

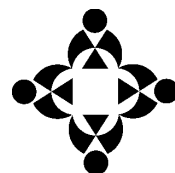


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Non-timber Forest Products Workshop:

Creston, B.C., May 22–24, 2000

Report and Recommendations



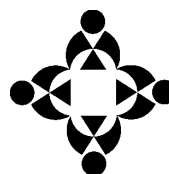
Southern Interior
Forest Extension and
Research Partnership

Non-timber Forest Products Workshop:

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Report and Recommendations

Donald V. Gayton (editor and compiler)



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Ktunaxa-Kinbasket Treaty Council



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1 INTRODUCTION

British Columbia's Interior forests are a rich storehouse of food, medicinal, industrial, aesthetic, and spiritual resources. Commercial interest in non-timber forest products (NTFPs) is growing rapidly, but many of these same products have always been used by First Nations people. As a result, commercial harvesting of NTFPs is coming into frequent conflict with traditional First Nations' use in many parts of British Columbia. Regulation is a thorny issue. The baseline ecology and sustainable levels of harvest of NTFPs are largely unknown.

Co-sponsored by the Ktunaxa-Kinbasket Treaty Council, the Southern Interior Forest Extension and Research Partnership, and BC Hydro, the Non-timber Forest Products Workshop was designed to bring diverse groups together to discuss these issues in an atmosphere of informal dialogue and information exchange. The 110 participants were from First Nations communities, wildcrafting groups, industry, academia, and government. The workshop setting was the wooded grounds of the Lower Kootenay Reserve, just south of Creston, near the historic Kootenay River.

This report documents the proceedings of the workshop, and consists of summaries of the presentations and plenary recommendations to government. A compilation of comments made during the participant breakout sessions, workshop evaluation results, and list of workshop participants are presented as appendices. In instances where full transcripts of the talks are available, author contact information is noted.

The non-timber forest products industry in its infancy, so we still have a chance to "get things right," striking a respectful balance between traditional First Nations use and sustainable commercial exploitation, between local control and government regulation, between education and enforcement. The speakers and participants at this workshop helped to clarify these complex issues and to identify points of consensus as well as knowledge gaps.

In addition to thanking our sponsors and speakers, I would also like to extend thanks to the Lower Kootenay (Yaqan Nukiy) Band for the use of their facility, to the College of the Rockies (Creston Campus), and to recorders Henry Michel, Reg Whiten, and Alan Wiensczyk. A particular vote of thanks goes to Michael Keefer, who had the vision and persistence to bring this workshop from idea to reality.

I have done my best to condense voluminous workshop notes into a readable document, and take responsibility for any errors or omissions.

Don Gayton, Extension Specialist
Southern Interior Forest Extension and Research Partnership

2 SUMMARIES OF PRESENTATIONS

2.1 Chairman Paul Stanley, Elder, Columbia Lake Band

In his introductory remarks as the Chair for the Workshop, Paul Stanley told the Ktunaxa legend, “How chipmunk got his stripes.”

One late afternoon, a little boy chipmunk noticed a bush full of ripened berries not far from home: “These big juicy berries must be eaten now before they all fall to the ground, then that would not be wasting!” With that kind of thinking Mummy couldn’t say no to her little son’s begging to go and pick those berries right now. “But remember, it is getting late in the day so you must be back home before sundown or the owl will grab you and take you away forever into the high mountains and we will never see you again,” was his Mummy’s ominous reminder. You see, children who disobey their parent’s orders and directions, especially about wandering too far from home, are usually lost to that big owl (in those days owls were bigger than bears) who would take these naughty children to his huge home up high in the mountains and keep them forever! “Oh yes! I promise to be home before sundown Mummy – bye,” little boy chipmunk promised.

Wouldn’t you know it, the little chipmunk wasn’t half finished picking the berries when he noticed the sun was disappearing over the mountains and remembered his mothers words: “be home before sundown”! At that instant, the owl landed right below him as he was picking around the bush starting from the top. Now he knows he is caught. When the sun disappears over the mountain, the owl will catch him for sure! He must take his chance now and run down as fast as he can past the owl and home to dear Mummy; taking chances in life can sometimes be the only option left for us and perhaps many of us do belong to the chipmunk clan, for we had dared take that big chance and won for ourselves a better lot in life. Little boy chipmunk made it home to Mummy that night with a permanent reminder of that close call—scratch marks on his back that are noticeable to this day.

