumpage system to provide incentives for woodlots to practice more ecologically and socially beneficial forestry. Other recommendations included replacing current stumpage requirements with an increased annual rent fee based on average annual operating costs. Additional proposals included the revision of the current stumpage system to 1) reflect log prices in relevant areas, 2) account for costs incurred in applying sustainable forest management practices, and 3) consider limiting factors specific to each woodlot such as growing capacity, haul distance, and AAC.

6.6.2 Analysis

Though the province assigns lower stumpage fees to low volume harvesting tenures, these results show that the unpredictable nature of stumpage fees still pose a major economic challenge to many woodlot operators. Recommendations made by licence holders are founded on the perception that the stumpage system should be revised in order to 1) reflect the financial reality of woodlot licence holders and 2) be predictable so licencees can factor them into management planning and operational costs. These goals are shared by the FBCWA who are currently advocating for an alternative stumpage systems that better accounts for the circumstances of woodlot licences. (McNaughton 2006). Two contractors are currently working under the FBCWA to identify alternative stumpage options that would benefit woodlot operators across the province.
6.7 Managing for Landscape Level Biodiversity

Survey results also showed that some woodlot licencees believe current planning and practice regulations are either lacking or inappropriate to guide the management of landscape level biodiversity. Some managers noted the inefficiencies of current landscape management regulations such as wildlife connectivity correctors, watershed planning, and large scale biodiversity maintenance.

6.7.1 Recommendations

In order to improve the conservation of landscape level biological diversity on woodlots respondents recommended that regulations should establish a minimum timeframe in which MoF must respond to forest health issues on woodlots. An additional proposition included encouraging licence holders to participate in landscape level planning and management activities such as watershed planning and wildlife corridors.

6.7.2 Analysis

Maintaining biodiversity at the landscape level is an important challenge associated with small scale forestry. A common criticism of small landholder forest operations is the fragmentation they cause of forest landscapes when diverse approaches to forest management are used by a number of forest managers operating in adjacent areas. (Harrison 2002). The fact that such issues were raised by licencees shows that many operators are aware of these shortcomings and interested in addressing them.

Though respondents suggested a few actions licence holders could undertake to better manage for landscape level biodiversity, more explicit recommendations are required. For example the MoFR or the FBCWA could provide educational material to woodlots regarding the importance of collaborating with neighboring forest owners or becoming familiar with stand qualities and features of surrounding forests, in an effort to manage for landscape level biodiversity. Such initiatives may prove to be challenging to licence holders who do not currently identify their forests as part of a larger forest unit.
6.8 Consulting First Nations

A number of woodlot operators also believe the current regulations pertaining to cultural heritage conservation and First Nations consultation, are beyond the scope of licence holder responsibilities. Specific issues raised by respondents include planning and operating challenges due to uncertainty of land claims and treaty negotiations, the cost of preliminary field reconnaissance for cultural heritage, and the length of time taken by some bands to approve woodlot operations.

6.8.1 Recommendations

Respondents suggested that the MoFR should take more responsibility in consulting and accommodating First Nations in order to alleviate licence holders of the cost and time of undertaking these tasks. Some operators felt that prior to awarding woodlot licences, the MoFR should consult with the appropriate First Nations and/or remove areas of high cultural value from woodlots.

6.8.2 Analysis

All survey results point to First Nations consultation as a major issue for woodlot licence holders. In rating the benefits provided by woodlot tenures, respondents had a neutral attitude towards developing long term trusting relationships with First Nations. Results also showed that most licence holders do not acknowledge First Nations customary rights or proactively consult local First Nations about woodlot operations. Many licence holders obviously perceive First Nations consultation requirements present an obstacle to implementing more sustainable forestry.

While some respondents asserted that the cost and time of consulting with First Nations is beyond the scope of licence holder responsibilities, it could be argued that such responsibilities are warranted considering that much of the Crown land allocated to woodlots is within the traditional territories of numerous First Nations. In order to practice more sustainable forestry, that recognizes the rights of local First Nations, woodlot operators should make more efforts to collaborate and consult with local First Nations.
6.9 Chapter Summary

The results of this study show that overwhelmingly the most significant challenges identified by licence holders are linked to concerns regarding the profitability of their woodlots. Though woodlots appear to be economically viable, many licence holders want their licences to generate more than a supplemental income. While most licence holders apply ecologically and/or socially responsible voluntary measures in the management of their woodlots, in times of economic instability, operators often feel they must choose cost saving measures over more sustainable voluntary practices.

