

5-30-2014

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Brenda Murphy

Wilfrid Laurier University, bmurphy@wlu.ca

Annette Chrétien

Wilfrid Laurier University, achretien@wlu.ca

Grant Morin

Wilfrid Laurier University

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Maple Syrup Value Systems and Value Chains: Considering Aboriginal and Non-Aboriginal Perspectives

Dr. Brenda Murphy, Dr. Annette Chretien and Grant Morin

Principal Investigator

Dr. Brenda Murphy,
Associate Professor
Wilfrid Laurier University,
73 George St. Brantford, ON N3T 2Y3
Phone: 519-756-8228 (x5718)
bmurphy@wlu.ca

Project Manager

Mr. Bryce Gunson,
Resilient Communities Research Collaborative,
Wilfrid Laurier University,
73 George St. Brantford, ON N3T 2Y3
Phone: 519-756-8228 (x5405)
bgunson@wlu.ca

With special thanks to the contributions from Charles Restoule, David Chapeskie and Melanie Smits

Abstract

Harvested from both intensive sugar maple stands and diverse mixed forest ecosystems across Ontario, maple syrup is an important rural and Aboriginal non-timber forest product that contributes to social, economic and environmental sustainability. This paper presents our ongoing work to map Ontario's maple syrup value system from two different perspectives, Aboriginal and non-Aboriginal. In the economic sense, analyses of value systems are useful for members to identify the opportunities and challenges they are facing to advance industry growth and innovation. In the social and environmental sense, these analyses provide a window into how different worldviews and belief systems can lead to more effective and sustainable maple production. A value system is the inter-connected network of firms and activities that comprise an industry from the supplier to the consumer that is focused on quality and efficiency rather than costs. In this project, we pushed the boundaries of the traditional business approach, to incorporate sustainable development thinking and re-imagine the mapping according to Aboriginal ways of knowing. We undertook thirty four interviews representing Aboriginal and rural industry members and other key informants. We compare and contrast the rural and Aboriginal models of the value systems and conclude by providing insights useful for community forestry operations.

Introduction

Harvested from both intensive sugar maple stands and diverse mixed forest ecosystems across Ontario, maple syrup is an important rural and Aboriginal Non-Timber Forest Product (NTFP) that contributes to economic, social and environmental sustainability. Even though maple syrup production is not typically managed through a community forest model, we argue that it can

provide important insights for community forest approaches that seek to embrace a range of environmental values, mobilize local and Aboriginal ways of knowing, and are beginning to recognize the importance of culture and community identity as a key component of long-term sustainability (Bullock *et al.* this volume).

Community forestry, at least under the right circumstances, can be a viable alternative to large-scale industrial and state-run forest management and conventional forms of western forestry and can provide for better inclusion of “multiple knowledge forms and local and non-state actors with different interests and values, as well as consideration of unique local contextual factors” (Bullock and Hanna 2012, 2). Community forestry should be designed as a bridge between scientific and non-scientific ways of knowing; facilitate a space to explore and act on community values; and mobilize underdeveloped talent to think creatively about the forest resource. Through models that emphasize innovation and accounting of the full range of values produced rather than just economic volume, community forestry has the potential to reduce the impacts of boom and bust extractive activities and “enhance local economic stability through forest-based economic development including formal employment through forest operations and tourism and enhanced opportunities for harvesting NTFPs” (Bullock and Hanna 2012, 5).

In practice, however, community forestry may fall short of these ideals due to lack of community capacity and resources, entrenched economic and social relationships and power dynamics, constraining legal and institutional structures and ecological limitations. And, as will be discussed further below, additional challenges are presented by the different worldviews amongst those harvesting the forest resources, including Aboriginal and non-Aboriginal maple sap and syrup producers. There is also a dearth of information about value-added products, NTFPs, markets and supply chains (Bullock and Hanna 2012; Bullock *et al.*, this volume). This chapter, focused on maple syrup production in Ontario, seeks to provide some insights into these shortfalls.

Forest products and services have always been important to societies and today are recognized within the community forest movement as an important alternative to extractive forest timber activities. NTFPs, including maple syrup, can contribute to subsistence needs and help diversify and supplement rural incomes. NTFPs include “the biological resources, products and services, other than timber, that can be harvested from forests for subsistence and/or trade” (Murphy *et al.* 2). NTFPs can be harvested from agro-forestry systems, primary and secondary forest and forest plantations and involve such products as “medicinal plants, fibres, resins, latex, oils, gums, fruits, nuts, foods, spices, flowers, crafts, dyes, construction materials, and fuel wood as well as related value-added products, tourism and festivals” (Murphy *et al.* 2012, 2; see also Food and Agriculture Organization of the United Nations (FAO) 1995; Laird *et al.* 2010; Shanley *et al.* 2008). Further, for Aboriginal peoples such as Canada’s First Nations, Métis and Inuit peoples, NTFPs have been foundational to their wellbeing and have been actively managed to provide food, clothing, and medicines as well as contributing significantly to their cultural and spiritual practices (Murphy *et al.* 2012).

The value of NTFPs is often under-rated as “minor” forest products because they are frequently produced on a part-time basis in highly-localized, hinterland locations and may be part of a hidden or subsistence economy. In Canada, maple products and other NTFPs such as berries,

Christmas trees, honey, wild pelts and mushrooms contribute up to \$1.26 billion annually, however, as this is only three percent of the value of timber and pulp products, NTFPs are typically marginalized on the policy agenda (Mitchell *et al.* 2010). The predominance of the timber industry and the marginal status of rural and forest spaces in highly urbanized western societies are also contributing factors (FAO 1995; Laird *et al.*, 2010; Mitchell *et al.* 2010). Ironically, growing urban interest in NTFPs is currently contributing to a resurgence of NTFPs and expanding market opportunities. Interest is being spurred by the demand for local foods, organic products and eco-tourism/rural tourism experiences (Shanley *et al.* 2008).

The call to incorporate NTFPs into community forestry is long-standing. In 2006, the Northern Ontario Sustainable Communities partnership developed a charter within which they identify value-added timber and NTFP activity as key to supporting diversification and sustainability of local and regional economies. The charter also promotes Aboriginal and treaty rights and asserts the need to address the power issues that deny northern Ontario communities from reaping the benefits of the forest resource (Harvey, this volume; Palmer and Smith, this volume).

In contrast to NTFPs, in a primary industry such as forestry, a “staples” approach to economic value predominates and is focused on unfinished bulk commodities or raw products sold to export markets (Palmer and Smith, this volume). A more comprehensive economic conceptualization of value was developed by Porter (1985) who defined a value *chain* as a firm’s strategic activities that enhance profitability through the development of a differentiated product rather than a commodity, improved system efficiencies and increased product quality. This approach taps into a growing segment of today’s consumers who are demanding products differentiated by their uniqueness (e.g. maple spa products), high quality (e.g. award-winning syrup) or third party verification (e.g. Forest Stewardship Council/organic certification) (Agriculture and Food Council of Alberta 2004; OMSPA 2013).