2.2 Elder Wilfred Jacobs, Ktunaxa Hereditary Chief (Spiritual name: Buffalo Bull Head)

The Ktunaxa hereditary system of governance was powerful, compared to the current government system in which 51% of the people are satisfied while 49% are not. “The concept of sovereignty has been made a mockery of today.” Through the work of the hereditary system, our own internal sovereignty is kept alive. Ktunaxa people understand that their rights have never been extinguished. In the old days, young Ktunaxa heard the oral history, the unwritten and natural laws. They understood that the natural laws can never be changed. The way in which the Ktunaxa people were created and placed in five Ktunaxa territories, and given a set of natural laws, is all part of the Ktunaxa Genesis.

For the Ktunaxa, every living thing on the land is medicine, and we have been given the ability to communicate with all living things. That power is our spirituality. People who are interested in ethnobotany and non-timber forest products must communicate with us, in order to understand these things.

This NTFP workshop is an example of science and spirituality working together. I call for a blessing for the participants so that this workshop will accomplish the things necessary to protect the non-timber forest products. To give you some background to the Ktunaxa territory, I will tell you our creation story.

Creation

In ancestral times, referred to by the Ktunaxa as the Animal World, there were references made many times by the head Nupiká as to when there would be ?Aqšmaknik' (people).

At that time, there was some disturbance caused by a huge sea monster known as Yawu'nik', who killed many of the animals. A council was called by the Chief animal, Našmuqcin. Našmuqcin was huge. He was so tall that he had to crawl on his hands and knees, for if he stood up his head would hit the ceiling of the sky.

It was decided that Yawu'nik' had to be destroyed. A war party was formed. The Monster Yawu'nik' plied the Kootenay and Columbia river systems including Columbia Lake and the Arrow Lakes. Yawu'nik' was sighted in Columbia Lake near Yaqa 'n Nukiy and the chase was on. At that time, the Kootenay River and the Columbia Lake were joined. As the chase proceeded, Našmuqcin gave names to many locations along the Kootenay River, Kootenay Lake, Arrow Lakes, and the Columbia River.

Yawu'nik' was pursued down the Kootenay River past the Wasa Sloughs, now called Wasa. Skinkuç got into trouble when he fell into the river and had to be rescued by Wasa (horse-tail).

The chase went past where the St. Mary's River empties into the Kootenay River (?aqam), where the St. Mary's Reserve is now located, then on down river to Kan'kak (spring), where Mayuk (weasel) joined the war party. There were animals on both sides of the river as the chase continued, and among the party was a parasite (?a·kuk šakuwum) who had to be carried on the back of other animals. His name was Čumtus and he was mean and bossy. The other animals grew tired of his nagging and dumped him into the river at a place known as Yaqa·kiš wafmit (qušiki čumtus).

Leaving the land of the Eagle, ?Akn·uqšam' Amašis, and into the land of Čamna ?Amašis (wood tick), the chase went past Wasa'ki (Waldo) then on past the now 49th Parallel and then past Kaxax (turtle—now underwater near Rexford, Montana). The chase went on by ?A·ki'yi (Jennings, Montana) and on by ?Aqswaq (Libby), then into the land of the Coyote, Skinkuç ?Amašisand, past ?Aqanqmi (Bonner's Ferry, Idaho). Then it turned north past the now international boundary into the land of the Wolverine, ?Açpu ?Amašis, past Yaqa 'n Nukiy (Creston, B.C.), then up Kootenay Lake past ?Aqasqnuq (Kuskanook).

The chase went on by ?Akuqš (Akokli Creek), past Sanca Creek (known to the Ktunaxa as Ksanka Creek). The monster chose to follow the Kootenay River past ?Aqyamšup (Nelson). Somewhere near this area the chase was now in the land of the Chickadee, Miçqaqas ?Amašis.

At Kikšituk, (Castlegar), the monster went north into the Arrow Lakes, past ?Akin'ka'nuk (Arrow Rock) where arrows were shot into a crevice in the rock. If the arrow was true, the journey continued; if the mark was missed, beware: danger ahead. The journey continued past čamnu'nik' (Nakusp), then up past Ktunwakanmituk Miçqaqas (Revelstoke), where the Columbia River flows into the Arrow Lakes, then up and around The Big Bend, then down past ?Aknuqšuk (Golden), and past Yaknusu'ki (Brisco). The chase carried on through Kšitqatwumšat ?Amašis (Land of the Kinbaskets, as it is now known), then on through Kšutmik

(Radium), past Kananuk (Windermere), past ?Akiskq̄nuk (Windermere Lakes), and finally back into the Columbia Lake, Yaqa n Nukiy (Canal Flats). This completed the cycle of the chase.

Yawu?niḱ would once again escape into the Kootenay River and the chase would go on. The chase would go on and on. Every time the chasers thought they had the monster cornered, Yawu?niḱ would escape again.