Most of the administrative, regulatory, and market based factors identified by licence holders, contributing to increased operating costs or limiting profits generated by woodlots, seem both valid and reasonable obstacles to SFM. The perception that woodlot licence holders should not have to consult with First Nations regarding forest operations is the only challenge identified by respondents that arguably contradicts SFM values. It should therefore be disregarded as an acceptable barrier to implementing sustainable forestry.

Undoubtedly licence holders believe the barriers they identified must be addressed in order to implement more sustainable forestry practices. Recommendations made by operators to tackle these barriers also appear to be creative and relevant. These recommendations are summarized below in Table 11. As suggested by licence holders, the provincial government should adopt woodlot regulations that encourage licence holders to practice sustainable forestry, by introducing incentives that reward responsible forest management.
Table 11: Woodlot licence holder recommendations to address challenges associated with applying sustainable forest management

<table>
<thead>
<tr>
<th>Identified Challenge</th>
<th>Recommendation</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Not all licence holders are computer literate or have access to computers</td>
<td>Provide greater flexibility in reporting requirements</td>
<td>Make electronic document submissions optional</td>
</tr>
<tr>
<td>2. Current regulations pose financial burdens for licences wanting to incorporate more ecosystem based socially responsible forest management</td>
<td>Provide cost saving incentives that reward licences who can demonstrate responsible forest management</td>
<td>Develop a system to verify responsible forest management (e.g. checklist). Awards for successful applicants may include:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Long term expansive cutting permits</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Decreased reporting requirements</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Greater freedom to practice innovative management</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Lower stumpage rates</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Expansion of woodlot area</td>
</tr>
<tr>
<td>3. The limited size of woodlots and aggressive mountain pine beetle harvesting requirements reduce the long term economic viability of many licences.</td>
<td>Provide alternative tenure conditions and regulations that increase licence holder access to Crown forests</td>
<td>Increase the size of woodlots</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Provide concessions to licences with significant mountain pine beetle infestation</td>
</tr>
<tr>
<td>4. Unpredictable often high stumpage rates make it difficult for licences to afford and plan for forest management activities</td>
<td>Stabilize stumpage rates so they are predictable and reflect the financial reality of licence holders</td>
<td>Investigate alternative stumpage options to replace the current system. E.g.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Increase annual rent fees paid by licences</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Change factors used to determine stumpage rates</td>
</tr>
<tr>
<td>5. Licences have limited access to value added markets</td>
<td>Adopt regulations to increase marketing opportunities and local value added processing</td>
<td>Establish lumber brokerage firms and local sort yards</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fund woodlot product cooperatives</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Launch a website to connect value added producers and consumers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Encourage the use of portable on-site mills</td>
</tr>
<tr>
<td>6. Current regulations do not effectively address the conservation of landscape level biodiversity</td>
<td>Adopt procedures that encourage the management of wildlife connectivity corridors and watershed scale planning</td>
<td>Establish a minimum timeframe in which MoFR must respond to forest health issues on woodlots</td>
</tr>
<tr>
<td></td>
<td></td>
<td>encouraging woodlots to participate in landscape level planning/management activities</td>
</tr>
<tr>
<td>7. It is costly to undertake cultural heritage reconnaissance and often First Nations take an extended period of time to approve woodlot operations</td>
<td>Assign the MoFR more responsibility in accommodating and consulting First Nations</td>
<td>Prior to awarding woodlot licences</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• remove areas of high cultural value</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• have MoFR consult with local First Nations</td>
</tr>
</tbody>
</table>
Chapter 7 – Summary of Conclusions and Recommendations

This thesis reveals a number of key findings regarding the efforts woodlot licence holders make to practice sustainable forestry, the challenges they encounter in this pursuit, and their recommendations to address these issues. An assessment using SFM indicators confirms what small scale forestry supporters assert, that many woodlot operators implement socially and ecologically responsible forest management practices. The voluntary nature by which the majority of licence holders carry out these measures, suggest that many operators are committed to SFM principles.