Across an industry, a value *system* links firms from raw product, through intermediaries (channels) to the consumer in a stream of activities that promote quality and increase the product’s value to the final consumer (Porter 1985). Within a value system, competitive advantage can be gained by developing a value-added product or service that is difficult for others to copy (e.g. high-end artisan maple products¹ and/or choosing to invest in activities that lower costs or heighten efficiency (e.g. energy efficient evaporators) (Carpenter and Sanders 2009). Value systems thrive through high levels of inter-firm communication and collaboration to achieve chain-wide goals (Agriculture and Food Council of Alberta 2004). These interactions build the trusting relationships and networks that underpin the development and enhancement of social capital (Inkpen 2005; Mohan and Mohan 2002). In the maple syrup industry, key collaborative value system goals include the continuous improvement of food safety, increasingly efficient syrup production and boosting market share, especially relative to the dominant Quebec market.

While we took these ideas as the starting point for this project, on the industry side, these notions were expanded to develop a “maple value system” model that takes as its starting point the “triple bottom line” of sustainability. We embrace the definition provided by Bullock *et al.* (this volume) who define values as an, “Array of forest products, conditions and human interactions

¹ Ninutik, <https://ninutik.com/store/home2.php>

with the forest that are deemed important by and for the community, whether for socio-cultural, economic or ecological reasons”. In 2011, the total revenue of all maple products was calculated at \$349.5 million; that number roughly translates into 32 million litres of maple syrup (Statistics Canada 2011). This revenue was mostly earned by non-Aboriginal producers in rural and forest-based communities. Socially, maple syrup facilitates industry-wide, family and community opportunities such as conferences and information days, labour-intensive syrup production activities, first tap ceremonies, festivals and family-based events that develop and strengthen trust and social cohesion as well as cultural and spiritual practices (Farrell 2013; Hinrichs 1998, Murphy *et al.* 2012). Ecologically, when trees are perceived to provide multiple values and contribute to the vitality of communities, there is incentive to maintain the sugarbush (stands of sugar maples), enhancing the provision of ecosystem services such as carbon sequestration, biodiversity and flood attenuation as well as recreational and ecotourism activities.

From an Aboriginal perspective, we took a different approach that re-imagines how we think about value systems. Based on stories and interviews collected to date, Aboriginal values have been mapped according to an adapted Medicine Wheel model developed by Elder Charles Restoule, Annette Chretien, and Brenda Murphy. The Medicine Wheel, also known as the Sacred Hoop, is a powerful symbol of Aboriginal beliefs. As a conceptual tool, it is used and interpreted differently in many Aboriginal communities. Its purpose is to respect the holistic approach that is characteristic of Aboriginal belief systems and ways of knowing often referred to as Indigenous Knowledge or IK. The Medicine Wheel represents the cycles of life, interconnectedness of all things, and the harmony of the whole (Yearington 2010). In this work, we use it as an analytical tool to evaluate Aboriginal values associated with maple and as a framework to represent these values.

The province of Quebec, Canada, produces about 80% of the world’s maple syrup, with Ontario, the focus of this chapter, being Canada’s second largest producer. About 500 of the province’s producers, including the largest operations, are represented by an industry association (Ontario Maple Syrup Producers Association, OMSPA) that is divided into locals, each with its own council (Figure 1). Production operations range from small back yard and community operations producing for their own uses through to large commercial enterprises with over 20,000 taps. In Ontario, maple syrup is regulated as an edible horticultural crop and syrup offered for sale must comply with Ontario Regulation 119/11². The regulations include grading and labelling requirements, minimum sugar densities, packaging guidelines as well as inspection and marketing guidelines. If producers wish to sell beyond provincial borders, they must also adhere to the Canada Agricultural Products Act through the Maple Products Regulations³ and are subject to inspection by the Canadian Food Inspection Agency.

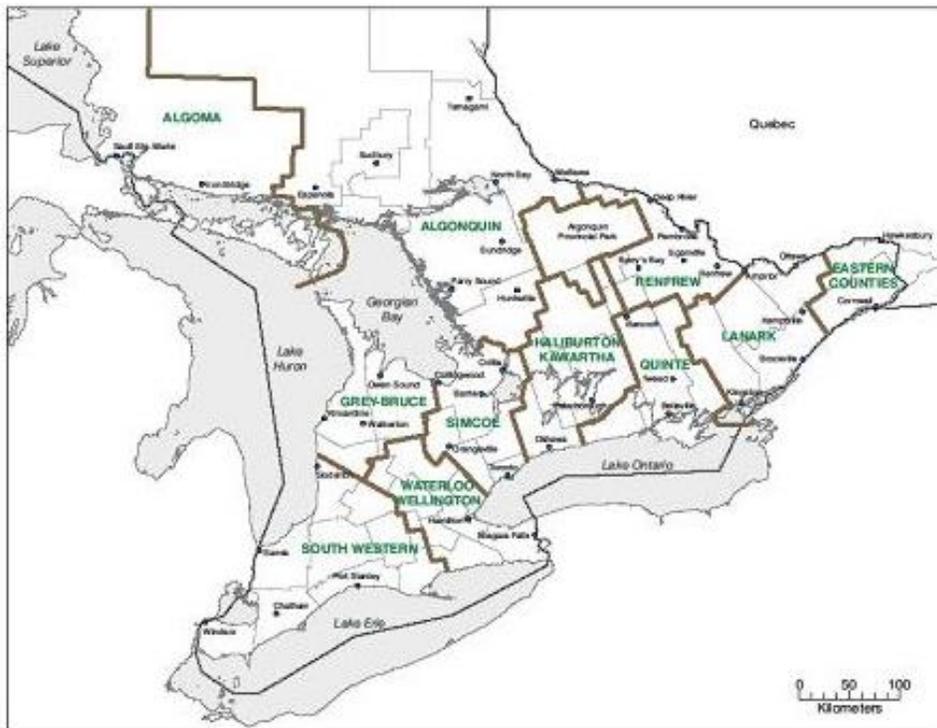
In Ontario, the production of maple syrup, like all forest-based activities, mirrors the province’s dominant geologic, demographic and land tenure patterns (see Bullock and Hanna 2012, Bullock *et al.*, this volume). The southern portion of the province has extensive stands of sugarbush situated on productive soils underlain by sedimentary rock with the highest concentrations of producers located in the Waterloo-Wellington and Lanark County locals. While these southern

² Ontario maple regulations: <http://www.omafra.gov.on.ca/english/food/inspection/maple/othr-mple-lbl-reg11911.htm>

³ Federal maple regulations: http://laws-lois.justice.gc.ca/eng/regulations/C.R.C.,_c._289/

areas have significantly more access to nearby urban markets and a population base ever more willing to consume rural landscapes as tourists (Bullock and Hanna 2012), competition amongst producers is also more intense. In southwestern Ontario, most production occurs on smaller, fragmented woodlots often situated on privately owned farms where species diversity can be higher but land degradation is a more common problem. Here expansion of operations typically requires purchasing additional property, leasing an available sugarbush or buying sap from a neighbouring producer. In southeastern Ontario, the landholdings are also typically private, but the property sizes are larger with a more forested landscape, easing expansion constraints. However, recent extensive logging is threatening some mature sugarbush stands.

