

**Challenges and Opportunities to
Use of Non-Timber Forest Resources:
Exploring First Nations and Non-First Nations
Relationships and Perspectives**

by

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Abstract

The community forest (CF) tenure in British Columbia has the potential to manage non-timber forest resources (NTFRs) in order to optimize economic, environmental and social benefit and to work closely with First Nations. Using grounded theory, interviews and participant observation in the Wells Gray Community Forest area and in the territory of the Simpcw First Nation, this research identifies: 1) the local NTFR sector, exploring constraints to and opportunities for NTFR use, 2) ethical modes of harvesting NTFRs based on traditional and local knowledge (TK/LK), 3) First Nations and non-First Nations perspectives on NTFRs and NTFR management, 4) factors in, and challenges to, success in managing NTFRs through the co-management theoretical framework, 5) The main conclusions are that: 1) a selection of preconditions and supporting conditions for co-management are demonstrated in the research, and 2) informal co-management agreements are a potential pre-cursor to or replacement for formal legal arrangements for management of NTFRs.

Keywords: Co-management; community forest; non-timber forest resources; First Nations; collaboration; traditional knowledge;

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List of Acronyms

AAC	Allowable Annual Cut
BEC	Biogeoclimatic
BC	British Columbia
CBR	Community-based research
CF	Community Forest
CFA	Community Forest Agreement
CPR	Common Pool Resource
FN	First Nation
FRPA	Forest and Range Practices Act
FSD	Forest Stewardship Division
GPS	Global Positioning System
IPR	Intellectual Property Right
JBNQA	James Bay and Northern Quebec Agreement
LK	Local knowledge
MOF	Ministry of Forests
MOFLNRO	Ministry of Forests, Lands and Natural Resource Operations
MOU	Memorandum of understanding
MPB	Mountain Pine Beetle
NRCan	Natural Resources Canada
NTFR	Non-Timber Forest Resource
NTFP	Non-Timber Forest Product
RPF	Registered Professional Forester
SBRM	Science-based resource management
SFN	Simpcw First Nation
SFU	Simon Fraser University
SSRD	Simpcw Sustainable Resource Department
TEK	Traditional ecological knowledge
TEKMS	Traditional ecological knowledge management systems

TK	Traditional knowledge
TSA	Timber Supply Area
TUS	Traditional Use Study
WGCF	Wells Gray Community Forest

Executive Summary

The community forest (CF) tenure in BC can be seen as an attempt to address some of the social, economic and environmental shortcomings of industrial forestry. One opportunity this tenure type provides is the potential to manage non-timber forest resources (NTFRs). There are numerous valuable NTFRs, and in cases where their values are well-known, overexploitation and extirpation may occur. There are many challenges to NTFR management including lack of a legal framework and very few examples of successful management. Other major challenges are the incorporation of First Nations' constitutional aboriginal title and right to these species, and First Nations' right to consultation and accommodation for any potential impacts from NTFR harvesting or commercialization within their traditional territory. The co-management model has potential to resolve these challenges and CFs have the potential to set an example with respect to meaningful consultation and accommodation with local First Nations.

This research is a case study involving the Wells Gray Community Forest Corporation (WGCF) in Clearwater, BC and the Simpcw First Nation, whose administrative centre is located in Chu Chua, BC. The methodology was informed by community-based research and an appreciation of the importance of traditional/local knowledge. The research was triangulated using three sets of data: literature, participant observation and semi-structured interviews. Interview data describing the NTFR sector was coded according to emergent themes using a grounded theory approach. All interview data was also coded and analyzed for evidence supporting eleven co-management propositions determined *a priori* from the literature.

Results describe the local NTFR sector, including: what is harvested, harvesting best practices, threatened or less abundant species and barriers to harvest. NTFR data shows that there are a variety of ways in which existing barriers to harvesting NTFRs are overcome informally and are managed through the stewardship of the individual harvesters based on their local and/or traditional knowledge. The NTFR sector persists for sustenance and commercial use despite multiple and cumulative barriers.

This case study supports two preconditions for co-management and three supporting conditions of co-management. The conclusions reached are that informal co-

management agreements can precede or replace formal legal arrangements for management of NTFRs, and the case study demonstrates success in both co-management outcomes and processes. Therefore, formal co-management is not recommended at this time for the case study communities. However, informal co-management does have potential. Recommendations are made for encouraging sustainable and ethical harvest of NTFRs. Research findings suggest that in the short term, as capacity permits, the WGCFC and the Simpcw FN could focus on two objectives: 1) continuing to build a working relationship based on trust and understanding and 2) undertaking public outreach about the economic and cultural value of NTFRs.

1. Introduction

This chapter discusses the background and context of my research. It begins with an overview of some of the social, economic and environmental problems with current forest management. The chapter then provides background on community forestry, co-management and NTFRs in British Columbia. In the second part of this chapter (Section 1.2) the importance of my research is discussed in relation to the Canadian economy, First Nations, the environment, NTFR harvesters and the health care field. Sections 1.3 and 1.4 identify similar research and describe how my research differs from preceding research. Section 1.5 explains the main objectives of my research and states my central research questions. The last Section (1.6) provides a summary of the main points to take away from this chapter.

NTFRs are more commonly referred to as non-timber forest products (NTFPs). The term NTFRs will be used throughout this paper, in acknowledgement that these resources have value whether or not they are bought and sold as commodities, whereas the term NTFP reflects their commercial value as a product on the market. However, the term NTFP may still be used when referencing other's work where they have chosen this term.

1.1. Background

The problem that my research addresses is the lack of a management strategy for NTFRs in British Columbia (BC). My research examines this problem in the context of the community forests program in BC, which includes among its objectives: to promote commercialization of NTFRs, and to promote cooperation between forest-dependent communities and First Nations.

The overarching research question is: What are challenges and opportunities to the use of NTFRs?

The main research objectives are to:

- Begin to describe sustainable modes of harvesting NTFRs based on traditional and local knowledge (TK/LK), stewardship and protocols.
- Describe First Nations and non-First Nations perspectives on NTFRs and NTFR management and define areas of common interest and potential collaboration.
- Determine factors of and challenges to success in managing NTFRs, through the theoretical framework of co-management.
- Apply the case study method to a unique geographical location: the Simpcw First Nation and the Wells Gray Community Forest, describing NTFRs harvested and threatened NTFRs.
- Explore constraints to and opportunities for the use of NTFRs both for subsistence or commercial use.

1.1.1. *Problems with current forest management*

The forest tenure system is an organization of leases that define rights to extract timber from the public forests of British Columbia. The system is due for a major change. No interest group in the province defends the status quo (Marchak, 1999, p.1).

There are major structural problems in the BC system of forest tenures and forest practices regarding ecology, society and economy. These problems are exacerbated by a shrinking ministry in charge of forests, compromising the province's ability to maintain or improve the system through research, planning and management. In this subsection, after a brief overview of the current state of the provincial ministry, problems with forest practices and the tenure system are discussed.

The 2010 BC provincial budget imposed \$250 million in funding cuts to the then Ministry of Forests and Range, the Integrated Land Management Bureau, the Ministry of Agriculture and Lands, the Ministry of Community and Rural Development, the Ministry of Energy, Mines and Petroleum and the Sustainable Environment Fund, over the subsequent three years (NUPGE, 2010). In the same year, the Ministry of Forests, Lands and Natural Resource Operations was created, consisting of employees from the five Ministries listed above. In a publication of the Sierra Club of BC and the Canadian Centre for Policy Alternatives, Parfitt (2010) concludes that this restructuring is likely to decrease the effectiveness of forest governance and management. In less than one

decade, BC's forests ministry has lost 1,006 positions, or roughly one quarter of its workforce (Parfitt, 2010). With these losses, the ability of public servants to oversee BC's forests has been weakened. Basic ministry operations in forest health and stewardship, research, planning, conservation, protection, enforcement and combating forest theft absorbed a \$42-million budget cut in 2010 (NUPGE, 2010). In particular, these cuts exacerbated pre-existing problems. For example, field inspections by compliance and enforcement staff fell by 46 percent between 2001/2002 and 2004/2005. Reduced field inspections have been known to lead to abuses such as illegal logging and log theft, unmarked logs, unpaid provincial stumpage fees, and environmentally destructive logging operations (Parfitt, 2010).

Ecology

BC is faced with declining ecosystems and unsustainable forest practices across the province. Interior forests in particular have suffered from record wildfires, mountain pine beetle (MPB) infestations, other large-scale insect infestations such as western spruce budworm, and diseases such as *Dothistroma* (Penn, 2010). Across the province, future climate change will impact forest dynamics including: changing regeneration and growth rates, and increased mortality from insects, diseases, weather events and fire (BC MOFML, 2010).

Other ecological impacts from current forestry include inadequate reforestation in logged forests and the logging of old growth forests, which diminishes the array of ecosystem services provided by the latter. Neither the BC government nor companies holding long-term replaceable tenures have adequately restocked logged forests (Marchak, 1999). Although reforestation has been undertaken since the early 1900s, plantations have been consistently inadequate, resulting in a backlog of not sufficiently restocked lands.¹ A federal-provincial funding program from 1979-1984 attempted unsuccessfully to address the backlog. Amendments to the *Forest Act* and

¹ Not sufficiently restocked refers to an area not covered by a sufficient number of well-spaced trees of a desirable species. Stocking standards are set by the BC Forest Service (BC MOFR, 2008).

accompanying regulations on reforestation practices were made in late 1987 and early 1988 (Brown, 1995). Even if successful, these plantings will not produce mature second-growth forests for another six or seven decades. Logging throughout the 1990s, with very efficient technologies and practices, continued to surpass the rate at which forest ecosystems can regenerate, resulting in severe ecosystem damage and destruction (Marchak, 1999).

Old-growth forests have many other productive non-timber values apart from their timber values. They may sequester carbon², and they conserve nutrients, protect soils, regulate hydrology, provide habitat for many species of flora and fauna, are important for recreation and tourism, and are valued for their existence. "The costs of liquidating old growth forests include loss of genetic material; loss of structural diversity; loss of herbivorous insect regulators; loss of carbon storage; and loss of scenic, recreational, tourism, spiritual, aesthetic, and cultural values" (Marchak, 1999, p.3).

To elaborate on the mountain pine beetle (MPB) infestation, about 25-30 percent of the volume of the province's timber harvesting land base is pine, and in a large portion of the interior, pine makes up over 50 percent of the harvestable timber (BC MOFR, 2006). Although a naturally occurring insect, the MPB has expanded its population and range and as of 2004 was affecting upwards of 30 communities and 25,000 families (BC MOF 2003; BC MOF 2004). Past outbreaks were generally confined to limited geographic areas and were typically shortened by cold weather. In 2006 the beetle epidemic had now killed over 400 million m³ of merchantable timber, an increase of 45 percent over the previous year (BC MOFR, 2006). In 2006, the infestation was affecting over eight million hectares of forest in the central and southern interior of British Columbia (BC MOFR, 2006). Temporary uplifts to the allowable annual cut in the interior regions will eventually be replaced by a significant long-term reduction in the timber supply as dead trees reach the end of their economic utility (BC MOFR, 2006). This loss

² It is important to note that the amount of carbon sequestered in old-growth forests is questionable; for details see Kurz 1999 and Goodale 2002.

of future timber supply presents a very significant challenge to each affected community due to the loss of jobs, the impact on the local economy and the impact to the province as a whole because of lost stumpage revenues.

Society

Resource depletion, pollution, subsidies, and social conflict are among the social costs of current forest practices in BC. Subsidies include both direct subsidies³ and indirect subsidies. Direct subsidies in the range of \$100-\$150 million have been granted to industrial forestry from Natural Resources Canada (NRCan), Industry Canada, and Finance Canada (Gale and Gale, 2006). Indirect subsidies include tax relief, foregone revenue from stumpage, and government investment into processing and manufacturing infrastructure (Gale and Gale, 2006). These are costs to the public which are unaccounted for in the state of the forest industry reports. Another social cost which is not quantified in conventional accounting is community dependence on forests. The dependence of a community on a single commodity can create a boom and bust cycle, having numerous consequences for the community's well-being when that commodity fails to provide employment (O'Hagan and Cecil, 2007; Markey, Pierce, Vodden and Roseland, 2005; Bradbury, 1988).

While the natural resource sector provides high-paying jobs to people who often lack other skills, many social costs from dependence on a single commodity have been documented. Lack of diversified local economies leading to high unemployment during downturns results in increased costs for services such as: medical treatment for alcohol, drug abuse and depression; and the increased costs of policing domestic violence and vandalism. In addition to these health and wellness costs, the high wages paid to forest workers act as a disincentive for youth to complete or pursue further education. This compounds community dependence on a single commodity (Gale and Gale, 2006).

³ Direct subsidies were provided in the form of grants and contributions in two sets of Forest Resource Development Agreements (FRDA) of \$150 million (FRDA I) and \$100 million (FRDA II) (Gale & Gale, 2006).

Another unaccounted social cost of current forest practices is the maintenance of public order. During the 1990s, there was an increase in awareness and activism in British Columbia around the social and environmental costs of forestry. At this time, the state incurred many costs to maintain public order. Costs imposed on First Nations are another important social cost. First Nations communities have been excluded from participation in managing forests, and their traditional territories have been exploited by forest companies. Where aboriginal title is established, First Nations have a legal right to compensation both for resources extracted and damages done to their traditional territories without their consent. Damage done by the forest industry creates a government liability by increasing the potential cost of future compensation (Gale and Gale, 2006; Marchak, 1999).

The BC forest tenure system allocates 93% of renewable timber harvesting and management rights to large logging-manufacturing corporations (Maness and Nelson, 2007; Power, 2006). According to Vernon (2007), the tenure system provides revenue to the provincial government and profits to forest company shareholders, which do not necessarily trickle down to forest-based communities. Where forest management decision-making is the responsibility of forest companies and their shareholders, short-term profits are prioritized over the interests of local employees and communities (Vernon, 2007). Inequity⁴ does not only affect those at the bottom of the income scale, but rather affects all economic classes. Wilkinson and Pickett examine a number of social indicators including: life expectancy, infant mortality, levels of obesity, child wellbeing, amount of mental illness, use of illegal drugs and teenage pregnancy rates, and find that the more unequal a wealthy country (such as Canada) is the worse its performance is likely to be. Their conclusion is that distribution of wealth is a more important causal factor for well-being than overall wealth (Wilkinson and Pickett, 2007).

⁴ Inequity is defined as the gap between the rich and the poor measured by the Gini coefficient. This coefficient measures the inequality among values of a frequency distribution (for example levels of income) (The World Bank Group, 2011).

Economy

Since 1997, there has been shrinking revenue and increasing job loss and mill closures in the forestry sector. Employment of workers in all three major sectors of the forest industry (logging, sawmills and planing mills, and pulp and paper mills) has steadily declined between the early 1960s and the 1990s (BC MOFR, 2003). There are also low returns on capital, below the level required to attract reinvestment and maintain competitiveness (BC MOFR, 2003).

Reports on the state of the forest industry over-estimate employment generated by the sector. There has been a decline in number of workers both directly and indirectly employed in the forestry sector, but higher levels of employment are reported because the industry overstates multiplier effects and indirect employment when compared to standard economic equations used in employment statistics (Gale and Gale, 2006).

The timber industry overstates its contribution to government revenues and to the province's economic well-being by not correctly accounting for the depletion of natural capital. In British Columbia the consumption of the forest's natural capital is treated as income, whereas it is not income according to strict economic analysis. Industrial forestry was designed to liquidate natural capital, replacing BC's old-growth forest with tree plantations. The definition of income commonly accepted by economists assumes that income is obtained by maintaining capital intact. To be accurate, economic analysis must take into account the state of the natural capital on which the forest sector depends to determine if income is indeed generated (Green, 2000). If economic analysis in BC were to incorporate natural capital depletion, forest practices would be obligated to maintain ecological integrity and natural capital in order to report true income generation (Green, 2000).

1.1.2. Community forests as a potentially sustainable solution

The community forest (CF) concept arose in 1945 when Gordon Sloan, Commissioner in the Royal Commission on the Forest Resources of British Columbia, recommended that municipalities manage local forests (BCCFA, 2010). The province did not follow Sloan's recommendation, and instead continued to pursue a large-scale, corporate, forestry model. In 1976, another Royal Commission, the Pearse

Commission, advocated the expansion of community forests. From 1976 to 1990 only a few community forests were established, holding industrial forms of forest tenure (BCCFA, 2010). Public support for the idea of community forests grew throughout the 1990s due to a public desire for more control over local resources, the fact that forestry jobs were in decline, and a growing concern about the environmental degradation caused by forest practices (Robinson, 2007). Finally, in 1998, the Ministry of Forests created the Community Forest Agreement (CFA) to establish community forest tenures and initiated a pilot program offering seven communities pilot CFAs. This number has now grown to 47 community forests and nine are in the application process. These CFAs are responsible for only 1.5% of the provinces annual harvest, or 1.28 million hectares of tenures (BC MFLNRO, 2012). As demonstrated in the subsequent paragraphs, the community forest model shows potential for meeting social, environmental and economic objectives in locations where large corporate forestry no longer exists, and alongside larger, corporate tenures where they do exist.

The formal objectives of the CFA, as stated by the BC provincial government, are to: provide long-term opportunities for achieving a range of community objectives, values and priorities; diversify the use of and benefits derived from the CFA area; provide social and economic benefits to BC; undertake community forestry consistent with sound principles of environmental stewardship that reflect a broad spectrum of values; promote community involvement and participation; promote communication and strengthen relationships between aboriginal and non-aboriginal communities and persons; foster innovation; and advocate forest worker safety (BC MFLNRO, 2011).

CFs have a broad suite of rights in order to meet these objectives. Pinkerton, Heaslip, Silver and Furman (2008a) outline some of the typical management rights of community forests under CFAs including:

- a) Creation of an inventory of timber supply
- b) Access to lands within the boundary of the community forest and withdrawal of timber from that land
- c) Regulation of logging activity through five-year management plans
- d) Enhancement of timber production through silvicultural techniques

- e) Exclusion of logging and other contractors not hired by the community forest from timber in the CFA area
- f) Allocation of opportunities to log the CFA area
- g) Enforcement of the management plan

The community forest tenure was also notably the first tenure in British Columbia that can also convey the rights to harvest botanical forest resources, "a community forest agreement may give to its holder the right to harvest, manage and charge fees for botanical forest products and other prescribed products" (*Forest Act*, 1996). To date, a small number of CFs are attempting to develop NTFR commercial enterprises. These attempts have been wrought with challenges and have experienced limited success. In 2008, approximately half of the operational CFs at the time included NTFRs in their licence, and only three reported that NTFRs were harvested for both local and commercial use, the latter not being particularly lucrative (Ambus, 2008). The botanical products commercially harvested typically included edible wild mushrooms, berries, floral greens (e.g., salal and conifer boughs) and a variety of medicinal plants (Ambus, 2008). The background of NTFRs will be discussed further in Section 1.1.4.

Research on NTFRs is important to community forests, since managing for NTFRs is an objective of the CF program (BCCFA, 2010). Community forests have high administrative costs relative to a small land base and are challenged to survive on timber sales alone (Pinkerton et al. 2008a). Including NTFR development in their business plan is one way to potentially improve the financial viability of community forests. NTFRs are a tool for economic diversification as a raw commodity or as a value added forest product. Through processing and marketing, value can be added to botanical species in the form of jams, teas, fruit leathers, juices, nutritional supplements, herbal remedies and craft products, to name a few. As one example, devil's club in particular has been identified as one of British Columbia's wild-crafted medicinal plants with the highest economic potential (Wills and Lipsey, 1999).

Equity

BC's community forest program creates some small opportunities for more equitable distribution of access to forest tenures and commercial opportunities. However, equity involves more than the measurement of social, environmental and

economic outcomes (McDermott, 2009). Social, environmental and economic outcomes at the community level are not necessarily beneficial at the individual level, and benefits in each of the three spheres may not occur simultaneously. For example, a community or individual may experience a social benefit at an environmental cost. McDermott (2009) asserts that community forestry will not advance social equity unless it specifically targets marginalized groups and consists of distributional justice, capacity-building and empowerment. Otherwise, those that are already privileged in a community will reap the benefits of a community forest through jobs, contracts, and access to personal and professional networks, allowing inequity to persist or increase.

Ecology

Community forests are encouraged to follow sound principles of environmental stewardship and to foster innovation, but are only legally required to follow the same *Forest Act* (1996) and *Forest and Range Practices Act* (2002) as all other licensees; there is no legislation to ensure a higher standard. Ambus (2008) looked at indicators related to environmental performance and found that the CFA generally did not satisfy expectations that communities would commercially harvest botanical non-timber forest products, develop capacity for value-added wood processing, or utilize more environmentally sensitive harvesting treatments. The proportion of areas treated by conventional industrial systems (i.e. clearcut and clearcut with reserves) did not substantially differ between the CFA and other tenure types (Ambus, 2008). However, there was much more variation among systems in CFAs, with many using selective logging, or patch cut with selective logging (Ambus, 2008). Later research comparing five community forests to geographically proximate conventional tenures found that CFs are more likely to use alternative silviculture systems, and display stand structure and harvesting profiles that are more sensitive to ecological values (Mealiea, 2011).

Economy

In purely economic terms, most community forests are struggling to be successful, due to high administrative costs on a small land base, most of it marginal lands. Small tenure holders struggle to be economically viable in the same markets as major licensees when they do not have economies of scale. Some studies suggest that a minimum harvest of 20,000 m³ per year on the coast and 50,000 m³ per year in the

interior would be viable (BCCFA, 2010); other studies state that a level of harvest of 100,000 m³ per year is necessary. The average CF tenure is 20,000 hectares (Parfitt, 2007 cited in Ambus, 2008), indicating that most CFs cannot be economically viable without additional value-added or commercialization of NTFPs (Ambus, 2008).

CFAs support local employment and are more labour intensive than industrial licensees in harvesting and silvicultural activities (Ambus, 2008). This may be due to any or all of the following three reasons. 1) Because CFs have relatively low allowable annual cuts compared to industrial licensees they have fewer cubic metres to absorb their labour costs, which tend to be the most substantial part of their overall operating budget. 2) Higher labour intensity may be due to the communities' choice to use more selective silvicultural and harvesting systems. 3) Labour intensity may also be due to employment opportunities that are unrelated to timber harvesting, such as leveraging funding for other local jobs such as internships, NTFP research or local recreational and tourism projects (Ambus, 2008). In her final conclusions, Ambus (2008) strongly recommends that the government consider devolving more power over key strategic management decisions to community forests, rather than just over operational decisions. It is with this in mind that the next section explores co-management.

1.1.3. Co-management

After defining co-management and how the term is used within this paper, this subsection provides an overview of documented benefits of co-management in relation to sustainability, legitimacy, empowerment and health. The rest of the section then discusses how co-management can be evaluated, some limitations to co-management, and its importance to any discussion of NTFRs

Co-management is the sharing of power and responsibility between the state and local resource users with regard to the allocation and use of resources (Pinkerton, 1992). Co-management arrangements consist of a range of power and responsibility sharing possibilities. Co-management agreements can involve two or more parties from various levels of government and include different types of community or stakeholder groups. Co-management may also include agreements among and between community and stakeholder groups (Pinkerton, 2003; Pinkerton, 1992). A community forest

agreement is a co-management arrangement between the provincial Ministry of Forests, Lands and Natural Resource Operations (MOFLNRO) and the local tenure holder, which may be a non-profit society, a corporation, a municipality, a cooperative, or another organization defined by the community. In many cases, co-management occurs between the state and a First Nations group as an interim measure in devolving some degree of power and responsibility for resource management in the absence of a treaty, or land claims settlement. This research explores a particular aspect of such multi-party co-management arrangements: the possibility of co-management between the Wells Gray Community Forest (WGCF) and the local First Nation. In this case, the WGCF has a formal CFA with the provincial government, but within that agreement WGCF could also enter into informal co-management with the Simpcw First Nation (SFN), thus devolving decision-making power and responsibility to the SFN for NTFR management.

Co-management is framed in the literature as a way of achieving four general objectives: as a route to community-based management of resources, such as in land-use planning, habitat enhancement and protection activities; as a route to human development via social and adult learning; decentralization of regulatory authority as exemplified in data gathering and analysis, harvest regulation, and harvest allocation activities; and management of consent and the increase in participatory democracy (Pinkerton, 1989). Thus, co-management can contribute to sustainability and legitimacy (Jentoft and Kristoffersen, 1989; Pinkerton, 1989). Co-management can also lead to additional benefits less explored in the literature: empowerment, improved self-identity and health.

Co-management and Sustainability

The contribution of co-management to sustainability, especially through its inclusion of local ecological knowledge is demonstrated in the literature (Feit, 2005; Spaeder, 2005; Spaeder and Feit, 2005). Spaeder (2005) describes how native hunters and wildlife biologists collaborated in Alaska, resulting in improved data on caribou populations which allowed for suitable conservation and an increased hunting quota. Feit (2005) describes how the creation of beaver reserves in northern Quebec was a successful conservation and co-management project involving the provincial government and the Cree First Nation. The project was implemented in 1927 in response to

struggling beaver populations. By the 1940s the population of beavers was once again sufficient for trapping. Beaver reserves expanded the authority, legitimacy, and capacity of state institutions to govern northern Quebec while also increasing recognition of the authority, legitimacy and capacity of Cree governance. Both systems of knowledge co-existed and were necessary to each other in this case, and neither compromised or subsumed the power of the other.

Co-management and Legitimacy

The contribution of co-management to more appropriate local regulation, greater legitimacy and voluntary compliance is also well documented (Pinkerton and John, 2008; Pinkerton, 1989; Pinkerton, 1994). Pinkerton and John (2008) define four types of legitimacy: regulatory, scientific, political, and moral legitimacy. In the case of the Kyoquot clam fishery, located on the northwest coast of Vancouver Island, Pinkerton and John (2008) state that none of these types of legitimacy would have been possible without a co-management arrangement between First Nations and the Department of Fisheries and Oceans.

Jentoft (1989), discusses co-management of the Lofoten fishery in Norway. He concludes that the most important factor determining fishermen's willingness to comply with rules set in the fishery is the manner by which rules are determined. In the Lofoten fishery fishermen themselves are active participants in a democratic decision-making process, because their daily experience with the fishery is utilized to make rules just and effective. Further research by Jentoft (2000) discusses that all co-management arrangements are not equal and in order to be legitimate arrangements must strike a balance between participation by internal users and the wider public interest. Further, the creation of co-management institutions alone is not sufficient for success, these institutions must ensure that stakeholders continue to support the process over time, despite experiencing losses.

Co-management and Empowerment

In the case of more complete co-management (characterized by greater sharing of power and rights) the autonomy from this type of arrangement increases self-identity among First Nations (Feit, 1995). One example of this can be seen in the case of the

Cree in Northern Quebec. The Cree right to hunt, fish, and trap any animal at any time was recognized by the James Bay and Northern Quebec Agreement (JBQNA). In Cree hunting areas, Cree methods were given priority with a minimum of government regulation. After several previous decades of decline, with the JBQNA the number individuals and families focused exclusively on hunting increased. This in turn decreased dependency on external food supplies, with a subsequent improvement in nutritional intake of Cree people (Feit, 1995).

Empowerment is a central tenet of co-management as it brings previously excluded user groups into the decision-making process; without empowerment, there is no co-management (Jentoft, 2004). Jentoft discusses the psychological (individual) and sociological (collective) levels of empowerment. He states,

not only is a community structural, institutional and territorial; it is also emotional. The community is a source of identity, attachment and belonging—and therefore empowerment. People find meaning and strength from being with others, even to the extent that this may have a therapeutic value (p.3).

When a community is empowered to practice their traditions and make decisions about their livelihood, as in the example above and many other co-management agreements, the individual may also be empowered, find meaning, and have a greater sense of identity.

Co-management and Health

The benefits of co-management to health have been measured in Australia where it is widely recognized that Aboriginal people suffer greatly from poor health. In an Australian study, Burgess, Johnston, Bowman, and Whitehead (2007) define Natural and Cultural Resource Management (NCRM) to include: landscape burning (for stewardship of vegetation resources as well as cleansing for ceremony and hunting), using resources (hunting and fishing), protecting the integrity of the country through respect, protecting and enhancing species diversity, protecting sacred areas, providing

knowledge to a new generation and teaching them about “country” and learning and performing ceremonies. A greater degree of NCRM in First Nations communities led to: a lower body mass index (BMI)⁵, a lower percentage of the population with non-insulin dependent diabetes and a lower percentage of the population with coronary heart disease (Burgess et al., 2007).

Regarding mental health in the Canadian context, Chandler and Lalonde (2009) identified a suite of factors that appear to lead to lower suicide rates in First Nations communities. Among these, self-government is the most strongly correlated variable. It is important to note that most bands with self-government also have cultural facilities and control over their own health care provision. Thus, as a method of devolving power to First Nations, and often as an interim measure in the treaty-making process, co-management has potential to improve mental health as well as physical health.

Evaluating Co-management

Co-management outcomes can be defined and evaluated by looking at both process-based and substantive outcomes. Process-based outcomes of co-management include the forging of new human relationships characterized by the establishing of trust, more frequent communication, active collaboration and the creation of shared values, understanding and meaning. In section 3.4 of the Results chapter, these categories of process-based outcomes are used as a framework to analyze process-based preconditions to co-management. In other words, it is suggested that the presence of these indicators points to potential for co-management. Substantive outcomes may include agreements, protocols and their mechanisms of implementation such as rules, monitoring and enforcement (Pinkerton, 1989). Within the detailed methods (Subsection 2.2.7), theoretical propositions regarding preconditions as well as supporting factors to co-management are described. These theoretical propositions partially guided the analysis of my interview data.

⁵ A low BMI is important for regular health and functioning of the body and also reduces incidences of heart disease, stroke and some cancers (Centre for disease control and

Despite its documented successes, promise and potential, there are limits to co-management involving community forests and First Nations. As referenced previously through the work of McDermott (2009), community forest benefits may not reach all community members and resource users. Although community forests are encouraged to include First Nations, the sharing of power and responsibility with local resource users may not adequately include all FN bands within the tenured area, nor a representative cross-section of all members within a given band. First Nations are involved with different community forests to differing degrees and in some cases are full partners or have their own community forest agreement (CFA). There are currently five CFs in formal partnership with First Nations, and 12 First Nations have their own CFA out of a total of 44 CFAs (Susan Mulkey, personal communication, 2012).