One day sitting on the river bank observing the chase was a wise old man named Kik̄um. The wise old man told the giant Naḱmuq̄cin: “You are wasting your time and energy chasing the monster. Why not use your size and strength, and with one sweep of your arm, block the river from flowing into the lake and the next time the monster enters the lake you will have him trapped.” Naḱmuq̄cin took the advice of Kik̄um and did as he was told. The next time the monster entered the lake, he was trapped. Having successfully corralled Yawu?niḱ, a decision had to be made as to whom the honor of killing the monster would be bestowed upon. The honor was awarded to Yamakpaḱ (Red-headed Woodpecker).

When the monster was killed, it was taken ashore and was quartered into many pieces and distributed among the animals. There remained only the innards and bone. The ribs were scattered throughout the region and form the Hoo Doos now seen throughout the area.

Naḱmuq̄cin then took the white balloon-like organ, known as the swim bladder, and crumbled it into small pieces and scattered it in all directions saying: “These will be the white race of people; they will be large in numbers and they will be powerful.” He then took the black ingredient from the inner side of the backbone, the kidney, and broke it into small pieces and scattered them in all directions declaring: “These will be the black race; there will be a lot of them, but they will be weak.” He then took the orange roe and threw the pieces in all directions saying: “These will be the yellow race of people; they will be large in numbers and they will be powerful.”

Naḱmuq̄cin looked at his bloody hands and reached down for some grass to wipe his hands. He then let the blood fall to the ground saying: “This will be the red people; they will remain here and they will be small in numbers, but they will be powerful.” Having now fulfilled the prophecies that there would be mankind, Naḱmuq̄cin, in all the excitement, rose to his feet and stood upright, hitting his head on the ceiling of the sky, knocking himself dead. His feet fell northward and are today known as Yakḱiki, in the Yellowhead Pass vicinity. His head lies near the Yellowstone Park in the State of Montana. His body forms the Rocky Mountains.

The people were now keepers of the land. The spirit animals ascended above and are now the guiding spirits of the people.

Texas, Niḱsik ?Ak̄am (Wilfred Jacobs)

2.3 Michael Keefer, Ethnobotanist for Ktunaxa/Kinbasket Tribal Council

This NTFP workshop was developed from a Ktunaxa Elders Meeting. Elders were concerned that outsiders were coming into Ktunaxa territory and harvesting huckleberries for commercial use; strip picking, not leaving any for bears. However, it is not only huckleberries that are of concern; all plants that have cultural and spiritual significance are of concern. Huckleberries represent the “tip of the iceberg.”

Traditional Ecological Knowledge (TEK) is the best ecological education a resource manager can have. From my perspective, three options are available for non-timber forest products:

- continue the chaos that now prevails,
- regulate NTFP through the existing *Forest Act* legislation, or
- develop a custom regulatory approach that involves self-regulation.

Whichever option is used, it is clear that a system must be developed for managing non-timber forest products.

2.4 Pete McCoy, Assistant Ethnobotanist, Ktunaxa/Kinbasket Tribal Council

As a young boy I recall travelling with my family into the harvesting areas, following the traditional pattern. There were no roads into the picking territories then, and very few people picking. They stayed for 3–5 weeks, most of the time in isolation. We took some of our berries down to Montana and sold them to certain families every year. Now the access is so easy that many more people are picking. Heavy human use of the traditional areas (by pickers, loggers, recreationalists) means that the quality of the local drinking water is poor, and noxious weeds have invaded. Because of overharvesting, crops are poor now, and it puts traditional foods at risk.

In the traditional regulation system for managing traditional foods, recognized but unwritten family boundaries existed for harvesting areas, and these areas were not harvested every year. One year, families would harvest a crop in one area and the next year, harvest in another area. If there was a crop shortage in a region, families would gain permission to harvest from other family areas, where the berry crop was more plentiful. The economics of the traditional harvest was based on sharing the resource, as opposed to the current practise of taking everything from an area and leaving nothing for other users.

2.5 Liz Gravelle, Elder, Tobacco Plains Band

As a child, I remember being strapped behind my mother on a horse and travelling 2–3 days out to the berry picking areas. People only took what was needed for the winter in those times and there were no bear problems. I notice now that clearcuts provide berries for the first few years after logging, but then the berries dry up. This is due, I feel, to the loss of a mature forest canopy after the clearcut—there is no more protection for the huckleberries. Clearcuts also ruin the drinking water in the berry picking areas. Commercial pickers are now coming in with picking machines, which not only take the crop, but strip the leaves and ruin everything. The commercial pickers are so greedy: maybe we should put a price on knapweed, and then they can clean it right out of the territory!