Figure 1: Ontario’s Maple Syrup Producers Association Local Councils (Murphy *et al.* 2012)



In the northern part of the province, production is constrained by increasingly cold temperatures and the igneous rock and acidic soils of the Canadian Shield. Production is more limited to key pockets of good sugarbush and production on crown land is more common as very little land in the north is privately owned. There are over 27 million hectares of crown forest in the province, most of which is located in the northern part of Ontario (Harvey, this volume). Where syrup production on crown land can be undertaken under a long-term lease agreement, significant commercialization and local benefits can accrue. Without a formal agreement, sap harvesting often still occurs, but the more efficient (and costly) tubing sap collection systems cannot be set up, limiting the economic potential of the operation. “Whereas the maple sectors in Quebec and

New Brunswick have access to 11 and 8%, respectively, of sugar maple dominant forests on public land, Ontario made only 0.04% available for maple syrup production in 2011” (OMSPA 2013, 3). Sugarbush on crown land is always at risk from timber extraction activities since most licensing agreements are oriented towards pulp and paper and dimensional lumber. Similarly, the predominant forest management practices emphasize a neoliberal concern for the supply of timber consistent with a resource extraction model rather than the multiple uses associated with NTFPs. Population densities in this region are low, with population growth stagnating or populations shrinking. Remote locations, access to markets and high transportation costs can be significant barriers in northern regions (Harvey this issue, Palmer and Smith, this volume, Murphy *et al.* 2012).

Throughout Ontario, Aboriginal peoples have been gathering sap and producing syrup since pre-contact with European colonial states (Whitney and Upmeyer 2004, Goodman 2014). Although maple syrup was initially an Aboriginal technology shared with settlers, today their voice and preferences are relatively invisible across the industry⁴ with wide-spread producers sometimes isolated or having lost their IK due to colonial policies that outlawed many traditional practices and led to discrimination. Thus, harvesting sap and making maple syrup is connected to exercising Aboriginal and treaty rights and rectifying this historical legacy of cultural genocide (see also Casimirri this volume).

Beginning in the late 19th century, government policies were developed to assimilate Canada’s Aboriginal peoples. To that end, the *Gradual Civilization Act* of 1857 led to the *Gradual Enfranchisement Act* of 1869. Eventually, these Acts were consolidated in the first *Indian Act* which was passed in 1876 (Royal Commission on Aboriginal Peoples 1996 1:250). The “Potlatch Law” which banned potlatch ceremonies was passed in 1884 and was soon followed by the banning of other ceremonies such as the Sundance⁵. In practice, these laws were expanded to virtually prevent any ceremonial gatherings resulting in the loss of many cultural traditions and practices. We will outline how cultural bans and policies affected maple syrup practices and ceremonies in Aboriginal communities.

In addition, land stewardship is often central to the maintenance of traditional ways of life and to the fulfillment of spiritual responsibilities since the links between land and culture are integral to Aboriginal worldviews and ways of knowing. It is also clear that Aboriginal sap and syrup producers often view their trees as active agents who generously share their sap with the human community. In return, the sugarbush needs to be treated with respect and honored through ceremony and good stewardship practices. We also learned from our interviews, that maple use is integrated into a holistic view that does not compartmentalize components of sustainability (see also Bullock *et al.*; Casimirri this volume).

First Nations typically gather sap from designated reserve land where tree stands are owned and managed communally by the band. First Nations peoples may also access trees from their broader traditional territory, if this land is not privately owned or under an active timber lease (see also Palmer and Smith, this volume). In Ontario, we have had contact with a number of bands (ethics prevents us from revealing the locations) where members continue or are

⁴ Although Awazibi Maple Syrup is a notable exception: <http://kzadmin.com/Awazibi.aspx>

⁵ Indian Act, <http://laws-lois.justice.gc.ca/eng/acts/i-5/>

reclaiming maple sap and syrup practices. Land use is further complicated in First Nations contexts given that commercial enterprises may or may not be capitalistic in nature. Where production occurs on reserve land, proceeds and profits are often (but now always) returned to the band for communal economic and cultural benefit, rather than personal economic gain. Métis peoples do not have this communal land base and so tend to harvest on a combination of private and crown lands across the province. Some Aboriginal producers strictly harvest sap and use it for ceremonial purposes while others are fully comfortable with commercial syrup production.

Commercially, maple syrup is predominantly produced from sugar maples (*acer saccharum*) since the sap from these trees is the sweetest. Sugar maples, with a range that extends across eastern North America (Figure 2), are tapped each spring using either a traditional tap and bucket system or the tubing and vacuum pump systems that have developed since the 1950s. Throughout its range, sugar maples are threatened by climate change and invasive species such as the Asian Long-Horned Beetle. These are urgent issues for this long-lived tree species; it takes at least 30-40 years before a tree can be tapped and maples can continue to live and produce sap for over 200 years. When night time temperatures are just below freezing and daytime highs climb to about 6- 8 Celsius, sap is harvested and boiled down to make syrup in wood, oil or gas-powered evaporators. It takes 40 litres of sap to make 1 litre of maple syrup. Maple syrup is also used to produce a range of pure maple products such as maple sugar, taffy and butter and maple-enhanced products such as sauces, jams and even spa products. In addition, the sap itself is a natural, nutrient rich liquid that has always been used as a ceremonial liquid and spring cleanse, especially for Aboriginal women (McGregor 2013). Commercially, sap has recently begun to be marketed as a refreshing beverage, similar to the recent emergence of coconut water.

Figure 2: Sugar Maple Range (Murphy *et al.* 2012)



In this chapter we pay particular attention to the conceptualization of community and problematize narrow definitions that do not fully embrace the experiences of forest-based and agro-forest communities. The term community is often associated with a particular geographic space or territory such as a neighbourhood, municipality or county. Indeed, this is a key type of community and one that is often assumed in the community forestry literature (Bullock and Hanna 2012). Another key type, communities of interest, develops around common practices or beliefs. These two types often co-exist and overlap, are intertwined with other layers of community and are imbued with differential access to power and resources. For instance, the maple syrup industry in Ontario is part of a community of interest that extends across the production areas in eastern North America, while there are also geographic communities in Ontario through the local councils. Producers are also embedded within particular geo-climatic regions and socio-political boundaries that underlay and contextualize their production practices. For instance, Quebec's production dominance is reinforced by a powerful, well-run and resourced industry association that strictly controls volumes produced and prices and controls much of the research agenda. Additionally, the production community can be divided along an Aboriginal-settler axis, with the settler community currently dominating the industry. The borders of Aboriginal treaty lands, traditional territories and reserves as well as the cultural and political alignment of various First Nations and Métis peoples further complicates how maple syrup communities can be understood.

