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"Doing it right": Issues and practices of sustainable harvesting of non-timber forest products relating to First Peoples in British Columbia

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Abstract

This paper addresses concerns about commercial harvesting of non-timber forest products (NTFPs) that relate to First Peoples in British Columbia. Many of the species identified as being significant, or having potential significance as NTFPs, are culturally important to First Peoples as sources of food, material, and medicines, or for their spiritual values. While there may be potential for First Peoples to develop local economies from the harvesting, processing, and marketing of NTFPs, there also is widespread concern that traditional values may be lost, and traditional plant resources treated as commodities and exploited by commercial interests. Previous experiences with overharvesting cascara and Pacific yew bark lend substance to this concern.

Aboriginal peoples have a long history of sustainable management of their lands and resources. Any proposed harvest and use of traditional resources should be under the control of, or in collaboration with, those First Peoples within whose traditional territory the resources are to be harvested. Applications of traditional management methods for NTFPs should be explored, but this should be done in collaboration with First Peoples and with full respect for their intellectual property rights.

Principles of sustainable harvesting of NTFPs are presented that may prove useful in ongoing deliberations about how, or even whether, communities should pursue non-timber forest products as a means of economic development.

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Introduction

At the beginning of the new millennium, British Columbia is following the lead of forest-based societies around the world in recognizing potential economic value, over and above the conventionally commercialized forest timber, in plants and fungi of forests and associated ecosystems (De Geus 1995; Mitchell 1998; Wills and Lipsey 1999). This accelerating interest in so-called "non-timber forest products" (also called "botanical forest products," or in some instances, "special forest products"[1]) has occurred partly in response to peoples' concerns over clearcutting and projected declines in industrial forestry as a major economic force in the province. The interest has also been fuelled to some extent by a general societal trend towards the appreciation of "green" conservation values and the appeal of herbal products and of "natural" or organic foods and medicines, as well as in learning from and supporting Indigenous cultures and lifestyles.

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For British Columbia First Peoples, many of the forest species identified potential products in a new economy have high cultural values and have been used for food, materials, and medicines since time immemorial (Turner and Hebda 1990; Turner 1995, 1997, 1998). Most of these species are named in many of the 30-plus Aboriginal languages of the province and some, such as devil's club (*Oplopanax horridus*), are particularly revered, having high religious and spiritual significance (Lantz [2001]). These plants, and products made from them, have been involved for millennia in an active trading network extending over all parts of the province's landscape and beyond (Turner and Loewen 1998). Thus, the concept of commercial exchange is not novel. However, the prospect of large-scale global marketing of these products presents major concerns for both Aboriginal and non-Aboriginal people alike. While there are a number of relevant issues in the harvesting and marketing of these products, perhaps the greatest general concern is the spectre of over-exploitation, as has occurred with the timber and fisheries industries in British Columbia.

Instances of abuse have already occurred to the detriment of the plants, the animals that depend on them, the ecosystems, and the local peoples who continue to rely on them for personal and community use. One example was brought up by the Ktunaxa Elders who spoke at a Non-timber Forest Products (NTFPs) workshop at Creston, B.C. They talked about how outsiders had come into their traditional huckleberry (*Vaccinium membranaceum*) picking grounds and had taken almost all the berries to sell to the commercial marketers in Alberta and the United States. As a result of this situation, not only did local Ktunaxa people lose their personal share and rights to the berries, but the bears, which also depend on this late-summer resource to sustain themselves, suffered food shortages in their mountain habitats and started to come down to the valleys where they became a menace; many bears had to be shot. In relating this heart-breaking situation, the Elders said that this was the main reason why they supported the delivery of the Creston NTFP workshop—they wanted all outsiders to understand the damage that was being done to their lands and resources, and wanted commercial exploitation in their territory stopped.

Other people who attended the Creston workshop, including some Ktunaxa/Kinbasket people, were cautious, but positive, about the potential for sustainable harvesting of various NTFPs to provide a means of local, culturally appropriate economic development. A similar range of opinions from Indigenous and non-Indigenous people has been expressed at other conferences on NTFPs (Ambers *et al.* 1998; United States Forest Service and The Taiga Institute for Land, Culture and Economy 1999).

[1] The "special forest products" designation is used in the United States synonymously with non-timber forest products, but in British Columbia this phrase generally pertains to specialized wood products, such as shakes and shingles (bolts and blocks), fence posts, cants, firewood, and Christmas trees.