The overharvesting of huckleberries means that none are left for the bears, and that means the bears move into populated areas, looking for the nutrition that the berries used to provide. The many strategies used for managing the forest right now are not only harmful to many native plants and medicines, but also miss the fundamental point—that when left alone, nature looks after itself.

2.6 Sinclair Tedder, Economist, B.C. Ministry of Forests, Victoria, B.C.

I am currently studying commercial and traditional uses of non-timber forest products, and how these uses integrate with commercial forestry. I am the only person in the Ministry doing research on NTFP at this time.

The first non-timber forest product legislation in British Columbia dates back to 1958 and covered the use of cascara bark. Legislation was put into the *Forest Act* to keep track of what was being harvested. The *Forest Act* and the Forest Practises Code provide a framework for the development of NTFP regulation; however, none of this legislation has been used. Non-timber forest products are considered a common property—referred to as an open resource. The government role in resource use management of these products is governed by the following principles:

- sustainability,
- multiple use,
- social and economic factors,
- health and safety issues, and
- government revenue.

Legislating NTFPs is complex because commercial, non-commercial, and traditional harvesting are involved.

The next steps proposed for the management of NTFPs include the following:

- Communicate the goals of various NTFP management schemes.
- Expand and organize research efforts.
- Identify long- and short-term management needs.
- Regulate all human users before regulating wildlife use of NTFPs.
- Integrate natural law with Western land management philosophies.
- Develop agreements and protocols to manage (or co-manage) NTFP pilots.
- Develop community forest agreements.

To value non-timber forest products, we need to see the value of a whole forest instead of seeing it just as a repository of dimensional lumber. The management of NTFPs should be integrated into ecosystem management, and into aboriginal property rights as described in the Delgamuukw decision.

2.7 Francis Auld, traditional spokesperson for Confederated Kootenay and Salish Tribes of Montana

(Spoke first in Ktunaxa language.) Ktunaxa culture is endangered by the technological society of today. Although technology is supposed to better our society, we the Ktunaxa people are more at risk of completely losing our traditions as a result of the effects of technology. The Ktunaxa worldview encompasses all components—spirituality, the physical, the emotional, and the mental. Before contact with the European people, there were between 10 000–12 000 people in the Ktunaxa Nation. Our footsteps covered our traditional territory which makes up parts of Washington, Montana, Idaho, and Canada. Ktunaxa life revolved around seasonal hunting and harvesting. But as a result of European contact, we've been compartmentalized. Impacts came from the Jesuits, fur traders, miners, the U.S. government, and homesteaders.

In 1492 we started losing our way of life as Aboriginal First Peoples of this Western hemisphere, to a strange culture that didn't understand our method of living. In two generations, our way of life had been decimated by the impact; we are, in effect, prisoners of war. I say "prisoners of war" because the U.S. government took our people's freedom away from them, and placed us onto lands that are unsuitable for producing any livelihood for the future. Now

in most cases, making any major decisions within our Tribal system requires U.S. government approval.

It has been only in the past few years that we have started rebuilding our Ktunaxa ways and exercising our rights on aboriginal territories. Health is first and foremost in indigenous life. It will be through our work to reintroduce our people to the uses of our traditional foods and medicines on the land that we will regain the healthy way of life. The Eco-agricultural Garden is a small step in reaching these goals. We want to use our traditional plants and develop them in the garden. We can then replant them in areas that have been affected by forestry and grazing and rotate these areas between the varied stages of use. Eco-agricultural gardens can also produce useful medicinal plants and berries, which can then be transplanted into areas where they have been eliminated. On the reservation, this means integrating NTFPs with tribal forestry; in other words, co-management.

This is just one small step in rebuilding a large structure of traditions that needs to survive for future generations.

2.8 Rebecca Richards (University of Montana) Evolution of NTFP Harvesting in the United States

The history of the traditional gathering of non-timber forest products is the history of women and families in North America. When gathering becomes a commercial harvesting activity, more men become involved. This involvement demonstrates women's changing roles in the community and a shift in social power away from the household and toward the industrialized marketplace. Harvesting, as an economic activity, has historically moved from east to west following the non-native settling of North America.

The shift from traditional gathering to commercial harvesting has depended on changing land tenure patterns. In the colonial northeast United States, the Puritans set their communities up as a congregational group village with a common area around the village. Everyone in the village could gather food plants from these common areas. In the southern United States, on the other hand, areas of land were given as land charters to single owners. Hence, non-owners had to seek landowner permission to gather. As settlement moved west, different forms of land tenure were applied. The federal government claimed large areas of land with the *National Forest Act*. Hence, non-native settlers in the west could first gather freely, but then increasingly had to seek federal permission.

