



Non-Timber Forest Products: Economic Development While Sustaining Our Northern Forests

Saskatchewan Environmental Society

Introduction

Northern Saskatchewan is going through a profound and important period of change. First Nations, Metis, non-aboriginal residents, forest and mining companies and different levels of government are attempting to balance values that often conflict, while mapping out their economic futures.

The timber-based forest industry is cyclical, often facing economic instability and there are well-documented environmental concerns about the widespread clear-cutting of our forests. Mechanization of forestry means fewer jobs as more trees are cut down. More and more of the mills and manufacturing plants are located in larger centres outside the forest, leaving only seasonal jobs for forest communities. Now, more than ever, it is time to seriously consider generating forest-based economic development in northern areas that provides long-term economic, community and environmental sustainability.

Currently in Saskatchewan, the forestry industry is limited to relatively few timber-based primary products. By diversifying the economy in our northern forests, we can better achieve sustainable economic development. The importance of the harvest of non-timber forest products and the creation of value-added products to economic diversification is evident. The gathering of non-timber forest products has cultural and spiritual values and connections to the forest that cannot be excluded from forest policy. For Aboriginal Peoples, these values are part of the roots of not only a stable community, but of a culture.



Historically, forestry development has taken place on traditional Aboriginal land without Aboriginal involvement. The forestry industry has been dominated by large, multi-national, non-aboriginal owned companies. The National Aboriginal Forestry Association (NAFA) has found that while 80% of Aboriginal communities in Canada are in forested areas, few forest-based businesses are owned by Aboriginal people. NAFA has also concluded that there are many obstacles for Aboriginal people becoming involved in the forestry industry, which include: institutional, cultural and economic barriers.¹

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What are Non-Timber Forest Products?

Non-Timber Forest Products (NTFPs) are items gathered from the forest and used in foods, health and personal care, landscape and garden application, and decorative and aesthetic products. They include:

- **Food products** such as mushrooms, berries, and syrup.
- **Florals** which are plants and parts of trees for the arts, crafts and floral industry that are used to create items such as wreaths, potpourri, wildflower arrangements, fragrance items, ornaments and table decorations.
- **Essential oils and extracts** which include balsam fir, birch and spruce oils; and wild plants such as sage and mint. These essential oils are used in insect repellants, cosmetics, cooking, room sprays, talcs, insecticides, household cleaners and disinfectants.
- **Medicinal plants** which are used in the production of a number of medicinal compounds as well as nutritional supplements. Examples of the many medicinal materials are: balsam fir gum, fireweed, rat root, Labrador tea, wild mint, and wild onion.

What are the Economic Benefits of NTFPs?

A study of NTFPs in Canada estimated their annual value at \$241 million in 1997.²

Maple Syrup Products	\$120 million Cdn
Mushrooms	\$100 million
Berries	\$ 20 million
Medicinal Plants	< \$1million
Ornamentals	< \$1million
Essential Oils	< \$1million

Sustainable management of forest products other than timber can provide full or part-time employment opportunities for people living in or near the forest. Local employment options are particularly important as they allow people to work where they live and maintain a higher quality of life.

The development of the NTFP sector may provide several benefits, including local employment, opportunities for better resource stewardship and fuller use of the forest land base. In a non-commercial sense, their value to local individuals and communities is substantial, as they provide a variety of foods, medicinal products, craft materials, fuels, and building materials.

Sustainable management of forest products other than timber can provide full or part-time employment opportunities for people living in or near the forest.³ Local employment options are particularly important as they allow people to work where they live and maintain a higher quality of life. This is advantageous in areas such as northern Saskatchewan where stable economic opportunities tend to be limited. Also, development of a wider array of products from the forest will help these communities to advance beyond its historical reliance mainly on primary resource industries.

Rather than relying on a few goods, using the full spectrum of products from forests can mean less tendency for overexploitation of any one species. However, it is essential that extraction of NTFPs not threaten the viability of plant species, particularly those already deemed to be rare, threatened, or endangered.