Because the majority of First Nations in British Columbia have not ceded title and rights to their traditional territories, many First Nations have chosen to assert sovereignty rather than participate in collaborative processes with provincial or federal governments. Where co-management does exist, it is sometimes rejected by First Nations due to fundamental differences between traditional ecological knowledge and scientific and technical knowledge. The assumption of government and natural scientists is that traditional ecological knowledge can be successfully integrated into existing management bureaucracies. However, according to some of the literature, this process compartmentalizes and dilutes First Nations wisdom, beliefs and values (Nadasdy, 1999; Greskiw and Innes, 2008).

A comprehensive description of the issues surrounding First Nations rights and title is beyond the scope of this paper, but the following provides a brief overview. The *Royal Proclamation* of 1763 recognized that in all British colonies, the aboriginal people owned their lands until they relinquished title to them (UBCIC, 2012). Ninety-five percent

prevention, 2011).

of land in British Columbia is publicly owned and indigenous title was never relinquished, so the true rights and title holders of the land is in question and is under constant legal debate (COFI, 2012; Wyatt, 2008). Because First Nations territories were not traditionally defined on a map, but rather were lands used by bands or families that changed according to the season, there are many overlapping territories. This leaves some community forests uncertain which bands or First Nations to consult or partner with. Some First Nations would prefer to only negotiate land ownership and management rights with the Canadian government, on a government-to-government basis. While some co-management agreements state that nothing in the agreement text should be seen as prejudicial to aboriginal rights and title, agreements frequently include a clause whereby the government retains the right to approve final decisions and does not redefine government power or recognise aboriginal title (Wyatt, 2008).

Scarce resources in the provincial government make it unlikely that government will have the data or capacity to question the decisions made by a community forest, and are more likely to approve CF management plans and support their decision-making process. Thus, in the case of co-management with government, community forests usually operate with a high degree of decision-making power and initiative.

In the case of managing for NTFRs, CFs are obligated to work closely with the local community, particularly First Nations, for a number of reasons elaborated in Section 1.2.2. The First Nations Forestry Council (FNFC) states that the Crown has enabled the non-timber sector to escape the referral processes required of all other resource sectors and thus fails to prevent infringement of aboriginal rights. According to the FNFC (2008), where forestry operations overlap with traditional gathering grounds, provincial forestry legislation also denies the exercise of aboriginal rights for use of NTFRs.

1.1.4. *Non-timber forest resources (NTFRs) definition and legal context*

This sub-section provides a short history of the term NTFR and then describes the legal context of NTFRs in some detail. The term NTFR most commonly refers to berries, medicinal plants, floral greenery and mushrooms. The term includes all botanical and mycological resources of the forest, other than conventional timber

products such as saw logs, pulp logs, shakes and firewood (FPB, 2011). Foresters often include wood products such as firewood, posts, poles, specialty woods and Christmas trees in describing NTFRs. Although derived from wood, these products have more limited markets as they are not used for structural purposes in building construction; they are manufactured with wood resources that are too small, damaged or inappropriate for timber manufacturing. Non-timber values are economic and ecological values including: intrinsic value, biodiversity, spiritual value, tourism, recreation and ecosystem services such as the forest's role as a carbon sink or hydrological filter and regulator. Non-timber values are often included in discussions of NTFRs, although I have not dealt with these in my research in order to scope my research to the social and cultural dimensions of primarily botanical NTFRs.

The term NTFP emerged in the 1980s and 1990s, encompassing diverse areas of study such as: anthropology, traditional ecological knowledge, economic botany, forest management and policy, forest biology and ecology, forest product research and business organization and marketing (Davidson-Hunt, Duchesne, and Zasada, 2001 cited in Belcher, 2003). Neither the term NTFP, nor the term NTFR are ideal, as both terms may have different meanings to different stakeholder groups coming from research, conservation and development perspectives (Belcher, 2003). The use of different terms for different stakeholder groups may convey a clearer meaning, but could also discourage dialogue about NTFRs between diverse disciplines and stakeholder groups.

NTFRs have been used by First Nations for millennia and still are today. The literature documents the traditional uses of NTFRs, First Nations stewardship of NTFRs through time and their continuing use of NTFRs to the current day (Turner, 1995, 1997, 1998; Turner, Ignace and Ignace, 2000; Turner and Cocksedge, 2001; Turner and Hebda, 1990; Pengelly, 2011; Pojar and Mackinnon, 1994).

The harvest of NTFRs is currently unregulated in BC (other than a few specific exceptions mentioned below), and this gives rise to a wide range of issues including: lack of government revenue from use of a public good, overuse and improper harvesting of the resource, and infringement of aboriginal rights. The current legislative framework allows free and open access to NTFRs, which are primarily harvested from Crown land.

This is problematic on many levels. The provincial government and general public believe that where profits are made on Crown land, all BC residents should reap the benefits, as is the case with stumpage revenues, and this does not currently occur with NTFRs (FPB, 2011). This lack of government revenue from NTFRs prevents adequate government expenditures to support stewardship of, and investment back into the resource. With no clearly defined property rights, most harvesters and buyers have no incentive to properly manage the resource, which can lead to overharvesting. Without a legal right to the resource, entrants and entrepreneurs cannot secure loans, limiting growth and development of NTFR enterprises (FPB, 2011). There are also no enforceable standards set for NTFR harvest operations regarding safety, quality control and harvesting practices (FPB, 2011).

Harvesting techniques and level of exploitation of NTFRs vary, depending on whether people are local or migrant harvesters. Even where NTFR regulations and guidelines exist, the enforcement of these protocols is challenging when there is a high level of heterogeneity in the sector and intra-sectoral conflict. As an amorphous group of individuals, NTFR harvesters do not currently consult with First Nations about impacts of their harvesting on traditional uses (FPB, 2011). There are also certain benefits to the open access, unregulated nature of NTFRs, a key benefit is that there is little administrative burden for the government and the NTFR sector.

There is almost no direct regulation of NTFRs in the province, but there are many general statutes and regulations that apply to those involved in the NTFR sector. The laws that generally apply are different for the harvesting, selling/transporting and for the processing of NTFRs. Harvesting includes matters such as access, licensing, right to harvest, standards for harvesting and liability of landowners and harvesters. The main piece of legislation of the MFLNRO, the *Forest Act*, enables government to issue tenures, licences, and permits such as tree farm licences, forest licences, and timber sales to harvest timber (1996). Only two tenure types, the Community Forest Agreement and the First Nations Woodland Licence, convey the rights to harvest, manage and charge fees for botanical forest products and other prescribed products. Despite having the right to manage for NTFRs in these two tenures, there is a lack of government support or guidelines for implementing these rights.

The *Forest and Range Practices Act (FRPA)*, enacted in late 2003 to replace the *Forest Practices Code of British Columbia Act (1996)*, authorizes the Lieutenant Governor in Council to make regulations for forest botanicals related to: obtaining botanical forest products from Crown land; identifying a plant or fungus that occurs naturally on Crown land as being a botanical forest product; establishing a licensing scheme for the purposes of regulating botanical forest products; issuing, amending, renewing, suspending or cancelling licences; receiving applications for licences, fees for licences and applications; and designating inspectors and inspections for the purposes of enforcing licensing and appeals (Forest and Range Practices Act, 2002). As this is discretionary rather than mandatory legislation, the government has not yet chosen to regulate the commercial NTFR sector (FPB, 2004).

FRPA also requires major licensees to prepare a Forest Stewardship Plan (FSP). An FSP could also set out results and strategies for NTFRs at the licensee's discretion. There are numerous other acts related to land, species protection, riparian zones, transporting, processing and selling species, which encompass certain NTFRs. Laws related to processing and selling species differ depending on whether they relate to food and medicinal plants or non-edibles.

Historical examples of NTFR regulations do exist. One example is the case of cascara tree (*Rhamnus purshiana*). In 1942, the Government of BC wrote one of the first and only recommendations for proper harvesting techniques for an NTFR. The *Cascara Bark Regulation* was created in 1958 to control the activities of harvesters and buyers and ensure the long-term conservation of cascara trees due to the popularity of using its bark to produce a powerful laxative and colon cleanser (Davidson, 1942).

Another example is the *Nisga'a Final Agreement Act (1999)*. Section 4 grants the Nisga'a Lisims Government the exclusive authority to determine, collect, and administer any fees, rents, royalties, or other charges for NTFRs on Nisga'a Lands. Under Section 11, Nisga'a Lisims Government may make laws concerning NTFRs on Nisga'a Lands, including establishing standards to regulate harvesting and conservation of NTFRs, provided that the standards meet or exceed any federal or provincial standards established under legislation to regulate, on private land, the harvesting and conservation of NTFRs. The Nisga'a government has used this authority to implement a

permitting and royalty system for the pine mushroom (*Tricholoma magnivelare*) harvest (Dar, 2002).

In addition provincial laws that have enforcement and sanctioning mechanisms for NTFRs, two international declarations emphasize the importance of sustainable forest management of NTFRs. These are: the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992 and the Montreal Process in 1994. The UNCED deliberations called for the world's nations to promote sustainable forest management as a bridge towards sustainable economic development. Agenda 21 in the Rio Declaration on Environment and Development, the key policy document emerging from UNCED, set out nonbinding guidelines for accomplishing sustainable forest management including a specific call for countries to address the intrinsic and existence value of NTFRs in their forestry planning and management efforts. The document states: that forest management should include the protection of cultural, spiritual, historical, religious and other uses, that forest management decisions should consider non-economic values, and that the role of forests in providing ecosystem services and as a storehouse of biodiversity should be recognized (UN, 1999). In the Montreal Process, a series of deliberations between the United States and eleven other countries, adopted a set of criteria and indicators that provide a common framework for evaluating the sustainability of the participating countries' forest management practices and policies. Criterion 6 emphasized the non-wood forest product sector as an indicator for meeting the goal to maintain and enhance long-term socioeconomic benefits (Duchesne, 2003).

Opportunities and challenges to public involvement in NTFR management

The public is able to engage through the *Be Heard: Get Involved in Forest Stewardship Review* and provide input on matters related to FRPA legislation (BC Ministry of Forests, 2006). This review enables the public to inform forest licensees about their interests within specified areas of public lands before roads and cut blocks are located. This ongoing review, embedded in the FRPA, is an attempt to give First Nations, other resource users, and the public a chance to review and comment on FSPs, which is a responsibility of licensees under the FRPA (BC Ministry of Forests, 2006).

However, it is difficult for NTFR harvesters and buyers to participate due to the nature of this sector. NTFR harvesters are usually fiercely independent, often marginalized, have irregular work patterns, work in isolation and are generally not represented by a centralized body (Hansis, 1998). In the Pacific Northwest, NTFR harvesters are a very heterogeneous group and can be grouped into: educational, scientific, spiritual, recreational, healers, commercial and subsistence, each group harvesting different species for different purposes (IFCAE, 2011). These characteristics make it difficult for harvesters to have a voice and pose challenges to licensees or government that may wish to consult with them.

Many commercial NTFR harvesters belong to economically and politically weak groups. Communication between different groups of NTFR harvesters have historically been quite limited. NTFR harvesters also are only weakly connected to other groups who may share some of the same concerns over forest management including: forest workers, subsistence harvesters, tree planters, stream restorationists, and vegetation survey technicians. Therefore, neither NTFR harvesters nor the broader collection of forest workers have sufficient cohesion as a group to engage meaningfully in public forest policy (McLain, 2001, p153). However, this is rapidly changing and is likely to continue to change due to constant advances in communications and the shrinking of time and space through globalization.

The Forest Practices Board (FPB) is another avenue for public involvement in forest practices. The FPB is BC's independent forestry watchdog. It monitors and oversees forest and range practices on public land, as well as government enforcement of the FRPA. The FPB has an arms-length relationship with government, and a mandate to hold both government and the forest industry publicly accountable for forest practices. By law, the board must audit government and forest industry practices, and it must deal with complaints from the public regarding forest practices and government enforcement (FPB, 2008).

1.2. Importance of the NTFR sector

1.2.1. *Importance to the Canadian economy*

NTFRs are important to rural economic development in communities that traditionally depended on forest resources and are seeking economic alternatives to timber (Ehlers, Berch and Mackinnon, 2003). Alternatives to timber are being sought due to the economic and ecological problems with current forest practices (see Section 1.1.1), economic restructuring and a decline in the amount of the most valuable timber, as well a decline in timber volume known as the falldown effect which is elaborated below.

In North America, rural economic changes since the 1980s have reduced the availability of formal sector employment opportunities in many rural towns and communities. These changes include: downsizing, outsourcing, and restructuring in the agriculture, ranching, forestry, mining, and other natural resource sectors. In urban and rural areas this restructuring has been accompanied by an expansion in informal economic activity (McLain, 2008; Reimer, 2006). McLain (2008) identifies other trends that have occurred simultaneously affecting both the formal and informal NTFR sector including: pressures to extend regulation across broader economic sectors, restructuring that has shifted forest sector activities among regions, and an increase in expectations that NTFRs might provide opportunities to replace jobs lost because of declines in the volume of timber harvested. The expectation of NTFRs to create economic opportunities was embedded in the British Columbia community forest pilot and creation of the community forest agreement tenure. Through the 2003 Forestry Revitalization Plan and timber reallocation, government committed to diversifying the forest economy and creating new opportunities, including opportunities related to NTFRs (BC MOFLNRO, 2012).

Contributing factors leading to the timber falldown include: a smaller land base due to competing land uses, over-cutting and changing management standards (ICSI, 1996). The 1976 Pearse report first identified the potential of a falldown in harvest rates. Pearse identified that the calculated allowable cut should be consistent with growth and should therefore decrease due to a transition from harvesting old growth stands to

harvesting second growth stands. Pearse recognized the contradiction between this falldown and the policy of a sustained yield. Pearse also believed that good forest management could make up for the falldown effect and thus stated that allowable cuts should increase in the short and long term. The fact that forest management has not compensated for the falldown is evidence that conventional timber management is not conducive to stability in forest-dependent communities or intergenerational equity (ICSI, 1996). The falldown effect is directly related to the level of the Allowable Annual Cut (AAC), which is determined by the Chief Forester (ICSI, 1996). The Chief Forester is required by law to keep the cut as high as possible while ensuring good forest management. In the determination of the AAC, the Chief Forester must consider the economic and social objectives of the Crown for the area, region and province as expressed by the Minister of Forests (BCMOF, 2012). Chief Foresters have been criticized for consistently setting the AAC too high, or raising the AAC inappropriately, and failing in their responsibility to consider the long term environmental, social and economic effects of the AAC (ICSI, 1996). This is due, in part, to the fact that all levels of government have not wanted to see reduced AACs due to negative affects on the economy and decline in stumpage revenues.

NTFRs have limited potential to partially mitigate effects from the timber falldown in isolated rural areas. Due to the informal nature of much of the NTFR sector, and little recording or monitoring of data, it is difficult to quantify the sector in economic terms. However, the NTFR sector is rapidly growing. By 1997, the NTFR sector in BC employed almost 32,000 people on a seasonal or full-time basis, and generated over \$680 million in provincial revenues (BC MOFR, 2009; Wills and Lipsey, 1999). This figure does not include revenue from native plants taken for landscaping and restoration purposes, revenues from herbal medicine and food supplement manufacturing in BC (because they presently only use a small portion of BC ingredients), or sales of essential oils made using BC plants (Wills and Lipsey, 1999). In Canada as a whole the NTFR sector generates over a billion dollars per year (CFS, 2007). The floral greens export market has an annual average export value of approximately \$40 million a year and a domestic value of between between \$2-\$5 million. Wild mushrooms have an estimated export value of \$29 million annually (The Centre for Non-Timber Resources, 2006).

In addition to the dollar value of the NTFR sector, benefits from this sector frequently highlighted in the informal economy literature are cost-cutting, capacity building, economic buffering, affirmation of self-worth during times of unemployment, identity expression, and social network development (McLain, 2008; Reimer, 2006). These are explained in Section 1.2.5. These informal benefits, though not quantifiable in dollar terms, can assist those involved in the NTFR sector with future employment and the potential to generate financing.

Non-economic benefits from NTFR harvest and management are internationally recognized and include increased pride and self-sufficiency, re-connection with the land and community, rediscovery of traditions, and skills development (Belcher, Penner, Munier, Brigham and Griffith, 2010; UN Convention on Biological Diversity, 1992). For harvesters and their families, non-economic gains encompass improvements to health through an improved diet and exercise due to spending more time on the land.

1.2.2. Importance to First Nations

Legal and Informal Right

First Nations may choose to exercise both a legal (*de jure*) and an informal (*de facto*) right to NTFRs. A key distinction between these rights is whether they are governed by formal or informal institutions. Legal rights and formal institutions are backed by the law, and enforced by the state. Informal institutions are backed by collective choice and internal power structures, and thus also internally enforced. Legal rights are formal written laws or regulations, whereas informal rights are rights in practice that are known, understood and followed (Ostrom, 1992). In her body of work Ostrom (1990, 1992, 2005) provides evidence that individuals often overcome problems of public institutions and arrange internally for the provision and allocation of public goods and common pool resources (CPRs). As a good that is difficult to exclude, subtractable⁶, and almost entirely unregulated, NTFRs are a CPR. Ostrom also found that local

⁶ A resource that is subtractable indicates that exploitation of the resource by one user results in less resource availability for other users.

experimentation with management structures and self-governance often produce more effective results than rulemaking by the state for allocation of resources.

NTFRs are important to First Nations for their economic and non-economic benefits. In addition to the cultural importance of NTFRs briefly outlined in Section 1.2.1, First Nations' continuing traditional use of species is an important constitutional right as section 35(1) of the *Constitution Act* (1982) states that "the existing aboriginal and treaty rights of the aboriginal peoples of Canada are hereby recognized and affirmed". It has proven difficult in a court of law to interpret the *Constitution Act*; there is ongoing debate and incremental clarification in the courts determining the meaning of the phrase "aboriginal right". The *Regina v. Sparrow* (1990) case was the first case to consider section 35. In this case the Supreme Court of Canada recognized an aboriginal right to fish for food, social and ceremonial purposes. Six years later, *Regina v. Van der Peet* (1996) established that the claimed aboriginal right must have been an integral part of the First Nations' distinctive culture prior to contact. In *Calder v. Attorney General of B.C.* (1973), six of the judges agreed that aboriginal title is an inherent right of aboriginal peoples, that rights are not created by governments but exist independently. This was also the first recognition in Canadian law that aboriginal peoples have rights and title because of their unique status.

The *de facto* practice of aboriginal rights to NTFR is inhibited by lack of access to NTFRs due to environmental limitations, habitat change, habitat loss and the current property rights system. More specifically, development pressures, changing land ownership, logging and silviculture, ranching, mining, mass disturbance events, climate change, landscape changes, forest practices and regulations, ecological limitations of particular species and challenging topography all limit First Nations access to NTFRs (Keefer, Cocksedge, Munro, Meuleman, and MacPherson, 2010; FPB, 2004; Powell, 2008). Forest practices that impede access include expansion of commercial activity, herbicide use, regulations banning burning and the creation of densely timbered stands that shade out understory species.

In addition to the right to use NTFRs, the right to consultation around activities affecting traditional resources is also of importance to First Nations. The right to meaningful consultation has been legally established by the *Sparrow* (1990),

Delgamuukw (1997), *Taku River Tlingit* (2004) and *Haida* (2004) cases. In the *Regina v. Sparrow* (1990) case the judge stated that aboriginal peoples would be expected to be informed, at the least, regarding fisheries regulation. In *Regina v. Delgamuukw* (1997), the court recognized the existence of aboriginal title in BC. and the court also reiterated the need to consult. In 2002 the BC Court of Appeal's decisions confirmed that governments do have a duty to consult prior to proof of title in some situations (*Taku River Tlingit First Nation v. B.C.*, 2004; *Haida Nation v. B.C.*, 2004).

In a presentation on law as it relates to First Nations, R. Kyle discusses that precedent setting cases show that the scope of duty to consult varies and is proportionate to both the strength of the aboriginal rights or title claim, and the seriousness of the potential impact of the activity to be undertaken. A duty to accommodate, which is the duty to take action on recommendations from consultation, arises when the consultation process reveals a robust rights or title claim and high probability of negative impacts from the activity in question. Accommodation will be limited by government's objective to reasonably balance aboriginal interests with other societal interests (personal communication, 2011).

Forest Stewardship Plans under the *Forests and Range Practices Act*, prepared by all forest licensees, require consultation with First Nations (FPB, 2004). However, in *Haida v. BC* (2004), the Supreme Court of Canada found that industry has no duty to consult; government cannot delegate the duty to third parties (2004). Nevertheless, in a seminar presentation R. Kyle described that third parties (the legal tenure holder) still have an important role in consultation and accommodation (personal communication, 2011). To successfully implement consultation and accommodation, third party participation is often needed since they often operate physically closer to First Nations, may already have a social relationship, and are likely to have far more data relevant to the situation than the ministry. R. Kyle also discussed that third parties can provide adequate information to First Nations on their interests and operations and are often in the best position to address and accommodate First Nation issues (personal communication, 2011). In the legal definition of consultation and accommodation (C&A), CFs are third parties, since they are an operational institution within a larger system of constitutional rules. Community forests directly set rules around forest resources in site plans and administration of forestry operations, affecting day-to-day decisions made by

contractors on the ground. CFs also have some degree of collective choice power involving broader strategic rules laid out in longer-term business plans and their Forest Stewardship Plan; thus they are not a third party by strict definition and are better positioned to consult and accommodate First Nations concerns than government. While governments hold the final legal responsibility, they can delegate the implementation of C&A to the third party as long as governments ensure that the C&A process complies with the law. For community forests, documents such as the Simpcw consultation and accommodation guidelines and cultural heritage policy define C&A from the Simpcw perspective (Simpcw First Nation, 2006). This document could provide guidance to the local CF in terms of their C&A process and provide a starting point for an informal co-management arrangement described in further detail in Chapter 2: Methodology.

First Nations also have the opportunity to enact informal rights beyond what is defined by the Canadian legal system. Through internal power structures and collective choice rule making First Nations communities have historically allocated access to key resources and many continue to do so currently. For example, in Gitksan and Wet'suwet'en territories, land ownership and resource allocation is determined by Clans and House groups. Berry patches were traditionally valuable features of House territories and the management of this resource was controlled by House Chiefs to maintain a sustainable harvest level (Trusler and Johnson, 2008). Informal rights to NTFRs are practiced through ongoing use of the resource, and some First Nations are beginning to keep a record of their hunting and gathering routes using global positioning system (GPS) coordinates to document current use. These records compliment historical written and oral records in order to build First Nations' strength of claim cases, should informal rights be questioned in a court of law.

In summary, as an integral part of First Nations culture prior to European contact, the right to NTFRs is established through the *Constitution Act* (1982) and precedent setting court cases. Adequate consultation and accommodation related to activities that affect culturally significant plants is a concern of First Nations. In the forestry sector, guidelines for consultation are often ineffective and capacity is lacking, as briefly mentioned in the Results section of this research (3.3.1: Non-First Nations perspectives on NTFRs, 3.3.2: First Nations perspectives on NTFRs, 3.6: Process-based indicators of co-management). Timelines, ranging from a 30 to 60 day consultation period, are too

short for First Nations to properly comment on referrals and many First Nations do not have the resources and capacity to respond to the thousands of referrals sent their way. Community forests are also often restricted by resources and capacity, but it is nonetheless in their long-term interest to address and accommodate FN concerns and informal rights to the best of their ability through both operational rules and where possible, collective choice rules. Lack of capacity and resources are common challenges to co-management arrangements, described in detail in the case of the Timber/Fish/Wildlife co-management agreement in Washington State (Pinkerton, 1992).

Economic Value

In the informal economy, NTFRs have been used for millennia and are still used today by First Nations. NTFRs are still an important trading resource to obtain goods from other nations' territories, other climates and ecosystems (see Results Chapter 3). Regarding the formal economy, many First Nations bands across Canada are exploring NTFR businesses as a means of sustainable economic diversification (Siska Traditions, 2012; PFN and OMNR, 2006). A land use strategy for the Whitefeather Forest, traditional territory of the Pikangikum First Nation in Ontario, aims for

the renewal of the economic value of non-timber forest products (NTFPs) for Beekahncheekahmeeng paymahteeseewahch [Pikangikum People], supported by a rich Indigenous Knowledge tradition concerning the significance and appropriate uses of NTFPs, where the forest, its diversity, cover and resource abundance is maintained over time. (*Where*) NTFPs harvested and processed from the Whitefeather Forest will provide primary economic benefits to Beekahncheekahmeeng paymahteeseewahch and will contribute to the forest economy of Ontario in a manner that respects the northern boreal forest character of the landscape (PFN and OMNR, 2006, p.41).

In some First Nations' communities, the development and commercialization of NTFRs is controversial because of its association with the intellectual property rights (IPRs) of indigenous peoples who have been exploited in the past for economic gain (Marles, Clavelle, Monteleone, Tays and Burns, 2000; Posey, 1990). This is especially

common in the case of pharmaceuticals, as First Nations rights to their traditional knowledge are not protected by a legal system with inadequate mechanisms to recognize ownership of sui generis⁷ collective knowledge (FPB, 2004). Where commercialization of plant life is accepted on a moral or ethical⁸ level by First Nations, First Nations still desire compensation for intellectual property rights and there are few examples where contributions of traditional knowledge have been compensated (Lantz, 2001). For protection of IPRs, formal institutions fall short and informal, collective choice institutions are an alternative to preserve collective knowledge.

Cultural and Existence Value

In addition to their economic value, NTFRs are of immeasurable importance as a food source, medicine, and cultural icon. For First Nations, plant knowledge, including identification, use and classification are contextual and cultural, rather than being abstracted and general (Johnson, 2006). This highlights the importance of plants not only in their direct usage in cultural and spiritual ceremonies, but also in their role in connecting language to the landscape; their enablement of the preservation of traditional knowledge and wisdom; and their presence in traditional stories and myths (Johnson, 2006). A large body of literature reinforces the importance of these direct and indirect uses of plants to First Nations (Turner and Ignace, 2000; Turner and Cocksedge, 2001; Pojar and MacKinnon, 1994; Pengelly, 2011).

1.2.3. *Importance to the environment*

For decades, damaging industrial forest practices have been a major concern and focus of environmental organizations in British Columbia. Awareness about the economic and intrinsic value of NTFRs is growing, and the medical claims of herbal

⁷ Sui generis means something of its own kind/genus or unique in its characteristics. The expression is used in law to indicate a reality that cannot be included in a wider concept.

⁸ The term ethical as used in this paper refers to what is determined as right or wrong based on traditional/local knowledge, protocol and standards of conduct.

medicines are rapidly being substantiated, but the ecological and biological impacts from increased harvest of these special forest products have yet to be adequately explored.

The impacts to species differ depending on their life history and part of plant harvested (Ticktin, 2004). NTFR harvest can affect ecological processes at many levels, from the individual, to the population, to the community and even to the entire ecosystem (Ticktin, 2004). Impacts are of particular concern for plants harvested for their bark, roots, or the whole plant, where improper harvest could decimate populations (Ticktin, 2004).

The level of impact also differs depending on the habitat where the desired species grows. Areas of particular concern include riparian zones and wetlands. Riparian zones contribute critically to the ecological character of forest ecosystems (Lantz, 2001; Lantz, Swerhun and Turner 2004; Young, Reading, Elias, and O'Neil, 2000). While beyond the scope of this paper, compatible management is being advanced as a way to manage for timber and non-timber species together. Compatible management is forest management that considers timber and non-timber resources while accounting for human needs and values and is consistent with ecosystem-based management (Jones and Lynch, 2007; Centre for Non-Timber Resources, 2006). Compatible management practices currently employed by the Wells Gray Community Forest are listed in Table 8: Role of a Community Forest and treatment of NTFRs, and described in Section 3.3: Potential NTFR management strategies. The Centre for Livelihoods and Ecology (formerly the Centre for Non-Timber Forest Products), at Royal Roads University, has published a number of management handbooks on compatible management (FPB, 2004; Olivotto, 2009; Berch and Kranabetter, 2010; Cocksedge, Titus and Mitchell 2010; Centre for Non-Timber Resources, 2006; Keefer et al., 2010). An in-depth analysis of compatible management is not the focus of this paper. Rather, this paper seeks to address management that is not only compatible with both timber extraction and the sustainability of NTFRs, but also adds a third lens of compatibility with FN values and perspectives.

1.2.4. Importance to NTFR harvesters and small business

The Fraser Institute estimates that the informal economy, of which the NTFR economy is a small part, represents 12-15% of Canada's GDP (The Fraser Institute, 1997). A very rough application of this percentage to the BC context, would yield an informal economy accounting for between \$22,920,720 and \$28,650,900 in 2010 (12-15% of 2010 GDP \$191,006,000) (Statistics Canada, 2011).

The NTFR sector currently provides formal and informal employment to harvesters, buyers, processors, wholesalers, exporters and retailers. Harvesters gather plant material and sell the material to buyers who either set up buying stations in the field or are located more centrally in towns close to the field. Buyers may process the material or there may be a processing plant employing different individuals. For simple processing, such as cleaning and cooling, or cleaning and drying, processing is likely to be done by the harvester or buyer. For more involved processing, requiring more substantial infrastructure or capital, there may be others who do this work. Wholesalers buy products in bulk from various harvesters or buyers. Wholesalers must buy from many people and places to ensure a consistent supply for the retail or export market to whom they sell. Exporters are responsible for getting the product to markets across the nation, in the United States, or overseas. Retailers sell the product to the final consumer and exist in the form of floral shops, grocery stores, gourmet food stores, apothecaries (herbal medicine shops) and restaurants (The Taiga Institute, 1999).

The NTFR literature identifies many benefits of participating in the NTFR sector. These include economic buffering, identity expression, social networking, enabling people to leverage economic value and social meaning, and connecting humans with nature. Regarding cost-cutting, the informal sector cuts out costs to employers and employees such as: income taxes, payroll taxes, worker's compensation, unemployment insurance, and business licence fees. Related to training, the informal sector provides a place where workers can acquire the skills, connections or capital needed to potentially later engage effectively in formal economic activities (McLain, Alexander and Jones, 2008).