As part of treaties, some Native American tribes were given land areas as reservations (reserves). These treaty rights included hunting and gathering rights, both on and off the reservation. Other Native Americans, particularly the California tribes, were removed from their native lands without treaties. Various federal laws have allowed them limited hunting and gathering rights. Currently, NTFP gathering rights for Native Americans vary from tribe to tribe.

The case of ginseng root harvesting illustrates the evolution of NTFP commercial harvesting in North America. In 1714, ginseng was recognized by the Jesuit missionaries in Quebec as a potential commercial product for export to China. Ginseng soon became Canada's second largest trade item after furs. In 1824, 375 tons of ginseng was exported from the Appalachian region of the United States. As ginseng harvesting expanded and became commercialized, women's role in gathering the plant for household use dwindled. Ginseng harvesting was in many cases a family's first entry into the cash economy, as a supplement to the household

subsistence income. Ginseng root takes a long time to establish itself and is currently on the threatened species list in Virginia because of the heavy commercial harvest.

The 1930s became the first period of intense commercialization of NTFP medicinal plants in the Pacific Northwest. Originally, people might harvest for their household use and then sell the surplus. By the 1930s, people were harvesting plants that they did not use at home, solely for the commercial market. This transition from subsistence to commercial picking was driven by the Depression and its unemployment, which highlighted the importance of alternative cash work.

Wild huckleberry harvesting and gathering began as a family activity. Between 1930 and 1945, family gathering had shifted to commercial harvesting as a huckleberry canning industry developed. After World War II and until about 1979, the region's economy boomed, and the huckleberry market fell. It was revived with the tourist industry in the 1980s.

Montana has fewer than one million residents, but receives nine million visitors per year. At nine visitors per resident, tourism is a thriving industry. "Wildcrafting" or the commercial harvesting of NTFPs is a marketing strategy. Wild berry harvesting can take on a gold rush mentality, since picking the most berries in the least amount of time with the least effort is the new commercial goal. With new commercialization opportunities and high prices come new technologies and harvesting practices. In 1990, huckleberry sales in Montana had generated \$980,000; by 1996, the value had climbed to \$1.528 million—a 36% increase. In 1996, Montana had 14 major huckleberry manufacturers, who were buying about 30 tons of berries each year. Most of the huckleberry sales are local or regional.

2.9 Nancy Turner, Ethnobotanist, University of Victoria "Doing it Right": Issues and Practices of Sustainable Harvesting of Non-Timber Forest Products

British Columbia is recognizing potential economic value in non-timber plants and fungi of forests and associated ecosystems. This accelerating interest in, and increased profile of, non-timber forest products has occurred partly in response to peoples' concerns over clearcutting and projected declines in industrial forestry as a major economic force in the province.

For British Columbia First Peoples, many of the forest species identified as having potential as products in a new economy have high cultural values and have been used for food, materials, medicines, and for other cultural purposes since time immemorial. However, the prospect of large-scale global marketing of these products presents major concerns for both Aboriginal and non-Aboriginal people alike. The greatest general concern is the specter of over-exploitation, such as has already occurred with the timber and fisheries industries in British Columbia.

Other people, including some Ktunaxa/Kinbasket people, are cautious but positive about the potential for sustainable harvesting of various NTFPs to provide a means of local, culturally appropriate economic development. Everyone, however, is concerned about conservation issues, and agrees that the prospect of commercial harvesting and processing of NTFPs is fraught with dangers and controversy. Many issues would need to be carefully discussed, and some kind of regulations put in place, if any sort of commercial harvesting is to be sustainable, viable, and culturally valid.

A good example about how NTFP harvesting can get "out of hand" is in the over-exploitation of cascara bark (*Rhamnus purshiana*) as a laxative product. It was soon adopted by Spaniards and other Europeans, and entered into the general American pharmacopeia. In the 1930s and 1940s, many people in British Columbia participated in harvesting cascara bark as a way of

earning a bit of money. Although most were quite careful in harvesting, others proceeded to strip the bark carelessly and wastefully, virtually extirpating the species from some areas.

The provincial government of the day stepped in with regulations, and cascara began to be grown more 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 set out with cascara; however, several decades later the situation virtually repeated itself when the potent anti-cancer drug, taxol, was isolated from the bark of Pacific yew and patented by the pharmaceutical company Bristol-Myers Squibb. As the drug was approved for use in treating various types of cancer, including ovarian, breast, and kidney cancers, the company placed orders for vast quantities of Pacific yew bark in order to obtain enough taxol to proceed with clinical trials.