Nevertheless, all those attending these conferences expressed concerns about conservation issues. Furthermore, people agreed that the prospect of commercial harvesting and processing of NTFPs was fraught with dangers and controversy, and that many issues required careful discussion. If any sort of commercial harvesting were to be sustainable, viable, and culturally valid, some kind of regulation would be necessary. This is as true in British Columbia as in any forested region of the world.

Regulating Harvests

A good example of how NTFP harvesting can get "out of hand" is the over-exploitation of cascara bark (*Rhamnus purshianus*) as a laxative product for the drug industry of an earlier generation. Cascara bark has been used, probably for thousands of years, as a tonic and laxative by First Peoples in western North America. It was soon adopted by Spaniards and other Europeans entering the region, and was added into the general American pharmacopoeia. In the early part of this century, especially during the 1930s and 1940s, many people in British Columbia participated in harvesting cascara bark as a way of earning a modest income. Although most were quite careful in harvesting, others did not consider the future needs of either plants or people and proceeded to strip the bark carelessly and wastefully, girdling and killing many trees in the process and virtually extirpating the species from some areas.

The provincial government of the day stepped in with regulations, and cascara began to be propagated and grown in plantations. At the same time, other laxatives came onto the market, and the species has made a healthy recovery over much of its natural range, although it is still considered rare in some places.

The warning signs were established with cascara, however, and several decades later the situation virtually repeated itself when the potent anti-cancer drug taxol (paclitaxel) was isolated from the bark of Pacific yew (*Taxus brevifolia*) and patented by the pharmaceutical company Bristol-Myers Squibb. The drug was approved for use in treating various types of cancer from ovarian and breast cancers to kidney cancer. To obtain enough taxol to proceed with clinical trials, the company placed orders for vast quantities of Pacific yew bark.

Within a short time, yew trees all along the Pacific Coast were being cut down for their high value bark—in some cases, trees were poached from private lands and parks—with little consideration for the other values of the yew tree (Hartzell 1991; Foster 1995). In particular, little recognition was given to the high cultural values that Pacific yew has for First Peoples, both for its medicinal use (see Turner and Hebda 1990) and for its tough, resilient wood. Yew wood has been prized by British Columbia First Nations, especially along the Coast, but also in areas of the Interior where it grows. This wood was used in the manufacture of bows, spear shafts, fishing gear, root-digging sticks, and snowshoes, as well as many other implements and cultural objects (Turner 1998).

Ironically, before the discovery of taxol and the rush to cash in on this pharmaceutical gold, yew had virtually no commercial value. Yew trees in West Coast forests were simply cut down and burned as "weed trees" during the course of clearcutting, to be replaced by higher-value Douglas-fir (*Pseudotsuga menziesii*) wherever possible. After some years of yew bark harvesting, and facing concerns for the future of this slow-growing species, the provincial government stepped in with regulations in an effort to protect the species from extirpation. Concurrent initiatives to propagate yew and grow it in plantations and to synthesize taxol from Pacific yew foliage and from other more prolific *Taxus* species have now alleviated the harvesting pressures. However, the warning signs explicit in these examples should be heeded: unregulated harvesting by uninformed people who are motivated by short-term profit can lead to harm for both the species being harvested and for others who rely on the species.

Adding Value with Non-timber Forest Products

Other trees, such as paper birch (*Betula papyrifera*), red alder (*Alnus rubra*), and trembling aspen (*Populus tremuloides*), have also been accorded little commercial value in the forestry industry. These trees have commonly been eliminated in favour of those of higher timber value, mostly the coniferous trees. Yet these deciduous species, as well as having important ecological functions, have multiple values for First Peoples. Gitxsan chief negotiator Don Ryan, in a talk to forestry and

conservation biology students at the University of British Columbia in the fall of 1998, spoke about the "$1000 Birch Tree." For the Gitxsan and other First Peoples who value both birch bark (for baskets and containers of many types) and birch wood (for carving spoons, dishes, and masks), one birch tree can readily bring $1000 in value. To the industrial forester, the same tree might be worth only a few dollars in pulp or chips. The pharmaceutical industry now recognizes that birch bark contains important compounds for use against skin cancer and other ailments (see Pisha *et al.* 1995). Thus, from a tree of virtually no value to commercial forestry, birch may be transformed to one of immense value as a source of pharmaceuticals. But again, the interests of First Nations may be little considered. Similar stories can be told of red alder, which is a valued medicine, dye, and wood for fuel and carving (see Sewid-Smith and Dick 1998; Turner 1998), and trembling aspen, used for its wood and its bark for medicine by British Columbia First Peoples (Turner and Hebda 1990; Turner 1998).