Informal sector employment can permit people to express themselves and contribute to their self-esteem, since it can provide meaningful employment and allow

people to maintain particular ways of life that they cannot access immediately in the formal sector. The informal sector can also foster and maintain social networks. Social networks developed through informal economic activity create an economic safety net that participants can draw upon when needed. This social capital can later translate into formal business settings, reducing transaction costs (McLain et al., 2008). Often harvesters are not fit for or do not aspire to traditional employment. By being self-employed in the NTFR sector they may reduce pressure on social services which would be more frequently accessed in the absence of informal employment, because NTFR harvesting is positive for physical and mental health due to the nutritional value of edible species as well as self-esteem derived from this mode of informal employment. Connecting humans with nature is important for both physical and mental health and well-being, which is touched upon under the heading of "co-management and health" in Section 1.1.3. In my research, many interviewees also stated that gathering NTFRs was positive for their health and well-being. (See Appendix A: Reasons for harvesting NTFRs).

1.2.5. Importance to the health care field

Traditional and natural medicines are of interest to community health care practitioners, pharmaceutical companies and herbalists. Traditional medicines are still the primary healthcare option for 75 percent of the world's population. First Nations health programs that combine traditional and western medicine, or promote traditional medicine exist in Canada with much success (NAHO, 2012). Despite the fact that a large body of traditional knowledge has been lost due to westernization and colonization, research that identifies plants still used by traditional healers today helps to determine which plants provide the strongest medicines. Plants found to be effective in healing, within the framework of local understandings of health and illness, will be retained in local tradition (Johnson, 2006).

NTFRs have well documented potential in the pharmaceutical literature to act on major diseases. For example, devil's club (*Oplopanax horridum*) has been documented to act on cancer, diabetes and arthritis (Li, Sun, Wang, Williams, and Yuan, 2010; Tai, Cheung, Chan, and Hasman, 2010; Kobaisy, Abramowski, Lermer, Saxena, Hancock, and Towers, 1997; McCutcheon, Roberts, Gibbons, Ellis, Babiuk, Hancock, and Towers,

1995). Another example is cascara bark (*Rhamnus purshiana*), which was so effective as a laxative product for the drug industry that it was overexploited. Harvesters stripped the bark carelessly and wastefully, nearly extirpating the species from some areas. As mentioned in section 1.1.4, Taxol, found in the bark of the Pacific yew tree (*Taxus brevifolia*) and used to treat uterine cancer, was also nearly extirpated. After a few years of destructive yew bark harvesting, the provincial government intervened with regulations in an attempt to protect the species (Turner, 2001).

1.3. Research gaps and opportunities

NTRF research has been carried out from ecological, anthropological, ethnobotanical, economic, institutional economics and forestry perspectives. Ecological studies on specific plant's growth and yield using field sampling are useful to begin to determine sustainable harvest rates and learn about species autoecology.⁹ For example, a study on devil's club determined how devil's club reproduces, finding that it favours clonal propagation through layering of roots, rather than seed dispersion (Lantz and Antos, 2002). Evidence shows that a central devil's club "mother" plant is responsible for most of the other individual plants in a given radius (Lantz and Antos, 2002). However, ecological studies of NTRFs of this scale are not necessarily transferable across locations. Also, while they may help to determine ecologically acceptable rates of harvest, they do not determine ethically acceptable modes of harvesting these plants, which is particularly important for plants, such as devil's club, used in spiritual ceremony.

Various inventories using ecological, social and economic methodologies exist, describing the distribution and abundance of NTRFs in different parts of BC, as well as the make-up of harvesters and the amount/value of what is harvested (Cocksedge, Titus

⁹ Autoecology is the ecology of a single species, the relations between that species and its environment, including how the species affects the environment and how it is affected by the environment

and MacKenzie, 2007; Tedder, Mitchell and Hillyer, 2002; Ehlers, Berch and Mackinnon, 2003). While a highly valuable contribution to the literature, inventories of NTFRs are limited in scale and scope. They are limited by time and resources and often focused on the needs and interests of a particular community. For example, a study on NTFPs in the Robson Valley uses the mean number of species found in biogeoclimatic (BEC) zones to model which and how many NTFPs are present (Ehlers et al., 2003). The study is not ground-truthed through test plots, which would provide important data on the actual yield and quality of each species, qualities which are essential to NTFR harvesters. In a study by Tedder et al. (2002), an NTFP inventory is divided into types of NTFPs such as: medicinal, edible, floral and craft. The results tables for medicinal species lack data on: the status of habitat, the impact of harvesting methods, potential effects of habitat enhancement, the resource value, the market uncertainty, and the harvester and community attributes.

In the ethnobotanical and anthropological literature, numerous studies exist on the scope and scale of NTFR usage and stewardship among aboriginal people and First Nations through time (Turner and Cocksedge, 2001; Keefer et al., 2010). Works such as these provide valuable insights into ethical and sustainable use of species. Ethical use of a species entails uses a species according to moral principles of right and wrong. These principles and standards of conduct are embedded in a culture and thus differ between locations and individuals. They also serve to combine western scientific knowledge with traditional/local ecological knowledge and wisdom. However, this body of work does not always attempt to compare First Nations perspectives and stewardship values to the non-First Nations communities with whom they are currently sharing the land and resources. Studies documenting the importance of cultural resources to aboriginal people do not determine how non-aboriginal users of these resources can collaborate with aboriginal people for the sustainable and ethical access and withdrawal of the resource, enabling wider benefit.

Many studies have been completed, largely by the Centre for Livelihoods and Ecology at Royal Roads University, looking into the compatible management of timber and NTFRs (FPB, 2004; Olivotto, 2009; Berch and Kranabetter, 2010; Cocksedge, Titus and Mitchell 2010; Centre for Non-Timber Resources, 2006; Keefer et al., 2010). Many of the studies and land management handbooks for compatible management are not

community, resource or site specific because they are created for widespread extension. Compatible management opportunities differ with the seral¹⁰ stage, ecological zone, and the NTFR species of interest (FPB, 2004), necessitating further study of compatible management. Compatible management strategies will also differ by tenure type and would need to be adapted to a community forest context. Where co-management is an objective, appropriate compatible management strategies may also be quite different than elsewhere.

In the field of institutional economics, research suggests how to determine when NTFR management is needed and subsequent strategies for management (Tedder et al., 2002, Tedder, 2008). Tedder et al's 2002 report on management options for NTFPs provides an analysis of the strengths and weaknesses of approaches from different management institutions or models: state-based, common property, individual and private-based. Tedder et al. (2002) conclude that given the complex ecological, social and economic characteristics which define NTFPs, a mix of management systems should be used, drawing from the strengths of each in appropriate circumstances. The paper further concludes that, in principle, government agencies should maintain their prescriptive role, but minimize any operational role. This work recommends that a pilot project be initiated to test and monitor the various management approaches for NTFPs; a pilot has not yet been implemented.

Tedder 2008, developed a model to assess common pool resources (CPRs) under stress and to determine whether or not some form of intervention is necessary. Tedder then applies this model to the case of commercial salal harvest in the Pacific Northwest and deems that government intervention is warranted. The model evaluates the level of risk associated with the exploitation of a resource. If the resource appears to be at risk, the second section evaluates the severity of risk by looking at appropriator and institutional attributes. The last stage of the model looks at the level of economic

¹⁰ Seral stage is the stage in forest succession characterized by forest stand age and stage of ecosystem development as represented by the present biotic communities.

rent¹¹ capture or dissipation, which suggest the level of government intervention required—facilitative, coordinating, or prescriptive approaches. Contrary to Tedder's recommendations in 2008 to regulate salal harvest, salal harvest is not currently regulated in BC. He attributes this to the fact that NTFP management is not normalized and CPR management would likely be costly, difficult and contested. Tedder's CPR intervention model could be applied to other resources in order to determine when and how government should intervene in CPR management.

The literature pertaining to community forests and NTFRs generally focuses on the NTFR potential for a specific community forest, or the potential of one particular species for one particular community forest. For example, a 2008 evaluation of the outcomes of the community forest agreement (CFA) indicates that CFAs generally did not satisfy expectations that communities would commercially harvest botanical NTFPs (Ambus, 2008). However, the evaluation does not identify enabling factors for harvesting activity. The McBride Community Forest had a short study completed on the potential for commercialization of devil's club (Ball, 2009). The Harrop-Proctor Community Forest had a medicinal plants inventory completed which determined the ecological and economic feasibility of commercially harvesting selected medicinal species on a sustainable basis, focusing on sarsaparilla (*Aralia nudicaulis*), prince's pine (*Chimaphila umbellata*) and devil's club (*Oplopanax horridum*) (Evan McKenzie Ecological Research, 2004). A study for the Burns Lake Community Forest developed and tested a NTFP inventory which assessed both cover and quality of understory species and developed predictive site and stand attributes for high quality habitat within the Burns Lake Community Forest. Species of particular interest included: black huckleberry (*Vaccinium membranaceum*), soapberry (*Shepherdia canadensis*), saskatoon berry (*Amelancier alnifolia*), highbush blueberry (*Vaccinium myrtilloides*), arnica (*Arnica cordifolia*), and labrador tea (*Ledum groenlandicum*) (Centre for Livelihoods and Ecology, 2011). Despite having the jurisdiction to manage NTFRs, most

¹¹ Economic rent is the return for the use of a factor in excess of the minimum required to bring forth its service (Merriam-Webster, 2012).

community forests have not engaged in studies to inventory NTFRs on their land base or to assess their viability. My research attempts to fill some of the aforementioned research gaps.

1.4. Chapter Summary

There are many shortcomings of industrial forestry in BC as seen through social, economic and environmental perspectives. The community forest tenure attempts to address some of these shortcomings, albeit on a small scale. One opportunity provided by this tenure type is the potential to manage NTFRs for economic, environmental, cultural or social benefit. There are numerous valuable NTFRs, and evidence from the past suggests that in cases where their values are publicly known, species exploitation and extirpation can occur. Another opportunity of the CF tenure is to develop better relationships and work more closely with First Nations.

There are many challenges to NTFR management, including lack of a legal framework and helpful precedents and examples of successful management. One major challenge to NTFR management is how to incorporate First Nations' constitutionally protected aboriginal right to these species and right to consultation and accommodation for any potential impacts on their traditional territory. The co-management model has potential to resolve this question, as a formal legal agreement or as an informal measure, but may struggle with legitimacy from a First Nation's perspective. Informal rights to NTFRs are also exercised through individual and collective rule making in First Nations communities and non-First Nations communities due to the importance of NTFRs to a variety of stakeholders. As a responsible third party between provincial governments and First Nations communities, community forests can set an example through meaningful consultation and accommodation of local First Nations.

2. Methodology

After a quick overview of the research methodology, this chapter presents a brief background on the collaborating organizations from the communities where the field research was located. In the following section there is a more detailed explanation of literature and theory informing the methodology, research steps and methods employed. These sub-sections include: the case study method, studying traditional knowledge (TK) and local knowledge (LK), community-based research protocol, primary and secondary background research, interviews and participant-as-observer. In the participant-as-observer section this methodological technique is described and some of the key events attended are listed. The next section describes the analytical strategy which included the use of grounded theory combined with *a priori* hypotheses. Grounded theory is explained as well as the impact of this technique on the evolution of the research question. The *a priori* hypotheses are a selection of theoretical propositions from the co-management literature, which were applied to the entire data set in a coding process. Grounded theory was used in analysis of the data pertaining to the NTFR sector. Finally, the coding software and process used are described in detail.

It is an important question what voice the researcher should use to represent the narrator, as she interprets and represents interviewees (Chase, 2005). Chase presents three narrative strategies: 1) authoritative, which separates the researcher's and narrator's voices; 2) supportive, which highlights and focuses on the narrator's voice, and 3) intersubjective, where researchers make themselves vulnerable and include extensive discussion of their emotions, thoughts, research relationships and their unstable interpretive decisions. The premise of the intersubjective voice is that researchers must understand themselves if they are to understand others. I will also use the intersubjective voice in parts of this section, particularly because my methods include participant observation, a method in which it is difficult to remain objective and unaffected.

2.1. Overview of methodology

My methodology borrows from an array of qualitative methods. It is grounded in community-based research methods as well as methods appropriate for working with First Nations and inquiring into traditional and local knowledge (TK/LK). My research is conducted as a case study. Research steps include establishing a community-based research protocol, conducting background research, conducting semi-structured interviews and engaging in participant observation. My data analysis technique is a combination of grounded theory and *a priori* hypotheses. *A priori* hypotheses organize themes in light of a body of theory. For data relating to the status of NTFRs I used the grounded theory technique, and for data relating to cooperation between the Simpcw and the CF I used *apriori* hypotheses from the co-management literature. Grounded theory also allowed the research question to evolve alongside emergent data.

2.1.1. Geographical location of study

The geographical location for the study was the Wells Gray Community Forest, which surrounds the town of Clearwater, BC and lies within Simpcw traditional territory. The approximate location of the WGCF is shown in Figure 1 and the specific location is shown in Figure 2.

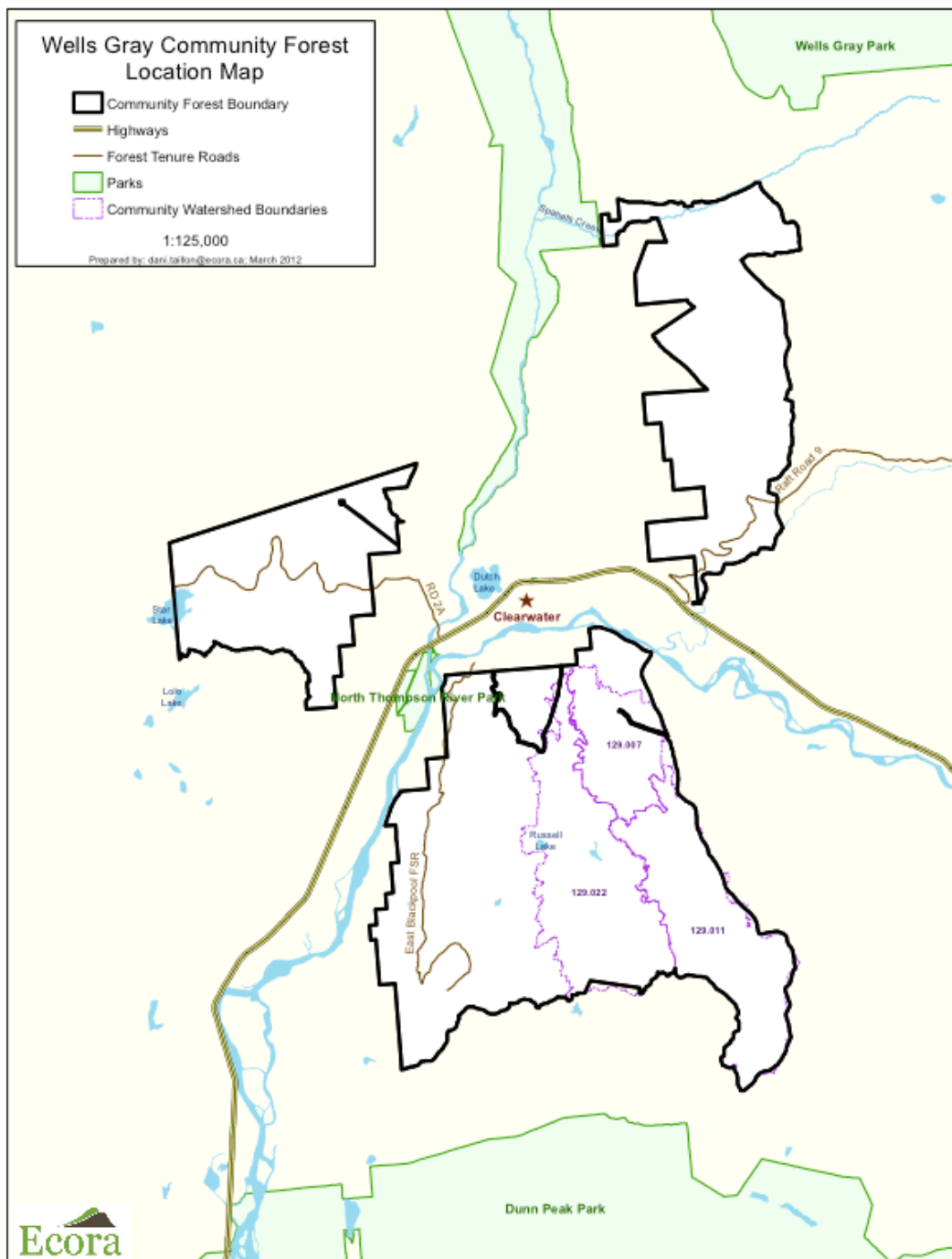
Figure 1: Map of British Columbia indicating approximate location of study area



Figure 2: Map of British Columbia indicating approximate location of study area



Figure 3: Wells Gray Community Forest location map

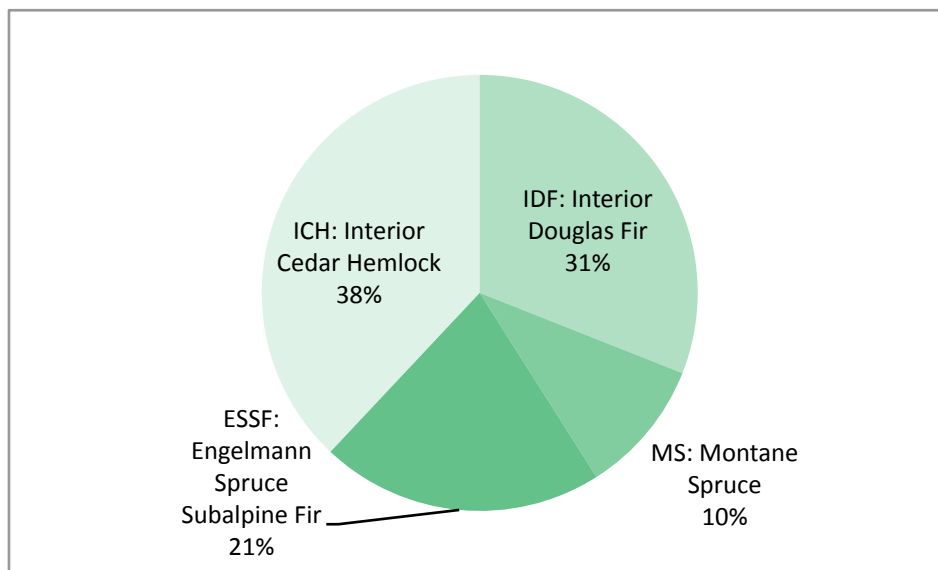


The Wells Gray Community Forest stretches from the community of Vavenby in the North to Blackpool in the south and consists of 13,145 hectares (Figure 3). The

allowable annual cut is 20,000m³ with an uplift of 13,500m³ to address mountain pine beetle damaged stands. Despite previously referenced studies that a minimum AAC of 50,000 m³ would be required in the interior for a viable operation, interview data and WGCF planning documents revealed that the WGCF is using improved data and innovative management and marketing to meet economic, social and environmental objectives on its 33,500 m³ cut.

The WGCF also benefits from its location in the Robson Valley dominated by alpine and subalpine ecosystems with highly productive growing sites along the river valley and on some mid-elevation benches. Much of the forest area is in mature and over-mature age classes (WGCF, 2012). A wide range of climatic conditions associated with the topography of the Robson Valley results in a diversity of ecosystems (Ehlers et al., 2003). The species mix of the WGCF includes Interior Cedar Hemlock, Interior Douglas Fir, Engelmann Spruce, Subalpine Fir and a small portion of Montane Spruce biogeoclimatic zones (Figure 4). The Wells Gray Community Forest Corporation's mission is to operate and manage a community forest agreement licence on a long-term sustainable, environmental, and social plan that will optimize economic opportunities and non-economic benefits for the residents of Wells Gray Country (WGCF, 2012).

Figure 4: Wells Gray Community Forest Species Mix



The corporation operates under a board of directors comprising seven members and the day-to-day operations are executed by the general manager. The Community Forest Advisory Committee (CFAC) acts as a liaison between the wider public and the community forest board of directors. More specifically, the role of the CFAC is:

to represent the communities' (Clearwater, Birch Island, Vavenby) views and preferences regarding forest management practices of all forest resource values, to review and comment on the strategic and operational plans for the Community Forest and to consider the development of value added and secondary manufacturing (WGCF, 2012).

Net profits are re-invested into communities in Wells Gray Country via the Wells Gray Community Forest Society. The society was formed in 2011 as the most transparent and accountable way to distribute WGCF profits to the wider communities. The mission of the society is:

to promote the economic and social welfare of the residents of Wells Gray Country (*including the District of Clearwater*), including the provision of support for the benevolent and charitable enterprises, federations, agencies and societies engaged in furthering these purposes (WGCF, 2012).

The Wells Gray Community Forest (WGCF) is guided by a sustainable forest management ethic to manage for multiple resources. Management plans are consistent with the Kamloops Land and Resource Management Plan as well as other local resource use plans (WGCF, 2012).

The Simpcw band is part of the Secwepemc nation, whose traditional territory encompasses approximately five million hectares in the North Thompson region. Today the Simpcw First Nation has a membership of nearly seven hundred people. The Simpcw have always been involved in use of NTFPs and have a history of selling berries commercially. In the mid-1900s they picked huge quantities of wild huckleberries and blueberries, and drove their one-horse wagons by settlers' cabins in order to sell the berries (Dunford, 2002).

The Simpcw have staff dedicated to health, culture, resources, language and safety, community planning, education and other necessary departments. The following overview of the Sustainable Resource Department, the Health Board, the Simpcw Forest

Tenures policy, the Simpcw Consultation and Accommodation guidelines and Cultural Heritage policy illustrate some of the current activities and priorities of the Simpcw First Nation.

The Simpcw Sustainable Resource Department (SRD) is "committed to the protection, conservation, and sustainable management of Simpcwulucw¹² in a holistic manner" (Simpcw First Nation, 2012a). The SRD and Simpcw community businesses are involved in a number of projects ranging from fisheries to electricity to environmental rehabilitation and tourism partnerships. Related to this research, the SRD and community businesses manage forest tenures and conduct traditional use studies (TUS). Simpcw forest practices will be discussed in Results (Section 3.4).

The mission statement of the Simpcw Health Board is as follows,

Simpcw Health Board embraces and is committed to supporting the Simpcw in creating wellness in all aspects of life. Our holistic philosophy guides us to be healthy individuals that create healthy communities that are balanced in all phases of spiritual, physical, emotional and mental well-being (Simpcw First Nation, 2012b).

The connection to traditional diet, including gathering botanical species, is important to the Simpcw community. This is evident in programming for youth and elders that includes seasonal berry picking and also in the fact that an unpublished 2011 report on a community-wide survey indicated that access to, and consumption of, traditional foods were a high priority for community planning.

The purpose of the Simpcw Forest Tenures policy is, "to ensure that The Simpcw remain the sole 'yecwiminem' or guardians of all Cultural and Natural Resources within Simpcwulucw". With this policy, Simpcw First Nation will retain the right to manage these resources with operational authority (Simpcw First Nation, 2011). It is important to note that cultural and natural resources include all types of NTFRs growing on the land

¹² Simpcwulucw is a Secwepemc word meaning "lands of the Simpcw people".

base. It is also important to note that the Simpcw First Nation Forest Tenures Policy asserts operational rights over all resources on the land base; the use of the term operational authority refers to the process of creating rules that govern day-to-day operations. Operational authority usually signifies a formalized, legal right nested under collective choice rules (policy and management institutions) and constitutional rules.

The Simpcw consultation and accommodation guidelines and cultural heritage policy detail what suitable consultation and accommodation would look like to Simpcw and clearly define the Simpcw perspective on any activities on their land base, including extraction of NTFRs. These guidelines are "designed to provide a systematic approach to reconciling Simpcw sovereignty with the asserted sovereignty of the Crown in relation to land and resources" (Simpcw First Nation, 2006). Some of the key terms that relate to the Simpcw FN relationship with a community forest are section 5.2 and section 5.4. Section 5.2 states that third parties may be required to participate in consultation at the operational level and to accommodate the Simpcw people, but decision-making/approval authority remains at the government-to-government level. This is restated in another section of the same document, "Third parties must recognize that the Simpcw First Nation is a level of government in Simpcwul'ecw" (Simpcw First Nation, 2006). Section 5.4 outlines that consultation must include the willingness and mandate to be flexible. This section also describes that negotiations must be in good faith, and all alternative options to the desired activity must be on the table including a no-activity option. Co-management involving at least equally shared decision-making authority is listed as an optional accommodation measure.

In summary, the aforementioned documents 1) assert Simpcw operational rights over all resources in Simpcwul'ecw, 2) state that solely co-management occurring on a government-to-government level would entail a suitable accommodation measure, 3) emphasize that Simpcw First Nation is a sovereign level of government challenging the sovereignty of the Crown. In keeping with the duty to consult and accommodate as defined by the Canadian legal system, Simpcw policies state that third parties may participate in consultation but that final authority rests with the provincial government. As an operational institution with some formal collective choice jurisdiction devolved from the provincial government, community forests are not in the position to complete consultation or participate in full co-management with the Simpcw FN. However, the

policies described in this section would be foundational for interim, experimental informal co-management arrangements which set *de facto* policy and management rules.

2.2. Detailed Methods

2.2.1. Studying traditional knowledge/ local knowledge

Hawley (Hawley, Sherry and Johnson, 2004) discusses the many hurdles to science-based resource management (SBRM) and traditional ecological knowledge management systems (TEKMS) working together. These hurdles are 1) cultural imperialism, 2) the cultural shadowland, which describes how many people define themselves as neither aboriginal nor non-First Nations, 3) the relative places of SBRM and TEKMS in society, 4) differing characteristics of what information and knowledge actually are in each community, 5) language itself, 6) views on whether the right to manage the environment is actually a human right, and 7) differing perspectives on management of peoples. As solutions, Hawley suggests the following as necessary: respect for the other's world view, good communication, learning interpersonal skills in different cultural contexts, identification of shared goals and a commitment to helping the disenfranchised. For Hawley (Hawley et al., 2004), a commitment to helping the disenfranchised means to work together to face the common challenge of the distancing of people of all sorts from the natural environment. If the right people are employed to work together from both the SBRM and the TEKMS perspective, bringing together the two knowledge systems could conceivably be achieved.

Holm (2000) discusses perspectives on science and traditional knowledge and concludes that often, "a realist position is reserved for oneself and ones allies (what I/we claim is true), while the knowledge claims of one's adversaries are taken as social constructions (your claims must be explained by reference to interests and politics)" (para.47). According to Holm, it is therefore a subjective judgment whether TK/LK is considered the "true" knowledge. For the Simpcw, in instances of disagreement between traditional knowledge and what is believed by western scientists it is not sufficient to merely collect TK/LK, but also important to mobilize power behind the holders of such knowledge and their communities.

It is with learnings from both of these authors in mind that my research attempts to embody community-based research (CBR) principles, beginning with developing a memorandum of understanding (MOU) between the researcher and the Simpcw First Nation band, represented by the band council and signed by the chief at the time. I also strove to embody the skills and qualities suggested by Hawley et al. (2004) to bring together differing knowledge systems. Attempts to create opportunities for feedback throughout the research process and for co-authorship of publications upon completion of my research were meant to mobilize power behind TK/LK knowledge holders.

2.2.2. Community-based research protocol

My research began with establishing a research protocol in partnership with the Simpcw to respect both the academic institution and the community's needs and expectations (See Appendix C: MOU). This MOU grew out of a meeting in March, 2011 where it was established that relationship building between a researcher and the Simpcw, as well as between the Simpcw and the CF was more essential to protection of intellectual property rights than any existing legal mechanisms. This meeting occurred in person at the Simpcw band office, with the exception of myself and one of my research supervisors who were present on the phone. Following this meeting, the MOU was established in partnership with the Simpcw band council through a series of phone calls and e-mails. In addition to following Simon Fraser University's ethical review process, and the recognition that all intellectual knowledge revealed in interviews is the property of the Simpcw, local protocols were also followed as they were conveyed by a Simpcw staff member assigned to the research project.

Following suggestions from *The Tsimshian Protocols* (McDonald, 2004), the "community" aspect of my research strives to go beyond mere location in a specific community, through attempting to be community based in "form" and "content". Form means that the research must adhere to protocols of the community, work with the people and listen to their concerns. Content means that researcher must be reflexive and acknowledge her own positioning and power, re-positioning this power so that the community holds it. Some ways of re-positioning this power include identifying community needs and issues with the community, organizing community "guides" and mentors, working with and applying community standards and emphasizing local theory

and local epistemologies rather than just local knowledge (McDonald, 2004). By iteratively discussing and revising research goals, working with a community leader/mentor in selection of interviewees, and providing quarterly reports to ensure community approval along the way, the attempt was to transfer power into the hands of the community. Unfortunately, due to the community's negative experiences with researchers in the past as well as time constraints and work loads of Simpcw council members and staff, these attempts were not entirely successful.

Markey, Halseth and Manson, (2010) described the dynamics between researchers and rural communities in northern rural British Columbia, as well as the role and best practices for the researchers at all stages of a CBR project. This article highlighted the fact that progress can be very slow, and the importance of leaving adequate time for feedback at all stages along the way. This challenge was partially addressed through working with Joe Jules, Rights and Title Coordinator for the Simpcw First Nation Sustainable Resources Department. Joe connected the researcher with a range of community members, and looked over the research proposal and interview questions. Unfortunately, despite attempting to leave adequate time and extending deadlines on many occasions, I was unable to obtain feedback on my research due to other priorities of the Simpcw First Nation. While Joe helped as an individual staff member and community member who was very involved in traditional activities, other staff and the political leadership did not have time to communicate with Joe or the researcher about research focus and progress.

2.2.3. *The Case study method and grounded theory*

Yin (2003) states that a case study needs to be corroborated by at least two sets of data. Following background research presented in Chapter 1 and Chapter 2 section 2.1.1, my fieldwork consisted of both semi-structured interviews and participant observation. The process of using multiple sources of data to corroborate the evidence served to triangulate the data, thus establishing greater confidence in the findings.

2.2.4. *Primary and secondary literature*

In addition to a review of the academic literature pertaining to co-management, community forests and NTFRs, I endeavoured to better understand the main stakeholder

groups, the Wells Gray Community Forest and the Simpcw First Nation, through consulting meeting minutes, strategic plans, forest stewardship plans, business plans, an NTFP symposium report, the Simpcw rights and title strategy, British Columbia Community Forest Association conference notes, Simpcw departmental pamphlets and websites, and past meeting agendas.

2.2.5. Interviews

I used theoretical sampling to determine an appropriate pool of interviewees. In theoretical sampling there is no limit to the data collection methods used, the way they are used, or types of data acquired, the result being a wide variety of slices of data. Throughout the data collection process, to whom to turn for data comes out of the data and emergent theory; as theories are formed it becomes evident which individuals and groups should be approached next.