Within a short time, yew trees all along the Pacific Coast were being cut down for their high-value bark—in some cases, they were even being poached from private lands and parks—with little consideration for the other values of the yew tree. In particular, little recognition was given to the fact that Pacific yew has high cultural values for First Peoples, both for its medicinal use and for its tough, resilient wood, which has been prized for the manufacture of many implements and cultural objects by British Columbia First Nations, especially along the Coast, but also in areas of the Interior where it grows.

Other trees (e.g., paper birch, red alder, and trembling aspen), like yew, have been attributed little commercial value in the forestry industry. Yet, these deciduous species have multiple values for Aboriginal people. Don Ryan, Gitksan chief negotiator, speaks about the “\$1 000-Birch Tree.” For the Gitksan and other First People who value birch bark for baskets as well as birch wood for carving spoons, dishes, and masks, one birch tree can easily bring \$1 000 in value, whereas to the industrial forester, it might be worth only a few dollars in pulp or chips. Birch bark is now coming to be recognized in the pharmaceutical industry as containing important compounds for use against skin cancer and other ailments. Thus, from a tree of virtually no value to commercial forestry, it may be transformed to one of immense value as a source of pharmaceuticals. But again, the interests of First Nations will be little considered.

First Peoples I have talked with are particularly concerned with 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. There is also the important issue of intellectual property rights; many times “Indian” medicinal remedies have been marketed without any consultation or compensation for the original holders of the medicinal plant knowledge. Pharmaceutical companies have patented many drugs based on Indigenous Knowledge.

First Peoples of British Columbia have often been termed “hunter-gatherers,” with the implication that they were random users of the landscape, harvesting what they found growing naturally, and having little impact on native plants and animals. In fact, peoples’ Traditional Ecological Knowledge was, and is, immense, and people were careful and skilful managers of species and habitats.

Land tenure has always been an important element of land and resource use by First Nations. In the past, there were sophisticated systems in place to recognize control, management, and use of traditional territories by individual communities or families. Outsiders were not allowed to enter a community’s lands or use their resources without permission. This allowed the

residents to retain abilities for planning and decision making related to their own resources. In my view, having appropriate control and tenure over land bases is a key to First Nations' participation in, and management of, any kind of wild plant resource. After all, who could be more familiar with current and local conditions, including the needs of bear, grouse, and other wildlife?

In June 1998, we drafted some "Principles of Sustainable Harvesting" [available in full text of this paper] 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 are only a beginning. They are broad, general principles, and would need to be adapted to local conditions and local cultures.

2.10 Trevor Lantz (University of Victoria) Developing Culturally and Ecologically Sound Harvesting Practices for Devil's Club

Devil's club (*Oplopanax horridus*) has been called the most significant medicinal and spiritual plant to all Coastal and many Interior First Peoples of British Columbia. A member of the ginseng family (Araliaceae), devil's club is an erect to sprawling deciduous shrub found from coastal Alaska southward to central Oregon, and eastward to the southwestern Yukon, the Canadian Rockies, Montana, and Idaho.

Recently, devil's club has become increasingly important as a medicinal non-timber forest product (NTFP) that is wild-harvested for the herbal and nutraceutical industries. Escalating commercial interest and overharvesting of devil's club, coupled with a shortage of information about its ecology and basic life history, and its cultural significance to First Peoples, make the management and conservation of devil's club a complex issue.

Almost everywhere it is found, as well as in regions well outside of its range, devil's club was used and revered by First Nations as an extremely powerful spiritual and medicinal force. Medicinally, the inner bark of both the upright aboveground stems and the prostrate, belowground stems is used to treat a variety of illnesses, including arthritis, tuberculosis, diabetes, ulcers, and digestive and respiratory ailments. Spiritually, these plants, particularly the charcoal and the upright stems, are important in many purification, protection, and initiation rituals.

Due largely to this rich tradition of use by First Peoples, the commercial harvest of devil's club for the herbal and nutraceutical markets has increased dramatically in the last decade. However, such commercialization often conflicts with the cultural importance of this plant to First Peoples. According to Arlene Paul (Ahousaht First Nation):

These things [medicines] were kept silent because it was a sacred thing . . . like if a person had something for cancer they weren't going to go broadcasting it around, I get it [medicine] from here. They never did that. That was a silent tradition.