Aboriginal people I have talked with are particularly concerned about commercialization of traditional medicines. Medicines are considered sacred gifts, and many people do not even like the idea of selling them at all, as it contravenes cultural principles. Another important issue is intellectual property rights. Many "Indian" medicinal remedies have been marketed without any consultation or compensation for the original holders of the medicinal plant knowledge (Greaves 1994; Hersch-Martinez 1995; Posey and Dutfield 1996; Lewis *et al.* 1999; Lewis 2000; Bannister and Barrett 2001; Turner and Cocksedge [2001]). Pharmaceutical companies have also patented numerous drugs based on Indigenous knowledge. However, no patent legislation recognizes communal knowledge or the rights of a community to obtain benefits from this type of knowledge.

Furthermore, like other types of commercialized products, traditional medicine plants are at risk of being overharvested by unknowing, careless, or greedy harvesters. In the United States alone, some 29% of the country's 16 000 vascular plants are at risk of extinction. Much of this is attributed to habitat loss and the introduction of non-native species to sensitive ecosystems; however, for wild medicinal species, overharvesting is a real threat as well. The World Wildlife Fund in the United States, through a program called "TRAFFIC North America," is trying to gain a better understanding of commercial harvesting of North American medicinal plants in an effort to prevent, reduce, and eliminate unsustainable practices of harvesting and trade. United Plant Savers (***www.plantsavers.org/***) is another US-based organization that focuses on conservation issues relating to wild and native medicinal plants. Many wildcrafters—people who harvest medicinal plants and other NTFPs from the wild—are concerned about conservation of the species they harvest and some have developed codes of ethics and harvesting. (See, for example, Howie Brownstein's Web site [***www.teleport.com/~howieb/treats/wildcrft.html***], which contains a "checklist" of good stewardship practices in wildcrafting.)

Traditional Resource Management in British Columbia

First Peoples of British Columbia have often been termed "hunter-gatherers." This implies that traditionally they were random users of the landscape, harvesting what they found growing naturally, with little effect on native plants and animals. In fact, peoples' Traditional Ecological Knowledge was, and is, immense. It incorporates not only philosophies of respect for all life, and cultural sanctions against waste and wanton use of resources, but also many practical strategies for sustainable living, including knowledge of:

- harvesting selectively,
- diversifying the harvest, and
- maintaining and enhancing the ability of resources to renew themselves through vegetative propagation, seed dispersal, and habitat modifications such as controlled burning (Bandringa 1999; Turner 1999; Turner *et al.* 2000).

As in other parts of North America (see Anderson and Nabhan 1991; Blackburn and Anderson 1993; Minnis and Elisens 2000), pruning and tending plant resources were commonly practised techniques. Sometimes bushes were coppiced, or cut right back to the ground and allowed to re-sprout and re-invigorate themselves. Communication of such techniques, and learning about the caring for and tending of resources, was also an important

component of this type of knowledge. For example, from an early age children were taught to respect plants and animals, to harvest carefully, to watch for signs of overharvesting, and to use alternate resources if some types should become scarce. Many of the philosophies were transmitted through telling stories, which the children would hear many times over. This repetition helped them to remember important points of culture, ethical behaviour, and practice (see Fowler and Turner 1999; Peacock and Turner 2000; Turner *et al.* 2000; Turner and Peacock 2001).

Land tenure has always been an important element of land and resource use by First Nations. In the past, sophisticated systems were in place that recognized the control, management, and use of traditional territories by individual communities or families. Outsiders were not allowed to enter a community's lands or to use their resources without permission. This allowed the residents to plan and make decisions relating to their own resources (Turner and Jones 2000; Turner *et al.* [2001]). Therefore, retaining tenure and the appropriate control over land bases is a key to First Nations' participation in and management of any kind of wild plant resources. After all, who could be more familiar with current and local conditions, including the needs of bear, grouse, and other wildlife? Who knows, better than people who are always out on the land, when there is a good berry-harvesting year, or a bad one, when it will be all right to harvest, and when it is necessary to hold back? To date, of the modern treaties under negotiation with First Nations in British Columbia, only the Nisga'a Treaty has been signed and ratified; however, a number of others are at various stages of development. Control over traditional lands and resources, including hunting and fishing rights, as well as rights to harvest, use, and sell various types of forest and botanical resources, are major components of these negotiations. Many would argue that such rights are enshrined in the Charter, and a number of recent court cases have upheld these rights. Any initiatives to use NTFPs from First Nations' traditional territories should take this into consideration.