There are also other factors that add complexity to the concept of community. First, the literature on sustainability would suggest that attention to future generations broadens the definition of how a community is conceived. This requires communities to manage resources with consideration for long-term impacts and family heritage (Bullock and Hanna 2012). Second, regardless of the type of community, there are always within-group differences regarding values, perspectives and access to resources and decision-making power. Attention must be paid to the richness and diversity that characterizes all communities. Third, western thinking tends to limit understandings of community to the human world. Bullock and Hanna (2012) hint on an expansion of this definition when they briefly refer to communities as socio-ecological systems.

In this work, we have adopted the phrase "all my relations" to reflect the different understandings of communities and social networks held by the Aboriginal producers. The phrase "all my relations" is literally translated from the Lakota Sioux term *Mitakuye Oyasin* (Black Elk 1991). It refers to the belief that all things are living sentient beings, and that we are all connected or "related". All my relations include not only the human family, but also plants, animals, and the forces of nature. As discussed in more detail below, this worldview was clearly expressed in our interviews with Aboriginal producers and expands on the view that socio-ecological systems can include both humans and trees. And, it is interesting to note that scientists are beginning to catch up with the traditional belief in the social lives of plants. (Biedrzicky 2010; Dudley 2007).

Based on seven years of research, especially a recent round of thirty four interviews, in this chapter we outline the ways in which the value of maple syrup as a NTFP is understood in rural and Aboriginal communities in Ontario, Canada. At its core, our work is focused on contributing to the resilience of agro-forest and forest-based communities and we seek to understand the range of geographies, histories, values, ways of knowing and practices, both within and across

settler and Aboriginal producers. We demonstrate that while there are similarities between the types of values held, there are also distinctions tied to differences in worldviews and ways of knowing between Aboriginal and rural/settler producers as well as other diversities within these communities. Similar to Casimirri (this volume), understanding these intercultural differences and related power disparities is needed before collaborative undertakings can be effective. After providing an overview of the research trajectory and methods, we outline the results and the two maple syrup value models that were developed for this project. In the final section, we draw insights across these two models and offer suggestions for community forest operations that are considering moving into NTFPs as well as value-added products and services.

Methods

This program of work began seven years ago with seed funding from Wilfrid Laurier University followed by a research development grant from the Social Science and Humanities Research Council (SSHRC) of Canada. More recently we have received funding through a SSHRC Insight grant and from the Ontario Ministry of Agriculture and Food (OMAFRA). The various projects have been focused on exploring the ways in which maple syrup contributes to sustainability and resilience in rural, agro-forest and forest-based communities and the potential impact of climate change. While it is the work related to the OMAFRA grant that is the focus on this paper, we draw insights from the broader program. Throughout these projects we have worked closely with stakeholder groups including industry associations, settler and Aboriginal producers and government officials. From the outset, we have endeavoured to adopt a transdisciplinary methodology that incorporates multiple ways of knowing. We draw from multiple academic disciplines across the humanities, social sciences and physical sciences as well as a range of stakeholder perspectives (Brown *et al.* 2014; Murphy *et al.* 2009, 2012; Murphy 2011). We involve both undergraduate and graduate students in project design, data gathering and analysis as well as publications and other knowledge mobilization activities.

The focus of this chapter is the first objective of the OMAFRA grant which was to undertake a sector profile of the maple syrup industry, identify the value system's key players, processes and inter-intra relationships to provide baseline data on the current status of the industry. For this work we undertook thirty four interviews divided into three segments. Fifteen interviews were conducted with rural/settler producers (Morin), fifteen interviews with Aboriginal producers (interviewed by Smits, analysed and written up by Chretien) and four with other key informants (Murphy). The program of work is overseen by an advisory committee who comment and contribute to all aspects of the research. At an inaugural advisory board meeting, the original concept for the Aboriginal maple values model was suggested by Elder Charles Restoule (Dokis First Nation) and the group put forward initial ideas about the industry-based value system model. At a later date, David Chapeskie (International Maple Syrup Institute) provided significant input into the latter model.

Following research ethics approval, semi-structured interviews were conducted with participants from across Ontario's maple production regions, representing different sizes and types of operations. Interviews were digitally recorded, transcribed and analysed in NVIVO. The full

reports and executive summaries will be archived at Laurier's Scholars Commons⁶. Significant participatory and knowledge mobilization activities include quarterly meetings with the advisory committee, regular presentations at academic and industry events, newsletter and academic publications, a YouTube video (Goodman 2014), direct involvement in planning an upcoming OMSPA event and membership on an international committee that provides policy advice to governments about all things maple.

Value System Models

In this section we lay out the results of the interviews and the two maple system models that were developed. We also draw in insights from our other projects and our extensive interactions with the maple community. While these final models were developed through several iterations during the research process, for simplicity and brevity in this chapter we begin by presenting the models. We then provide the supporting data to help contextualize and explain the models. The two models were intentionally developed separately to allow different knowledges and ways of knowing to inform their orientation. It was particularly important to highlight distinct Aboriginal understandings of maple since these voices have receded to the background as the settler community came to dominate the maple syrup industry.

Aboriginal Maple Syrup Value Model

As mentioned above, the model developed from Aboriginal perspectives is based on the Medicine Wheel (Figure 3). This model served as a research tool, an analytical approach and a framework to represent the data collected in our interviews. The model initially suggested by Elder Charles Restoule emphasized the cyclical nature of maple practices and how these could be best understood using the Medicine Wheel. His ideas of how to represent maple values were echoed in our interviews with Aboriginal producers. The cycle of life as understood through maple practices was mentioned over and over, leading us to further develop the model to reflect these stories and beliefs. We chose to begin in the East in keeping with Aboriginal beliefs for beginnings, and move through the yearly cycle of maple production by moving around the adapted Medicine Wheel. The model was an effective way to map the values that were shared by our interviewees because it emphasizes process, relationships, and spiritual beliefs. Extra dimensions are sometimes added to the Medicine Wheel in concentric circles which is what we have adopted here. The centre represents Aboriginal values as expressed through the concept of all my relations as defined above.

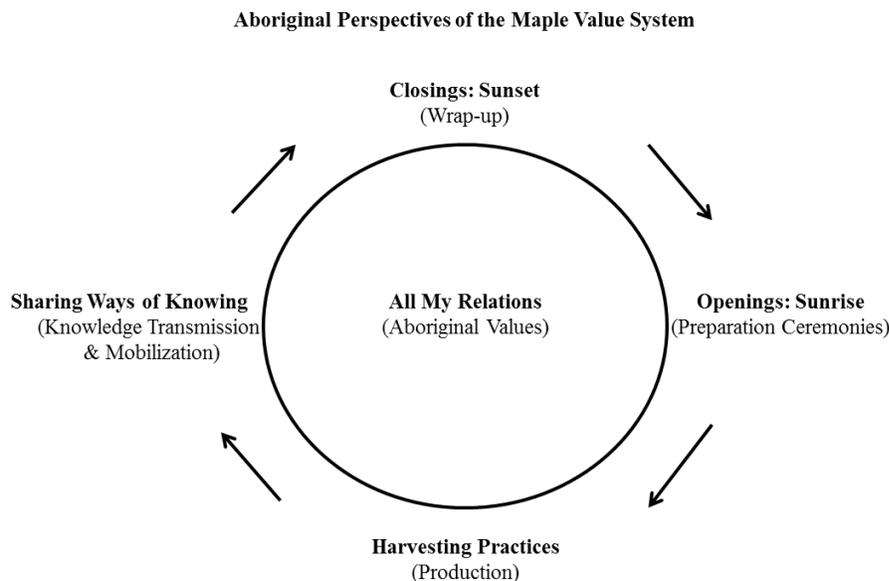
In keeping with the belief of the renewal of life, the sap which is called “sweetwater”, is used medicinally, especially for pregnant women who are considered the givers of life. The use of sweetwater as medicine and as a cleansing agent is widespread in Aboriginal communities. As briefly mentioned earlier, maple sap has recently entered the health drink market similar to

⁶ Scholars Commons @ Laurier, <http://scholars.wlu.ca/>

current uses of coconut water. However, this practice is frowned upon by Aboriginal traditionalists who insist that sweetwater is medicine, and should never be sold or worse widely marketed. It is considered sacred, not a commodity.