Indicators of sustainable forestry licence holders fall short of meeting are managing and marketing diverse forest products, and recognizing and consulting First Nations. In identifying challenges of implementing sustainable forestry woodlot operators identified First Nations consultation requirements as a costly time consuming obstacle which they should be relieved of. However such a claim is contrary to SFM principles and should be viewed as grounds to encourage licence holders to collaborate more with First Nations.

Other specific factors licence holders believe limit their capacity to practice more sustainable forestry, are embedded within current licence regulations and tenure conditions. Licencees have found onerous administrative costs, lengthy approval processes, unpredictable stumpage rates, limited marketing opportunities, and lack of compensation for mountain pine beetle infestations, significantly limit the profitability of their woodlots. As such many licence holders feel they have to limit the voluntary ecologically or socially beneficial practices they undertake in order to make a profit. Licence holders also commonly perceive current provincial regulations to be designed for large scale industrial tenures which overlook the diverse interests and skills held by licencees.

In order to address these constraints a number of recommendations were identified to increase woodlot regulatory flexibility, cost effectiveness, and incentives for sustainable forest management. It is interesting to note that the MoFR’s goals for the recently introduced woodlot regulations, under the Forest and Range Practices Act, echo many of these interests, though most licence holders have experienced the opposite.
Prior to expanding the Woodlot Licence Program, challenges identified in this thesis should be addressed either through the recommendations made by licence holders, or by other means, to assist woodlot managers in their pursuit toward more sustainable forestry. It is promising that the Minister of Forest and Range, Minister Coleman, has acknowledged that many woodlot operators are struggling in the current economic and administrative environment. Hopefully the information and constructive recommendations discussed in this thesis will assist the revising of the program and provide greater insight as to the shared and unique experiences of woodlot forestry across the province.

These findings are particularly informative to the debate on tenure reform. The benefits of small scale forestry are not just "expected" or "perceived", they are real. If appropriate revisions are made to the Woodlot Licence Program regulatory framework, an increase in the number of woodlots throughout the province will likely result in more sustainable forestry on Crown land.
References


Clogg, J. "Tenure Reform for Ecologically and Socially Responsible Forest Use in BC." York University, 1997.64-89


McNaughton, B. Personal Communication. General Manager, Federation of BC Woodlot Associations. 15 April. 2006.


Sierra Legal Defense Fund. Profits or Plunder. Vancouver: Sierra Legal Defence Fund, 1998. 1-143


The questions below ask about your forest management objectives

1. Please indicate the importance of the following forest management objectives in the management of your woodlot.

   A score of 1 indicates that the forest management objective is not important to you
   A score of 5 indicates that the forest management objective is very important to you

<table>
<thead>
<tr>
<th>Objective</th>
<th>Not at all Important</th>
<th>Slightly Important</th>
<th>Moderately Important</th>
<th>Very Important</th>
<th>Extremely Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make a profit</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Improve the biological diversity of the forest</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Leave a legacy of forest management so that future generations can benefit from the forest</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Protect forest areas reserved from harvesting</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Provide employment opportunities to the local community</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Maintain the productive capacity of the forest</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Consult with local First Nations about forest management planning</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Consult with local community (e.g. neighbors, community groups) about forest management planning</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Provide timber to value added manufacturers</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Harvesting minimizes damage to the residual stand and sensitive ecosystems</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Harvest to access the most valuable timber</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Consider the uncertainty of inventory data, management assumptions, and growth and yield data when determining the rate of harvest</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Understand the natural disturbance processes (fire regimes, windthrow, insect, and disease) that affect the woodlot</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Protect habitats of red-listed, blue-listed, threatened, or endangered animal or plant species</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Manage for a diversity of tree species and age classes</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Minimize soil disturbance during road construction, timber harvesting, and other silviculture treatments</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Protect water resources and riparian ecosystems from potential damage during road construction, timber harvesting, and other silviculture treatments</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Incorporate monitoring results into management plan revisions</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
2. What other management objectives are important in the management of your woodlot that are not mentioned on the previous page?

The questions below ask about the pricing, marketing, and processing of wood from your woodlot

3. Answer the following questions. Please check either yes or no and answer the questions to the right

Yes  No

If there is a mill in your local community?

If No, where is the closest mill located?