The non-timber forest products sector is well-suited for Aboriginal community economic development for a number of reasons:

- access to these resources is implied within existing Aboriginal rights and treaties, unlike the conventional forest industry where tenure is substantially locked up;
- alternative trade options (e.g. fair trade organizations), based upon “Aboriginal” labelling, exist for some of these products;
- many non-timber forest products can be processed in a “cottage industry” setting, meaning more local jobs and relatively low capital investment requirements;
- the NTFP sector is based upon intimate knowledge of the forest, and upon good resource management practices, and thus fits well within the context of traditional Aboriginal forest knowledge and values;
- the importance of traditional knowledge in managing this sector introduces opportunities for sharing of the elders’ knowledge and values with the younger generations. ⁴

Non-timber options may complement industrial timber harvesting development within a particular forest area. In other situations, the development of non-timber forest products businesses may be chosen in preference to timber harvesting. This choice might be due to the lack of available commercial timber stands, or it might reflect a preference for the harvesting of materials that does not interfere with other forest-based activities such as trapping, hunting and fishing.

What are the Products?

The use of some non-timber forest products in the floral and decorating industry or the health care and food industries signifies a new way of looking at what the forest has provided local people for cooking, decorating and building. Now these traditional uses have markets and provide new potential for local employment. Local people are rediscovering how old uses of many forest products can meet new consumer demands. But today, they must also understand marketplace standards, packaging, pricing and distribution and, most importantly, they must learn how to run an effective business which can be relied upon by the marketplace.



Food Products

Mushrooms

Wild mushrooms are the main non-timber forest product harvested in Saskatchewan. There are three species which have commercial value in the Boreal Forest: chanterelles, morels and pine mushrooms. The pine mushroom is known for its aromatic odour, and superior texture and

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taste. It is related to the matsutake mushroom of Japan and can be sold in that country for as high as \$400/kg.⁵ By 1999, Saskatchewan pickers were earning over \$1 million annually harvesting wild mushrooms.⁶

The wild mushroom business in Saskatchewan can be lucrative, but yields vary widely depending on the weather. Susceptibility of mushrooms and other fungi to worm infestations and drought conditions results in significant variability in annual production levels.⁷ Harvesters therefore have to maintain a portfolio of activities and choose the product which gives greatest potential return in any given year. For example, in a good mushroom fruiting year, local harvesters may spend a significant amount of time in the spring picking morels and then move on to picking chanterelles later in the fall.⁸

Collectors should be aware that the practice of mushroom collecting should be done carefully, since many edible fungi closely resemble poisonous species or species of unknown edibility. Training in identification of mushrooms is offered by the Saskatchewan Agriculture & Food office in La Ronge, along with information on harvest locations and potential buyers.

The remoteness of the location of mushrooms does affect the ability of harvesters to ship fresh product to market. The export market (particularly the European market) currently presents the greatest demand for Saskatchewan's mushroom products, although a smaller, local market does exist for fresh produce for hotels and restaurants with gourmet menus.

Uncontrolled harvesting of wild mushrooms can also be damaging to habitat for both fungi and other forest flora and fauna, necessitating regulations or legislation to protect species that are being compromised.

Berries

Canada is the world's largest producer of wild blueberries, with over 50 million kg produced in 1997, worth almost \$66 million at the farm gate. The majority of these are commercially grown in Quebec and Nova Scotia.

The main berries harvested in northern Saskatchewan are blueberries and dry-ground cranberries.⁹ The dry-ground cranberry, also known as the lingonberry, occurs throughout most areas of the boreal forest. A total of 21,590 kg of wild berries were recorded as being harvested during the 1990 season, creating between \$81,555 and \$95,995 in income to pickers in 1990.¹⁰

As the Saskatchewan blueberry industry cannot compete with eastern Canadian producers who can produce their crop for as little as \$1.43 - \$1.76/kg (compared to \$5.50 and \$6.60/kg in SK¹¹), the most economically viable market is in the local sale of berries directly to the consumer, who is willing to pay a premium for fresh ber-



ries. This can be accomplished through the use of roadside stands, or by transporting the berries quickly to local retail markets for gourmet sale. There is also opportunity for value-added processing of berries into jams, jellies, preserves, pie fillings, and chutneys.