The opening of maple syrup season in Aboriginal contexts carries with it very distinctive and diverse beliefs and ceremonies some of which are deeply rooted in traditions that can go back hundreds of years. For some producers, preparation for the maple season actually begins with winter ceremonies praying for “new babies” in the spring. These ceremonies are intended to meet the responsibilities of an ongoing relationship between people, trees and the environment. Since maple syrup is the first product to be harvested in the spring, it represents ceremonial new life, and for some Aboriginal people, the beginning of the new year. For example, in Anishnaabe belief systems, the calendar consists of thirteen “moons” rather than twelve months. March is the “sugar moon”, *Zhiishbak Geezis* which marks the beginning of a new annual cycle.

Figure 3: Aboriginal Maple Value System



Opening ceremonies in other Aboriginal communities may differ in practice, but were very similar in terms of beliefs as evidenced by the terms used for these ceremonies such as “waking up the earth”. Spring, ceremonies, spiritual beliefs and the new year were all terms that were repeated by the Aboriginal producers we interviewed. Maple sap harvesting and syrup making as a cultural practice serves as a marker for the cycle of death and life.

It is important to note here, that not all Aboriginal producers that we interviewed followed traditional practices or would even be seen as Aboriginal producers in the eyes of the public. Some producers preferred not to follow traditional ways. By contrast, some wished they could follow more traditional practices but the IK had been lost throughout the generations. One producer mentioned a “spiritual renaissance in Indian country” alluding to the fact that many are

currently reclaiming lost cultural practices, and the IK that accompanies them. There are many reasons for the loss of maple practices in Aboriginal communities and their relative invisibility in today's industry most of which can be connected to the legacy of colonialism. The intimate link between government policies and Aboriginal cultural practices of all sorts including making maple syrup is of particular relevance to this paper.

Many interviewees indicated that there were periods when making syrup was not practiced and that they are currently reclaiming knowledge from the Elders who recall it from previous generations. One interviewee told a story about being forbidden from having ceremonies by the Indian agents and that longhouses were locked to prevent them from gathering for the maple syrup season. This is why knowledge was not passed down openly. Some people did continue to harvest sap but they kept everything hidden to keep the men out of jail. Another producer recounted that the Jesuit missionaries also prohibited harvesting maple sap and making syrup because it kept the people in the bush and prevented them from going to church. Colonial mechanisms aimed at assimilating Aboriginal peoples deeply affected Aboriginal maple cultural practices. This partially explains the discrepancies in the type and depth of IK held by today's Aboriginal producers.

Further, as IK is reclaimed in a contemporary world, it is reinterpreted and reconstructed to some extent resulting in blending old and new beliefs, traditions and practices. Thus, the harvesting practices of Aboriginal producers were quite diverse and demonstrated a blending of traditional and state of the art practices. For example, one large commercial producer uses lines, tubing and a vacuum system but keeps a few buckets and spigots to monitor the harvest. He uses these trees to assess how the trees are doing. Since the lines are a closed system there is no way of knowing when to stop tapping. In his opinion, it runs the risk of drying out the trees. When the sap gets milky in the buckets, he knows it is time to stop harvesting.

Other producers felt that tubing and vacuum systems are harmful to the trees and they refuse to use this technology. Some traditionalists also felt that this type of harvesting diminished the sacred nature of maple sap and syrup and its medicinal properties. The use of tubes and vacuums are seen as taking from the trees rather than the trees giving their sap willingly. A deep concern for the trees was expressed. Traditional harvesting practices revealed a close relationship that included getting to "know" the trees, in some cases, individually. This intimate relationship is further evidenced by the notion that the trees are the ones who taught humans how to make the syrup and who present us with their gift of sap.

It is in the idea of sharing knowledge and community that the profound differences between non-Aboriginal and Aboriginal producers was most clearly revealed. For example, one producer recounted that the ceremonies are a communication with the entire earth, the air, water and humans, in other words "all my relations". This is how humans build their relationships with the trees and the environment. The trees are not only considered to be "social beings" but they are part of the human social network at the family level. The trees are even considered to have families of their own. One producer referred to them as having uncles and aunties and even their own nations. In sharing their sap, the trees were visiting and teaching their human relatives.

The intimate relationship that some Aboriginal producers have with maple is connected to the idea that the sap is medicine, not a commodity. This belief influences every aspect of traditional production and prevents many from using more recent technologies and production methods as well as selling their sap or syrup. In this context, maple products are for medicinal, ceremonial, personal and community uses only. Any change of practice is seen as tainting the product and taking away its sacred and medicinal values.

By contrast, commercial Aboriginal producers do not necessarily hold the same views. They still maintain a respectful relationship with the trees and environment, however they also feel that maple production is a sustainable activity that can bring much needed economic activity, especially in isolated communities. To do so, they use the technology that best aligns with their IK and worldviews. Commercial maple production in Aboriginal communities is complicated by the communal nature of land ownership on reserve. In some cases, individual members of the band make and manage the syrup operation on behalf of the band, share some of the final product, but retain some of the financial profits for their own family. Aboriginal producers who are not part of a band or on reserve, such as Metis producers, may share with their families and communities in a more informal way.

In some communities, where the commercial operations are owned by the band, all economic proceeds are returned to the band for communal use with some of the maple products also shared out with members. These enterprises do not follow a strictly capitalistic model and blend traditional subsistence systems with a market-based model. This is not to say that all Aboriginal producers operate in these ways or hold the same beliefs. In an economic sense, producers' attitudes ranged from the very traditional view of never selling any maple sap, syrup or other related products, to a combined approach of selling a little to support the activity, through to undertaking a fully commercialized venture viewed as an economically sustainable business.

In terms of closing the season, most producers follow typical clean-up and bush management processes. Commercial producers clean their tubing systems and equipment and store them for the following year. The bush is examined for diseased trees which may or may not be culled. Smaller backyard producers will also survey their bush. One producer commented that cleaning the small brush around trees helps the trees grow much bigger. Having said that, for those who follow a more cyclical understanding of the harvest, clean-up does not necessarily mark the end of the season since the cycle is ongoing. One producer likened the cycle to the chicken or the egg dilemma. Beginnings and endings are not clearly defined in a circular model.