If you sell most of your production to a major forest company, do you have the option of sorting your timber prior to selling?

In absence of the Low Volume Cost Additive (LVCA or LVCE) would the current stumpage system be appropriate for woodlot licences such as yourself?

Yes  No

Explain:

4. On average over the last five years (2000-2004) what proportion of your total annual harvest is sold to the following: Please fill out all that apply

<table>
<thead>
<tr>
<th>Name of Buyer/Processor</th>
<th>% of Total Annual Harvest</th>
<th>Town/City where Buyer is Located</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process yourself on site (you operate a processing facility)</td>
<td>% of annual harvest</td>
<td></td>
</tr>
<tr>
<td>Mill owned by a major forest corporation</td>
<td>% of annual harvest</td>
<td>Located</td>
</tr>
<tr>
<td>Mill owned by a small forest corporation</td>
<td>% of annual harvest</td>
<td>Located</td>
</tr>
<tr>
<td>Value added manufacturer</td>
<td>% of annual harvest</td>
<td>Located</td>
</tr>
<tr>
<td>Other:</td>
<td>% of annual harvest</td>
<td>Located</td>
</tr>
</tbody>
</table>
The questions below ask about trends in the management of the woodlot over time

5. What per cent of harvested timber leaves the woodlot in the following forms?

<table>
<thead>
<tr>
<th>Form</th>
<th>In the last five years (2000-2004)</th>
<th>In 2004</th>
<th>In the next five years (2005-2009)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Round logs</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Lumber</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Value added products</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
</tbody>
</table>

6. Who contributes to the management of the woodlot?

<table>
<thead>
<tr>
<th>Contribution</th>
<th>In the last five years (2000-2004)</th>
<th>In 2004</th>
<th>In the next five years (2005-2009)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per cent of work done by yourself</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Per cent of work done by family members</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Per cent of work done by hired locals</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Per cent of work done by hired non-locals</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Per cent of work required to be done by professionals</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
</tbody>
</table>

7. On average, which of the following silviculture system(s) is most dominantly used to harvest timber from the woodlot? E.g. In the last five years what % of the total operable forest area has been clearcut, clearcut with reserve, etc.)

<table>
<thead>
<tr>
<th>System</th>
<th>In the last five years (2000-2004)</th>
<th>In 2004</th>
<th>In the next five years (2005-2009)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clearcut</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Clearcut with reserve</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Retention</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Seed tree</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Shelterwood</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Selection cut</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Intermediate Cutting</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Patch Cut</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Other:</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
</tbody>
</table>

8. On average, what proportion of your annual household income, before taxes, is generated by the woodlot you manage? Please check only one box in each column

<table>
<thead>
<tr>
<th>Proportion</th>
<th>In the last five years (2000-2004)</th>
<th>In 2004</th>
<th>In the next five years (2005-2009)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 10 %</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>10-25 %</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>26-50 %</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>51-75 %</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>76-99 %</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>100 %</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

65
9. Approximately how much does it cost to run your woodlot per year? Include planning, management, and operational costs. Please check only one box in each column

- < $10,000
- $10,000 - $24,999
- $25,000 - $34,999
- $35,000 - $49,999
- $50,000 - $75,000
- > $75,000

10. A woodlot can be defined as being profitable if a profit is made after all of the following costs have been accounted for: planning costs, silviculture costs, permit application costs, road building costs, stumpage and land rent costs, taxes, and the cost of not selling or subdividing private forest land. On average has the woodlot been profitable? Please check only one box in each column

- Yes I have made a profit
- No I have made losses

How have profits or losses changed?
- Grown
- No Change
- Declined

The questions below ask about the interaction of the woodlot manager with First Nations and with the local community

11. How often do you communicate with local First Nations band(s)? Please check one

- Every few weeks
- Every few months
- Once a year
- Every few years
- Every 10 years
- I have never contacted local First Nations band(s)

12. From the following list of statements, which best describes your relationship with First Nations? Check all that apply

- I respect and recognize First Nations legal and customary rights to traditional territories and resources
- I meet the legal requirements and consult with local First Nations band(s) about my Forest Development Plan
- I incorporate First Nations interests and concerns into the Forest Development Plan
- I have an ongoing relationship based on mutual respect with local First Nations
- I don’t think woodlot managers should have to consult with First Nations about forest management
13. Besides your own interests in forest management, are others’ interests considered in the management of the woodlot? From the following list of organizations, groups, and individuals please indicate whose interests you consider when managing the woodlot?