Other Foods

The greatest immediate opportunities for the development of native plant materials for herbal markets are in the herbal tea area. Many plants are used in herbal teas, which include: strawberry, raspberry, blueberry, mint, dandelion, Labrador tea, stinging nettle, fireweed, juniper, bergamot, rose petals and others. The Canadian tea market has been estimated to be worth over \$390 million, of which herbal teas make up to 25%. The world tea market has been projected to have an annual growth rate of 20% through the year 2000, and herbal teas have been suggested as one of the most promising value-added items currently on the market.¹²

Manitoba maple trees, the only species of maple native to Saskatchewan, produce a syrup of high quality. The success of Birch syrup in Alaska indicates that there is potential in northern Saskatchewan for development of this resource, as well.¹³

Value-added processing opportunities have also been identified with respect to the marketing of fiddleheads, wild herbs and other edible plants.

Florals

Woody and herbaceous species provide a variety of materials for the floral and craft industries. These include branches and twigs, foliage, bark peels, cones, flowers, and berries and can be fresh, dried or preserved.

Twigs and branches are most commonly thought of as being used in the manufacture of wreaths and baskets, and as elements in floral designs. However, these products are also employed in the manufacture of other creative specialty products including bird cages, plant stands, decorative furniture, and door toppers.¹⁴ Floral, foliage and branch products are sold either in bulk quantities or crafted into finished items such as wreaths, hanging swags, table decorations, woven baskets, potpourris, sachets, herb pillows, trivets, and air fresheners. In general, value-added craft products are the most profitable, supplying a lucrative giftware market. In the U.S., giftware retail sales were valued at US\$21 billion in 1998, of which \$3.6 billion were from seasonal decorative items. This market is projected to reach US\$28 billion by 2003.¹⁵

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Oils/Extracts

Aromatics and essential oils can be extracted from balsam fir, birch, and spruce trees as well as from wild herbs such as sage, lavender, rosemary and mint. These essential oils are used in insect repellants, cosmetics, cooking, room sprays, talcs and insecticides. Balsam fir oil is used in fragrance formulations in detergents, room fresheners, household cleaners and disinfectants. Spruce oil is used in household products as well, such as disinfectants, detergents and soaps.

Balsam fir and poplar, and white and black spruce appear to hold the best immediate market opportunities. The balsam aroma is a popular fragrance worldwide, particularly in the perfume and fragrance industries. The U.S. market for the product has been estimated to be about 18,000 to 36,000 kg annually, valued at about US\$325,000 to \$650,000. The needles can produce what is called an absolute (extremely high grade) oil or extract. Overall the cosmetic and fragrance market is estimated at US\$8 billion, with an annual growth rate of 10%.¹⁶



Medicinal Plants

Worldwide, about 25% of all prescription drugs contain ingredients extracted from plants.¹⁷ Results from a study done in 1993 show the annual growth rate in the consumer use of herbal medicines to be 5% in Canada and between 13%-15% across the U.S.¹⁸ Nutraceuticals are defined as products extracted from food plants that possess demonstrated health benefits. Worldwide, current annual sales of nutraceuticals are estimated at \$20 billion, projected to grow to \$500 billion by 2010.¹⁹

Some aboriginal elders and leaders have expressed reluctance towards the commercialization of medicinal plants, as these plants are considered sacred to their culture and heritage. Unfortunately, northern communities will have to make some difficult decisions about this issue, as Saskatchewan has approximately 25 firms producing or processing nutraceuticals, generating some \$40 million in annual sales. There is no northern or aboriginal-owned representation in this market at this time.²⁰ Opportunities keep moving out of local communities as seeds are gathered from the north and are cultivated in the south.

Medicinal plants such as dandelions are now employed as a tobacco-free herbal substitute for chewing tobacco. Plants such as stinging nettle, fireweed, bearberry, wild mint, yarrow, coltsfoot, blueberry, cranberry, horsetail and plantain have healing properties that make them popular commodities in the medicinal sector. For example, an extract of fireweed has shown considerable promise as a functional ingredient for cosmetic and therapeutic uses.²¹

Community Interest

A general concern for all communities, as with any other forest product business, is over-exposure of products leading to over-harvesting and a negative ecological impact on the environment. Some First Nation communities feel that if people were harvesting, for example, blueberries for profit and over-harvested, other members of the community who use this plant for their own food needs would find their resources depleted. This example could be applied to many non-timber products and must be fairly considered by all parties concerned in the establishment of a NTFP business.²²