Within the purest form of theoretical sampling, the sample is picked for theoretical reasons, rather than for structural reasons such as time, location or money (Glaser and Strauss, 1967). As a master's degree project limited in scale and scope, these structural reasons were inhibiting factors, so the interview sample was not purely theoretical. The sample was selected based on interviewees' involvement in the research theme; this changed as the line of questioning changed. For example, early interviews were conducted with NTFR harvesters and foresters from both case study communities, in Chu Chua, BC and the Wells Gray Community Forest area from Blackpool in the south to Vavenby in the north. As the research question evolved, government employees involved in First Nation consultation also became part of the interviewee pool. While interviewee selection was primarily theoretical, the amount of time spent in the community, and the availability and the interest of individuals in the study content were structural factors that partially limited selection of interviewees.

Related to ethnographic¹³ interviewing, which could be used to describe the interviews conducted, Spradley (1979) discusses what to look for in locating an informant. He states that they should be fully enculturated in their community and have current involvement with the topic of research. The context should be an unfamiliar scene for the interviewer, and there needs to be adequate time to carry out fairly long interviews (Spradley, 1979). Many of my informants met these requirements, and the context was indeed unfamiliar to me, the interviewer. I determined the sample through attending meetings and gatherings. My sample consisted of the community forest board members, community forest advisory committee, band council leadership, community leadership, NTFR harvesters, NTFR users, potential NTFR users, foresters, forest technicians, elders, holders of local knowledge and community leaders.

There are both pros and cons to using the semi-structured interview method. Interviews are verbal reports only and are subject to bias, poor recall, and poor or inaccurate articulation (Yin, 2003). On the other hand, in semi-structured interviews the participant or participants are guided in the discussions by the interviewer, but the direction and scope of the interview are allowed to follow the associations identified by the participant. With no fixed questionnaire, nor a preset limit on the time for discussions, this style is chosen by Huntington (1998) as the best method for drawing out TK. Therefore, phone and in-person interviews were selected as the best method, in order to allow for adequate focus on the research question and control by the researcher, with room for the expansion of scope per participants' associations. Regarding focus and control, the interviewer can ensure that respondents answer questions in the appropriate sequence and can ensure that the interview occurs in private, leading to more honest answers. The semi-structured nature simultaneously allows the interviewer to collect supplementary material as needed to aid in interpretation of the results. Questions asked revolved around: presence of NTFRs in the community forest, whether they are or have been collected or used in the community, whether current management plans and

¹³ Ethnographic research is a type of qualitative research design aimed at exploring cultural phenomena.

forest mandate consider NTFRs within the CF or within the Simpcw SRD, and how many and which parties give input into the management. Questions posed also included themes of: relationships and cooperation between Wells Grey Community Forest Board, First Nations and other stakeholders, how to foster intercultural trust and collaboration, identification of different parties' priorities for forest use, commonly harvested NTFRs by different stakeholders, and level of NTFR use and knowledge within different segments of the community (See Appendices D-I for interview guides).

Reading of Spradley (1979) provided many guidelines that I followed in interviewing. He advocates using elements of regular friendly conversation: a warm greeting, avoiding repetition, asking questions, expressing interest, expressing ignorance (i.e. showing you do not know about something as a way to encourage the interviewee to continue speaking), taking turns (an implicit cultural rule), abbreviating (common between friends as they have shared knowledge) and pausing and leave-taking (casually, informal end to conversation). Regarding content, the interview should contain descriptive, structural, contrast and verification questions, which I strove to include in the interview design (Spradley, 1979).

2.2.6. *Participant-as-observer*

Huntington (1998) notes that although documentation through interviews is a useful and necessary first step, analysis in comparison to other data sources is needed. This may include reinforcing data triangulation through participant observation and literature review. Participant observation is the method whereby the researcher, "attempts to obtain some kind of membership or close attachment to the group that he or she wishes to study" (Frankfurt-Nachmias and Nachmias, 1992, p. 273) and to adopt the perspectives of the people in the situation being observed. More specifically, the participant-as-observer role makes the researcher's presence and objectives known to the group and the researcher makes a relatively long term commitment as an active member in the group in an attempt to learn their habits, work patterns, leisure activities and language (Frankfurt-Nachmias and Nachmias, 1992).

There are both pros and cons to participant observation as a research method. In participant observation the researcher may not have time to take good notes or ask

the right questions because they are busy participating. They can also inadvertently manipulate the research situation and create opportunities or become a supporter of what is being studied, which both alter the original research context and affect objectivity (Yin, 2003). When a researcher becomes a supporter of what is being studied, the method becomes participatory action research, a specific style of participant observation, which may or may not be the goal of the researcher. Participatory action research stems from Paulo Freire's seminal work, *The Pedagogy of the Oppressed*, which critiques the student-teacher dichotomy and the colonizer-colonized dichotomy (Freire, 1970). Participatory action research intentionally breaks down the "researcher" and "researched" dichotomy. In the case of my research, participatory action research was not a goal, but I may have unconsciously engaged in this research style due to my researcher bias described below.

For close to a three-month period, between, before and after interviews, I lived in the community of Clearwater with extended visits to Chu Chua, the location of the Simpcw reservation. I attended formal meetings, cultural events and NTFR harvesting events in the participant-as-observer role. I kept a field diary separate from my interview notes, allowing me to go back and see what my own emotions and thought processes were at the time. This allows reflexivity on the part of the researcher and allowed me to deconstruct my experience after the fact, identify my own biases and identify how my own subjectivity could have influenced observations or outcomes.

Before arriving to my case study location, I participated in a phone meeting, called the Community to Community meeting. While living in between Clearwater and Chu Chua, BC, I participated in many community activities and some professional activities. In Clearwater I shadowed the community forest manager, George Brcko, for a day in the field; I participated in workshops hosted by Sharon Neufeld (WGCF Board member) on NTFPs; I attended a WGCF board meeting and I lived and worked at Forest House, a wellness centre run by Sharon Neufeld from which she also facilitates workshops and creates products with NTFRs. In Chu Chua, with the Simpcw community, I participated in a two-day Rights and Title Gathering, a sweat lodge, a community dinner and drumming practice, National Aboriginal Day events, a Canada Day parade in Jasper, a berry pick with the youth group, a traditional pit cook, soopalalie processing, saskatoon berry harvesting and a Simpcw Staff meeting. During my time in

Chu Chua I lived in the family home of Joe Jules, Simpcw Rights and Title Research Coordinator. Some of these experiences are detailed in Results Chapter 3, sub-section 3.1.

2.2.7. Analytical strategy

The overarching research question was: what are challenges and opportunities to the use of NTFRs? The analytical strategy consisted of two distinct approaches for the four underlying foci of the research question. Ethical modes of harvesting NTFRs based on traditional and local knowledge (TK/LK) and constraints to and opportunities for NTFR use in the case study area data were analysed using a grounded theory approach. To understand First Nations and non-First Nations perspectives on NTFRs and NTFR management, and factors in and challenges to success in managing NTFRs data was coded according to eight co-management propositions. Both of these approaches are elaborated on in the following sub-sections.

NTFRs and Grounded Theory

My analysis of data pertaining to NTFRs followed the grounded theory method (Glaser and Strauss, 1967). In grounded theory, although questions were partially determined before entering the study site, answering the research question was an interactive process that evolved as I became more immersed in the community forest and engaged with relevant respondents. Grounded theory develops theory from data rather than gathering data in order to test a theory or hypothesis (Glaser and Strauss, 1967). This allows the researcher to maintain an open mind, allowing transcripts to speak for themselves rather than imposing pre-conceived taxonomies onto the data.

Grounded Theory and the Research Question

Grounded theory guided the evolution of my research question during the data collection and analysis. Agrawal states, "researchers must be able to suspend their judgment about the nature of the research problem so that the problem and the theory are allowed to emerge naturally from the interview discussions" (Agrawal in Greskiw and Innes, 2008, p.1938). Originally, I had intended to look into co-management of devil's club in particular, a very important plant medicinally and culturally that is dangerous if misused. From this starting point, I became aware that limiting my research question to

one particular species would greatly limit both with whom I could speak, as well as how much they could tell me. I decided instead to look into co-management of NTFRs in general.

After conducting my background research and my first few interviews, it became very clear that overall awareness and knowledge of NTFRs was quite low both among the general public and in the targeted research communities. In the First Nations community, the problem emerged as one of rights and title and unsustainable forest practices, which often superseded discussion of NTFRs. In the Simpcw community as well as in Clearwater, a lack of management or regulation for NTFRs and a lack of awareness of their value overruled much meaningful discussion of co-management. The question of management was a difficult one, because in the commonly held short-term view, formalized management is irrelevant to a resource that is not used on a significant scale. My interview questions and research question thus evolved to focus more on the relevance of NTFRs to my interviewees, the value of NTFRs that are currently used and the relationship between First Nations and non-First Nations communities.

My original themes for the first set of interviews are described in Section 2.2.5 and the complete interview guides as appendices (Appendices D-H). In the primary interviews I interviewed 39 respondents. In order to develop my second stage of questioning, I reflected on the responses that I heard during the first set of interviews and carefully read through a cross section consisting of a few key interviews from each community. In this reading, I highlighted sections that were either repetitious between respondents, or very strong opinions, or areas that were mentioned but I felt had not been adequately explored in the initial interviews. This allowed my secondary line of questioning to emerge from the interview contents.

Based on this primary analysis, my secondary data collection consisted of a series of short semi-directed interviews around the themes of: 1) protection of knowledge and protocols for sharing knowledge both within and outside First Nations communities, 2) intellectual property rights with relation to NTFRs and 3) benefits, risks and opportunities associated with commercialization of NTFRs. For a full list of second interview questions see Appendix I. My sample for the secondary interviews was a

much smaller sample of seven respondents. The sample was again theoretical as well as practical; determined equally by involvement of respondents with NTFRs and the emerging theory, and the product of structural limitations. A theoretical/structural hybrid sample was essential as it proved very difficult, particularly in Chu Chua, to locate willing interviewees. Upon completion of my second set of interviews I transcribed each interview, allowing me to again listen to the interview contents. I then cleaned and edited the transcripts from both sets of interviews, preparing them to be imported and analyzed in a coding program.

Theoretical propositions about co-management

The analytical strategy used in my research relies on theoretical propositions. These are the original co-management propositions which initially informed the research questions, the literature review, and consist of hypotheses. Pinkerton 1989 describes a series of propositions about co-management in relation to fisheries. Pinkerton describes 20 propositions predicting the most favourable conditions for co-management and ten propositions about what new relationships are created among actors in successful co-management. For my analysis I looked at two sub-sections of these propositions, the most favourable preconditions for co-management and the best preconditions supporting co-management, as well as two additional propositions described by Pinkerton, and applied them to the NTFR context. These are listed below:

The most favourable preconditions for co-management:

- 1) Co-management is most likely to develop out of a real or imagined crisis in stock depletion, or a problem of comparable magnitude.
- 2) Co-management is likely to develop when the community shows a willingness to contribute financially (or recruit other sources of support) to the rehabilitation of the resource and/or contribute to other management functions.
- 3) Co-management is likely to develop when there is an opportunity for a negotiation process, and/or experimental co-management of one simple function, which may later be expanded to other functions.

The best mechanisms and conditions supporting co-management:

- 4) Where there is a mechanism for re-circulating back in to the communities some of the wealth generated by more intensive superior management.

5) Where the mechanisms for conserving and enhancing a resource can at the same time conserve and enhance the operation of a cultural system.

6) Where external support can be recruited (universities, non-governmental scientists, credible organizations), and where external forums of discussion (e.g. technical committees) can be involved in co-management concerns.

The proposition that:

7) Co-management is more likely to develop if there is an energy centre: a dedicated person or core group who applies consistent pressure to advance the process.

8) Data collection from several sources can be both a contributing cause and a positive effect of co-management.

(Pinkerton, 1989)

Three qualities that support or can precede the co-management process were also selected for analysis. Building on Hawley et al's. (2004) suggestions for overcoming hurdles to the integration of science-based resource management and traditional ecological knowledge management systems, selected process-based outcomes include: 1) the establishment of trust, 2) more frequent communication and active collaboration and the creation of new values, understanding and meaning. I have added to this the heading of 3) goodwill, defined as small actions that lead to the building of trust.

From these propositions, I derived a coding scheme for the interviews to analyze the existing characteristics of, and challenges to, co-management between the Wells Gray Community Forest and the Simpcw First Nation. I read through and coded the interviews for: 1) evidence of depletion of NTFRs in the study area, 2) willingness by either community members, the CF or the Simpcw band to contribute financially or otherwise to the rehabilitation of the resource and/or contribute to other management functions, 3) opportunities for negotiation or any evidence of co-management of a single management function, 4) recirculation of wealth in the community from superior management (in this case the CF), 5) links between conservation of NTFRs and conservation of culture, or awareness of the link between ecology and culture, 6) involvement of external support and external discussion in co-management concerns, or

in NTFR concerns, as well as desire for external support, 7) evidence and examples of an energy centre applying pressure to advance the co-management process, 8) evidence of community-based data collection related to NTFRs, 9) goodwill, 10) trust and open communication, 11) sharing of culture.

Section 1.1.3 identifies process-based outcomes of co-management including trust and open communication and sharing of culture. Interviews were analyzed for evidence of these processes, looking at them as potential preconditions for co-management rather than outcomes, since there is no existing co-management agreement between the case study communities.

2.2.8. *Researcher bias and research limitations*

Although in grounded theory the researcher should neutralize their own bias and the bias of any other research that they have read within the definition of the research problem (Agrawal, 2002), some degree of bias is still likely to exist. It is important for researchers to acknowledge their own formative theories underlying scoping of research questions, data collection and data analysis. It is also important for researchers to be aware of how field-work experience may have changed their perspective and affected the original research questions (LeCompte, 2000; Rabinow, 1977).

Along with acknowledging the underlying biases of the researcher, one must also be aware of the social/cultural/economic context within which people are talking. There are always social, cultural and economic factors that influence what people say and how they say it (Chase, 2005). These factors can cause respondents to say what they think they should say, rather than what they truly believe, or cause them to under emphasize or over emphasize different comments. However, every researcher analyzing interviews is limited in their ability to detect the influence of these various factors.

My formative theories come from a background in grassroots initiatives led by communities for communities, and training that indicates co-management can contribute to sustainability, legitimacy, improved self-identity and health. This training, from both an international development perspective and a sustainable community development perspective, theorizes that power sharing between the state and community, or local-level common property institutions and decentralized management are the most

appropriate way to manage people and resources. This perspective is affirmed in the literature. Agrawal (2002) states that,

national governments in nearly all developing countries have turned to local-level common property institutions in the past decade as a new policy thrust to decentralize the governance of the environment. This shift in policy is no more than a belated recognition that sustainable resource management can never be independent of sustainability of collective human institutions that frame resource governance, and that local users are often the ones with the greatest stakes in sustainability of resources and institutions (Agrawal, 2002. p.41).

The field work experience change my perspective because the development of my relationship with key informants influenced the direction of my research and my research emphasis. For my field work I spent half the time living with one of the board members of the Wells Gray Community Forest who is highly involved and invested in NTFRs and half of my time living with a spiritual leader and staff member for the Simpcw First Nation. Outside of formal interviews, my informal interactions with these two individuals helped me to adjust my line of questioning and actions in the communities in a way that was culturally appropriate as well as relevant to the two communities of Clearwater and Chu Chua according to the perspectives of these two key informants. Time spent with these two individuals and exposure to their views on NTFRs influenced my view on NTFRs. They became informants rather than interviewees due to longer and more frequent discussions on the research.

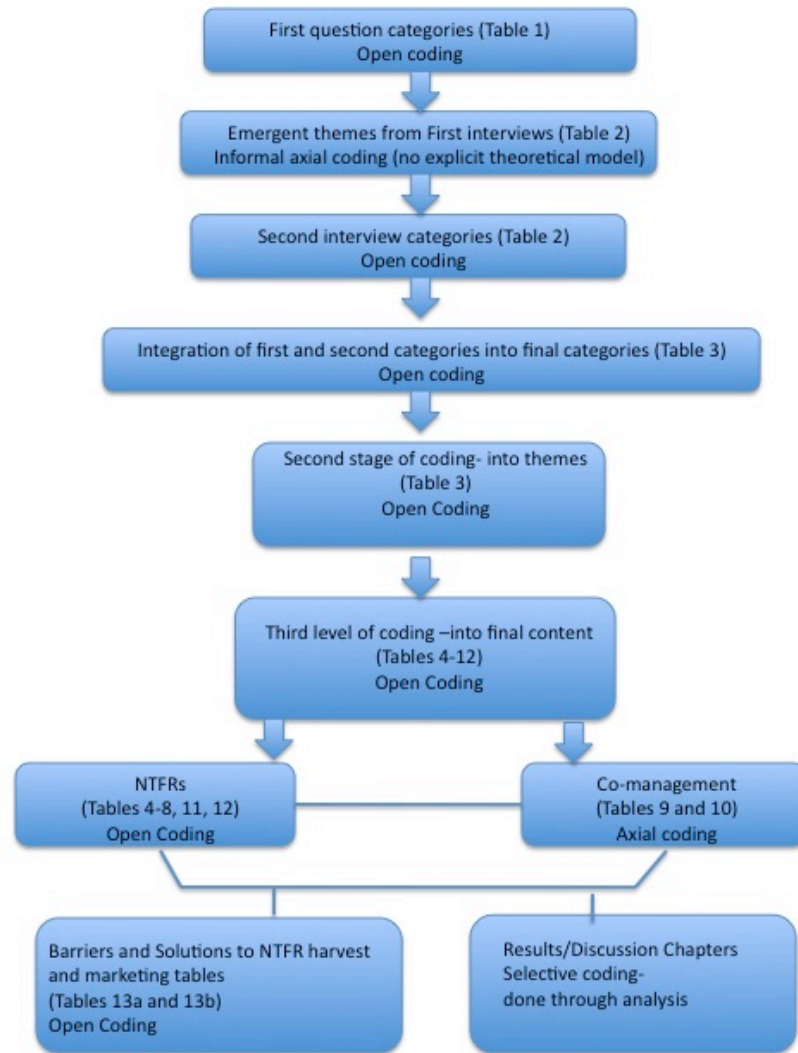
The consent form for the research may have created biased responses from interviewees. The consent form made specific reference to devil's club in describing the research, since the ethical review occurred while the research question was in its first iteration. While the intention of the content of the consent form was to give research participants as much information as possible, and allow the research to be as transparent as possible, one undesired outcome was that the consent form may have influenced interview responses (see Appendix B: Interview consent form).

2.2.9. Coding

To analyze my collection of 46 interviews in total, I chose to use the Qualitative Social Research program NVivo 9. Following Creswell (1998), the grounded theory method I used followed systematic steps. Cleaned transcripts were imported and coded in stages moving from categories of substantive information (open coding), to axial coding, which positions categories and data within them (themes and content) into a theoretical model. Describing a story from the interconnections of the themes and content is known as selective coding, which I did not undertake with the use of the software, but rather concluded my coding in NVivo at the axial stage and explored interconnections of themes and content without use of the software. I began by using the auto coding function in NVivo to import data organized by interview question.

Figure 5 depicts the data coding process.

Figure 5: Logic Model of Data Analysis Process



After the data was imported into NVivo, the data was arranged into the overarching categories listed in Tables 1 and 2. Categories are a simplification of the complete interview questions available in Appendices D through I.

Table 1: First Interview Categories

First interview categories
Awareness of Community Forest
Harvesting Overview
Stakeholders and Relationships
Social Capital building
Simpcw and NTFRs
Value of NTFRs
Herbal Market
First Nations and non-First Nations perspectives on NTFRs
The Community Forest and NTFRs
NTFRs in a broader context

As previously described, the second stage of questioning was derived from reading and reflecting on key informants' responses from the first set of interviews. A few key themes emerged from data within these overarching categories. Themes from the first interviews that were either repetitious between respondents, or very strong opinions, or areas that were mentioned but I believed had not been adequately explored in the initial interviews formed the secondary line of questioning, and thus also the overarching categories for organizing data from the second interviews.

Table 2: Second Interview Categories

Second Interview categories
Protocols for sharing traditional knowledge
Western mechanisms for protecting knowledge: copyright and patent law
Perspectives on commercialization of NTFRs
NTFR harvest and health and well-being
Protecting sacred sites
Customary law
Economic diversity: NTFR sector and timber sector
NTFR business potential
Ranking species based on cultural importance

NTFRs and rural economies

Avenues and perspectives for knowledge sharing

These categories were explored through detailed coding of underlying themes and content reflecting interview prompts and topics brought up by interviewees. This stage was a continuation of open coding, with some aspects of theoretical coding. Categories and themes are shown in Table 3. Data within each theme became the descriptive content of the results section of the research.

Table 3: Final Categories and Themes

Final Categories and Themes
Awareness of the CF
Obtaining information about the CF
Level of knowledge about the Community Forest
Additional information
Assessment of CF applications and NTFRs (for Ministry of Forests personnel)
District of Clearwater and economic development (for District of Clearwater mayor and councillors)
Perspectives on First Nations consultation
Roles and responsibilities of the WGCF Society
Interviewee background information
Additional comments
Harvesting Overview
Perspectives on NTFRs
Harvester profile
Reasons for harvesting NTFRs
Knowledge of devil's club harvest or special considerations
NTFR harvest location
Threatened or scarce NTFRs
Harvesting best practices
NTFR access and withdrawal rights
NTFRs harvested in the vicinity
Barriers to usage: Social/Physical/Economic
Stakeholders and Relationship
MOF and the Simpcw FN

WGCF and other licensees

Clearwater district and MOF

Woodlot owners

Simpcw FN and MOF

WGCF stakeholders

District of Clearwater and forest use

WGCF and District of Clearwater relationship

District of Clearwater and Simpcw relationship

Other stakeholder relationships

WGCF and Simpcw relationship

Current and historical Simpcw use of CF area

Social Capital building

Details on symposium on Non-timber forest products

Building trust and understanding

Opportunities for collaboration in NTFP management or projects

Chu Chua Community to Community meeting

Opportunities to foster cultural understanding

Ideal format and frequency on future NTFR and cultural knowledge sharing

Simpcw and NTFRs

The role of customary law

NTFRs and time spent on the land

Protection of sacred sites

Simpcw First Nation forest practices

Simpcw priorities for forest use

Simpcw First Nation management of NTFRs

Value of NTFRs

Species ranking based on cultural significance

NTFRs opportunity or constraint on CF

Reasons for harvesting NTFRs

Current and potential commercialization of NTFRs

NTFRs with economic value in the region

Herbal Market

Communication with the wild crafter

Product testing
Economic viability of wild crafting
Wild product purchasing
Species with high economic value
Species in high demand
Consistency of wild product
Working with heterogeneous suppliers
Local purchases
Regional purchases
CF and NTFRs general
<i>sorted and categorized by</i>
FN perspectives
Non FN perspectives
NTFRs in broader context
Past NTFR management

The third stage of coding determined the sub-themes (content), or results, of the final categories listed in Table 3. The results for questions related directly to NTFRs remained as substantive themes. For example, for the third stage of coding I developed tables of what plants are harvested (theme) and lists of plants seen as threatened (substantive content). For the third stage of coding NTFRs themes, it was not my objective to develop theories and determine interconnections for each question explored, but rather to build a profile and inventory of the regional NTFR sector. In the third stage of coding, themes relating to co-management were first grouped substantively (according to content/sub-theme and emerging patterns), and then analyzed according to the co-management theoretical framework – which is, as previously described, the co-management propositions explained in Section 2.2.7. The following logic model depicts the analytical coding process.

2.3. Chapter Summary

This chapter described the case study location and provided some brief background on both of the organizations involved in the research: the Wells Gray

Community Forest Corporation in Clearwater, BC and the Simpcw First Nation whose administrative centre is located in Chu Chua, BC. The chapter then described the methodology, the research limitations and researcher bias. The methodology was informed by community-based research and an appreciation of traditional/local knowledge. Research was biased by the formative background of the researcher in sustainable community development and co-management as well as relationships developed with community mentors and interviewees in the field. Interview responses may have been influenced by the content of the consent letter signed by all participants.

The research was triangulated using three sets of data: literature, participant observation and semi-structured interviews. Literature included documents from collaborating organizations and academic literature. Participant observation occurred at an array of events over the course of a three-month period. Two sets of semi-structured interviews were conducted including 46 interviews in total, and the interview sample was determined based on a combination of both participant's availability and their involvement with the research subject matter.

Interview data was coded using Qualitative Social Research software NVivo 9, through a combination of open coding and axial coding. Analysis of interview data for cooperation and relationships relied on a selection of eleven theoretical co-management propositions. These co-management propositions addressed the research objectives to: define areas of common interest and potential collaboration with regard to NTFR management, and to determine factors of and challenges to success in managing NTFRs. Grounded theory was employed for analysis of interview and participant observation data to meet the four research objectives to: describe ethical modes of harvesting NTFRs based on traditional and local knowledge (TK/LK), stewardship and protocols; describe First Nations and non-First Nations perspectives on NTFRs and NTFR management; describe NTFRs harvested and threatened NTFRs; and to explore constraints to and opportunities for the use of NTFRs both on a subsistence basis or commercially. Using a grounded theory approach also caused the research question to change and evolve during early data gathering to address outcomes of early analysis and make the line of questioning more relevant to the case study communities.

3. Results

Section 3.1 details a selection of my experiences as a participant observer. Sections 3.2 through to 3.4 describe interview results in tables and also incorporate direct quotations to further illustrate interviewees perspectives. Direct quotations highlight the respondent's voices, which is called the supportive voice by Chase (2005). The goal of using the supportive voice is to observe due diligence to interviewee's responses and attempt to empower their role in the research process. Section 3.5 and 3.6 place interview data in the context of co-management theory. Section 3.7 talks about barriers for NTFR harvest that were identified in interview data and Section 3.8 combines background research, interview data and participant observation data to begin to sketch out ways to overcome some of these barriers. Finally, Section 3.9 identifies some areas for future research that were highlighted by interviewees.

3.1. Participant Observation

Community to Community meeting

The Community to Community meeting was organized by Sharon Neufeld and attempted to begin a discussion about the WGCF and the Simpcw FN working together in the realm of NTFRs. There were two representatives from the WGCF present and three from the Simpcw FN. Two representatives from Simon Fraser University, including me, were present over the phone. The outcomes of this call were that the WGCF gained a deeper understanding of the Simpcw view on NTFRs and their cultural importance. For example, the role of berries culturally and spirituality was discussed, beyond their well-known role as a food source. Another key outcome was a consensus that existing legal mechanisms are not appropriate for protecting intellectual property rights, but that establishing relationships of trust is far more effective and should be emphasized. An action item coming out of the meeting was for WGCF and the Simpcw FN to develop a

memorandum of understanding defining their working relationship as a tool for building this trust.

Field day/site visits with WGCF

The day that I spent job shadowing George Brcko allowed me to gain an in-depth understanding of how the WGCF operates and how George works as a manager. We visited various cut blocks at different stages of development and post harvest. I was able to watch George assess the status of regeneration of a block, write a site prescription for a stand, conduct a waste assessment and conduct a post-harvest assessment. I was also able to learn about various studies the WGCF had done in the area, the market for their product and the contractors with whom they work.

George was very meticulous with his work and skilled in the bush. George was very forthcoming about the community forest and shared his knowledge of the woods freely. George talked a lot about how things were done with the corporation he had worked for in the past, and how the CF was now in some areas dealing with the legacy of previous licensees in the form of regeneration or damage to roads, drainage and other infrastructure. My overall impression was that, with the WGCF, George is now able to conduct his work at a higher level of stewardship and precision than was possible when previously working for major forest companies.

NTFP workshops

Over the course of my stay at Forest House I participated in many of the events that Sharon organized. These ranged from garden planning to medicinal plant workshops, to assisting with her stall at the farmer's market. Forest House is a place for healing, both physically and spiritually. The medicinal plants that Sharon uses can help with both internal and external healing. A lot of what she uses is gathered from the wild; other plants come from her garden. Her workshops bring together a very diverse group, differing in age, level of experience with the subject matter and background.

Sharon's role as a convener and teacher in the community is widely known and appreciated, as is the role of Forest House as a wellness centre. Sharon's way of teaching is very warm, friendly, spontaneous and very hands-on. She teaches a lot by

showing people her garden and exposing them to new plants to work with and new ideas.

Rights and Title Gathering

I felt like an outsider at the gathering, as people did not know who I was or what my role was. In a tightly knit community, one who is not part of the community really stands out. The meeting had a loose, flexible agenda. The days were not action-oriented, but rather more of an open dialogue in which anyone and everyone had the floor for as long as they felt they needed to say whatever they felt they needed to say. For me, coming from my background, this was difficult as I felt it was not an effective use of time. I realize that this is my own bias coming in and probably inaccurate.

There was fairly good youth representation at the gathering. There were a few elders there too, who were always given the opportunity to both open discussions and give the final statement of a session or of the day. A number of the Secwepmec bands had not sent representatives, making it seemingly difficult to come to any agreements or decisions on behalf of their entire nation. Also, a few bands are already in treaty agreements. In this case, it seems unlikely, or very difficult, that many issues can be found that can be agreed upon by the entire Secwepmec nation with respect to rights and title.

I would say the main outcome of the two-day gathering was for the different bands to be in touch with each other, hear what others are doing and become inspired by each other's strategies. It did not seem like any nationwide strategy came of it; it would be interesting to know if any bands followed up with one another and worked together on any initiatives following the meetings.

For myself, the main outcome was gaining an understanding of the linkages of my research questions to the Simpcw rights and title strategy. Recording Simpcw past and ongoing usage of botanical species could contribute to their rights and title case. Participating in this two-day gathering allowed me to situate my research question in a way that could contribute to their community and this would enable me to speak about my research with more confidence. I was also able to provide a "researcher" or "academic" perspective in small group discussions that were a part of the gathering.

There was a lot of skepticism and mistrust of the academic community, but through sharing my stories of the ethical review process I tried to reassure the community that universities and academics are improving their research practices.

July First Parade

I participated in a July first parade in the town of Jasper, Alberta with a group of community members from the Simpcw First Nation. The town of Jasper organized a Canada Day Parade and invited the Simpcw First Nation to participate because both the town of Jasper and the majority of Jasper National Park are located within the northern end of Simpcw traditional territory. A group of approximately 15 Simpcw individuals participated in the parade. The group consisted of seniors, youth, children, parents and others. Myself and a few other non-Simpcw individuals participated in the parade as friends and supporters.