Additionally, since the adoption of devil's club by the herbal and nutraceutical industries has been driven almost entirely by ethnobotanical records of traditional plant use, its commercialization can also be considered an infringement on intellectual property rights. According to

Luke Atleo (Ahousaht First Nation), medicinal knowledge is:

not public knowledge because it's owned knowledge, owned by the families. Just like songs are owned by families . . . There are some that are certainly commonly known . . . but there are some that are very strict secret family knowledge taught only within each family.

Despite this, devil's club will undoubtedly continue to grow in popularity. To ensure that it is used in a culturally appropriate manner, it is vital that First Peoples control the growth and direction of any further commercialization of this plant.

In addition to the cultural inappropriateness of commercial harvest, there is also a very real risk that intensive harvesting of devil's club may eradicate entire populations and thus reduce genetic variation. According to Arvid Charlie, a Halkomey'nen plant specialist:

. . . many areas, where there used to be devil's club, there isn't any more, because of overharvesting, or clearcutting. We see areas just disappearing . . . we were able to get there [before] and grab a few plants, and now there's nothing there. There might be a few there, but we don't want to take them, because there's very few plants.

Consequently, it is also vital that research to develop sustainable harvesting guidelines for devil's club be undertaken immediately.

My thesis research, a collaboration with the Hupa-asath First Nation, will provide the basis for developing guidelines for ecologically and culturally sound harvesting guidelines for devil's club. Ecological field sites for this project are located on Vancouver Island, in the vicinity of Port Alberni, throughout Hupa-asath traditional territory within Weyerhaeuser Canada's Tree Farm Licence No. 44.

Experimental harvesting, which emulates traditional and commercial practices, will be used to monitor the long-term effect of various harvesting intensities. Propagation experiments will assess the viability of growing devil's club under forest canopy in a low maintenance agroforestry system as an alternative to wild harvesting. Finally, short-term studies of devil's club demography and life history will provide data essential for the rapid identification of unsustainable harvesting practices.

2.11 Wendy Cocksedge (University of Victoria) Sustainable Harvesting Potential of Salal (*Gaultheria shallon*): A Case Study of a Non-timber Forest Product

Salal, a native coastal shrub harvested as floral greenery, is actually considered the second largest commercial non-timber forest product, with sales revenue of \$42–45 million (Can) in 1997. There is much controversy over whether the harvesting is affecting the long-term viability of this plant. The focus of my graduate work at the University of Victoria is to determine whether salal can be harvested sustainably.

Salal is a bush that has what is called determinate sympodial growth; once a branch has finished elongating in its first year, it has reached its final length. As the bush itself gets older and bigger, with more branches every year, it supports itself through secondary growth, developing growth rings like a tree. Salal has a specific growing season; that is, it has rhythmic growth. The buds release and elongate in the spring, harden-up in the summer, and complete their growth by the fall.

In the spring, the new salal shoot forms leaf primordium as it elongates, which develop into leaves in the same growing season. At the base of each leaf, where the leaf joins the stem, a new shoot primordium is also formed. This shoot primordium will not grow the same year as the main shoot; rather it will wait until the following year, or perhaps longer.

The following spring, some of the new shoot primordia will elongate. In salal, the shoot primordia which develop off the old branch appear at least somewhat dependent on the environment—it is not entirely pre-set by the plant's genetics. All studies I've seen on salal agree that salal growth is very much dependent on light—more so than either moisture or nutrient levels.

So what does this mean for harvesting? We know that with determinate sympodial growth, each year the shoot meristem will abort itself, whether it is cut or not. This characteristic lends the plant to harvesting in that the salal bush is not comprised of one main stem with a limited number of branches coming off, like a tree. Each branch has the capacity to produce many more branches. Because salal has the ability to keep dormant buds until needed, and is light-dependent, further lends the plant to harvesting. Harvesting can even be seen as a form of pruning.

Another aspect we know about, which is very well known to pickers, is that of rhythmic growth. Salal can be picked most of the year, but cannot be harvested from late spring into summer, due to the flushing of the buds. Commercially, the branches are not viable because the new shoots are too soft and green and will not last in storage. Luckily, this supports the physiological requirements of salal, as the plant only develops new shoots once a year, and it is best if the plant is able to obtain some use out of them before losing them to harvest. Picking can technically resume in mid-summer, but if harvesting were postponed to the fall the plant would receive more use from its new leaves, and the harvesters would obtain more money for their product, as the branches gain weight over the summer.

According to some people in the industry—both pickers and exporters—an area that has been properly harvested the year before can be superior for harvesting the following year. Others suggest that there should be at least a one-year rotation before returning to an area, but then harvest will again be productive. Rick Ross, with Western Evergreens, says that he has picked an area for 30 years, and although it has variable volumes year to year, the overall productivity of the site has not decreased at all.