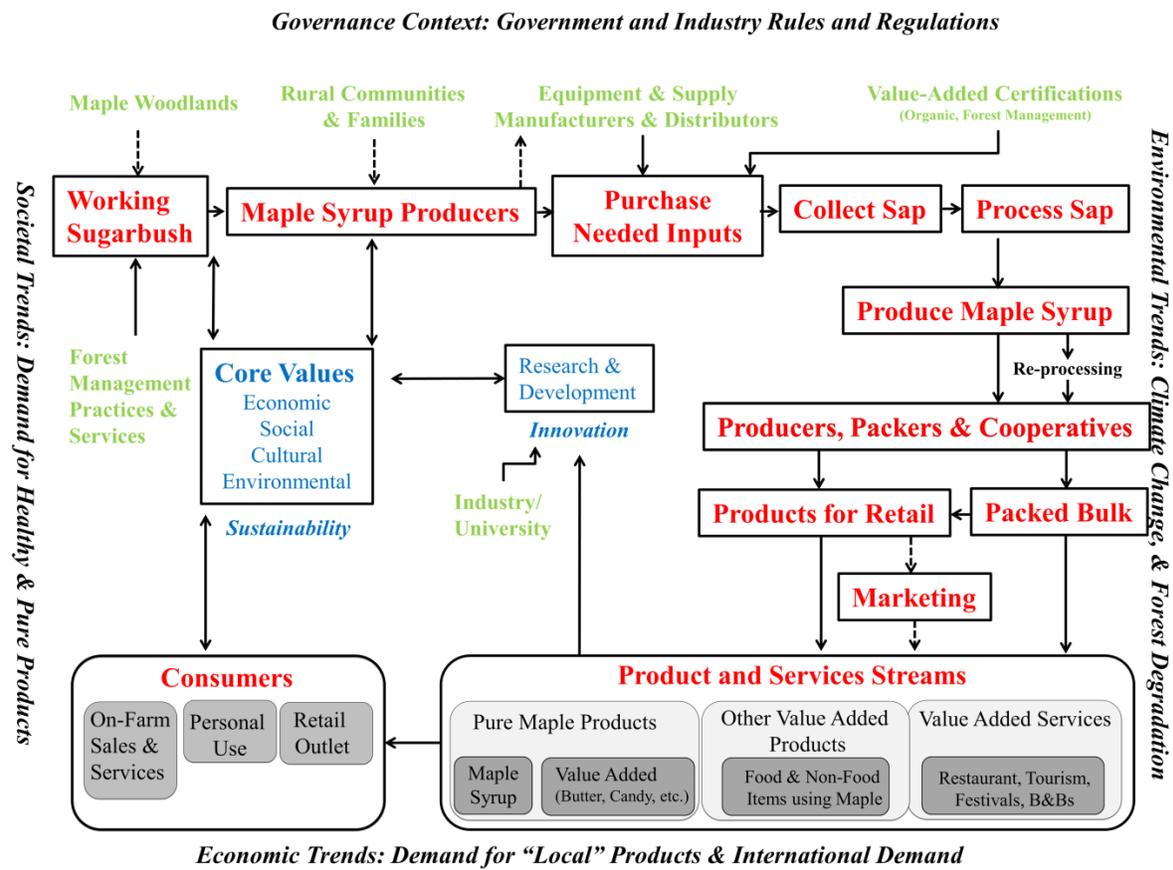
On a final note, the idea of “all my relations” is clearly lived and guides the values that are associated with maple trees and their gift to us as humans. It is perhaps at the social and environmental levels that this concept is most evident. Two major themes emerged from our interviews. The first theme emphasizes the expansion of social networks to include the maple trees in the sense of family relationships. This intimate relationship guides every aspect of maple production from harvest to distribution. The second theme highlights the values placed on maple practices in Aboriginal communities. Economic factors were far from the main value expressed by most producers. The reclaiming of culture, history, identity, medicinal and spiritual values far outweighed economic gain as the major factor for maple practices. Many producers see making

maple syrup as a way of reclaiming their Aboriginal identity, history and culture and of re-establishing a relationship with their ancestors.

Industry-based Maple Values System Model

The industry-based model builds from ideas around Porter’s (1985) value system to incorporate ideas associated with sustainability. The model is inter-connected and iterative, centred around economic, social, cultural and environmental core values and contextualized by dominant trends in these realms and by the governance framework within which maple is embedded. It starts with the maple woodlands then moves through communities, supply channels, production, final products and consumers. Innovation, denoted by the research and development box, is undertaken by a range of actors throughout the value system (Figure 4).

Figure 4: Industry-based Maple Values System Model



*With Input From David Chapeskie

In terms of the environment, Ray Bonenberg, president of OMSPA, is very clear that the forests are the “goose that lays the golden egg” (Goodman 2014). He advocates for prudent forest management practices to manage the resource for the long-term and has undertaken Forest Stewardship Council certification in his own operation. In addition, the Ontario industry has

developed a sugarbush best management booklet. Interview participants spoke of their pleasure when getting out on the land in the early spring and about their connection to these forest environments. Producers develop an intimate relationship with their trees and talked about adjusting tapping and management approaches to reflect any noted stressors. Multiple uses are often provided by larger operations who may offer trail systems and other outdoor activities, such as hay rides, to visitors.

Respondents maintained that significant challenges facing the sugarbush are logging pressures, invasive species, forest degradation and climate change. One example of the predominance of timber-oriented perspectives is that producers find it difficult to locate foresters who know how to manage forests for uses other than timber. For instance, one respondent suggested that issues less typically addressed by forest professionals are managing for multiple forest uses and pruning trees to maximize sugar maple sap sweetness by encouraging tree crown spread (rather than pruning trees for straight trunks harvestable for lumber). Again with reference to the dominance of timber, one interviewee from the north commented that sugaring operations could expand more rapidly if access to crown land through long-term leases, could be more easily obtained.

The production community displays many sub-groups and interests and can be seen as existing along a continuum. At one end of the scale, for small and backyard producers (less than 1000 taps), maple was noted as providing a product that can be used for subsistence and shared with family and friends. Buckets and smaller or simpler evaporators are typically used. At the midpoint are producers who have larger operations (about 2-5000 taps) and significant investment in equipment and tubing systems. At this level, production is usually a sideline operation undertaken along with other farming or economic pursuits and typically focused on the spring production season. Maple provides a welcome cash infusion in the early spring and some value-added pure maple products may be produced. At the other end of the scale, for the largest operations (up to 20,000 taps) maple is often undertaken as a year round business, very substantial capital investments are made, operations can provide significant local employment and producers may undertake extensive research and development to bring new products to market (some have their own government-inspected test kitchens). Value-added often extends into a range of innovative maple-enhanced products and services including a range of foodstuffs, pancake houses, bed and breakfast operations, and so on. Across the continuum, beyond the substantial costs of equipment and land, most respondents are concerned about the costs of fuel, labour and supplies (e.g. packaging). In Ontario, there is also a burgeoning group involved in the industry who may or may not be producers themselves and instead primarily deal in bulk syrup and act as packers and exporters or focus on artisanal gift products. The packers act as an important conduit to the final consumer for those producers who enjoy making syrup but have no interest in dealing with the public or undertaking marketing activities.