Participating in this event was important in order to demonstrate that the band is present and active in the northern part of their traditional territory. Some members of the band wore traditional dress, we sung a number of traditional songs and many in the group played traditional drums. Myself and the other non-Simpcw supporters handed out pamphlets that contained some background information on the Simpcw First Nation, described their current activities and contained contact information for the band office. The purpose of handing out pamphlets was to raise awareness about the Simpcw First Nation. A second pamphlet that we handed out described the fact that Jasper National Park is within Simpcw traditional territory. When I was able, I would also briefly describe the meaning of certain songs, as had been previously described to me, to some of the people watching the parade.

Overall, the audience was very enthusiastic about the Simpcw presence and songs. Many people were clapping, cheering, smiling, taking pictures and extremely eager to receive a pamphlet. My impression was that many of these people were tourists who were very happy to be witnessing genuine First Nations culture. It is impossible to know how many read through the pamphlets and fully understood the content. It is also impossible to know how the Simpcw individuals who were singing and drumming felt about the parade. The children definitely had a good time and were very excited through the whole event. We all had lunch after, provided by the band, and many in the group spent the night in Jasper. In general I thought that there was a very positive feeling in the group about the whole day.

Aboriginal Day events

Aboriginal Day was partially organized by the culture and language coordinator, so there were interesting cultural activities as a part of the festivities. A few activities related to NTFRs were: making Indian ice cream out of soopalalie, making pine needle baskets and weaving floor mats or wall hangings out of cattails. Individuals of all ages were engaged in these and other activities. All of the plants for these activities had been collected locally, but I was later told that it is becoming more difficult to find pine needles of the proper length for weaving baskets. The inclusion of these traditional activities and of local plants into the activities of the day was enjoyed by all. Little children, youth, adults and elders all participated and were learning from one another.

Berry pick with youth group

Daily summer programming for youth was offered in the Simpcw community and I was able to participate in a berry pick with them. Their youth programmer incorporates as much outdoor activity as possible in the programming. We drove out to the dump road, just outside Clearwater, a very popular berry picking area. There was a group of approximately ten youth, ranging in age from approximately seven to fourteen years of age. We spent a few hours picking both black huckleberry and soopalalie. The youth were fairly engaged overall, with some focusing on picking berries the whole time and others being distracted by many other things. I was disappointed to see that there was no language incorporated into the programming, although that was a stated goal of the youth program, particularly when the activities were traditional in nature. I got the impression that the organizers did not want to turn off the participants, and probably wanted to just keep the activities simple so that the kids would not feel like they were in school and not shy away from participating at all.

Pit cook

In honour of an episode of a popular T.V show being filmed in the hills around Chu Chua, and due to the guests this brought to the community, a number of community members organized a traditional pit cook. Modern and traditional foods were all cooked in the pit method and a feast was held. Various songs were sung and some stories about the history of the location, Skull Mountain, were shared with the visitors. Plants

used in the pit cook to add flavour and improve the texture of the food included rose bush and cedar branches.

Soopalalie processing

I assisted my host family with processing their soopalalie for the year. It was a great year for berries in 2011 and the whole community was talking about how abundant the berries were. They were all hoping that the abundance of soopalalie was an indication that it would also be a good year for huckleberries. A popular method of processing soopalalie berries is to juice them. That way, you end up with cans of a very concentrated juice which can be diluted later to make a few litres of juice from each can. The first step was to remove all of the berries from the branches, the next step was to wash the berries and the third step was to squeeze the berries through cheese cloth until a dry mash remains. The juice was then boiled in cans to sterilize and preserve it. A less potent juice was also made out of the mash which would be drunk undiluted, or less diluted than that squeezed juice.

3.2. Overview of NTFRs and harvesters in the area

3.2.1. *What is harvested in the area*

Thirty-six different species were mentioned as being harvested by respondents. In addition to this, others discussed what they harvested in more general terms such as: boughs, wild greens, floral greenery, berries, fiddleheads (which include various fern species), edible bulbs and corms and mushrooms, which would include additional species to those listed. Non-living and non-growing items were also mentioned as being useful to respondents including: antlers and bones, rocks, cones, galls, wood and stumps.

The species most frequently mentioned in declining order were: devil's club, huckleberry, berries, mushrooms, soopalalie, saskatoon, boughs, cedar, blueberry, strawberry and raspberry. Table 4 indicates items, or groups of items harvested, and how many times each was mentioned in the interview data. In the following table and in tables in subsequent sections, the term "sources" refers to the number of distinct interviews where the word or theme in question was mentioned. The term "references"

refers to number of times the word or theme was mentioned in total, including repeated references in the same source.

Table 4: Resources harvested

Resources harvested			
Common Name	Latin Name	Sources Total 36	References Total 73
Red clover	Trifolium pratense	1	1
Burdock	Arctium lappa	1	1
Springbank clover/ Wild potato	Claytonia lanceolata	1	1
Balsam fir	Abies cilicica	1	1
Alder/ Red willow (bark)	Alnus crispus	1	1
Birch (saplings)	Betula spp.	1	1
Various Cones	Various spp.	1	1
Chickweed	Stellaria media	1	1
Red caps/ Thimbleberry	Rubus parviflorus	1	1
Wild greens	Various spp.	1	1
Cow parsnip	Heracleum lanatum	1	1
Antlers and bones		1	1
Black caps/ Black Raspberry	Rubus leucodermis	1	1
Pussy willow	Salix spp.	1	1
Birch bark	Betula spp.	1	1
Arnica	Arnica montana	1	1
Spruce	Picea abies	1	1
Poplar	Populus alba	1	1
Moss	Various spp	2	2
Floral greenery	Various spp.	2	2
Wild rose	Rosa spp.	2	2
Dandelion	Taraxacum officinale	2	2
Nettle	Urtica dioica	2	2
Wild sage	Artemisia spp.	2	2
Hellebore	Veratrum viride	2	2
Boxwood	Pachistima myrsinites	2	2

Rocks		2	2
Chokecherries	Prunus virginiana	2	2
Wild cranberry	Viburnum edule and Oxycoccus oxycoccus and Vaccinium spp.	2	2
Pincherries	Prunus pennsylvanica	2	2
Oregon grape	Mahonia aquifolium	2	2
Hazelnut	Corylus avellana	2	2
Edible bulbs and corms	Various spp.	2	2
Juniper	Juniperus communis	2	2
Fiddleheads	Various fern spp.	2	2
Kinnickinnick Arctostaphylos uva-ursi	Arctostaphylos uva-ursi	2	2
Galls, wood and stumps		3	3
Raspberry	Rubus idaeus	6	6
Strawberry	Fragaria virginiana	6	6
Blueberry	Vaccinium ovalifolium, Vaccinium myrtilloides, Vaccinium caespitosum	6	6
Cedar	Thuja plicata	6	6
Boughs	Various spp.	7	7
Saskatoon	Amelanchier alnifolia	7	7
Soopalalie	Shepherdia canadensis	8	8
Mushrooms	Various spp.	9	10
Berries	Various spp.	11	11
Huckleberry	Vaccinium membranaceum and Vaccinium parvifolium	12	13
Devil's club	Oplopanax horridus	18	19

3.2.2. Harvesting best practices

The interview questions attempted to draw out the choices that respondents made when harvesting NTFRs to determine: the underlying ethics of harvesting practices, whether or not sustainability of the species and yield is important to harvesters and how sustainability is or is not ensured. Underlying ethics refers to right and wrong practices to employ when harvesting and standards of conduct around harvesting

activities. Specific harvesting practices were mentioned for specific species, as well as more general rules. Some practices relate to ecological sustainability of the NTFR; some are ethical and relate to either distribution of the NTFR in the community or proper treatment of the NTFR; some relate more to human health and some to efficiency.

Table 5: Harvesting best practices

Harvesting best practices			
		Sources Total 25	References Total 51
Sustainability and Yield	Awareness of quantity taken	6	27
	Harvest for pitch only does not damage plants	1	1
	Prune branches as you pick	3	7
	Special harvesting practices for roots	1	1
	Break branches off to encourage growth (Soopalalie)	2	6
	Use of fire to encourage abundance of berries	1	3
	Choice of location for: minimizing impact, or maximizing regeneration or rotating locations.	6	13
	Proper practice for mushrooms (use of knife and no use of rake)	2	7
	Pick off the bad berries	2	2
Distribution	Choice of harvesting location to ensure distribution of the resource throughout the community.	6	13
Human Health	Avoiding areas where pesticides are used	1	1
Efficiency	Use a comb to remove berries from branches	2	2
	Timing (pick when most are ripe and move up in elevation later in season)	4	10
	Monitoring one's picking area	1	1
	Harvest hazelnuts from squirrel's caches	1	1
Proper treatment of NTFR	Respect for the plants	7	14
	Pick off the bad berries	2	2
	Provide an offering to the plant	2	2
	Who plant is for is an important part of proper methods	3	3

Among respondents who actively harvested NTFRs there was a strong awareness about good harvesting practices with respect to ethics and sustainability. The most commonly mentioned practice was to respect the plant. This came up in a number of ways, including leaving an offering for the plant, not damaging the plant, not harvesting too much from one plant, and developing an overall respect for living ecosystems. The following quotation illustrates leaving an offering.

When I go out and harvest I always, or almost always, have an offering. Some people don't, but that's how I was raised. My dad keeps a pouch of tobacco in his truck, and I know the kids do that here, or at least understand that concept. Elders say sometimes if you don't do that you'll get skunked; if you don't do it right you won't find any berries.

(Anonymous interviewee)

The second and third most frequently mentioned topics were location and quantity. These two ideas were often intertwined, as in the following quotation,

(For indian hellebore) we leave well over half of what we see. Some would take the very last plant. I don't know how it regenerates, but I don't think you want to even for your own long-term use or for the community's, you don't want to run out. I don't want to have to go to Arizona to find some more. From the source that we have in the ground I would not supply very many people because I don't know enough about the regeneration.

(Anonymous interviewee)

Location includes the idea of moving around from place to place, so as not to put too much harvesting pressure on one area. Another idea frequently mentioned was picking further off the beaten path in order to leave the more accessible berries for those that are either less mobile, or less aware of where to retrieve NTFRs. This is why the table above lists location under distribution as well as sustainability and yield. The following quotation illustrates this idea,

I pretty well often go back to the same areas that I've been to and harvest there trying to point out if they're easy areas, like chokecherries just on this road outside of the village here they hang like grapes out there so I will tell people about those but I myself will go someplace further away to pick, because they are so accessible that even an imbecile could pick them because they're not scary, they're right outside the community, not that toxic, even those cars drive by it's not like every car in the world drives by, so I kind of go a little more off road myself if I can go up some

of the back roads.

(Anonymous interviewee)

In some cases selection of harvesting location also included the notion of noticing changes to one's picking area year after year. This was stated directly in one case as the practice of monitoring one's picking area. The majority of interviewees that used NTFRs, whether harvesting NTFRs for their own use or a commercial enterprise, had this in common. However, this was not always the case. In some cases harvesting was done with efficiency as the only consideration.

The idea of picking off the bad berries is listed in the table above under sustainability and yield as well as under respect for the plant. Picking off the bad berries may increase yield by improving plant health in the long term and by preventing the plant from putting energy into ripening the berries that are malformed or full of insects. However, it may or may not actually increase yield and thus is also a form of showing respect to the plant. Other harvesting protocols were alluded to, but not necessarily spelled out. For example,

There are certain rules around harvesting. I call it rules of engagement, harvest rules that you need to learn, and if you don't learn them then you shouldn't be harvesting and applying it in the medicinal way. And I think we've lost that traditional protocol around harvesting and around applying medicinal plants. When people talk about knowledge being lost, I don't think it's been lost. The knowledge is there, it's the old people, even the old people told me when I was 15, that I will not show you this mushroom and I will not show you this plant because you don't have the responsibility as an individual and as a young man to be responsible using it and you don't realize that until you're older. When the elders tell you "were not going to show you this even though it's medicinal", they know that they have a responsibility. Those old people, they know when to share that information with people and they won't share it with people who aren't ready for it.

(Anonymous interviewee)

A number of interviewees made the distinction between the mushroom harvesting practices of local versus out of town mushroom pickers,

One big example was when we had the fires in 2006, there was a big mushroom crop and out of town mushroom pickers came in and thrashed the hillside. There were trails up and down, so heavily used, after a fresh

fire there's not much on the soil. In my mind there was a lot of activity there. I don't know if there was damage permanently, but they were in the creek draws and there was some pretty heavy duty trampling and use.
 (Anonymous interviewee)

The following is a reference that was made to the traditional practice of burning vegetation to ensure high yields of berries,

That's why FN burnt all the time so they knew there'd be good berries. And we don't do that anymore, even in the parks. We don't burn them down so we have a patch the next year and 32 years later. You get the best berries in the small plants.
 (Anonymous interviewee)

3.2.3. **NTFRs of special concern**

NTFRs of special concern include NTFRs that may be either overharvested, less abundant in the area to begin with due to ecology or past disturbance and habitat loss, or more sensitive to disturbances in general. Bitterroot (*Lewisia rediviva*) has been essentially extirpated from the area, and many roots and rhizomes are known, both by the communities and in the literature, to have lost much of their habitat and to be much smaller than they used to be including: the yellow avalanche lily/yellow glacier lily (*Erythronium grandiflorum*), spring beauty or indian potato (*Claytonia lanceolata*), riceroot or chocolate lily (*Fritillaria lanceolata*), tiger lily (*Lilium columbianum*) and nodding onion (*Allium ceriuurn*) (Turner, Ignace and Ignace, 2000). Mushrooms were the most widely mentioned NTFR, probably due to their ephemeral nature, followed by the roots and rhizomes listed above.

Surprisingly, huckleberries were mentioned often. Many interviewees felt that the number of huckleberries in the area had gone down substantially over the last decade. devil's club and labrador tea were mentioned due to the awareness that devil's club is a very valuable medicinal plant and the fact that habitat supporting labrador tea beds is a rarer habitat type in the area.

Table 6: Threatened or Scarce NTFRs

Threatened or scarce NTFRs			
		Sources	References

		Total 24	Total 25
Common Name	Latin Name		
Bitterroot	Lewisia rediviva	1	2
Moss	Various spp.	1	1
St. John's Wort	Hypericum perforatum	1	1
Birch	Betula spp.	1	1
Birch bark	Betula spp.	1	1
Gooseberries	Ribes lacustre and Ribes oxycanthoides	1	1
Cedar	Thuja plicata	1	1
Blueberries	Vaccinium ovalifolium, Vaccinium myrtilloides, Vaccinium caespitosum	1	1
Orchids	Various spp.	1	1
Bearberry (black twinberry)	Lonicera involucrata	1	1
Blue clematis	Clematis occidentalis and Clematis columbiana	1	1
Oregon grape	Mahonia aquifolium	1	1
Princes pine	Chimiphila umbellata	2	2
Labrador tea	Ledum groenlandicum	3	3
Devil's club	Oplopanax horridus	3	3
Huckleberries	Vaccinium membranaceum and Vaccinium parvifolium	4	4
Lilies	Various spp.	5	5
Mushrooms	Various spp.	6	6

3.2.4. *Treatment of plants of high cultural value*

All interviewees were asked if NTFR harvest should be restricted to First Nations or other individuals or groups. Some interviewees identified specific species that needed to be restricted in some way, or species that did not necessarily require restriction but that awareness of their importance needed to be raised. A fewer number of respondents indicated that plants should not be restricted to certain groups, such as First Nations.

The most commonly referenced NTFR was mushrooms, due to the awareness that mushrooms are difficult to identify and if poorly identified can lead to death. The next two most common views, that only those who have knowledge should pick NTFRs and that all plants difficult to identify should be restricted, also reflect an emphasis that knowledge is required to harvest NTFRs and that it should only be those who bear this knowledge, whether First Nations or not, that have the right to harvest NTFRs. Necessary knowledge includes plant identification skills and harvesting experience in order to know how much can be picked for both human health concerns and environmental concerns. In other interviews, a long-standing tradition related to the NTFR and knowledge passed on through culture was the key determining factor. Soopalalie and devil's club were two specific species mentioned more frequently than others in response to this theme.

Table 7: Restriction of NTFR harvest

Should NTFR harvest be restricted to First Nations or other individuals or groups?			
		Sources	References
		Total 25	Total 29
Yes	Yes, princes pine	1	1
	Yes, horsetail	1	1
	Yes, need consultation and data	1	1
	Yes, arnica	1	1
	Yes, spring beauty	1	1
	Yes, birch	1	1
	Yes, cedar	1	1
	Yes, red and blue listed species	2	2
	Yes, due to spiritual connection	2	2
	Yes, devil's club	2	2
	All of the plants should be restricted to FN	2	2
	Yes, you need to know the ecological impacts	3	3
	Yes, soopalalie	3	3
	Yes, critical to traditional way of life	4	4
	Yes, plants difficult to identify	4	5

No	Yes, only those that have knowledge should pick	5	5
	Yes, Mushrooms	5	5
	No, for health we should all have access	1	1
	No, but need awareness sagebrush	1	1
	No, as long as there is equal economic benefit and proper consultation	1	1
	No, but need awareness of devil's club	1	1
	No knowledge should be shared	1	1
	No, whoever thinks of harvesting/commercial idea should get it	1	1
	No	2	2
	Don't know	2	3

A number of respondents differentiated between how First Nations and how non-First Nations might treat plants. The following quotation illustrates this differentiation,

They have their own ways of picking and treating things than what I was doing. Because I was, putting it bluntly I guess, 'white man's' own way of trying to make a dollar, without near the concern and respect for the plant that (*the First Nations*) had.

(Anonymous interviewee)

3.3. Potential NTFR management strategies

Respondents were asked what the role of a community forest could be in relation to NTFRs. When respondents were not familiar with community forests the question was rephrased to reflect how the forestry sector in general might be able to manage or treat NTFRs. Table 8 represents these responses divided between the responses of First Nations and non-First Nations perspectives to identify differences and similarities. Both FN and non-FN respondents emphasized the role of a community forest in relationship-building between their two communities, in raising awareness about the existence and potential of NTFRs, and in educating the public about valuable (economically or spiritually) and important NTFRs. Another commonality was the belief that permits and regulations should be in place for any NTFRs harvested commercially,

while minimizing any bureaucracy around NTFRs so as not to create further barriers to their use (barriers are discussed in Section 3.5).

Some key differences are that the FN perspective mentioned the need for long-term tenure before attempting to manage NTFRs, the importance of FN consultation, the importance of communication with FN, and the use of FN traditional knowledge and capacity in any NTFR management plan. Divergent from this, a number of non-FN highlighted the need for and importance of academic research. Non-FN respondents also highlighted that the CF could serve to communicate the availability of NTFRs to the community before timber harvest, and identified a number of existing forest practices that could protect or encourage NTFR growth and support NTFR use. These indications of compatibility between timber and NTFRs were not present in FN responses gathered.

Table 8: First Nations and Non-First Nations perspectives on in NTFR management

Role of a Community Forest and treatment of NTFRs					
				Sources	References
	FN perspectives			Total 9	Total 16
		To support entrepreneurs		1	1
		Riparian buffers as a means of protecting NTFRs		1	1
		Long term tenure needed before management of NTFRs		1	1
		FN consultation is primary consideration with regard to NTFRs		1	1
		Communication with FN is primary with regard to NTFRs		1	1
		Keeping picking spots secret protects NTFRs		1	2
		Intent and language used around NTFRs is important		1	1
		There should be an FN only wild crafting tenure type		1	1
		Traditional use information needs to be basis of NTFR management		1	1

		FN mapping of NTFRs is primary to management	1	1
		There should be tenures for commercialization of NTFRs	2	2
		Awareness of NTFRs is key	2	2
		Minimizing bureaucracy is key to treatment of NTFRs	2	2
		Education	3	3
		Relationship building	3	3
	Non FN perspectives			
			Sources	References
			Total 22	Total 46
	Forestry strategies			
		Place valuable NTFRs at bottom of harvest queue	1	1
		Target specific species	1	1
		Set out no machine zones	1	2
		Create wildlife tree patches	1	1
		Log on Snow	1	1
		Riparian protection	1	1
		Protect rare ecosystems	1	2
		Consider NTFRs in silviculture	2	2
		Consider agroforestry	1	1
		Keeping picking spots secret protects NTFRs	1	1
		Up to CF board	1	1
		Need specific info from FN	1	1

	Important to stimulate NTFR economy	1	1
	Leave it to the free market	2	2
	Incorporate NTFRs into long range management planning	2	2
	Need for NTFR position/board member portfolio within CF	2	2
	Commit to it in management plan	3	3
	Permit NTFRs if for commercial use	4	4
	Minimizing bureaucracy is key to treatment of NTFRs	4	4
	Education	4	8
		<i>Create pruning standards for boughs</i>	1
		<i>Educate board</i>	1
	Relationship building	5	6
	Require NTFR harvest permits	5	5
	Communicate availability of NTFRs before timber harvest	6	7
	Awareness	7	7
		<i>Engaging the community</i>	1
	Research	8	9
		Research or knowledge in general	3
		Research on quantity and potential yields of NTFRs	6

3.3.1. ***Non-FN perspective on NTFR management***

A selection of quotations brings life to some of the non-FN perspectives on NTFR management. The four following quotations illustrate non-FN understanding of the importance of NTFRs to First Nations people and culture. They also display some frustration with current communication around NTFRs and some uncertainty about how

to accommodate First Nations values and concerns when spiritually important areas are either kept secret, or delineated too widely for accommodation to be easily implemented.

We have wildlife species list a blue, yellow, red list, even if we had stuff like that they derive where we had a species listing that was pushed for from them that kind of stuff to be happening at a more intellectual educational kind of level so that we had a better understanding rather than, 'these are our traditional grounds and we use them and there's plants in there we use and you should respect that', kind of story. It's kind of difficult to go with that when you don't understand what is it in there that is of high importance. And so then we can say 'ok these management practices they definitely impact that'. I don't mean it in a negative way, it's just really hard to deal with stuff that secretive. I understand it's their culture. But still it's difficult.

(Anonymous interviewee)

I think some of the challenges with consultation is the FN have confidentiality around things that they've identified, so lots of times they may tell the licensee there is something there but not what it is. They have their own rules too and it makes it harder for everyone because you don't really know what you're doing or why. You don't really have an understanding and their mapping is very confidential. So there can be things out there we just don't know about. And they're not necessarily sharing that information.

(Anonymous interviewee)

If I came up with a viable good business idea that I could make work for harvesting Arnica for example, and if I knew Simpcw was harvesting it, I would ask them, 'OK, I have this idea, where don't you want me to go?' And they would probably draw a big, very big circle on the map and say 'Don't go here', and hopefully that wouldn't be so big that it left me with nothing. Is it a land claims circle? I don't know. Don't go up this drainage, so I would say 'okay'. That wouldn't stop me from making the product, even if it was something they did for themselves.

I don't know if this is wrong but I wouldn't feel like I was stealing culturally sensitive information, that's probably because if I've read it in a book and it's out there, it can't be that culturally sensitive to me. And maybe that's not..., I've never had this discussion on NTFPs with a spiritual leader from a native band, so I don't know what their response would be, but that would be my starting point.

I've read about Arnica in the book that the elders helped contribute to, and I don't know, I feel like I should be able to...especially if they're making it in Germany too. I don't know. But I would be more sensitive, I would ask more questions for sure.

(Anonymous interviewee)

It's more spiritual stuff and bands aren't willing to tell you the spiritual area, and what are you going to do about it anyway, it's not tangible. But I mean if there was critical, something that was critical. If there was an area where they could only get a specific plant, or it was in concentrations enough that it was the place, I would expect licensees to do whatever they could.

(Anonymous interviewee)

The following quotation relates to including local, non-First Nations knowledge in management. It describes how when people feel very entitled to a resource, such as NTFRs, it is most effective to engage local people through bottom-up processes. The quotation also emphasizes the importance of including local community members from all cultures and geographic locations in management of NTFRs and identifies how the wider community may react to increased regulation of NTFRs.

I think whatever you can do to get people, local knowledge and rather than top down, bottom up. And people are going to be more engaged and more excited about it and more accepting of processes if they are part of the development of them. So yeah, I would definitely think engaging community would be very important.

Particularly because it is a part of a lot of peoples' lifestyle, people feel entitled to berries and the forest and if things were going to change, if that was going to become more competitive you'd have to work from the bottom up.

I think people would be very excited about learning about new picking areas, but they would be really turned off by 'you've got to go get a permit'. Interesting, I don't really know how you'd coordinate all that.

(Anonymous interviewee)

The following quotation shows respect for the forestry sector and the training of those involved. The interviewee identified how forestry has changed in the last decades and now more values are managed for than in previous decades, including environmental values. This quotation is tied to the commonly held view by non-FN that academic research is necessary. As more is known about NTFR value, regeneration and yield, this knowledge will influence forestry.

As the knowledge of (*NTFRs*) is stronger I think they will be, as long as they become a known piece of information for a planner to consider, then they'll be considered, I don't think we can manage for something we don't know about. But as soon as we understand the threatened nature or a best management practice- it will be adopted. So people who are managers of the *NTFRs* have to deliver that information to land managers. It's a journey. When new information is known or available, it then gets managed for.

(Anonymous interviewee)

Forestry strategies

Placing valuable *NTFRs* at the bottom of harvest queue was cited as a management strategy that is very easy to implement. If there are various areas scheduled for harvest in the short to medium term, but one area is known to host a valuable *NTFR*, foresters can place this area at the bottom of the queue. While only a temporary measure, this strategy could allow for locals to gather the resource before it is harvested.

Targeting specific species was mentioned as strategy for ensuring *NTFRs* are not destroyed in the logging process. It is more feasible for foresters to work around *NTFRs* in their planning if there are one or two selected species to manage for. This strategy could work for commercial outcomes, if one or two species were selected for commercialization and marketing. This strategy might also work for setting aside rare ecosystems within an area-based tenure and not logging those areas. This would inherently protect species that are also rare and limited within the area. However, in the context of using *NTFRs* for sustenance or traditional purposes it is not feasible to rank species in such a way to prioritize one or two species over other species.

Setting out no machine zones was cited as a practice in a forester's toolkit for more sensitive landscapes. This management strategy may serve to protect more resilient *NTFRs* that can survive or thrive in a partially disturbed area, while also permitting logging to continue. Logging on snow would have similar outcomes and be appropriate in a similar context. In medium to very deep snow, it may disturb the understory even less than no machine zones.

Wildlife tree patches are already a part of site plans prepared by foresters to meet requirements of their *FSPs*. It was suggested that wildlife tree patches could

overlap with important NTFR zones and serve to protect these species while simultaneously protecting wildlife trees. There are two important shortcomings of this strategy. First, wildlife tree patches are very limited in size and number, second, wildlife tree patches are not permanent but rather can shift every few years. Finally, different silviculture prescriptions could either foster or inhibit different NTFRs. Foresters have the opportunity to replant with species that will ultimately create the understory that they desire, and could write silviculture prescriptions with this in mind.

3.3.2. *FN perspective on NTFRs*

A selection of quotations brings life to some of the FN perspectives on NTFR management. The following quotation describes how one FN interviewee thinks his community, or First Nations people in general, view NTFRs. He feels that NTFRs are far more important to his people than revenue from timber, and that each and every species holds great value.

There is not one species that is not valuable to the people (unless it's a noxious weed). It could have a food value a medicinal or a spiritual or any number of combinations of the three. Or all three. So there's different levels of importance. For our own people to manage the land they had to have that knowledge also, that's not really recognized in contemporary society, why an area could hold such high importance to us and high value, it's those different levels and ways of thinking that come along with our indigenous knowledge I guess, and there's a need I think for that, to bridge that gap between the two worlds.

We don't see that land and see big money signs, when we see big timber we don't see dollar signs, well some do. All of those other values are what is important to our people, when you start talking about NTFPs then you're hitting the nail on the head, because all of those other things hold way more importance to us than all the timber dollars could add up to. Even though some of those big timbers do hold medicinal value and different food sources, to us they're just a small part of the picture.

The same interviewee emphasizes that management of NTFRs must begin with anthropological work that is completed by the local community to define for themselves what is culturally relevant and important.

It has to start with definition. First we have to define what's culturally relevant and important to our people, too many people are trying to

decide on our behalf what is and isn't important. It has to come from our elders and the education people who work in our band. The people who have a keen insight and interest in those things, it has to be community based and to come back to FN, it has to be sorted out, we have to do anthropological work on our own.

(Anonymous interviewee)

The following two quotations further illustrate the importance of NTFR management being driven by First Nations. The first quotation displays an openness to working together, sharing knowledge and sharing the resource, at the same time identifying differences in management philosophy. The second quotation highlights shortcoming of the consultation and referral process, noting that stronger legislation is needed in order to ensure protection of sacred sites and traditional food sources.

I think the other issue around it is that I don't think we should be doing the same thing the semah (*white man*) has done to us, take away the ability for people from that local community to harvest for sustenance needs. We're willing to share as they say, and I think people, the non-Simpcw would be very happy for us to make sure that their access to sustenance is met as well.

Because there are rural people, especially older people and there are good health values for them. I don't think Simpcw want to be seen as bullies in the bush, because we've been shut out of that process for awhile and we don't think it's right for people to be shut out just because of colour of skin, we need to encourage them to be stewards of the land. I think that's a big difference in management philosophy, you have to let people out into the bush, because they are the ones who are the eyes to the land.

We want to be responsible too. So I think there is this whole issue of ethics, not only for Simpcw people, but for non-Simpcw, as far as ethics of accessing and your responsibility to that, you don't go in there and pick every damn berry, you've got to share with the birds, bears, species and other pickers who come along.

(Anonymous interviewee)

The consultation and referral process had to be given more credence, there should be some legislation that says FN has a right through consultation and referral process to identify and have sites protected, specifically traditional food sources sites that have exceptional and rare

value.

(Anonymous interviewee)

The quotation below discusses the importance of addressing NTFR management on a wider scale, in this example working with other surrounding First Nations communities to develop a system for First Nations tenure and access.

I went to a conference down in the Kootenays, they were talking about regulation wild crafting and as a result it would affect our access, and some of the things that came up were why should we have to apply for a licence when in the past we hadn't and some of the elders were talking, certainly if we had our own form of tenure system in the community, or being a part of a larger tenure system with the adjacent communities, I think that's the way it should be anyways, it shouldn't just be our community or township or whatever, I think we should have a combined approach and learn from each other.