A score of 1 indicates that you do not consider their interests
A score of 5 indicates that you highly value their interests

<table>
<thead>
<tr>
<th>Organization</th>
<th>Not Considered</th>
<th>Usually not Considered</th>
<th>Moderately Considered</th>
<th>Considered</th>
<th>Highly Valued</th>
</tr>
</thead>
<tbody>
<tr>
<td>District Manager</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Municipal government (mayor, councilors)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Local First Nations band(s)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Industry partners</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Environmental organizations</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Community members</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Neighbors</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Other:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

14. How do you inform the public about the woodlot? Please check all that apply

- ☐ Informal conversations/visits
- ☐ Public meetings
- ☐ Open houses
- ☐ Field visits/tours
- ☐ Educational tours with school/community groups
- ☐ Steering Committees
- ☐ Newspaper articles
- ☐ Other: ____________________________

15. Do you belong to any community based organizations? E.g. Community economic development groups, Rotary clubs, local woodlot association, etc. List all of the community groups you participate in

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

16. Are there any other contributions you make to your local community? E.g. Coach teams, sit on Boards etc.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
The questions below ask about forest management practices on the woodlot.

17. Indicate whether you practice the following forest management practices on your woodlot. Please check either Yes OR No and answer the questions to the right.

<table>
<thead>
<tr>
<th>Practice</th>
<th>Yes</th>
<th>No</th>
<th>Type of treatment(s):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied silviculture treatments, beyond those required by legislation</td>
<td></td>
<td></td>
<td>Percent of total area treated ___%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Estimated cost of treatment $ ___</td>
</tr>
<tr>
<td>Clearcuts or patch cuts used to harvest</td>
<td></td>
<td></td>
<td>Average size of clearcut / patch cut: ______ hectares</td>
</tr>
<tr>
<td>Harvested the prescribed Allowable Annual Cut</td>
<td></td>
<td></td>
<td>_____ % of average AAC harvested</td>
</tr>
<tr>
<td>Reserved some area from harvesting (e.g., for wildlife patches, riparian areas, or sensitive areas) beyond legal requirements to set aside reserves</td>
<td></td>
<td></td>
<td>_____ % of total forest area set aside as reserve that is not legally required to be reserved from harvesting</td>
</tr>
<tr>
<td>Of the ____ % of old growth forest on my woodlot I take special measures to protect this old growth beyond those required by legislation</td>
<td></td>
<td></td>
<td>Describe measures: ____________________________________________</td>
</tr>
<tr>
<td>My woodlot is certified under a sustainable forest management certification scheme</td>
<td></td>
<td></td>
<td>Under which certification system:</td>
</tr>
<tr>
<td>Low Volume Cost Additive (LVCA)</td>
<td></td>
<td></td>
<td>FSC ☐ CSA ☐ SFI ☐</td>
</tr>
<tr>
<td>Informally survey the forest which significantly contributes to how I manage the woodlot</td>
<td></td>
<td></td>
<td>Number of hours a month spent doing informal surveys: ______ hours/month</td>
</tr>
</tbody>
</table>

The questions below ask about the challenges woodlot managers face in practicing sustainable forest management.

18. In your own words describe the major challenges you face as a woodlot manager in making your woodlot economically viable, socially responsible, and ecologically sound.
19. Please indicate the extent to which the following factors inhibit you from practicing sustainable forest management on your woodlot.

A score of 1 indicates that the factor is not at all challenging.
A score of 5 indicates that the factor is extremely challenging.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Not at all Challenging</th>
<th>Slightly Challenging</th>
<th>Somewhat Challenging</th>
<th>Very Challenging</th>
<th>Extremely Challenging</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessing markets</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Stumpage payments</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Education and training</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Timber pricing system</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>AAC is too low</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Land base productivity</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Administrative requirements</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Planning process</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Electronic submission of planning and silviculture information to Ministry of Forests</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Cutting and road permit application process</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Silviculture obligations</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Other: __________________________________________________________________________

20. Currently woodlot licences are only allowed to manage timber from their woodlots. If Non-timber forest products (NTFPs) were to become regulated, would you be interested in managing for NTFPs? Please check one.