Participants were very clear that while maple can provide a good income stream it goes far beyond this by contributing to a valued way of life, relationships and forest-based lifestyle. For instance, when thinking about future generations, one participant, a producer with a larger, year-round business, clearly expressed the connection between the financial aspects of the business and long-term sustainability noting that they were in it to produce for the next one hundred years so it was important to look beyond yearly economic gains to protect the health of trees. This interviewee suggested that the social value of family, community and staff were more important

than the economics. This also meant taking “expert” advice with a grain of salt because experts don’t necessarily know as much about particular local sugarbushes or maple practices as the property owners did. We have heard similar views expressed repeatedly throughout the seven years of our work.

Family heritage is an ongoing conversation in the maple community. Some respondents were concerned that they are getting older and that there might not be someone interested in learning about maple and inheriting the business. When “new blood” take over an existing business (or start up a new operation), we have seen a collective sigh of relief that the operations will continue and/or expand and witnessed the new entrants celebrated and supported by the whole maple community. In other cases, some producers traced their heritage back to settlers from the 1800s and were actively grooming the next generation to take the reins. Interestingly, through our larger knowledge mobilization activities, we are also coming across a range of individuals who are interested in getting into maple production because it is seen as a viable and growing business opportunity. This includes seniors looking for a retirement interest and extra income and working professionals intrigued by the possibilities of maple.

Most of the producers’ operations are family businesses and family networks are a key component of the maple syrup value system. Needed labour is often volunteered by family members. Work starts between January and March (depending on the year and the location) by drilling in the taps and cleaning, flushing and hooking up the tubing systems. In the typical six week production period, sap runs in fits and starts, tied to the weather. During particularly intense runs, producers must be available around the clock to process the sap; it spoils within twenty-four hours. Retirees were commonly mentioned as favoured workers, with students and others helping out as available. It is not uncommon for family members to take their vacation time to help out. Celebrations, including pancake breakfasts and community open houses, are common ways that families share this yearly harvest with loved ones and friends.

Another noted role for family networks is related to the marketing of syrup. Respondents who had been in the maple business for a very long time have built up a loyal clientele who buy maple products from them every year. This clientele is passed down from generation to generation. In addition, family helped out by supporting on-site tourist activities such as pancake house and stores, running booths at farmer’s markets and advertising available syrup at their work places.

Supporting the farm-level activities are equipment and supply manufacturers and dealers. As explained by respondents and noted by the research team on multiple occasions, equipment dealers are a key part of the close-knit maple value system and regularly share their expertise with the community through one-on-one visits and at trade show presentations. As Ontario is experiencing significant growth, the large equipment manufacturers from Quebec and the United States are actively soliciting business in the province and setting up local dealers. Equipment manufacturers undertake extensive research and development and have been developing ever more tree-safe and efficient tapping systems as well as evaporators and related equipment that have significantly reduced the labour commitment and energy costs of maple operations. For example, buckets need to be inspected regularly to ensure that they have not overflowed, by switching to the tubing system the sap is collected at a central location and kept in a large

holding tank. The innovation and service provided by the dealers differentiates their product as well as contributing to innovation and robustness across the whole system. Useful innovations tend to trickle down through the industry, leading to system-wide changes over the long-term.

For producers, product differentiation can occur in two key ways, across a sector in relation to substitutable products and within an industry between competing firms. Maple products are part of the larger sweetener sector that includes cane sugar, honey, agave syrup and so on. The industry has been undertaking research related to the health benefits of maple syrup (e.g. antioxidants and trace minerals) and this was noted and promoted by many interviewees. The industry has developed materials that explain these benefits (IMSI 2012). Respondents also noted that there is no point in trying to compete with very inexpensive substitutes such as cane sugar. Instead, maple syrup should be thought of as high-value product like good olive oil and that the contribution of maple to the local economy should be highlighted. For instance, the idea that the taste of maple is affected by “terroir” (the influence of a location’s geology, soils and climate on a crop) and the craftsmanship of the producer is gaining traction in the industry and is providing mechanisms to differentiate maple from other sweeteners as well as to differentiate between the syrups from different producers.

Within the industry, other forms of differentiation can include third party certification and specialization. The value system literature suggests that when effort is invested in a way that is hard to duplicate, the firm can gain competitive advantage. Maple industry members clearly are undertaking differentiation activities such as research and development into maple-enhanced products (e.g. spa product) or developing specialized information (e.g. overseas market connections) but did not tend to articulate their activities in terms of competition. Most viewed other producers as part of their larger community, rather than competitors and suggested that there was plenty of room for everyone who has an interest in maple. That said, some producers in southern regions with higher densities of producers did note some minor tensions or friendly competition amongst neighbouring operations.

As noted by many respondents, third party certification such as FSC woodlot or organic certification is still quite uncommon. Many asserted that maple is a pure and natural product derived from trees and that forest stewardship is common, so the need for outside verification of their practices was redundant and costly and many farmers balked at having to undertake this type of bureaucratic activity. Those that undertook certification did so to access particular markets such as health food stores and corporate sales or to differentiate their product, especially for online or overseas sales. These individuals maintained that certification did not necessarily increase the price they could charge, but opened up new markets.

Another type of third party verification is becoming a facility approved by the Canadian Food Inspection Agency. This is seen as an arduous process usually only undertaken by those who wanted to export outside of the province or who felt that this outside verification boosted buyer confidence and increased sales. Interestingly, a recurring idea expressed by interviewees was that membership in OMSPA was itself considered a form of product differentiation that could be proudly displayed on labels, since the organization promotes high quality production and food safety standards.

Regarding information needs, two dominant trends were noted by respondents. First, the need for marketing strategies related to both the domestic and international markets was a recurring theme in the interviews. Information about expanding into new markets, especially in other countries such as Japan (who is the world's largest importer of maple syrup) was an issue raised by some interviewees. Many respondents also noted that the Ontario industry has enormous potential. Less than five percent of the sugar maple trees in Ontario are tapped and a good percentage of the Ontario market is supplied by Quebec syrup. Further, respondents directly connected maple's potential to growing environmental discourses explaining that maple is renewable, "green" and doesn't harm the land. Yet, despite this potential and the increasing levels of production, selling the product to consumers was a struggle for some, especially in areas of southern Ontario where competition was higher or where remoteness hindered market access.

For respondents, word-of mouth advertising through loyal clientele, simple signage and direct contact with the consumer continue to be dominant forms of marketing. And, although today's large commercial operations look nothing like the iconic "sugar shacks" of old, nods to this history are still displayed on much of the marketing material, playing into marketing and buyer demands to consume heritage. While these approaches were working well for many, there is also a growing trend especially among the younger producers, to undertake web-based and social media marketing.