(Anonymous interviewee)

This quotation emphasizes the importance of clear communication with the public regarding forest resources. While not an NTFR, the quotation shows compatibility between timber use and use of timber by-products harvest. It suggests that communication about the availability of waste wood in slash piles might be one way to inspire economic activity.

When knocking down trees like birch they can find a use for them. That might be another enterprise. If people could access the waste and make firewood, etc. Shake blocks, make short pieces of cedar planks, have a small sawmill for these. Logging won't stop, so let's do it a little bit differently. Across the valley some of the places we hunt in, there are piles left. Why didn't they mark on it 'fire wood'? So people can take it out of there. I used to go pack up piles, when I did it people did the same thing. If they marked them somehow and said 'firewood' it would make people use it.

(Anonymous interviewee)

3.4. First Nations forest practices

The content of the interviews describing Simpcw forest practices enables an analysis of where there are differences between First Nations and non-First Nations

forestry and also whether Simpcw forest practices can provide any learnings to a community forest around how to better manage for NTFRs. The Simpcw Sustainable Resources Department manages approximately 100,000 hectares of tenures, which are mostly logged by local First Nations loggers. This is significant since less than 5% of FN tenures in the province are logged by First Nations contractors. Despite the fact that the Simpcw have a small non-replaceable forest licence, about 95% of their traditional territory is managed by other forest companies, and the 5% managed by Simpcw is scattered. According to interviews, the Simpcw First Nation would like to manage forestry operations on more than 5% of their traditional territory, and would have more flexibility with their management approach if the 5% they currently manage were less scattered.

The following quotation shows one attempt of a registered professional forester (RPF) working for the Simpcw First Nation to protect a highly valued species. In this case, the attempt failed because the actions of the logging contractor did not follow the RPF's prescription closely enough.

On the ATCO transmission line there was Labrador tea and it was one of the indicator species for that area, growing in pine stands. I laid out no machine zones and protected it all. I put it into writing to MOF (Ministry of Forests) that it should be protected in that area, but I think it's all been logged.

I just did it when I was doing layout for transmission line. When I was walking through there I had an elder with me, they noticed the tea. When they noticed it they asked if we could protect it, so we did.

(Anonymous interviewee)

In addition to this disconnect, there is a limit to what a RPF can attempt to protect. The following quotation distinguishes between a species like labrador tea and berry species, and also provides an example where the labrador tea was protected.

I'll find out about them (*culturally valued plants*) and protect them, but this will be a conversation people have with me and don't share. ... if you have to protect everything than it won't work, but if you lay out certain areas,

say small areas, 15 m wide or something, that's easy. That's why it's hard, because you have to know what you're protecting. ..

Anything we follow is based on what the community wants as opposed to going back to legislation which is pretty weak on it in my opinion...

There is a difference between a Labrador tea area, because that's a rare site, and a berry area, there are berries all over...

I know that our crews in the areas they went out last year, the logging crew found a patch of Labrador tea and if he hadn't found it would've been destroyed because the archaeology crew didn't find it. It was the crew boss that found it and put a buffer around it.

(Anonymous interviewee)

Another limitation to Simpcw forest practices is the training and standards of Registered Professional Foresters (RPFs), which are inflexible and are unable to include traditional standards.

Our foresters are schooled regular way, and are white. They only know one mode of forestry, ask them to deviate from traditional practices that they've become accustomed to and they won't because they have a standard and that's an ethical standard that they must live up to within their forest association, they must recognize the BC standard or they could be questioned by ethics and lose their right to practice.

(Anonymous interviewee)

The following quotation describes the ideal Simpcw approach to silviculture, where an RPF would have some freedom in their prescriptions to incorporate traditional practices by mimicking nature.

(In silviculture) we try to mimic the planting of those areas. So before people would never plant cedar, they said, it's all over the place. If you cut a cedar you should plant a cedar you should cut the same things you cut down.

(Anonymous interviewee)

The quotations in this sub-section together illustrate that the Simpcw community may have a more direct input on Simpcw Sustainable Resource Department's forest practices than the non-Simpcw community would have on forest practices in the non-FN community. However there are limitations to how far Simpcw can accommodate community input, since all foresters receive the same training and must adhere to the

same professional standards. Similarly, while on the one hand one senses from the quotations a fair bit of optimism around the possibility of protecting NTFRs, there is only evidence of this protection occurring on a very small scale, temporarily, for one particular species.

3.5. Characteristics of co-management

Eight out of twenty co-management propositions were applied to the data. The number of times preconditions of co-management and mechanisms and conditions supporting co-management were mentioned in interviews are listed in Table 9 and discussed in the following sub-sections.

Table 9: Preconditions and conditions supporting co-management

Co-management	Sources	References
Preconditions		
Negotiation or experimental co-management	1	1
Willingness to contribute (financially or otherwise) to management of the resource	2	2
Stock depletion	10	16
Conditions supporting co-management		
Co-management data collection	1	1
Re-circulating wealth	1	2
Conserving and enhancing the resource and culture	3	3
External support and discussion of co-management or NTFRs	6	7
Existence of an energy centre	20	161

Negotiation or experimental co-management

There were no references to negotiation or experimental co-management of NTFRs specifically and there was only one reference to general negotiation or experimental co-management between the two communities. The only evidence of

negotiation was in relation to the effects of mining on the watershed. This reference was a collaboration between the district of Clearwater and the Simpcw First Nation, rather than the community forest.

Willingness to contribute to the resource (financially or otherwise)

There were a few references to willingness to contribute (financially or otherwise) to the management of NTFRs. The individual quoted below believes that benefit from use of NTFRs should go back to the entire community, and this could conceivably occur in the form of reinvestment into management through a tax to ensure the reliability of the resource. The interviewee stated,

I think any commercializing of any NTFP has to be very closely monitored and I think there needs to be a process in which there are exclusive areas for certain people who have those tenures, so that there is a responsibility that goes with that tenure if it's a First Nations tenure. And also the benefits that arise from the use of those plants should go back to the community as a whole not to individuals.

There could be some sort of tax to those plants that specifically go back to the people for restoration, reclamation and it has to be a very clear monitoring process with that.

(Anonymous interviewee)

The following quotation, referring to forestry in general rather than NTFRs specifically, indicates a willingness in the past to invest in the resource by both the Simpcw band and the MOF through investment in planning and coordination.

For about 10 years we had monthly communication meetings except for August and September, so all the licensees, forestry personnel and our council would sit at the table and talk about issues out there. Because we have that relationship that's been ingrained over the last decade that we can do that, we can sit at the table and continue doing that process. *(It ceased)* about a year and a half ago. The last 1-2 yrs of it was driven by MOF, they funded it, it was quarterly in the last couple of years, they funded the band to do that. *(Before that)* the band funded it and was driven by the band.

(Anonymous interviewee)

Stock Depletion

References to stock depletion were derived from the interview question on NTFRs of special concern, discussed in section 3.2.3. Opinions differed on which species have been depleted and to what extent they have been depleted. It is difficult to confirm without quantitative species abundance and yield data, but the interviews indicate that both huckleberries and blueberries are less abundant than they once were, particularly blueberries. There were a substantial number of references to stock depletion, therefore, this precondition to co-management does exist.

Huckleberries don't exist in the abundance and widespread area that they once used to. Blueberries are becoming more rare, and the ones we find these days are tiny, they don't grow to the large size they used to. The blueberries used to grow as large as the Huckleberries or even larger, now no matter where you go the bushes are stunted and hard to pick. It's hard to get a bucket of them; at one time they flourished as much as the Huckleberries.

(Anonymous interviewee)

Data Collection

There was one reference to data collection. Once again, the reference was not to data collection of NTFRs specifically, but rather to data collection on traditional use of the land base in general. The reference indicates that the Simpcw are doing their own traditional use studies, which include data on traditional harvesting areas. However, according to this source, the data is not yet adequately included in planning and management.

We were the first in the region looking at this model that put us in the driver's seat, where we go out and do our surveying ourselves, gather the info, write up our report, send off to the licencess and the ministry.... I mean, we still haven't gotten to that point where it's included in the planning and management, we have yet to follow up and make sure that things are being adhered to our prescriptions.

(Anonymous interviewee)

Re-circulating Wealth

The community forest is respected for re-circulating wealth from their operations into the Wells Gray Country community. This is a well known role of the CF in the

communities that it represents. However, the WGCF does not currently recirculate any wealth from their operations to the Simpcw community. In order to support any co-management arrangement wealth would have to be re-circulated in a way that the Simpcw community could also benefit.

The primary mechanism for re-circulating wealth is through the WGCF society. This society distributes grants for activities including, but not limited to: promoting volunteer participation and citizen involvement; the use of new approaches and techniques in the solution of community needs; activities/programs which are accessible to a large portion of the community's residents such as special events; capital costs for equipment or improvements that support community activities and programs. Eligible groups must be registered federal charities or societies located between Blackpool in the south and Vavenby in the north. The eligibility requirements also state that grants will not be considered if they are to ethno-cultural organizations that primarily serve their own members (WGCF, 2012).

Conserving and enhancing the resource and culture together

When asked about how to foster collaboration between Simpcw and non-Simpcw communities, many interviewees spoke of social and cultural activities that were attended by both communities. The most prominent of these is the annual First Fish Ceremony held at the local Raft River to celebrate the beginning of the salmon run. This ceremony is both a celebration of the resource and a celebration of culture. It serves to enhance culture as it is a great opportunity for Simpcw to express their culture and build cultural awareness in other communities. The celebrations also have a conservation component. There are displays and interpretive activities teaching kids and adults alike about salmon ecology. The following quotation describes how the First Fish ceremony has evolved since its inception.

I think (*the ceremony*) is becoming more and more attended by people outside the First Nations group. So when they have the first fish ceremony up at Raft River there, if you go to it now, after it's been going on 5 or 6 years, if you went in the first couple of years it was probably mostly First Nations who went to it, but if you go now, it's maybe 3/4 or more, maybe 90% of the people there are not First Nations people, they are just community members and visitors to the community.

(Anonymous interviewee)

External support and discussion

In looking for examples of external support and discussion of co-management in academic institutions, non-profit organizations and other regional, provincial or national organizations, the research also considered any support and discussion of NTFRs. Before co-management of NTFRs can be supported, it is necessary to cultivate an awareness of NTFRs in general. This type of outside support for the NTFR sector was identified as a great need in order to propel the sector forward. Because there are no existing co-management arrangements, there was no mention in the interviews of external support and discussion of co-management, but there was frequent mention of external support and discussion of NTFRs.

I would like to see a provincial gathering and symposium proposed where people from many communities both native and non native can come together and have a look at this. Because the more people you bring into a process like that with their different ways of thinking and different insights into the land and traditional use of the land, the more likely you are going to come up with a management practice that's going to be suitable to everyone.

(Anonymous interviewee)

Existence of an energy centre

It was clear from the interviews that Sharon Neufeld, a board member of the WGCF, masseuse and herbalist, was an energy centre whose perspectives and work served to advance the co-management process. Sharon was referred to 161 times in 20 interviews. Among board members and the advisory committee, Sharon was seen as playing a critical role in keeping NTFRs on the agenda of the community forest in order to prevent it from being, "just another logging show". She was also seen as a strong advocate that any process of formal NTFR management or commercialization had to occur in partnership with the Simpcw First Nation. She was also referred to as someone who "gets the ball rolling" and "has an influence" on others' thinking and interest related to NTFRs. Among the wider Clearwater community, Sharon was known as being a promoter for and educator in wild plants and herbs. She was referred to by many for her local knowledge and expertise in the values and uses of wild plants and herbs. There was recognition and appreciation in the wider community of her role on the community forest board of directors.

In Chu Chua, Sharon was less often mentioned directly in interviews, but was referred to indirectly as someone highly involved in NTFRs through references to herbalism and wild plants groups and activities of which she was a part. Sharon organized the Symposium on Non-timber forest products in 2010 and the Community to Community meeting to discuss NTFPs in 2012 with members of the WGCF and from the Simpcw band council and staff. Sharon's leadership in both of these events was recognized in both communities. The key objective of the Community to Community meeting was to share perspectives on NTFPs, explore working together and begin to build trust and relationships.

It is evident that without this energy centre, neither consideration of NTFRs nor the emphasis on sharing values and perspectives would occur. The downside to the existence of such an energy centre was also evident in the interviews. There was a prevalent attitude that, "Sharon works on that", or "that is Sharon's area of interest", or "good thing we have Sharon to take care of NTFRs". To many interviewees, Sharon's dedication and enthusiasm absolved them from needing to get involved in any aspect of the NTFR sector, whether it be having a say in how they are managed, ensuring they are not destroyed, diversifying the activities of the community forest, or ensuring proper consideration of First Nations valuation and use of NTFRs.

3.6. Process-based indicators of co-management

Because there are currently no co-management arrangements in the region of study related to timber or NTFRs, there are no substantive outcomes to describe. However, some of the process-based outcomes of co-management are either already seen to some extent in the case study, or are desired by community members. This might indicate an openness to co-management. Building on Hawley et al's (2004) suggestions for overcoming hurdles to the integration of science-based resource management and traditional ecological knowledge management systems, selected process-based outcomes include: the establishment of trust, more frequent communication and active collaboration and the creation of new values, understanding

and meaning. I have added to this the heading of goodwill, defined as small actions that lead to the building of trust. Sharing of culture is not described in detail here, because it is related to the preceding section on "conserving and enhancing the culture and the resource together", and is partially captured above.

Table 10: Process based outcomes of co-management

Co-management	Sources	References
Goodwill	3	4
Trust and Open Communication	13	22
Sharing Culture	5	6

Goodwill

Goodwill is defined as small actions and gestures that indicate kindness and respect. Among a small portion of interviewees, it was noted that holding meetings at the Simpcw community in Chu Chua would enable their participation in meetings, and also begin to build more respect and demonstrate appreciation of their time, because it is a one hour trip each way to attend meetings in Clearwater. It was also suggested to try to do things more on Simpcw terms in general and include cultural elements to meetings, rather than just formal business.

Let's have more of a presence in the community, and have the community do their meals for us, let's go during the day, let's hang out in the forest with them, let's do things the way they want to have communication with us, not us telling them how to communicate with us. I think that we as a board need to relax, that's why I had the C2C (*community to community meeting*) there, it has to be done on their terms.

(Anonymous interviewee)

Trust and communication

Trust and communication were both frequently mentioned as two necessary elements to joint management in the region, of NTFRs or other resources. Trust and communication were acknowledged by both communities as something essential, that has existed to differing degrees over time, and that also require resources to properly build. Trust and communication also came up as the key method to truly protecting

intellectual property rights in the absence of any existing adequate legal measures. In response to questions related to trust and communication, a number of interviewees made reference to the Community to Community meeting held between the Simpcw and a few WGCF board members in March 2011. As the vast majority of interviewees had not been in attendance at that meeting, a number of other interviewees made reference to the NTFP Symposium as an event and experience where they felt that open communication had been established and some trust had begun to build between the two communities.

When I got here (*to Ministry of Forests*) it was more about the relationship building side, then of course government got whacked with layoffs and budget cuts so it shifted more to the consultation, the stuff that's legally driven. That was purely budgetary, we lost a lot of our funding to have meetings, and those sorts of things, get togethers, cultural days. When I first started we had a couple of cultural days every year with Simpcw. Then that funding was taken, we used to have quarterly groups when we got everybody together, interest groups, the Timber Supply Area (TSA), Simpcw hosted those at their administration building.

(Anonymous interviewee)

At the end of the day there was a lot of talk about how legal copyrights don't go very far (*for protecting IPRs*) and that trust and understanding are probably more important.

(Anonymous interviewee)

I think a lot boils down to the relationship you have with the FN yourself and how you develop that too.

(Anonymous interviewee)

I think it's just open communication and being clear, being open, having meetings and phone calls.

(Anonymous interviewee)

For me personally, I felt (*the Community to Community meeting*) was very valuable because I got a greater insight into Simpcw values. And that just helps, whatever decision I make, it helps me to understand that better, and I think we all came away feeling like we're all on the same page.

(Anonymous interviewee)

The key thing for me (*at the Community to Community meeting*) was developing a relationship with Simpcw on our protocol and understanding of where the CF is coming from with NTFPs, it's not our intent to develop them without the Simpcw First Nation. Ever. We'll never do it.
 (Anonymous interviewee)

And that's where (*NTFP Symposium*) I really understood what Simpcw meant when they talk about IPRs. I didn't really understand before, when Fred spoke I really understood, and I understood the passion around it. It wasn't, 'It's our land you can't do anything with it'. It was, 'It's our land we don't mind sharing but, you have to do it properly'. That was one of my highlights, was listening to that as well.
 (Anonymous interviewee)

3.7. Barriers for NTFR harvest and use

The following two tables, Table 11 and Table 12, list barriers to harvesting NTFRs and a number of potential solutions to overcome these barriers. These two tables list barriers and solutions as they were overtly stated by interviewees. The next tables, Table 13 groups these barriers thematically and pair them with solutions. Solutions were generated directly from the interviews as well as deduced by the author from latent interview content combined with participant observation.

Table 11: Barriers to harvesting of NTFRs

Barriers to harvesting of NTFRs	Sources	References
Reluctance to change harvesting location	1	1
Contamination of sites	1	1
Lack of contacts in forestry to identify sites	1	1
Low harvesting skill level leading to inefficiency	1	1
Lack of processing infrastructure	1	1
Inadequate size of supply	1	1
Lack of entrepreneurship	1	1
Lack of indigenous rights and title	1	1
Bad weather and bugs	1	1

Inadequate value of product	1	1
Lack of capital	1	1
Presence of mosquitoes	1	1
Deficient plant identification skills	2	2
A shortage of leadership to promote NTFR harvesting	2	2
Lack of relationship with/knowledge of NTFR buyers	2	3
Over dependence on other sectors for income	2	2
Inadequate supply due to destruction of species	3	3
Lack of familiarity with the land base	3	3
Lack of transportation	3	3
First Nations intellectual property rights as an impediment to non FN	3	3
Fear (various types of fear)	4	4
Laziness	4	4
Lack of viable NTFR markets	5	6
Social barriers	5	5
Lack of interest	5	7
Lack of knowledge and education around NTFRs	6	7
Inhibiting laws and regulations	7	8
Lack of physical access	8	9
Shortage of time	9	11

The top twelve most commonly cited barriers are: a shortage of time, a lack of access, legislation and regulations preventing access or stifling financial viability, a lack of knowledge and education around NTFRs, a lack of interest, social barriers, a lack of viable NTFR markets, laziness, fear of the wilderness and FN intellectual property rights impeding non FN harvesters/entrepreneurs, lack of transportation, lack of familiarity with the land base and inadequate supply. The following quotations describe some of these stated barriers in more detail.

3.7.1. Shortage of time

The following quotation describes shortage of time as a significant barrier since people are often too caught up with monetary constraints and the expectations of contemporary society that they do not have time for more traditional activities.

People are you know, thinking about myself, people are quite often working. Everybody has to work for a living, everybody has to pay their bills, our lifestyle has changed so that we're quite often in our day to day lives trying to get our bills paid and trying to get out of debt, trying to find the actual time to do these things (*NTFR harvesting and other traditional activities*) and at the same time living in contemporary society.

(Anonymous interviewee)

3.7.2. Overdependence on other sectors for income

The following quotation is one example of the barrier of overdependence on forestry for income. It describes how path-dependence on one activity prevents individuals from exploring new and different options for income.

We tend to be a community of loggers and they understand that and I don't think there's an appreciation first of all for what's out there, secondly how it can be harvested or managed, but what the relative value is, I think most people think, 'Oh I wouldn't make any money on it anyhow so why even consider it'.

(Anonymous interviewee)

3.7.3. Lack of knowledge and education around NTFRs

The first of the next three quotations describes the very high value of one particular NTFR and the specific knowledge that is required to make use of it. The two subsequent quotations re-iterate the pronounced lack of knowledge around NTFRs and their relative value.

One thing I use that I didn't tell you, when poplar is starting to open the little buds, I make that incredible ointment, why would you suffer with arthritis when it's right there? But you have 3 days in the whole year, 3 days is the only time you have to pick them, you have to pay attention and you have to be there and you have to be able, and not many people

are.

(Anonymous interviewee)

(*There is*) a huge lack of knowledge on what's out there and what people could actually use. I don't think people have any idea of the value of things or the uses that are there.

(Anonymous interviewee)

Knowledge, there's only a handful, I'm guessing, but I would say there are only a handful that understand the relative value of NTFPs, I don't think it's on most peoples' radar at all.

(Anonymous interviewee)

3.7.4. *Lack of physical access*

This series of quotations describes the many impediments to physically accessing NTFRs. These physical barriers include fences, park boundaries, physical inability due to age, access to a vehicle, difficult terrain, presence of dangerous wildlife, degree of physical fitness, land-use changes, and development.

From what I hear a lot (*the main barrier*) is access, especially for elders. Places they used to go to that are now fenced off. Or it falls in a park, where they say we're not allowed to go, not that it should stop people, but I think it does.

(Anonymous interviewee)

For sure the access, access meaning pick-up, terrain, bear awareness, a lot of times there's bears in the patches which might scare people off. Where are they (*the NTFRs*)? You can drive around for endless hours and not find anything either, a lot of people can't afford to go exploring that way. Access to the stuff that I collect, you literally have to be walking around the timber or be at an old logging show and go and look in the slash for those products before the slash piles are burnt or the ground consumes everything. Just the physical side, fitness.

(Anonymous interviewee)

We've had a lot of access issues because of development because of forestry. Such as new home building, and other buildings going up, roads going through our berry patches and other medicinal areas, gates being put up. Landings privatized. The forest companies logging in areas where we gather.

(Anonymous interviewee)

3.7.5. Fear

The next two quotations describes various fears that act as a barrier to harvesting NTFRs. These are a representation of a longer list of fears that were referred to. Cited fears in these two quotations include: fear of eating the wrong berry and becoming ill, and fear of violating legislation and regulations.

Fear. Fear is one (*barrier*). Fear of picking the wrong thing. Fear of poison. We've been told so many things,... I think a fear of picking the wrong berry, or doing something where you're going to get in trouble with the health department.

(Anonymous interviewee)

Fear of being put into jail, being caught, fear of exerting their gathering rights. From conservation officers, federal or provincial government.

(Anonymous interviewee)

3.7.6. Inhibiting laws and regulations

As illustrated by the following interviewee, laws and the administrative process around starting and effectively running a business were cited as another barrier that prevent people from both harvesting and marketing NTFRs.

It's all the paperwork that gets pushed around and around and around that makes things too expensive to do them.

(Anonymous interviewee)

3.7.7. Lack of Interest

Interest is a major barrier to harvesting and marketing NTFRs. Interest is directly linked to knowledge, and many other barriers, since if an individual had a strong enough interest and passion they may be motivated to overcome a number of other barriers. The following quotations characterize a lack of interest as being driven by either living in a city or small town and not being exposed to wild plants and also the ability to obtain the same NTFR at a store or a farmer's market more easily.

Knowledge and interest (*are barriers*). I grew up in a time when wild berries were our fruit. That has stayed with me and been important to me all my life, but I think a person who grew up in a city maybe or even a small town and didn't do that kind of stuff might not. I don't know.
(Anonymous interviewee)

Number one I would say it's hard work. That's the number one thing. If you can do something else and make a living, or you could just go buy them at store or farmers' market, it's a lot easier than going out and doing it yourself. If you've ever picked berries you know.
(Anonymous interviewee)

3.7.8. Social barriers

The next quotation describes how a lack of a social link to one's family or to one's band can manifest as a barrier to traditional activities. The quotations explains that many traditional activities are executed in a family or community group; and to not feel like part of the group results in feeling unwelcome to NTFRs and therefore not engaging in their harvest.

I think some people have difficulty with making the connection to their family, they don't have the social link with their family so they cut that tie. I know I have some family members that never do it (*hunting and gathering*) and others that want to all the time. There's some that either they don't have a vehicle or don't have a tie to the community, or feel they don't have a tie to the community and don't make that effort to make that connection. They are part of the band. There are a lot of people that live off reserve, they still have access to it, but they maybe don't feel that they are welcome to do it. I think that's why the access and I think there is a lot

of fear too, to talk to the people and get access to where you can go.
(Anonymous interviewee)

3.7.9. Lack of viable NTFR markets

Different quotations reflected a lack of both viable local markets, regional markets and even global markets. The quotation included below describes the lack of a viable NTFR market in Clearwater.

Clearwater in general seems too small to really, I see people having ideas and trying to make a go of businesses and stuff, but Clearwater is too small, we don't have the demographics and diversity in my opinion to allow some things to work that may work in a bigger centre.
(Anonymous interviewee)

3.7.10. Destruction of species

A barrier that may trump all other barriers is the availability of NTFR species. Without adequate presence of the species, there is certainly no way to engage in successful harvesting or marketing. As documented earlier when the co-management proposition of stock depletion was discussed, stocks of some NTFRs have been depleted and NTFRs continue to be destroyed. The quotation below captures this in a short sentence.

The most obvious one (*barrier*) is that you've got people all through the forest and overuse.
(Anonymous interviewee)

3.7.11. Inadequate value of product

The quotation below reflects that the abundance and value of NTFRS are still unknown and ambiguous.

The sense would be that why would I spend all that time and energy to get something that I'm not going to make very much money on and of course they're (*tenure holders*) coming from the paradigm that you take a

big log out there's a lot of money involved in that, so I would say there's lack of knowledge as to the availability and number two what the potential values, how valuable are they.

(Anonymous interviewee)

3.7.12. *Lack of recognition of rights and title*

This quotation reflects an prominent view that for First Nations, the one major barrier to harvesting NTFRs is lack of legal jurisdiction over their land.

The main one (*barrier*) is government approach in assuming jurisdiction over land, the number one barrier is government refusal to recognize our title and rights. We've never ceded our rights over the land.

(Anonymous interviewee)

3.8. Opportunities for NTFR harvest and use

Table 12 lists and quantifies ways to overcome some of the barriers stated in the previous section derived from the interview data.

Table 12: Overcoming barriers to harvesting of NTFRs

Overcoming Barriers to harvesting of NTFRs	Sources	References
Overcoming Social Barriers	3	3
Overcoming Marketing Barriers	2	3
Overcoming Physical Access Barriers	2	2
Overcoming lack of Entrepreneurship	2	2
Overcoming Barriers to Plant Identification	2	2
Overcoming Barriers due to First Nations claim/right to resource	2	2
Overcoming Small Business Financing Barriers	3	3
Overcoming Time Barriers	3	4

Some of the stated solutions to overcome barriers are as follows. In order to overcome a shortage of time, a reference was made to another band where the entire band office closes each year for the fishing season. Another solution was simply to prioritize NTFR harvesting and to make time for it. A third solution was to make a habit and tradition of going harvesting as a family as a way to prioritize the activity. Yet another solution was to wait until retirement to focus on this activity.

I'm semi-retired so my time is pretty free. Even when I was working full time, time is something I could prioritize without too many issues. I was asked when I was building this house where I find the time? I said I just make it. It's something I prioritize. These days with the little ones and a limited income food and berries are a priority. There's no two ways around it. I'm happy to delegate whatever resources I do have to a healthy diet for my family.

(Anonymous interviewee)

The following quotation describes how one family who did not have time to gather everything they desired from the woods traded one good in order to access another good. It also describes how those without time, mobility, transportation or other necessary resources can obtain benefits from NTFRs when someone with those capacities gives away a portion of their harvest.

He never did it for profit. He would share with elders and people with disabilities. He believes in the trade but is totally against profit I think. That what I used to do, I'd bring up fish from the Fraser and trade with people who have berries. Sometimes we focus on 1 thing each year, so we'll focus on 1 thing and trade off for what we don't have to sustain ourselves and keep the diet.

(Anonymous interviewee)

Regarding overcoming financial barriers facing small business development, one solution was that the WGCF provide business start up fees or grants for promising business plans. Another was to seek small business financing from banks or credit unions.

Regarding overcoming barriers presented by conflict over IPRs, solutions stated were to develop relationships between First Nations and non-First Nations communities and to work from the ground up, in the sense of beginning to develop these relationships on an individual level and engaging all community members in this process.

We have Simpcw sitting on our board, it's been somewhat of a blessing, some of them want to work with us, they try to break those barriers, we've had other that create barriers. If there was some type of a better working relation I think a lot could be achieved. Right now there is this perceived financial grab, if it's not financially beneficial to them then there is no interest in moving forward on anything.

(Anonymous interviewee)

To overcome barriers presented by lack of plant identification skills or education, solutions stated included: going harvesting with people who have these skills, to spend time in the woods and learn by doing, to offer interpretation of NTFRs to tourists and locals alike as part of tourism development and to seek employment in the forest sector to gain exposure to NTFRs.

I have the advantage of knowing a lot of plants in the forest and biogeoclimatic zone stuff, where I'm likely to find this or that, where devil's club will grow. So that's an advantage from working in forestry. Walking around going, 'oh there's some wild ginger', or something.

(Anonymous interviewee)

To overcome the barrier posed by lack of knowledge or access to NTFR markets, it was suggested that people: target one market as a community group/ cooperative effort, seek urban centres that are easy to drive to (such as Calgary or Edmonton for floral greenery), and build marketing skills through training.

Edmonton does not have any of the traditional Christmas tree products which are high value. Edmonton sits in white spruce and aspen, these are not exactly greenery for Christmas, anyone in Vancouver can go down the highway in an hour on the weekend and cut all the cedar they want to on the side of the road.

(NTFR commercialization) is just not something that's done a lot of. I think I got a bit lucky with mine, having had a partner out in Alberta, having had that brief exposure when I was young, knowing how to put the package together so that they were presentable. I would not hesitate to jump into it again, if I could see my way right through it rather than trying to fit in between jobs.

(Anonymous interviewee)

To overcome barriers posed by lack of entrepreneurship, interviewees suggested that interested individuals start small with a couple of products and engage in the NTFR sector in conjunction with other paid work.

To overcome physical access barriers, it was suggested that harvesters know where to go and could be willing to go further distances, to involve the land tenure holder in any NTFR activity to seek their support and permission and also that if the demand and value is high enough for an NTFR access will follow easily. Another suggestion was

to use archaeological overview assessments (AOAs) to protect species in order to prevent access issues stemming from low plant populations.