Note: NTFPs involve the harvesting of forest plant or fungal species that can be sold into one or more of the following markets: wild edibles, floral greens, crafts, medicinal and natural health products, and native plants for horticulture and natural restoration.

☐ Yes  ☐ No  ☐ Maybe  ☐ Don't know

21. If NTFPs were to become regulated what types of NTFPs would you be interested in managing for? Check all that apply.

☐ mushrooms  ☐ cedar or fur bows  ☐ medicinal herbs
☐ berries  ☐ floral greens  ☐ alder for furniture making
☐ honey  ☐ nuts  ☐ other: __________________________________________________________________________

22. In your own words describe some creative solutions to address the challenges that woodlot managers face in practicing sustainable forest management - as listed above. E.g. Potential solutions could involve actions you would like to see from the Ministry of Forests, the Federation of BC Woodlot Associations, your local Woodlot Association, or woodlot managers in general.
The following questions ask about the benefits of woodlot licences

23. In your own experience as a woodlot manager indicate your level of agreement with the following statements about the benefits woodlots provide to the natural environment, the economy, and society. Please check one

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Mostly Agree</th>
<th>Partly Agree/ Disagree</th>
<th>Mostly Disagree</th>
<th>Strongly Disagree</th>
<th>Don't Know/No Opinion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woodlot licences diversify the forest tenures on Crown land</td>
<td></td>
<td></td>
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<tr>
<td>Woodlots play a significant role in land use providing a transition between rural and urban areas</td>
<td></td>
<td></td>
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<tr>
<td>Woodlots significantly contribute to the local economy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Forest management on woodlots is more sustainable than large scale industrial forestry because the small size of woodlots allows managers to develop a more intimate connection with the forestland</td>
<td></td>
<td></td>
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<tr>
<td>Woodlots are able to respond quickly to market demands for timber</td>
<td></td>
<td></td>
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<tr>
<td>Woodlot managers are accountable to the local community because they live in close proximity</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Woodlot managers develop long term trusting respectful working relationships with local First Nations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Woodlot managers apply creative adaptive approaches to forest management</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
24. In your own words what other benefits do woodlots provide that have not been identified in the list above

The following questions ask about you and your woodlot. Your answers to these questions will not identify you in any way. Remember your answers will be kept confidential.

25. Of the following age classes, where does your age fit in? Please check one

- [ ] 20-25 years
- [ ] 26-30 years
- [ ] 31-35 years
- [ ] 36-40 years
- [ ] 41-45 years
- [ ] 46-50 years
- [ ] 51-55 years
- [ ] 56-60 years
- [ ] > 70 years

26. Gender: [ ] Male  [ ] Female

27. What category of woodlot licence holder best describes you? Please check one

- [ ] First Nations
- [ ] individual/family
- [ ] small corporation

28. What is the name of the community that you live in?

29. What is the highest level of education that you have earned? Please check all that apply

- [ ] Some High School
- [ ] High School
- [ ] Some University College
- [ ] University College Degree in
- [ ] Graduate Degree in
- [ ] Registered Professional Forester (RPF)
- [ ] Registered Forest Technician (RFT)
- [ ] Other (specify)
30. Would you consider your main occupation to be a woodlot manager? □ Yes □ No
   If No, what is your main occupation? _________________________________________

31. How many years have you been a woodlot licence holder? __________ years.

32. What is the area of private, public, and operable timber harvesting landbase of the woodlot?

   Area of private land in the woodlot ____________________ ha
   Area of public land in the woodlot ____________________ ha
   Area of operable timber harvesting land ________________ ha

33. Do you have any additional comments about the sustainability of woodlots or the challenges they have in practicing sustainable forest management?

   ____________________________________________________________

   ____________________________________________________________

   ____________________________________________________________

   ____________________________________________________________

   ____________________________________________________________

   ____________________________________________________________

Thank you for your time and cooperation in filling out this survey. Your participation is greatly appreciated. If you would like a summary of the survey results please leave your name and address below and a copy will be sent to you upon completion.

   Name: ______________________________________________________

   Mailing address: ____________________________________________