In addition, producers are keenly aware that one poor batch of syrup or a media-hyped maple-related food safety scare could easily undercut decades of relationship-building. Trust in the family name and quality guarantees are considered key to successfully selling their maple products. Respondents were especially concerned that producers not under the OMSPA umbrella might be less knowledgeable about best practices and more prone to having a food safety issue such as mold. Yet the public would not likely distinguish between member and non-member producers if a scare were to occur and this could damage the whole industry. The Ontario industry is well aware of these concerns and is undertaking concerted efforts to expand their membership and develop effective marketing strategies for the province.

Second, as a direct result of the ongoing technological advancement, respondents suggested that there is a concurrent need for advanced information and on-the-ground support to use and maintain the equipment. Attending various industry events and workshops and informal information exchange between neighbouring operations are considered crucial to running a professional operation. It was clear from these interviewees that this ongoing communication promotes a tight knit community within the maple syrup industry among producers. Respondents also suggested that Ontario dealers, with head offices located in other jurisdictions, typically have very extensive catchment areas. This could lead to some difficulties in accessing information, parts and service.

Discussion and Concluding Remarks

In this chapter we have outlined maple syrup as an NFTP and presented two models that map industry/rural versus Aboriginal understandings of the maple value systems. It is interesting to document that although all producers start out with the same resource – maple sap – how that resource is understood and used varies both within and between various communities. We

developed these models with substantial and long-term input from our transdisciplinary team and interview respondents – we could not have imagined these mappings on our own. To that end, we would recommend that if community forest projects are considering developing an NTFP, broad consultation will be crucial to uncover and document the range of values held by interested stakeholders.

We would suggest that attention to the following questions could be useful during those consultations: 1) How is the resource understood, processed and ultimately used and how does this vary across harvesters? 2) Who are the harvesters of a resource, what are their goals and aspirations and are noted differences related to underlying worldviews and ways of knowing? 3) Where is the resource harvested and how does this vary? 4) Who are the ultimate users of the resource and how will they obtain the product? 5) What are the substantive issues (e.g. tenure, previous degradation, power structure, access, governance, technological, marketing) that enable or constrain sustainable harvesting and use? 6) What are the historical patterns that impact and influence current realities? 7) What are the short-term and long-term socio-economic and political trends and public discourses that could impact the resource's future potential? 8) Can resource harvesting contribute to multiple values and uses and is this sustainable over the long-term?

Concerted effort to include key local knowledge holders and ways of knowing is critical to developing a nuanced understanding of what is at stake for the NTFP harvesters, identify potential points of conflict and provide a forum for marginalized voices. In the case of maple, we are using our findings to sensitize rural industry members to other voices and ways of knowing and are helping connect isolated Aboriginal producers. We are also producing materials to support those communities who wish to reclaim or enhance their sap and syrup production practices. Something as simple as acknowledging traditional territory at industry events begins the process of developing a fruitful relationship with Aboriginal communities.

As demonstrated by this project, a comprehensive analysis of the entire value system underpinned by the range of identified values is a useful way to envisage an NTFP sector and its potential. This should include attention to such issues as product differentiation, marketing and research and development. The maple syrup industry in Ontario is quite focused on quality and efficiency rather than just economic factors, competition and costs. Although each operation must be economically viable, sector members tend to work cooperatively and have developed tight-knit relationships that foster innovation and growth. In addition, Ontario producers are benefitting from a resurgence of interest in local foods. Ongoing challenges facing the maple industry include further developing the market relative to other sweeteners, the need for better marketing strategies, access to harvestable sugarbush stands on crown land, and the ongoing challenge of having their policy needs addressed by various government bodies. On this latter front, the industry has been working for several years to instigate harmonized maple grading standards and language across political jurisdictions to reduce consumer confusion about types and colours of maple syrup. As an NTFP maple is not typically a policy priority, thus it has been an arduous task to resolve this issue. It is hoped that within the next couple of years most jurisdictions will adopt the new standards.

Various permeations of geographic and interest-based communities are evident among Ontario producers including Aboriginal vs non-Aboriginal; OMSPA vs non-OMSPA members; north vs south; small/medium/large operations; and backyard/subsistence/ceremonial vs commercial. In addition, ideas about community and sustainability are intertwined and extend to future generations of producers since this NTFP requires management of the sugarbush for the long-term. For Aboriginal producers, ideas about community are pushed still further to include the concept of trees as sentient beings having their own families who share their sap with the human community.

Although we have presented these models as two distinct ways of knowing, overlaps are clearly evident. Both sets of interview participants displayed strong forest stewardship principles and believed that the value of maple extended beyond economics into the realms of social and cultural sustainability. Aboriginal producers involved in commercial operations straddle both these models and we could imagine a third model bringing these two mappings together.

Developing these models separately has been viewed quizzically by some non-Aboriginal industry members, including individuals from our advisory committee. We fully admit that there are overlaps and gaps and that we present only a partial picture. Yet, we have found that the process of trying to find some fuzzy boundary between the settler/rural and Aboriginal understandings of the maple resource has been a useful exercise to highlight the broad differences in how worldviews and ways of knowing shape understandings of the maple resource as well as to draw attention to the impact of historical legacies. There is no doubt that if successful community forest initiatives wish to include Aboriginal partners, their distinct values and beliefs would need to be seriously considered and included in this approach.

That government policies impacted Aboriginal maple production in profound ways both economically and culturally is clear, however, the extent to which they were affected is not. Some interesting questions remain to be addressed. For example, early sources note that maple sugar, not maple syrup, was the preferred commodity in the 19th century before processed sugars became widely available later (Spencer 1913; Butterfield 1958; Schuette and Idhe 1946). There is some preliminary evidence that suggests large-scale Aboriginal maple sugar production may have been an important commercial industry in the 19th century. For example, information about maple sugar production on Manitoulin Island, which was mostly inhabited by Aboriginal people at the time, presents surprising numbers. Cadieux cites maple sugar production on Manitoulin Island in 1846 at 86,000 pounds (2007, 9). Fortin states that the island is in the habit of producing over 500,000 pounds (1865, 152). And *Farm and Mechanic* reports that Manitoulin Island exported over one hundred tons of maple sugar in an unfavorable season (Maple Sugar 1848, 41). By contrast, the role of Aboriginal producers in today's Ontario maple syrup industry is negligible. There is no doubt that maple practices continue in many backyards and communities, but they are not visibly present in the public market. Whether or not this will change remains to be seen. The question that needs to be asked is whether or not government policies were the main factor that prevented a thriving Aboriginal maple industry from continuing into the 20th century and beyond.

Acknowledgements

We gratefully acknowledge the financial support of Wilfrid Laurier University, the Social Science and Humanities Research Council and the Ontario Maple Syrup Producers Association. We also wish to thank all the individuals who gave their time so generously for this project as well as the ongoing support from our Advisory Committee. Special thanks to Elder Charles Restoule for his ongoing support since the beginning of our maple research, to Ms. Melanie Smits for undertaking some of the interviews and to Mr. David Chapeskie for his extensive contribution to the non-Aboriginal maple syrup value system.

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