Principles of Sustainable Harvesting

Two years ago, in June 1998, we drafted some Principles of Sustainable Harvesting (see page 10 and 11) that we feel would provide an ethical, ecologically sound basis from which to regard or practice harvesting of non-timber forest products. These principles are arranged in groupings of different types of considerations, including ecological and biological factors, harvesting factors, cultural and social factors, and marketing and economic factors. These principles represent a beginning. They are broad and general, and require adaptation to local conditions and local cultures. However, they may be useful in ongoing deliberations about how, or even whether, communities should pursue non-timber forest products as a means of economic development.

Many environmental organizations focusing on forest stewardship and biodiversity conservation have also developed underlying principles that have similar themes to those listed here (see, for example, Forest Stewardship Council [***www.fscus.org/html/index.html***]; Center for International Forestry Research [***www.cifor.cgiar.org/CimatWeb/ie4/acm.htm***]; and International Tropical Timber Organization [***www.itto.or.jp/Index.html***]. In recognizing that forest use and conservation must be linked with the rights and well-being of local and Indigenous Peoples and must integrate ecological and social aspects of forest sustainability, these organizations follow the lead of many important international initiatives and conventions, including the Brundtland Report (United Nations Commission on Environment and Development 1988), Agenda 21 (United Nations Commission on Environment and Development 1993), the UN Convention on Biological Diversity (United Nations 1992), the UN Agreement on Forests (United Nations 1993), and the Draft UN Convention on the Rights of Indigenous Peoples (United Nations 1994).

The fundamental and founding aims of the Forest Stewardship Council (FSC), for example, are to support "environmentally appropriate, socially beneficial, and economically viable management of the world's forests." Thus, the social and cultural attributes of forests are embedded in the Council's role. Social and cultural factors are recognized and cited throughout their principles.

The rights of Indigenous Peoples are defined in the third Council principle, which more or less mirrors the principles stated in the United Nations Convention on Biodiversity and Agreement on Forests:

FSC Principle #3: Indigenous Peoples' Rights

The legal and customary rights of indigenous peoples to own, use and manage their lands, territories, and resources shall be recognized and respected.

3.1 Indigenous peoples shall control forest management on their lands and territories unless they delegate control with free and informed consent to other agencies.

3.2 Forest management shall not threaten or diminish, either directly or indirectly, the resources or tenure rights of indigenous peoples.

3.3 Sites of special cultural, ecological, economic or religious significance to indigenous peoples shall be clearly identified in cooperation with such peoples, and recognized and protected by forest managers.

3.4 Indigenous peoples shall be compensated for the application of their traditional knowledge regarding the use of forest species or management systems in forest operations. The compensation shall be formally agreed upon with their free and informed consent before forest operations commence.

This principle, along with other FSC principles and those of other organizations like the Silva Forest Foundation (***www.silvafor.org***) and the Forest Stewards Guild (***www.foreststewardsguild.org/***), has direct implications for harvesting and sustaining NTFPs, although most principles relating to forest stewardship focus mainly on timber production with references to NTFP harvest being a secondary consideration. Legislation pertaining to harvesting of NTFPs, too, is not generally in place, except in special circumstances. The British Columbia Forest Practices Code (British Columbia Ministry of Forests 1995) contains a provision for establishing regulations for NTFPs, but to date, such regulations have not been imposed or developed.

Initiatives for certification of forestry practices and products also generally focus on timber extraction (see, for example, *Silva Foundation News* 1999; Hammond 1999; Fitzgerald 2000; Sierra Club 2000; Forest Stewardship Council 2000), although the ultimate goal of most certification programs is to encompass the harvesting of NTFPs, as well as dimension lumber and Special Forest Products[2].

Conclusions

The principles of sustainable harvesting of non-timber forest products presented here are only a few of the considerations that are important for those who wish to benefit commercially from wild plant resources and other non-timber forest products. We still need to learn a great deal about the growth and productivity of various species, and the social and cultural ramifications of restructuring the economies of local communities. In companion papers presented at the Creston NTFP Workshop in June 2000, Wendy Cocksedge and Trevor Lantz presented two case studies on research relating to ecology and other factors for harvesting salal (*Gaultheria shallon*), and devil's club (*Oplopanax horridus*) (Gayton 2000). The research in both of these cases has been centred on Vancouver Island, but the lessons they provide can apply in many places. Harvesting of non-timber forest products is definitely in the realm of "adaptive management"; we still need to learn as we go, and remain flexible enough to modify our practices if they seem to cause harm. Following the lead, advice, and preferences of First Nations in harvesting NTFPs can give us much wisdom and direction.