You have interpretation of these various different (*ecosystem*) types. What type of logging, what kind of silviculture comes after may be part of what prescription and analysis should be. Let's say with an activity like clear cutting on a particular site type, it may be that a community forest could do a mapping exercise by types and you decide these types are the ones that are most important for NTFPs and botanicals, and these are the types that FN can say are very important. When it comes to logging it, if that knowledge was there, these are the types that are very important, and part of the approval of cut blocks could consider that. But again, you can start with the BEC zone.

(Anonymous interviewee)

To overcome social barriers, including a lack of desire to engage in social activity, a fear of the wilderness, and a lack of social skills needed to interact as a group, solutions included: to start young, to go as a family, and to develop more leadership in the community so that leaders can involve and coordinate others.

Another thing is having the initiative to pick. Omma asked if we wanted to pick and a bunch of people said "no I don't have time", so she took the 7 year old. You have to gather the people and the interest. Sometimes you need a motivator. In older days it was family oriented. People went as a family unit. We're getting back to it. (*Tracy*) and her family want and got tonnes of berries over by Dunn Lake.

(Anonymous interviewee)

Regarding overcoming fear as a barrier, the following quotation represents those individuals that are not afraid of challenging formal rights when necessary in order to assert their informal rights.

We've shown that we are not afraid to challenge law, go to court, get arrested, go to jail. You cannot question the bravery and dedication of the people when it comes to standing up for their rights and getting out on the land.

(Anonymous interviewee)

Table 13 groups some of the barriers to harvest and market NTFRs into the four broad themes of physical, economic, social and cultural barriers and match these barriers with strategies for overcoming each barrier.

Table 13: Barriers and Solutions to NTFR Harvesting and Marketing

Barriers		Solution #1	Solution #2	Solution #3	Solution #4
Physical	Access inhibited by private property and development	Ask permission to go on people's property	Trespass to enact title and rights	Designate community picking areas	Trade between those with access and those without for desired NTFR
	Access related to mobility (age/health),	Fit individuals pick for their families and elders in the community	Pick on roadsides	Have community picks where the young go deeper in to the bush and bring out branches laden with berries	Trade between those with access and those without for desired NTFR
	Access to a vehicle and condition of roads	Fit individuals pick for their families and elders in the community	Pick close to communities and on roadsides.	Carpool to go on group picks	Trade between those with access and those without for desired NTFR
	Plant availability: Yields (anecdotally have gone down for many species), species extirpation from area.	Increase harvesting range to access extirpated species and to gather desired quantity	Process and preserve large quantities of berries in a good year.	Switch consumption to a different species.	Trade between harvesters from different geographic areas for desired NTFR
Barriers		Solution #1	Solution #2	Solution #3	
Social	Social Skills/social cohesion - i.e. people not wanting to participate in social group activity	Group harvests with youth and elders coordinated in community	Community leaders inviting friends and neighbours on picks		

	Desire and motivation, whether or not family engaged in activities when people were kids.	Community leaders inviting friends and neighbours on picks		
	Knowledge of where things grow and plant identification as well as knowledge of the economic value	Training of pickers, certification of harvesters or at least best practices guidelines	Environmental education. Through school system	Naturalist Walks through WG Park
	Interest in the activity	Education/Awareness raising activities. Symposiums, presentations etc.		
Economic	Culture of dependence on a large company, lack of entrepreneurial nature	Training of pickers, certification of harvesters or at least best practices guidelines	CF support of start-up businesses through non-profit society	
	History of logging in the community as main employer, lack of diversity in skills.	Education		
	Government regulation (i.e. special forest products stumpage rates, and requiring permits for cedar bough collection)	Not a barrier in all cases, only for certain species and locations.	Informal activity that does not follow guidelines and regulations	
	Lack of markets	Creation of a local market.	Accessing global and regional markets.	
Cultural	Protocols prevent commercial harvest	No commercialization of species	No commercialization of medicinal species	Does not apply to those who are not aware of or interested in traditional protocols

	Individual, family and community custom prevent commercial harvest	"	"	Those without such a custom could explore small business opportunities
	Beliefs around relationship of plant harvester to the end use of plant prevent commercialization	"	"	Those without such beliefs could explore small business opportunities

3.9. Areas for future research

Two other themes emerged from the interviews that are very relevant to discussing co-management of NTFRs. These are: unique First Nations perspectives on commercialization of plant species and the question of whether NTFRs should be managed according to traditional First Nations law, customary law, or the western legal system. These areas are not the central focus of this paper and are suggested as areas for future research. This section briefly gives a voice to these two issues. The following selection of quotations provide some insight into these two issues.

3.9.1. Commercialization

The following quotation describes the importance of quality over quantity with certain NTFRs which would make commercialization very difficult. In this case, the interviewee describes that many NTFRs are needed for ceremonial and spiritual traditions. These offerings must be of a certain quality. With commercialization economies of scale are needed that would not be economic to obtain at this level of quality.

The issue is quality versus quantity. When you deal with ceremonies, you have to have natural berries and natural meat to fulfill your ceremony. Pure huckleberries, blueberries, water. The ceremonies are based upon spiritual relations but also based upon what you get from the land and your offerings from the land, they can't come from a Safeway store. So if that whole relationship that you have to the natural plant gets into the

ceremonies, there are specific berries for specific ceremonies as well.
(Anonymous interviewee)

The next quotation illustrates a frequently held view amongst First Nations interviewees that NTFRs, specifically medicines, are not meant to be used for commercialization. This interviewee describes that it can be dangerous to receive gifts of plants and medicine from people that are not prepared in the proper way. The interviewee explains that these risks would be even greater if something were commercialized on a large scale. The quotation also describes the depth and breadth of knowledge that is needed to properly harvest plants and medicines.

I think you can definitely move forward in helping to manage the plants, information based around that. I don't think anybody around here would help anybody start any type of business with our own natural resources, I don't think that's what they're meant for. When there are different packages of this and this and this, maybe that's just a personal thing, but I cringe almost. It's not meant to be for sale, it's for your own personal use.

Some of the stuff is dangerous. When I receive medicine or gifts from people, if I don't know them or I don't get a good feeling from them I'm not meant to keep it, I'm meant to burn it. There've been instances when you get things and maybe people have good intentions for maybe they don't, but I'm pretty good at protecting myself and my family, and I've had to burn things. And it's not meant to offend them. But if I get things from family members or close friends I have no problem keeping them. Not items, just plants and medicines. A lot of people do that.

When I see things for sale I don't know what state people are in when they're gathering, some aren't in a good state and they don't know that can affect the medicine. If you are not healthy or happy or aren't in a good state, or if a woman goes out on her moon time then that can ruin the medicine and that can affect the medicine and can even harm people really badly. So if people aren't trained in those ways and don't know those things from our tradition and our culture then that's a good reason not to sell it. You have to know all the things. It's not just about when and where and how, it's about those traditions and cultures and you know knowing as a woman when you can and can't gather, so those things that you really need to be raised with to know.

(Anonymous interviewee)

This perspective is also echoed by the academic literature. Nancy Turner, who has spent decades as an ethnobotanist working in First Nations communities states, "aboriginal people I have talked with are particularly concerned about commercialization

of traditional medicines. Medicines are considered sacred gifts, and many people do not even like the idea of selling them at all, as it contravenes cultural principles" (Turner 2001, p.4).

3.9.2. Customary law

Customary law could be described as analogous to informal rules. Customary law describes the body of traditional rules that were followed by First Nations communities prior to the imposition of the western legal system upon them. The first of the next two quotations describes customary law and how it might work for regulating access to natural resources, including NTFRs.

The obligation of us under this law is to make sure that the future generations benefit from that plant or species. That's the obligation we have. And under customary law you have the ability to, you have to be responsible. So in areas where we might say we don't want access for anybody into certain areas,... it's about engaging Simpcw people under their customs, so here's your rules of engagement as a Simpcw person.... there was a situation we just dealt with, under customary law is that if anybody wants to go fishing, hunting, accessing the natural resources, under customary law they come with us. That's the only control mechanism. If you get out a permit, if someone goes picking with you one year they'll just go the next year without you.

(Anonymous interviewee)

This next quotation describes that there is no recognition of customary law currently. It also describes that customary law was highly respected and followed since it closely reflected and complimented people's traditional lifestyles. The quotation explains a central tenet of customary law, teknelementem, which means to have respect for Mother Earth and not to waste any of her resources. The quotation ends by affirming that these laws kept the people together as a nation and were seriously enforced.

Right now there is no customary law, we are being forced to live under provincial legislation. There is no recognition of customary law, you take the way the land is managed right now, and it's almost exactly the total opposite of how our people managed the land.

Customary law was very strict and it was a way of life that our people lived by, very seldom did they break customary law. They went where the

resources were, they lived off of the resources that were readily available. They did have particular laws they abided by, in the spring and early summer they did not hunt ungulates at all, they moved into high elevation and lived on marmots. Because marmots were plentiful and high in nutrients and provided a food source that happens to be in high elevation where they needed to be to pick roots, herbs, forbs and things that they needed early in the summer. It allowed them to leave the ungulates alone during their calving and early months of rearing their young, there was an unwritten rule that you didn't shoot a female animal if possible, and there was a certain time of year that the people didn't hunt at all so that the species could replenish themselves and rear their young.

Customary law was not broken very often, they had teachings to avoid it, one of the most important teachings, "teknementem", means to take it upon yourself to look after it and safeguard it, another interpretation of that is to have respect for mother earth and not to waste any of her resources. Traditional laws were the binding tool that kept our people together as a nation, they worked together from one end of the nation to another, they all abided by the rules they came up with. They had people who policed it, they had elders who determined when and where you could go, protocol was followed so closely that if you needed to go into someone else's area because you were starving because fish or deer were in short supply, you asked permission to come into their area to hunt and your neighbour usually took you and went out into the land with you, but it always had some form of reciprocity, you would bring something to trade, if you were out of elk meat you'd bring salmon to trade etc.

(Anonymous interviewee)

3.10. Chapter Summary

This chapter begins by documenting events and activities that I participated in as a participant observer in the two case study communities, which illustrated the prominence of traditional harvesting activities in the Simpcw community as a practical expression of formal and informal rights. The participant observation in the non-Simpcw community reflects the possibility for the CF to operate differently from other forest tenures and highlights potential similarities between Simpcw and non-Simpcw NTFR harvesters. An overview of the NTFR sector including: NTFRs harvested, harvesting best practices, definition of NTFRs of special concern and interviewees views on treatment of plants of high cultural value is described. Potential management strategies for NTFRs are listed and differentiated by First Nations and non-First Nations perspectives.

Eight co-management propositions from the literature were applied to the data as well as three process-based indicators of co-management. A series of physical, socio-economic and cultural barriers to NTFR harvest and marketing were identified, as well as opportunities for overcoming many of these barriers. Barriers identified were: a shortage of time, dependence on other sectors, a lack of knowledge and education around NTFRs, a lack of access to desired species, fears, constraining laws and regulations, a lack of interest in the activity, social barriers, a lack of a market for NTFR products, scarcity of species due to destruction, low value of NTFR species and a lack of recognition of indigenous rights and title. Two additional themes arose that would need to be considered in any NTFR management strategy and require future research: the role of and views about commercialization of NTFRs and the role of and views about customary law.

4. Discussion

4.1. Limits to co-management

Co-management displays great potential as a route towards management of NTFRs. However, it is limited by 1) limited sharing of formal rights, 2) the knowledge of stakeholder representatives, 3) the nature of NTFRs as a common pool resource.

4.1.1. *Limited sharing of formal rights*

Even when co-management arrangements exist on a government-to-government level, directly between the federal and provincial government and First Nations government (FN), there is a limit on the degree of formal rights conferred by the provincial or federal government. An ideal co-management arrangement would see consensus reached on all decisions and completely equal distribution of power. However, in most cases, the provincial or federal government still holds the final authority in setting legislation and regulation. In a co-management arrangement between a community forest and a FN band this power sharing would be somewhat more diluted, since the CF must comply to provincial forestry legislation which, to a small degree, limits the management tools available to them. This limitation can prevent First Nations from achieving important ecological and cultural goals. For example, if co-management exists but burning the landscape is not legally allowed, then inadequate formal rights are shared to achieve FN understory management goals. Fire has traditionally been used as a resource management tool by FN across Canada, and is a contentious resource management issue.

4.1.2. *Co-management Representatives*

The second limit to co-management has to do with the FN representative on the co-management board. To use an example relating to traditional healing, the FN representative may not be the holder of medicinal/traditional knowledge and can

therefore not push forward an agenda that considers medicinal plant resources and cultural practices. First Nations communities have specific protocols around who holds knowledge and how it is conferred through generations, which could limit what a co-management board representative is able to say in that arena.

4.1.3. *NTFRs as a common pool resource*

Third, as a resource that is subtractable, difficult to exclude and currently unregulated, NTFRs are a common pool resource (CPR). Co-management of a CPR is limited by external factors such as population pressure, jurisdictions, markets and technology. Agrawal discusses that some of the major authors on common pool rights (Baland and Plateau, Wade, and Ostrom) do not adequately address the external social, institutional and physical environments' effect on the commons. Agrawal (2002) states that it is necessary to include these factors in any analysis, as variations in population and demographics will certainly affect the ability of users to follow resource management rules and norms. Similarly, integration with markets usually negatively affects common pool resource management (Agrawal, 2002).

For example, in relation to jurisdictions, resource co-management arrangements are nested within provincial and federal laws governing access to and commercialization of NTFRs. Although many communities would choose not to commercialize NTFRs, revenue from commercialization could provide funds to gather data on NTFRs and monitor the status of the resource, which would both contribute to its sustained usage. Should plants become commercialized, external market pressure could affect the rate of harvest and undermine management plans. As external and/or internal populations grow and interest in NTFRs grows, harvest pressures increase. In the cited case of the Pacific yew in Canada, a combination of local and migrant harvesters decimated a forest resource. Due to the size and topography of forests it is extremely difficult to exclude people from harvesting NTFRs.

4.2. Strategies to overcome limits to co-management

In order to overcome the barrier presented by governments holding the final authority, the solution is for First Nations and their allies to continue pressuring

governments to devolve more decision-making power. Establishing formalized joint FN and non-FN community forest partnerships, or formally collaborating on NTFR management within established CFs are both ways to indirectly obtain decision-making power from higher levels of government. It is in this regard that the scientific community can be of a great assistance. For the example of using fire as a resource management tool, scientific studies could be used to confirm its benefits. Studies documenting how First Nations have historically used fire to steward the land, as well as field research measuring the ecological effects of fire on species diversity, abundance and yield could be used to inform new management regimes.

In order to overcome the second barrier presented regarding representation on the co-management board, or more specifically, the authority of the representative, one solution would be to arrange a sub-committee within the community. For co-management of NTFRs occurring where a community forest acted as a co-management board, such a sub-committee could address traditional medicines and be made up of traditional healers who report when necessary to the larger co-management board.

To address over-harvesting incited by external market pressures, certification schemes such as the Forest Stewardship Council or other ecological and organic standards would allow resources to fetch a higher value. Depending on the goals and management practices of a particular business, a higher value could either reduce or increase the incentive to overharvest a species. In relation to non-market related population pressures on harvest, a co-management board or community forest could rely on building their legitimacy within a community in order to reduce pressure on the resource.

According to Pinkerton and John (2008), there are four stages to establishing the legitimacy of a management body: establishing local scientific and regulatory legitimacy, political legitimacy of the local authority, regulatory capacity and moral legitimacy of the local authority and last, the revitalization of environmental values (Pinkerton and John, 2008). If a co-management board or community forest demonstrates use of sound science and sets fair rules, it can achieve the first type of legitimacy. Political legitimacy can be obtained through such actions as defending the rights of local stakeholders to higher decision-making bodies. Broad community representation, open communication

and accountability to the surrounding community can lead to moral legitimacy. Last, if environmental values, in this case the sustained yield and biodiversity of plants, are preserved, then the co-management board has fully proved itself and any rules set in relation to harvest are more likely to be followed.

Empowering First Nations communities to access and use their traditional land according to their own volition is in the public interest. A lack of access and time spent on the land results in considerable lost knowledge and a decline in health. Pesek (Pesek, Abramiuk, Garagic, Fini, Meerman and Cal, 2009) describes how knowledge is stored in the environment.

Many mental concepts have external counterparts, that is, we often have stored in memory mental concepts of material things in the environment. With regard to concepts with external counterparts, these concepts are often accessed by being prompted by their external counterparts (Pesek et al., 2009, p.82).

In First Nations communities true learning and knowledge transmission requires engagement of all corners of the medicine wheel, as aspects of oneself: physical, spiritual, emotional and mental (Ross, 2006). In order to retain knowledge of NTFR management, gathering techniques, cultural uses, plant medicine and other healing practices, people must be physically present on the landscape, spiritually connected to the landscape, emotionally invested in it and also have had the mental knowledge passed down to them. It is in the public good to facilitate the retention of traditional knowledge.

There are many stakeholder groups to draw on as allies in promoting co-management as an avenue to sustainability (social, ecological and economic), legitimacy, physical and mental health. Resource management bodies could ally with government bodies such as Health Canada to study the health care savings occurring where indigenous communities have fuller management rights. If health is indeed improving where aboriginal land management is more developed, this makes a strong case for all forms of community-based resource management. Other potential allies include: organizations and academics working in the field of sustainable community development, small businesses and rural economic diversification organizations.

There are also many linkages and areas of common interest between small farmers, organic farmers and the NTFR sector. These two sectors rely on the same markets and often serve the same demographic. There are opportunities for sharing costs and resources between these two sectors in the area of value added processing, marketing and agrotourism. Yet another ally is the entire community of natural medicine practitioners, including herbalists, naturopaths and practitioners of traditional Chinese medicine. These individuals and associations representing them face the same restrictive laws concerning making health claims related to herbal medicine and their commercialization.

First Nations bring the asset of a long documented history of using particular species whereas other practitioners may be more formally organized with no documented history to speak of. A third strong ally is the research community. Scientists are actively studying the effectiveness of traditional medicinal plants and other forms of traditional healing. Anthropologists and ethnobotanists are also studying traditional stewardship practices to inform management strategies and determine sustainable yields. First Nations can provide them with qualitative knowledge about plant uses and gathering traditions and scientific research can serve to promote sustainable use of the species based on their widespread value.

5. Conclusion

Borrowing from Pacala and Socolow's stabilization wedge¹⁴ concept applied to climate change mitigation (Pacala and Socolow, 2004), NTFRs present potential as a stabilization wedge for a sustainable forest economy. If properly managed, the NTFR sector is one piece of the solution to the ecological, social and economic problems presented by current forest practices and the forest tenure system. Along with NTFRs, co-management arrangements can improve sustainability, lead to empowerment, improve equity, serve as a legitimizing tool for managers and institutions, and improve health. However, the NTFR sector remains unregulated, uncoordinated and scarcely documented. These are characteristics shared by the entire informal economy and are not necessarily negative but rather a reflection of the interests and status of the heterogeneous group of NTFR harvesters, buyers and sellers.

The informal economy provides numerous non-economic and economic benefits, which would likely be jeopardized by over-regulation or too much interference. Whether or not the sector would benefit from more management and coordination, both subsistence and commercial harvesters from both First Nations and non-First Nations communities face many barriers to accessing the species they desire. There is also much contention about the future of NTFRs due to First Nations' intellectual property rights, land claims and their constitutional right to their traditional activities and resources (which include NTFRs).

¹⁴ In Pacala & Socolow's example, a wedge represents an activity that reduces carbon emissions, but is a somewhat insignificant reduction on its own for stabilizing emissions as an acceptable global path. Wedges can be achieved by a number of different activities. The authors discuss different wedge options that could each be scaled up in order to cumulatively reach a reduction of carbon emissions that stabilize emissions at approximately 6 gigatons of carbon per year (year 2000 levels).

In agreement with Tedder et al. (2002)¹⁵, given the complex ecological, social and economic characteristics which define NTFRs, in this case study a mix of management systems should be used, including state-based, common property, individual and private-based drawing from the strengths of each in appropriate circumstances. Government agencies should maintain their prescriptive role, but minimize any operational role. The CF, as a corporate entity with power devolved from government has operational jurisdiction over NTFRs which they have not yet implemented. The co-management model might allow the CF to implement this jurisdiction in such a way that it complements rather than conflicts with existing common property and individual management systems.

The specific problem that my research addressed, within this bigger suite of issues, is the lack of a management strategy for NTFRs within the Wells Gray Community Forest and vicinity, taking a specific look at the objective of the Community Forest Agreement to work with First Nations. The goals of the study were to:

- Begin to describe ethical modes of harvesting NTFRs based on traditional and local knowledge (TK/LK), stewardship and protocols.
- Describe First Nations and non-First Nations perspectives on NTFRs and NTFR management and define areas of common interest and potential collaboration.
- Determine factors of and challenges to success in managing NTFRs, through the theoretical framework of co-management.
- Apply the case study method to a unique geographical location, the Simpcw First Nation and the Wells Gray Community Forest, describing NTFRs harvested and threatened NTFRs.

¹⁵ Tedder et al. (2002) conclude that for NTFRs, a mix of management systems should be used, drawing from the strengths of each in appropriate circumstances. The paper further concludes that, in principle, and in their case study of salal harvest, government agencies should maintain their prescriptive role, but minimize any operational role.

- Explore constraints and opportunities to use of NTFRs both on a subsistence basis or commercially.

5.1. Recommendations for ethical modes of harvesting

Ethical modes of harvesting NTFRs that reflect local knowledge (LK) and traditional knowledge (TK) include: respecting the plant by either leaving an offering for the plant, not damaging the plant, not harvesting too much from one plant and developing an overall respect for living ecosystems and being aware of the harvest location and quantity harvested. Location includes the idea of moving around from place to place, so as not to put too much pressure on one area. Another idea frequently mentioned was picking further off of the beaten path in order to leave the more accessible berries for those that are either less mobile, or less aware of where to retrieve NTFRs. Where locals pick year after year, monitoring one's own picking area for changes in quality and yield and responding accordingly was another common ethical practice.

In order to ensure that harvesting ethics are followed, managers need to create guidelines for the most desirable and commonly picked species, as well as the most threatened or rare species. Based on my research, the most commonly picked species in order of prominence are: huckleberry, mushrooms, soopalalie, saskatoon, evergreen boughs, cedar, blueberry, strawberry and raspberry. Species mentioned in my research as threatened or rare were: the yellow avalanche lily/yellow glacier lily, notably spring beauty or Indian potato, riceroot or chocolate lily, tiger lily, nodding onion, mushrooms, huckleberries, devil's club and labrador tea.

There is a need for further scientific research on the autoecology, regeneration, yield and quality of specific species to be conducted, as well as further socio-economic and cultural research on NTFRs. Two specific areas for future research from the case study communities are commercialization of NTFRs and the role of customary law in NTFR management. Ideally, future NTFR research would strive to be transdisciplinary due to the ecological, cultural and economic importance of the sector. Scientific research into traditionally used species would benefit from participation of First Nations

researchers and students. This body of knowledge together would provide the most comprehensive information for developing picking guidelines and policies.

Analysis of interview data, participant observation and the background literature strongly suggested that allocating harvesting opportunity to those who have sufficient plant identification and local knowledge would be best; indicating that only those who bear this knowledge, First Nations and non-First Nations, would have harvesting rights to NTFRs. This approach complies with constitutional law, ensures human health and safety, and is the precautionary course of action in absence of autoecological data. Where resources and capacity permit, plant identification and local knowledge could be promoted and shared through education in order to facilitate accessibility to the resource for interested individuals. The development of a short course to certify individuals in wild harvesting best practices and plant identification skills, based on traditional and local knowledge is a potential option.

5.2. NTFR Constraints and Opportunities

The research determined the constraints and opportunities for use (personal, subsistence or commercial) of NTFRs. There are a variety of ways in which existing barriers for harvesting and marketing NTFRs are overcome in an informal way and are managed in a *de facto* way by the stewardship of the individual pickers. The NTFR sector persists despite barriers for sustenance and for economic enterprise. In summary, with respect to barriers there seem to be fewer opportunities to overcome cultural and social barriers and more mechanisms to overcome physical barriers. This could be due to the fact that social and cultural barriers are more ingrained and internal to an individual or a community, whereas physical barriers are externally driven from higher levels of jurisdiction.

Through the participant observation research it was evident that NTFRs were used in both case study communities on a daily basis with regards to lifestyle, food, spirituality, culture and healing, with a more prevalent spiritual use in the FN community. In addition, there were many families and individuals that harvested NTFRs for sale in the formal and informal economy. The desire of the Simpcw community to promote and

support traditional activities, despite challenges to participation, was overcome by strong leadership and a community core. It was also evident that within the Simpcw community outside visitors and tourism were seen as an opportunity to promote, share and raise awareness of culture.

5.3. Conclusions and Recommendations

This section begins by describing two overarching conclusions which are followed by procedural recommendations for community forest managers.

5.3.1. Conclusions

1) Informal co-management agreements can precede or replace formal legal arrangements for management of NTFRs.

Co-management arrangements often occur in the informal domain as a way of experimenting with joint management direction before treaty negotiations are settled or in lieu of treaty negotiations. These informal co-management agreements are non-prejudicial to formal legal agreements such as land claims and treaty negotiations. CFs are well situated to make informal rules with FN about NTFRs that meet the needs of both parties. CFs have the delegated power to regulate use of NTFRs in their tenure area without the involvement of senior government. Beyond NTFRs, the Simpcw, and other First Nations have the opportunity to advance their interests through informal agreements without threatening formal rights. In fact, informal work can inspire subsequent legal agreements.

One example of this is the case of intellectual property rights. Since the formal legal system inadequately recognizes ownership of collective knowledge, informal institutions must be relied upon to preserve collective knowledge. Another example from this research are gathering sites. It is evident that greater legislation is needed to protect sacred sites and traditional food sources, and First Nations often struggle to build the case for title and rights to intangible cultural heritage. Until formal mechanisms exist for protecting IPRs and cultural heritage, there is potential for informal co-management arrangements to support assertion of *de facto* rights.

Formal management of NTFRs applying existing government legislation and regulation can create more barriers to their use on a sustenance or commercial basis. Therefore, it would be desirable for the CF, working with the FN, to make its own regulations which can be applied with minimal cost and effort. Engaging in some of these recommended activities could have the same benefits as formal co-management with respect to improving sustainability of the NTFR resource, building the legitimacy of the CF organization and improving FN self-identity as well as the physical and mental health of all surrounding communities through improved access to traditional food and medicine and increased power-sharing and responsibility.

First Nations enact informal rights beyond what is defined by the Canadian legal system. Through internal and traditional power structures and collective choice rule making, First Nations communities have historically allocated access to key resources and many continue to do so currently. The participants in the informal sector also enact their *de facto* right to NTFRs since they are a CPR. Participants in the informal sector may or may not have established collective choice rules in place. Because NTFRs are part of an informal sector with little formal governance, harvesters and buyers have grown accustomed to accessing the resource with an absence of government intervention. This baseline of freedom, combined with the multitude of benefits provided by the informal NTFR sector would likely incite anger from the sector if rules were to change and were formal regulations imposed. Experimental co-management would be a way to test more formal organization of the sector in an open, collaborative way.

One management strategy that could be tested through experimental co-management is the burning of selected landscapes to promote berry production. While this practice is currently not permitted, Community Forests wishing to encourage and support NTFR harvesting and increase berry yields could act as a catalyst and liaison between local First Nations and the Ministry of Forests, Lands and Natural Resource Operations in order to re-introduce the traditional management practice of landscape burning for berry patch stewardship.

2a) The case study demonstrates success in both co-management outcomes and processes.

In relation to outcomes, due to existing relationships and social capital both within and between the First Nation and non-First Nation community, there are examples where significant and threatened species have been protected from development. However, these examples remain rare; communication needs to be more effective and areas excluded from logging need to be monitored in an on-going fashion in order to ensure compliance with site plans. In relation to process, the research demonstrates preconditions to developing co-management arrangements through existing high levels of trust and goodwill. Results also indicate that in the case study community, there is already a foundation of trust, sharing of culture and goodwill, upon which co-management arrangements could be built.

Success in both process and outcomes illustrate that informal local processes are often ahead of senior governments. Local communities are more directly affected by how NTFRs are managed and are therefore willing to dedicate time and energy to ensure they are protected where necessary and responsibly used. Regulation and taxation of NTFRs would be a cumbersome administrative process for government and for harvesters relative to the size of the sector. Informal management is more efficient and effective at this time.

2b) When analyzed according to eight co-management propositions selected from the literature, the case study revealed two preconditions of co-management and three supporting conditions of co-management.

There were no references to negotiation of experimental co-management of NTFRs. There were a few indirect references to willingness to contribute financially to NTFRs, indicated by investment in overall forestry planning and coordination. There was one indirect reference to data collection that could inform co-management – this was a traditional use study, but the data was not used in planning or management. There were a few references to re-circulating wealth in the community for social, economic and environmental objectives. However, there was no evidence of wealth being directly reinvested into NTFR management. There were a few references to conserving and enhancing culture and resources simultaneously with respect to celebrating the culture and ecology of salmon at the annual First Fish ceremony. There were no references to external support and discussion of co-management, but outside support for the NTFR

sector was identified as a great need in order to propel the sector forward. This external support can be created by building linkages with allies and stakeholder groups. There were a large number of references to an energy centre in the community propelling forward the co-management process and NTFR awareness in general. The ability to respond to community interest in NTFRs, when and where it comes forth, is one characteristic that can set apart a community forest from other tenure types. However, since community forests are often struggling to survive on a small land base, successfully implementing these recommendations requires the participation of a local champion. The case study forest was lucky to have such a champion during the time of my study.

There were numerous references to stock depletion in the form of smaller yields and availability of huckleberries and blueberries. There were numerous references to the process-based outcomes of: trust and communication, sharing of culture and goodwill. The presence of each these process-based outcomes might indicate an openness to co-management. The perspective that stocks of some species are being depleted and the strength of the energy centre in the community are both strong preconditions for co-management, but the other six preconditions were lacking.

5.3.2. *Short term procedural recommendations for managers*

Since the NTFR sector remains small in scale and in scope in the case study communities, formal co-management is not realistic at this time. However, co-management is identified as a potential accommodation strategy in the Simpcw First Nation's official accommodation policy and has future potential. Tedder (2008) shows that the appropriate level of management for NTFRs depends on level of risk to resource, and level of rent capture lost. In the WGCF context, there is neither a high level of risk to NTFR resources, nor a concrete idea of rent capture lost. However, NTFRs optimize social, economic and environmental benefits in the community, and thus fall under the mandate of the WGCF. Therefore, in the short term, as capacity permits, my research indicates that the case study community forests' role could focus on two immediate objectives:

- 1) relationship building with FN and,
- 2) raising awareness and educating the public about economically and culturally valuable NTFRs.