Before deciding if and how to enter into the wild harvested medicinal plant sector, the current and potential value of medicinal plants to local communities should be considered. Local use, and the encouragement of the use and teaching of traditional plant knowledge may be of great value to the community. Once these issues have been thoroughly explored, then strategies to enter into the sector for commercial purposes can be considered. Considerable community discussion may be required in order to find common ground between those who see the need for job creation and those who feel that jobs should not be created at the cost of losing sight of traditional values and understanding. In some cases, these issues might lead to creative business solutions. For example, rather than harvesting medicinal herbs for commercial sale, perhaps traditional knowledge of biodiversity and cultural (rather than medicinal) uses of plants could become the focus of educational tourism packages.²³

What Issues Need to Be Considered?

Buyers of non-timber forest products have indicated an immediate interest for not only purchasing and marketing products from Saskatchewan's boreal forest, but also in establishing processing facilities in the area, and in helping to train resource harvesters in the appropriate foraging methods for ensuring the sustainability of the harvested resources.²⁴ However, there are several issues and barriers that are preventing the non-timber forest products industry from reaching its economic potential.

Modern forestry favours timber and large-scale industry, and regards non-timber forest products as incidental. These large, timber-based companies also control the forest and its products through legal tenure agreements with government. There will undoubtedly be conflicts between a developing NTFP sector and established timber-based industry in competition for the resources of specific areas, and the need to protect the habitat of NTFPs from potentially disruptive or destructive timber harvesting.

However, when the potential of all non-timber forest products, and other economic values of the forest, including eco-tourism, are taken into account, not only in revenue generation but also in employment creation, these products offer a significant potential. (See also, the factsheet by SES titled "The Ecotourism Incentive: Economic Development While Preserving the Environment"). In the case of Canada's Aboriginal Peoples, the NTFP industry might be one where they have a competitive advantage in knowledge and insight. Development of such businesses based on traditional knowledge and usage of these plants might well enable their

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own communities to benefit and help others to see how to make better use of the natural resources which surround them.

The NTFP sector in Saskatchewan to date is mostly based on a few outside brokers contracting for production from local people. Without adequate financial, training and business support, it will be difficult for local people and communities to replace the current marketing system. In an attempt to add value to their product and to circumvent the large-scale brokers, some mushroom buyers have sought out their own markets and established cottage industries. The cottage industry structure consists primarily of the harvesters and the

buyer/processor/retailer. Sometimes a group of harvesters may join together to form a cooperative association which itself undertakes the processing and retailing functions. Specialized niche markets can be identified, and it is toward these markets that cottage industry players focus their attention (e.g. farmers markets, restaurants, through the internet).

Increased demand for natural products has heightened concern about the environmental effects of harvesting wild plants. It is important that harvesters selectively harvest plant material, especially roots, to ensure that they do not destroy plant populations.

One of the constraints of the NTFP industry is that harvesters of NTFPs do not share adequately in the substantial revenues that their products eventually generate. Low prices are paid to pickers. In tracing the commercial path of six medicinal plants from the field to the market in Mexico, it was noted that only 6% of the consumer price, on average, was returned to the plant collectors.²⁵ Given the low prices paid to harvesters, it is advisable for harvesters to develop finished products for retail, if possible, rather than supplying raw material to a company.

Niche markets can also provide local opportunities. For example, some buyers will only purchase product that has been ethically harvested, as they often have an advantage in the marketplace. Organic certification can also be an advantage (see the Organic Crop Improvement Association website at www.ocia.org or the Saskatchewan Organic Directorate www.saskorganic.com). Products, such as crafts created from NTFPs that detail cultural history, are also a favourable niche market. With transportation costs a significant factor in product competitiveness, concentrating on value-added processing is critical for non-timber forest product development in Saskatchewan.

There is a lack of knowledge in local communities about the NTFP industry: identification of plants, harvesting methods, crop handling and storage requirements, markets and shipping. Communities have expressed a need for training in these areas.

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especially roots, to ensure that they do not destroy plant populations. It is in the best interests of pickers to harvest in a responsible manner so that there will be something to harvest in the future. This is often referred to as ethical harvesting. Rare, threatened or endangered species should not be harvested.