[2] For example, the Forest Stewardship Council held a workshop in Oaxaca, Mexico (November 7, 2000), on NTFP Guidance to Certifiers, at which important issues relating to NTFP certification were discussed.

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Principles Of Sustainable Harvesting Of Non-Timber Forest Products

A. General Factors

- Practices and regulations for harvesting and marketing non-timber forest products should meet or exceed those established or recommended by international conventions, such as the United Nations Convention on Biological Diversity (1992) and Agreement on Forests (1993) for both ecological and social standards.
- Practices and regulations should build on principles and initiatives for forest stewardship already established, such as those of the Silva Forest Foundation and the Forest Stewardship Council.
- Certification for NTFPs should be a goal to strive for; organizations such as the Forest Stewardship Council, having an established record of respect for both ecological and social concerns, could provide the context for certification.

B. Ecological and Biological Factors

- Ecosystem integrity has primary importance.
- Species interact with and depend upon each other.
- Species respond differentially to harvesting, depending on a multiplicity of biological and ecological factors.
- Reproductive and regenerative capacity and rate determine or influence sustainable harvesting potential.
- Some species have extremely high ecosystem values (i.e., keystone species); these species must be monitored and protected extremely carefully.
- Ecosystems undergo successional changes following disturbance, including large-scale disturbances such as burning and logging.
- Genetic (population) diversity and diversity of ecological structure and function, as well as species diversity should be recognized.
- Maintenance of population characteristics is a fundamental objective (e.g., need to maintain a balance of age classes, the range of genetic variability, and habitats); the biggest threat to biodiversity is habitat loss.
- The cumulative effects of harvesting should be considered (e.g., combined effects of harvesting with other activities, such as overgrazing, wetlands depletion, pests, urbanization) when determining the carrying capacity of an ecosystem.
- Small, dispersed populations are generally more vulnerable than widespread, large populations (but these can also be at risk; e.g., bison, passenger pigeon).
- Species with low reproductive capacity, little ability to disperse, and low adaptive capacity are at higher risk from harvesting activities.
- Natural, long-standing ecosystems should be protected against invasive species (weeds or invasive animals); this must be considered in terms of harvesting-related disturbance.

C. Harvesting

- Harvesting intensity, seasonality, and periodicity affect species responses.

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- Extensive time periods must be considered in measuring responses to harvesting (i.e., develop harvesting and marketing in a long-term perspective, with the needs and opportunities of future generations' in mind).
- Constant monitoring and adaptive management are essential. Keep careful records, maps, documentation. Note that Traditional Ecological Knowledge incorporates adaptive management, and adopting TEK methodologies can assist in this goal (see Berkes *et al.* 2000).
- Diversification of products reduces effects on species and populations.
- Adding value to non-timber forest products is a key to sustainability.
- Harvesting whole plants from the wild is not desirable.
- Harvesting methods should minimize disturbance to natural ecosystems.
- Non-consumptive "use" of products should be encouraged (e.g., photography, ecotourism, educational programs).

D. Cultural and Social Factors

- For culturally important species, Indigenous Peoples have developed a variety of conservation and sustainable harvesting practices, including adaptive management methods. These practices are often inextricably linked to peoples' worldview and spiritual values.
- Local knowledge is crucial; so is scientific knowledge.
- Sustainable harvesting potential should determine marketable product calculations (i.e., what the ecosystem can support, not what the market requires).
- Education, collaboration, and agreement on principles of sustainability and mutually agreed upon and applied controls or rules are all crucial. Harvesting should be co-ordinated, monitored, and controlled to reduce risks of cumulative harvesting impacts.
- Intellectual property rights of Indigenous Peoples must be acknowledged and protected. So must private land ownership, particularly First Nations' lands and traditional territories.
- Safety and well-being of harvesters, and users (including non-human users) of non-timber forest products is of paramount importance.

E. Marketing and Economic Factors

- All values (ecological, cultural) of non-timber forest products should be considered, not just monetary values. Monetary values should be subservient to ecological and cultural values. Maintain holistic, interdisciplinary approaches to product selection, harvesting, and marketing.
- Accessibility is a factor in harvesting.
- Marketing strategies should include consideration of local products and cultural associations.
- Efficient marketing entails proper storage and preservation, local processing and marketing, and reducing wastage.
- "Clusters" of compatible products (e.g., health and cleansing products) from one region will improve marketing efficiency.
- Partnerships and co-operatives often build strength and resiliency where harvesting and marketing products.
- Product packaging and "image" are of primary importance. "Green" products should be produced ethically, and with "green" packaging and distribution.