These two objectives are recommended for the short term because the research has revealed that awareness of NTFRs and an appreciation of their economic, social and cultural value need to precede co-management. Further, co-management arrangements or settlement of land claims in a region must precede any commercialization of NTFRs to avoid conflict and damage to an existing foundation of trust and communication. Co-management arrangements need to be framed as non-prejudicial to land claims, as is the case in many existing co-management arrangements elsewhere. However, they can be used as experiments for communities future arrangements and as a tool for building legitimacy within First Nations communities. MOUs are recommended as a step towards formalizing informal agreements providing a clear understanding and some accountability to the arrangement.

5.3.3. *Longer term procedural recommendations for managers*

Commercialization of medicinal NTFRs

At this time, commercialization of medicinal NTFRs is not seen as ethical by FN in the case study community, so forest managers should not consider this avenue of economic development for the tenures that they manage. This perspective differs between individual and between communities: in some areas commercialization of NTFRs may be a possible avenue for economic diversification. Permitting of commercial harvesting without FN consultation and accommodation would run counter to the process based indicators of co-management present in the case study of trust and open communication, goodwill and sharing of culture.

Consultation and accommodation

Community forests are also often restricted by resources and capacity, but it is nonetheless in the long-term interest of licence holders to address and accommodate FN concerns and informal rights to the best of their ability. It is also in the public interest to facilitate the retention of traditional knowledge. Consultation and accommodation are

the legal responsibility of government and, as third party by legal definition, are not required by community forests. However, third parties, such as the WGCF, are often better positioned to achieve consultation and accommodation as it meets the terms and policies laid out by the First Nation in question. This certainly applies for NTFR management, where CFs have been delegated the authority to manage the resource. The formal consultation and accommodation policy that the Simpcw have developed can guide managers in their communications with the band. However, delegated authority and access to guiding documents does not guarantee that either party has the staff resources or capacity to complete successful consultation and accommodation.

Benefitting from NTFRs

In order to reduce destruction of useful or desirable species, the location of abundant stands of commonly harvested NTFRs should be communicated by forest managers to the surrounding community before timber harvest in order to give community members the opportunity to harvest species or to request protection of certain areas and species. Insurance coverage and liability of a community forest would need to be clarified prior to releasing such information. Existing forest practices that protect and encourage NTFR growth (setting aside wildlife tree patches that are inclusive of NTFRs, protecting rare ecosystems, logging in winter etc. see Table 3.2.2) and support NTFR use should be practiced when possible.

Permits for commercial use

Ultimately, if an individual desires to harvest non-medicinal NTFRs on a commercial scale, there should be a permitting process and regulations should be put into place by the CF in order to prevent over-harvesting. A permitting process and accompanying regulations would have to be informed by research on the baseline quantity, growth and yield of the species in question in order to set harvest rate at a sustainable level. Any permitting or regulatory process would have to be equally informed by ethical considerations described in this research, which were derived from local and traditional knowledge. So as not to burden forest managers and not to discourage small scale entrepreneurs, administration and requirements of this process should be minimal.

5.4. Importance of Results

The results of this research are important because:

1) Documenting commonly used species in the area can help to preserve First Nations intellectual property rights to these plants.

2) Determining ethical modes of harvesting NTFRs can preserve the species for future generations and inform harvesters of the proper way to treat the plants.

3) Overcoming barriers to accessing NTFRs through either improved formal management or awareness of the informal strategies currently employed can improve and support access to NTFRs and thus benefit the psychological and physical health of communities.

5) Understanding the differences and similarities between FN and non-FN views of NTFR and NTFR management aids the development of local and global solutions for joint governance of NTFRs.

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Appendices

Appendix A

Reasons for Harvesting NTFRs

<i>Reasons for Harvesting NTFRs</i>	<i>References</i>
Health and Healing	7
General well being	3
Financial benefit for individual or community economic development	5
To be outside	2
Enjoyable/ it feels good	6
Tradition	3
To teach children	3
Sustenance	1
Socializing/ to build community	2
To be part of natural cycle/ it's what we're meant to do	3

Appendix B

Memorandum of Understanding

between the Simpcw Band Council

and Samantha Charlton (from Simon Fraser University) (“the researchers”) (collectively referred to herein as the “Parties”)

BACKGROUND

A. The Simpcw Band Council supports and approves its participation in the research project entitled “Co-management of Non-Timber Forest Projects”.

B. The Parties have entered into this collaborative research project to work towards the following objectives:

- a) Facilitate opportunities for discussion and determine management of NTFPs between different stakeholder groups.
- b) Determine factors for successful collaboration between different stakeholder groups in managing NTFPs.
- c) Identify whether collaborative management increases understanding and cooperation between and within sectors beyond NTFP management.
- d) Define the salient considerations when managing NTFPs of high cultural value.
- e) Propose ways first nations can exercise rights in traditional medicine through management plans.

C. In support of these goals and objectives, the Parties will seek to combine high standards of scientific research with recognition, integration, and protection of Simpcw and Secwepemc title, rights (including intellectual property rights), cultural values, and traditional knowledge.

D. The NTFP researchers and collaborators agree that Simpcw and Secwepemc customary cultural practices and traditional knowledge will not be released or become the property of the external institution or its supported or affiliated researchers without the written permission of the Simpcw First Nation.

E. The Parties wish to carry out this collaborative research project in the context of the following principles:

- a) respect for the title, rights (including intellectual property rights) and interests of all partners involved
- b) transparency in all dealings with respect to the research project

- c) observation of cultural customs and practices with respect to traditional knowledge; and
- d) collaborative decision-making between the Parties about issues of mutual interest.

THEREFORE, THE PARTIES HAVE THE FOLLOWING UNDERSTANDING:

1. This agreement is guided by the principles and guidelines which is attached to this MOU and forms an intrinsic part thereof. In exchange for the researcher accepting and abiding by these principles and guidelines, the Simpcw First Nation will permit for the researcher to conduct research within Simpcw traditional territory and will actively assist the research process with pertinent resources and support.

Conduct of Research in the Community

2. Researchers will at all times respect the traditional knowledge, cultural customs, traditional practices, title, rights and interests of Simpcw and Secwepemc community members with respect to the identification, location and use of non-timber resources. Researchers shall respect private, confidential, and/or sacred knowledge of certain culturally valuable non-timber resources, and agree not to document that knowledge without permission. Chiefs, Elders and members may provide guidance and advice on these matters to clarify what knowledge should be kept confidential.

3. Research results will be shared with community members in a format and schedule mutually agreeable to both Parties, and shall include at a minimum quarterly progress reports to the Simpcw First Nation.

4. Researchers will inform the Simpcw First Nation of their work plan, location of research, and timeline for activities while on Simpcw territories.

Disposition of Research Materials

5. The researchers will interview Simpcw elders, community members, Simpcw first Nation staff and leadership. With the consent of the interviewee, the researchers will provide the Simpcw Band council with a copy of their interview recording, notes and transcript upon completion of the study. Original audio/visual recordings and originals of notes, transcripts, photographs and other records will be kept by the researchers.

6. Both parties agree to adhere to any confidentiality or use restrictions required by ethical research standards or requested by individual community members under the terms of their written consent.

Publication

7. Subject to the terms of the arrangement set out in this Memorandum of Understanding, the Simpcw First Nation hereby grants the researchers a licence to publish for scholarly and educational purposes the information collected during the course of the research project. The researcher will not publish any information collected without providing opportunity for the Simpcw Band Council to first review and approve release of the documents.

8. The researchers will ensure that two copies of all publications, conference papers and other educational and scholarly materials produced in the course of the project be deposited with the Simpcw Band Council.

9. Any traditional knowledge shared remains the property of the Simpcw. Copyright over scholarly materials, publications, and presentations in the case of this project shall rest with the researcher. The source and role of the Simpcw First Nation in contributing to the project will be properly acknowledged, and co-authorship will be used when possible and appropriate.

Dispute Resolution

10. In case of a dispute arising from the implementation of this Memorandum of Understanding, the Parties shall exhaust alternative dispute resolution models such as negotiation and mediation before employing other forms of dispute resolution such as arbitration or adjudication. Parties shall act in good faith to resolve the dispute.

Insurance

11. The parties acknowledge that they have adequate liability insurance applicable to their officers, employees, and agents while acting within the scope of their employment by the parties. Therefore, each party hereby assumes any risks of personal injury and property damage attributable to the negligent acts or omissions of the party and its officers, employees, and agents.

Notification

12. Any notice of written communication required under this agreement may be given as follows:

Samantha Charlton, 2049 Venables St. Vancouver, BC, V5L 2J1. 778-883-2427

Simpcw First Nation, P.O. Box 220, Barriere, British Columbia, V0E 1E0, 250-672-9995

Amendments

13. Amendments to this Memorandum of Understanding must be in writing and signed by authorized representatives of the Simpcw First Nation and the researchers.

Duration of Agreement

14. The term of this Memorandum of Understanding is from March 23, 2011, to September 30, 2012, and may be renewed. The Parties will review this agreement annually to ensure it meets the requirements of both parties.

15. The Parties may terminate this Memorandum of Understanding in writing at any time subject to 60 days notice.

SIGNED BY THE PARTIES ON THE DATES SET OUT BELOW

Name: Samantha Charlton

Signature:

Affiliation: Masters Student, Simon Fraser University

Date: June 1, 2011

Name: _____ Signature:

Affiliation: _____

Date: _____

Appendix C

Interview consent form

Consent Form. Co-management of Non-timber forest resources: A case study of Devil's Club in Well's Gray Community Forest. Application Number: 2011s0123

SCHOOL OF RESOURCE AND ENVIRONMENTAL MANAGEMENT

FACULTY OF THE ENVIRONMENT

SIMON FRASER UNIVERSITY BURNABY, BRITISH COLUMBIA

CANADA V5A1S6

Telephone: (778) 782-4659 Fax:

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February 11, 2011

I, Samantha Charlton, am a graduate student at Simon Fraser University's School of Resource and Environmental Management, and am working under the supervision of Dr. Evelyn Pinkerton. Dr. Pinkerton has specialized for the last 20 years in the study of co-management and of adjacent natural resources by rural communities. This research is an extension of her current research, assessing how and to what extent community forests provide a more sustainable alternative to the current forest management system in British Columbia, funded by the Social Science and Research Council. Collaborators on this current piece of research include the Wells Gray Community Forest (WGCF) and the Simpcw First Nation. Evelyn and I have been working collaboratively with these parties both at the proposal stage and at the stage of defining specific research priorities and sub-components of the research. The research will occur from May 2011-August 2012.

Through conducting interviews, we would like to understand what are the factors of successful collaboration in managing Non-timber forest products, to identify whether managing for cultural values increases understanding and cooperation between and within sectors and in doing so, improve the understanding of how aboriginal people can exercise rights in traditional medicine. This research can inform how sustainable harvest can occur in coordination with logging. By moving beyond the concept of forests as a timber crop, this research will support and inform ecosystem-based management, an approach that calls for managing for biological sustainability while accounting for human needs and values. The research will also provide a management plan for cultural keystone species (CKS) such as Devil's Club in WGCF, with lessons that can be applied to other CKS's in other Community Forests across Canada.

This research is required to operate under the ethical principles of the university, which are consistent with our own personal ethics. In accordance with these, your confidentiality will be protected to the full extent permitted by law. Information and opinions you share with us will be kept anonymous and not be attributed to you unless you wish them to be. If you prefer to have certain statements connected to you specifically, please let us know, as we would be happy to include your name in any research papers we produce.

Data in the form of electronic files and rough filed notes will be kept for 5 years in a locked office in the Resource and Environmental Management department and on a secure, password encrypted computer server. We will supply you a copy of your own interview on request. Your participation is voluntary, so we respect your right to end our communication at any point. You will have access to any material published out of the research if you inform us that you desire such access and provide an email or postal address. All the research results

Appendix D

Interview guide: Harvesters and Community Members

Do you have any questions about the study?

Do you mind if I record our conversation?

SECTION 1: Intro

Please tell me about what you do? (Including current involvement in forestry, the community forest or harvesting practices)

How long have you been involved in this?

NTFPs in the community

- 1) Are you familiar with Non-timber forest products or medicinal or culturally valuable plants in the community forest/in the area? What do others in area use?
- 2) What are your harvesting best practices?
- 3) Do you know of any NTFPs that are threatened due to scarcity, overuse or overharvesting?
- 4) Are there any NTFPs that are more susceptible to overharvest than others?
- 5) Are there any NTFPs that are quite valuable economically?

How much are they worth in \$'s?

- 6) If respondent harvests NTFPs ask, why do you engage in this practice?
- 7) If respondent does not harvest NTFPs, ask what would inspire/cause you to engage in this practice?

What are the barriers to usage? Cultural? Physical?

8) If respondent seems quite familiar with different species. Please assign each NTFP you have named a rank between 1 and 10 for how much you value them (economically, spiritually, culturally), (give as many NTFPs a rank as you like, with 1 being the most important

SECTION 2: NTFP Management. Priorities and input

1) Are there any NTFPs which should not be harvested at all until people know more about them and have had a chance to have a thorough discussion of them?

Do you feel that only First Nations should be allowed to harvest certain plants in the CF?

- 2) Do you know much about the Community Forest?
- 3) Do you know where to learn more or obtain information?
- 4) Do you know if the Community Forest is concerned with NTFPs?
- 5) What are some ways that the Community forest could facilitate economic development of NTFPs?

Accessing markets

Communicating on abundance

Providing access maps

Other?

6) What are some ways that the Community forest could ensure sustainable harvesting practice of NTFPs?

7) What would have to change in order for NTFPs to become a higher management priority?

Prompts

Locally? Regionally? Nationally? Globally?

Regulatory Changes? Economic Changes?

Who would have to be involved?

What would the steps be?

8) What knowledge would be needed for planning for harvesting and sustainable long-term use of NTFPs?

Prompts

Whose knowledge?

What knowledge?

How should this knowledge be included?

SECTION 3: Cooperation, Relationships and Understanding

1) Did you participate in the NTFP Symposium in late August 2010? If yes continue,
What did you think of the event?

Was there a good turnout?

What were the outcomes?

Were there any memorable presentations or pieces of knowledge that were new to you?

2) What would be your desired frequency of such meetings/gatherings?

3) What would be your ideal format for future knowledge sharing?

4) Are there any questions that I should've asked which I did not ask?

5) Do you have anything additional to add?

6) Do you want to see the results? E-mail address:

7) Can I contact you with further questions or to clarify anything?

Appendix E

Interview guide: Community Forest Board

SECTION 1: NTFPs in the community

1) Are you familiar with Non-timber forest products or medicinal or culturally valuable plants in the community forest/in the area?

Which have you heard of?

Have you used any?

Where do you obtain them?

2) Are you aware of other perspectives on NTFPs?

Do you know of other people using NTFPs?

Which do they use and what for?

Where do they obtain them?

3) Do you know of any NTFPs that are threatened due to scarcity, overuse or overharvesting?

4) Are there any NTFPs that are more susceptible to overharvest than others?

5) Are there any NTFPs that are quite valuable economically?

How much are they worth in \$'s?

6) Have you harvested NTFPs yourself?

If yes, why do you engage in this practice?

If no, what would inspire/cause you to engage in this practice?

7) What are the barriers to usage? Cultural? Physical?

8) Please assign each NTFP you have named a rank between 1 and 10 for how much you value them (economically, spiritually, culturally), (give as many NTFPs a rank as you like, with 1 being the most important)

SECTION 2: NTFP Management. Priorities and input

1) Are there any NTFPs which should not be harvested at all until people know more about them and have had a chance to have a thorough discussion of them?

Do you feel that only First Nations should be allowed to harvest certain plants in the CF?

2) Does the current management plan and Community forest mandate consider NTFPs?

3) Do site plans consider NTFPs?

4) Which parties give input into Community Forest management?

5) How do you think NTFPs should be managed?

6) What is the vision of the Community Forest for NTFP management?

7) How have they been managed in the past? and what priority have they been given?

8) To what extent are NTFPs seen as an opportunity or constraint on Community Forest management?

9) Would the community forest curtail timber extraction for NTFPs?

To what extent?

Why?

Why not?

10) Is there any room for site plans to be modified to address NTFP issues? Why or why not?

11) What would have to change in order for NTFPs to have a higher priority?

Locally? Regionally? Nationally? Globally?

Regulatory Changes? Economic Changes?

Who would have to be involved?

What would the steps be?

12) Who has input into the Community Forest management plan? Manager? Board? Local knowledge?

13) Is there any interest in including local knowledge in planning for harvesting and sustainable long-term use of NTFPs?

Whose knowledge?

What knowledge?

How should this knowledge be included?

SECTION 3: Cooperation, Relationships and Understanding

1) What stakeholders does the Wells Gray Community Forest Board/Simpcw First Nation/ District of Clearwater engage with?

2) What is the relationship like between your organization and _____?

3) What is the relationship like between your organization and _____?

4) What are the _____ priorities for forest use?

5) What are the _____ priorities/views on forest use?

6) How would you like this relationship to be/ to change?

7) What do you think the Simpcw (or CF) are doing about NTFPs?

8) Do the Simpcw currently use the community forest land base?

9) Did you participate in the NTFP Symposium in late August 2010?

If yes continue,

What did you think of the event?

Was there a good turnout?

What were the outcomes?

Were there any memorable presentations or pieces of knowledge that were new to you?

10) Did you participate in the Community to Community workshop at Chu Chua on March 18th?

If yes continue,

What did you think of the workshop?

What do you feel were the outcomes?

Have you taken any actions related to that day?

11) Did the symposium and/or workshop increase understanding and communication? Were these useful to Simpcw/CF?

12) What would be your desired frequency of such meetings/gatherings?

13) What would be your ideal format for future knowledge sharing?

14) What are useful events/ occurrences for continued cultural understanding?

Symposiums

Workshops

Conferences

Conference calls

Face to face smaller meetings

E-mail contact

Social events including a wider community

Other?

15) Are there any questions that I should've asked which I did not ask?

16) Do you have anything additional to add?

Appendix F

Interview guide: Foresters

Do you have any questions before we begin?

Do you mind if I record this interview?

SECTION 1: NTFPs in the community

SECTION 1: Intro

Please tell me about what you do? (Including current involvement in forestry, the community forest or harvesting practices)

How long have you been involved in this?

NTFPs in the community

1) Are you familiar with Non-timber forest products or medicinal or culturally valuable plants in the community forest/in the area?

Which have you heard of?

Have you used any?

Where do you obtain them?

Do you know of other people using NTFPs?

Which do they use and what for?

Where do they obtain them?

2) What are your harvesting best practices?

Timing

Location

Time of Day

Season

Soil

4) Do you know of any NTFPs that are threatened due to scarcity, overuse or overharvesting?

5) Are there any NTFPs that are more sensitive to disturbance than others?

6) Are there any NTFPs that are quite valuable economically?

How much are they worth in \$'s?

6) Have you harvested NTFPs yourself?

If yes, why do you engage in this practice?

If no, what would inspire/cause you to engage in this practice?

7) What are the barriers to usage? Cultural? Physical?

8) Please assign each NTFP you have named a rank between 1 and 10 for how much you value them (economically, spiritually, culturally), (give as many NTFPs a rank as you like, with 1 being the most important)

SECTION 2: NTFP Management. Priorities and input

1) Are there any NTFPs which should not be harvested at all until people know more about them and have had a chance to have a thorough discussion of them?

Do you feel that only First Nations should be allowed to harvest certain plants in the CF?

2) Does the current management plan mandate consider NTFPs?

3) Do site plans consider NTFPs?

4) Which parties give input into Forest management?

5) How do you think NTFPs should be managed?

6) What is the vision of the Simpcw First Nation for NTFP management?

7) How have they been managed in the past? and what priority have they been given?

8) To what extent are NTFPs seen as an opportunity or constraint on Forest management?

9) Would the Simpcw First Nation forest curtail timber extraction for NTFPs?

To what extent?

Why?

Why not?

10) Is there any room for site plans to be modified to address NTFP issues? Why or why not?

11) What would have to change in order for NTFPs to be considered further in forest practices?

Locally? Regionally? Nationally? Globally?

Regulatory Changes? Economic Changes?

Who would have to be involved?

What would the steps be?

12) Who has input into the Forest management plan? Manager? Board? Local knowledge?

13) Is there any interest in including local knowledge in planning for harvesting and sustainable long-term use of NTFPs?

Whose knowledge?

What type of knowledge?

How should this knowledge be included?

SECTION 3: Cooperation, Relationships and Understanding

1) What stakeholders does the Wells Gray Community Forest Board/Simpcw First Nation/ District of Clearwater engage with?

2) What is the relationship like between your organization and _____?

3) What is the relationship like between your organization and _____?

4) What are the _____ priorities for forest use?

5) What are the _____ priorities/views on forest use?

6) How would you like this relationship to be/ to change?

7) What do you think the Simpcw (or CF) are doing about NTFPs?

8) Do the Simpcw currently use the community forest land base?

9) Did you participate in the NTFP Symposium in late August 2010?

If yes continue,

What did you think of the event?

Was there a good turnout?

What were the outcomes?

Were there any memorable presentations or pieces of knowledge that were new to you?

10) Did you participate in the Community to Community workshop at Chu Chua on March 18th?

If yes continue,

What did you think of the workshop?

What do you feel were the outcomes?

Have you taken any actions related to that day?

11) Did the symposium and/or workshop increase understanding and communication? Were these useful to Simpcw/CF?

12) What would be your desired frequency of such meetings/gatherings?

13) What would be your ideal format for future knowledge sharing?

14) What are useful events/ occurrences for continued cultural understanding?

Symposiums

Workshops

Conferences

Conference calls

Face to face smaller meetings

E-mail contact

Social events including a wider community

Other?

15) Are there any questions that I should've asked which I did not ask?

16) Do you have anything additional to add?

17) Are you interested in a copy of the results of this research? E-mail address:

18) Can I contact you with further questions or to clarify anything from the interview?

Appendix G

Interview guide: Simpcw Councillors

Do you have any questions before we begin?

Do you mind if I record this interview?

SECTION 1: NTFPs in the community

SECTION 1: Intro

Please tell me about what you do? (Including current involvement in forestry, the community forest or harvesting practices)

How long have you been involved in this?

NTFPs in the community

1) Are you familiar with Non-timber forest products or medicinal or culturally valuable plants in the community forest/in the area?

Which have you heard of?

Have you used any?

Where do you obtain them?

Do you know of other people using NTFPs?

Which do they use and what for?

Where do they obtain them?

2) What are your harvesting best practices?

Timing

Location

Time of Day

Season

Soil

4) Do you know of any NTFPs that are threatened due to scarcity, overuse or overharvesting?

5) Are there any NTFPs that are more sensitive to disturbance than others?

6) Are there any NTFPs that are quite valuable economically?

How much are they worth in \$'s?

6) Have you harvested NTFPs yourself?

If yes, why do you engage in this practice?

If no, what would inspire/cause you to engage in this practice?

7) What are the barriers to usage? Cultural? Physical?

8) Please assign each NTFP you have named a rank between 1 and 10 for how much you value them (economically, spiritually, culturally), (give as many NTFPs a rank as you like, with 1 being the most important)

SECTION 2: NTFP Management. Priorities and input

1) Are there any NTFPs which should not be harvested at all until people know more about them and have had a chance to have a thorough discussion of them?

Do you feel that only First Nations should be allowed to harvest certain plants in the CF?

2) Does the current management plan mandate consider NTFPs?

3) Do site plans consider NTFPs?

4) Which parties give input into Forest management?

5) How do you think NTFPs should be managed?

6) What is the vision of the Simpcw First Nation for NTFP management?

7) How have they been managed in the past? and what priority have they been given?

8) To what extent are NTFPs seen as an opportunity or constraint on Forest management?

9) Would the Simpcw First Nation forest curtail timber extraction for NTFPs?

To what extent?

Why?

Why not?

10) Is there any room for site plans to be modified to address NTFP issues? Why or why not?

11) What would have to change in order for NTFPs to be considered further in forest practices?

Locally? Regionally? Nationally? Globally?

Regulatory Changes? Economic Changes?

Who would have to be involved?

What would the steps be?

12) Who has input into the Forest management plan? Manager? Board? Local knowledge?

13) Is there any interest in including local knowledge in planning for harvesting and sustainable long-term use of NTFPs?

Whose knowledge?

What type of knowledge?

How should this knowledge be included?

SECTION 3: Cooperation, Relationships and Understanding

1) What stakeholders does the Wells Gray Community Forest Board/Simpcw First Nation/ District of Clearwater engage with?

2) What is the relationship like between your organization and _____?

3) What is the relationship like between your organization and _____?

4) What are the _____ priorities for forest use?

5) What are the _____ priorities/views on forest use?

- 6) How would you like this relationship to be/ to change?
- 7) What do you think the Simpcw (or CF) are doing about NTFPs?
- 8) Do the Simpcw currently use the community forest land base?
- 9) Did you participate in the NTFP Symposium in late August 2010?
- If yes continue,
 What did you think of the event?
 Was there a good turnout?
 What were the outcomes?
 Were there any memorable presentations or pieces of knowledge that were new to you?
- 10) Did you participate in the Community to Community workshop at Chu Chua on March 18th?
- If yes continue,
 What did you think of the workshop?
 What do you feel were the outcomes?
 Have you taken any actions related to that day?
- 11) Did the symposium and/or workshop increase understanding and communication? Were these useful to Simpcw/CF?
- 12) What would be your desired frequency of such meetings/gatherings?
- 13) What would be your ideal format for future knowledge sharing?
- 14) What are useful events/ occurrences for continued cultural understanding?
- Symposiums
 Workshops
 Conferences
 Conference calls
 Face to face smaller meetings
 E-mail contact
 Social events including a wider community
 Other?
- 15) Are there any questions that I should've asked which I did not ask?
- 16) Do you have anything additional to add?
- 17) Are you interested in a copy of the results of this research? E-mail address:
- 18) Can I contact you with further questions or to clarify anything from the interview?

Appendix H

Interview guide: Clearwater councillors

SECTION 1: Intro

Please tell me your job title?

How long have you been in this role?

SECTION 2: NTFPs in the community

1) Are you familiar with Non-timber forest products or medicinal or culturally valuable plants in the community forest/in the area?

Which have you heard of?

Have you used any?

Where do you obtain them?

2) Do you know of any NTFPs that are threatened due to scarcity, overuse or overharvesting?

3) Are there any NTFPs that are more susceptible to overharvest than others?

4) Are there any NTFPs that are quite valuable economically?

How much are they worth in \$'s?

5) If respondent has harvested NTFPs, why do you engage in this practice?

If no, what would inspire/cause you to engage in this practice?

6) What are the barriers for community members to utilize NTFPs either as an economic activity or to supplement diet etc.? Cultural? Physical?

SECTION 2: NTFP Management. Priorities and input

1) Do you know if the Community Forest is concerned with NTFPs?

2) What are some ways that the Community forest could facilitate economic development of NTFPs?

Accessing markets

Communicating on abundance

Providing access maps

Other?

3) Do you see the NTFP sector as an opportunity for Clearwater and surrounding area?

Why or Why not?

4) Does the District of Clearwater invest in job creation/ training?

5) What types of job creation/training are attractive?

6) What would be required to change for investment in the NTFP sector to become appealing?

7) What would have to change in order for NTFPs to be seen as more of an opportunity in the community? (by District or by community members themselves)

Locally? Regionally? Nationally? Globally?

Regulatory Changes? Economic Changes?

Who would have to be involved?

What would the steps be?

8) What knowledge would be needed for planning for harvesting and sustainable long-term use of NTFPs?

Whose knowledge?

What knowledge?

How should this knowledge be included?

SECTION 3: Cooperation, Relationships and Understanding

1) What is the relationship like between the District of Clearwater and the Community Forest?

2) What is the relationship like between the District of Clearwater and the Simpcw First Nation?

3) How would you like to see either of these relationships to be/ to change?

4) What are the District of Clearwater's priorities for forest use?

5) In your awareness, do the Simpcw currently use land base surrounding the District of Clearwater?

6) Did you participate in the NTFP Symposium in late August 2010?

If yes continue,

What did you think of the event?

Was there a good turnout?

What were the outcomes?

Were there any memorable presentations or pieces of knowledge that were new to you?

7) Did the symposium increase understanding and communication? Was this useful to District of Clearwater?

8) What would be your desired frequency of such gatherings?

9) What would be your ideal format for future knowledge sharing?

10) What are useful events/ occurrences for continued cultural understanding between the Clearwater community and the Simpcw First Nation?

Symposiums

Workshops

Conferences

Conference calls

Face to face smaller meetings

E-mail contact

Social events including a wider community

Other?

11) Are there any questions that I should've asked which I did not ask?

12) Do you have anything additional to add?

13) Are you interested in a copy of the results from this research? E-mail address:

14) Can I contact you in the future if I have additional questions or to clarify something from this interview?

Appendix I

Interview guide: Second interviews

PROTECTION:

Referrals and Consultation: A lack of results when two different paradigms/worldviews are not accommodated in the process

1. How is knowledge shared in your community? How is it passed within and between families?
2. Does everyone in the community abide by protocols and agree on rules around knowledge sharing?
3. How to cooperate when FN protocols preclude the release of certain knowledge?
4. Have you heard of customary law?
5. What is your understanding of customary law? Is it more appropriate for Simpcw (for NTFRs) than federal or provincial law?
6. *idea of the creation of a yellow, red and blue listing based on cultural heritage/cultural importance rather than the existing species listing based on overall species population*

RIGHTS:

Intellectual Property Rights

1. What is your understanding of intellectual property rights?
2. In your own words, why are intellectual property rights important?
Or -why do you think that intellectual property rights are important to the Simpcw?
3. Do you believe that copyright law or patent law can successfully protect intellectual property rights?
4. Even if you are against commercialization, how to control others that are exploiting NTFRs on your territory?
-give fungage example

FLOW OF BENEFITS:

Commercialization

1. Do you think that enterprise around NTFRs has the potential to be more or less sustainable than the current timber industry?
2. Do you think NTFPs could be a way to stabilize rural economies during downturn of industries such as timber, mining etc.?
3. Do you believe that job creation around NTFRs could re-connect people to the land?
4. Does going out on the land improve people's health and well-being?
5. Is the commercialization of medicine different than the commercialization of plants used for food or other items (baskets, mats, fishing nets etc.)?
6. Any discussion in the band at band meetings on commercialization of NTFRs