There is a lack of funding and government priority for development of the NTFP sector. Saskatchewan aboriginal communities, when interviewed, noted that they did not know how to access funds for pilot or start-up projects. And even once they find out about a fund, it is hard to receive a grant, as the applicant often needs to match the grant funds. This is not feasible in a community such as Sandy Bay where there is 88% unemployment and the potential for the applicant to have matching funds for a project is unlikely.²⁶ It has also been suggested that government representatives need to go to communities to explain funding programs and sit down and discuss applicants' ideas.

Government can help to address issues by becoming involved in:

- *awareness* — providing information on opportunities, risks, funding programs, expertise
- *facilitation* — coordinating partners, research support, information on ecological aspects, and removing unnecessary barriers to development
- *stewardship* — providing incentives for responsible management, compliance monitoring, quality control, habitat protection
- *promotion* — increasing awareness of successes of local companies, and expanding markets outside Saskatchewan
- *research* — enhancing resource quality and productivity, supporting research for new product development, and testing new products
- *conflict* — resolving among various users
- *access* — facilitation for product developers²⁷

The harvest of wild-growing medicinal plants raises controversy within Aboriginal communities. Concerns relate both to the impacts of this harvest on the plant populations, as well as to the potential misuse of the plant itself. Environmentally focussed or cultural learning packages on certain aspects of traditional plant use, such as edible plants or practical uses, have been designed and offered to a range of potential clients and take advantage of the growing trend of ecotourism. Examples of educational tourism products based upon sharing knowledge of wild plants and their uses are available: <http://www.wildfoodadventures.com> offers a wide range of nature walks and workshops on wild edible foods. In Crooked Lake, Saskatchewan, a member of the Cowessess First Nation has established, in 1998, Sacred Ground Tipi Camps as an eco-tourism business that provides cultural learning experiences and educational opportunities to visitors from around the world, as well as to children from the community and elsewhere: www.responsibletravel.com/Trip/Trip100231.htm.²⁸

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Conclusions

Non-Timber Forest Product harvest compliments other community-based economic development such as ecotourism and allows for the traditional use of the forest for hunting and trapping.

As northern communities in Saskatchewan struggle with the challenge of planning their economic futures, community members will require a thorough understanding of the real costs of large-scale industrial development and the alternate economic pathways. If we continue to focus on our forests simply as a timber supply, we will miss opportunities for diversified community development.

It is important to have a balanced approach when undertaking ecosystem and land use planning, so that diverse uses of the land can be considered before it is over-allocated. Non-Timber Forest Product harvest compliments other community-based economic development such as ecotourism and allows for the traditional use of the forest for hunting and trapping. Prospects such as a well-planned and managed Non-Timber Forest Product strategy can offer development with economic gains that stay within the community, and increased awareness about cultural and environmental heritage.

We hope that this fact sheet will contribute to the discussion about long-term sustainable economic development options for the province.



The **Saskatchewan Environmental Society** is a registered non-profit charity. Our mission is to work towards a world in which all needs can be met in sustainable ways. Sustainability will require healthy ecosystems, healthy livelihoods, and healthy human communities. The SES has been active in Saskatchewan since 1970. Through our volunteer committees we've worked on such issues as energy production and conservation, sustainable agriculture, mining, air and water quality, forests, and urban planning.

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For More Information

For more information on Non-Timber Forest Products, please contact:

Sheila Lamont
Botanist
Saskatchewan Conservation Data Centre
324 - 3211 Albert Street
Regina SK S4S 5W6
phone: (306)787-7198
e-mail: slamont@serm.gov.sk.ca

Robin J. Marles, Ph.D.
Associate Professor and Chair
Botany Department, Brandon University
270 18th Street
Brandon, MB R7A 6A9
phone: (204)727-7334
fax: (204) 728-7346
e-mail: marles@brandonu.ca

Gerry Ivanochko
Provincial Specialist Northern Agriculture Crop Development
Saskatchewan Agriculture, Food & Rural Revitalization
Box 5000, La Ronge, SK S0J 1L0
phone 1-800-665-4400 or (306)425-4400
fax (306) 425-4366
e-mail: givanochko@agr.gov.sk.ca

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