Overall, from what I have learned and seen thus far, it would appear that salal harvesting could be done sustainably. The issue is probably not whether to harvest, but how to harvest. The potential problems come from lack of knowledge or concern. Therefore, education on the nature of the plant itself, and on what the industry demands, is necessary. Also necessary is some method of regulation, whether through community or government. At the moment, although there is provision for regulation of NTFPs under the B.C. Forest Practices Code, to date no regulations have actually been made for harvest on Crown land.

Some districts, such as the Chilliwack Forest District, attempted a system of permits for botanical forest product harvest, as have some timber companies, such as TimberWest on their private forest land. However, these permitting systems are not seen to be very effective in ensuring sustainable harvest. One issue is that even if the harvesters follow suggested practices, such as harvesting a maximum of 30% of one shrub, and about 10–15% of the area, usually too many people are harvesting the area. If each person going through is picking 15%, the area can be quickly overwhelmed. A system of area allotments may be more effective, by not only

ensuring sustainable harvesting practices, but also by encouraging land management and silvicultural techniques to promote future salal growth.

I believe that there may be a potential for salal to be harvested sustainably, and provide an economic alternative for forest-based communities. However, more knowledge is needed to determine the best way in which to do this, and more education is definitely required for the pickers, the public, and the political decision makers.

2.12 Richard Hallman (Ministry Of Agriculture, Food and Fisheries, Creston, B.C.): Agroforestry and Non-timber Forest Products

Intensive agroforestry culture of NTFPs has the potential to relieve pressure on natural NTFP resources. The B.C. Ministry of Agriculture is an information broker for the development of small agroforestry businesses.

Agroforestry constitutes a group of land-use practices that deliberately combine trees or shrubs with crop or livestock farm operations. It involves the deliberate blending of agriculture and forestry production, and conservation practices with the intensive management of trees, other crops, and the interactions between them.

An agroforestry system is a group of management practices that produce a particular crop, function, or product. Agroforestry systems are managed to maximize profitability, sustainability, protection of the environment, and the demands of society. All systems involve more than one crop, usually trees or shrubs and crops grown between or under them.

- Shade Systems: Utilize the shade of trees to produce specialty crops that tolerate or require shade. Examples are fiddleheads, floral greens (salal, beargrass, falsebox), medicinal plants, and mushrooms.
- Sun Systems: Combine trees with crops that require full sun. Crops are cultivated in spaces between the trees. Examples are Christmas trees, berries (choke cherries, huckleberries, elderberries), and medicinal plants (Oregon grape, yarrow, mullein).
- Silvopasture: Integration of trees with grazing of livestock.
- Shelterbelt/Timberbelts: Protection of buildings, crops, or livestock from weather integrated with crop production from trees and crops grown between and under them.
- Integrated Riparian Management: Environmental protection of these important areas integrated with crop production.

Agroforests are natural stands of trees (forests) that have been modified or enhanced to produce improved quality and quantity of marketable timber and non-timber crops. These crops come from:

- wood fibre from native and exotic tree species;
- traditional agricultural crops, including horticultural, field crops, and forages between and under trees; and
- non-timber forest products from trees and crops between and under them.

Most NTFPs in British Columbia are native plants. The value of the annual harvest of NTFPs in the province is estimated to be more than \$200 million. Most NTFPs harvested in the province are wildcrafted; that is, they are harvested from forested areas with no regard to the ecosystem or future production. The shift from wildcrafting to the development of agroforests to more intensive agroforestry systems requires increased inputs of labour, equipment, and

materials. The level of intensification that is appropriate to the crop or site is highly variable.

The economic benefits of agroforestry include:

- short-term income while waiting for timber crops to mature;
- cash flow that can be used for silviculture work;
- new crops from trees and plants growing between and under them; and
- reduced production costs: win–win opportunities (production of Christmas trees and boughs as a by-product of spacing timber trees; harvesting silviculture weeds such as salal and beargrass for the lucrative floral market; utility right-of-way production systems).

Benefits to the NTFP resource include the following.

- Increased production of commercial NTFPs on a smaller land base takes pressure off the rest of the natural resource.
- Increased quality and sometimes quantity of NTFPs produced.

Most NTFPs are high volume–low value crops as they are currently harvested. It is critical to connect value-added processing closely with the harvest of raw product to increase profit margins. More profit from less crop harvested results in less pressure on the resource.

2.13 Kevin Dalgarno (BC Hydro, Vernon) Opportunities for NTFP Management on BC Hydro Rights of Way

Substantial opportunities exist for collaborative projects on BC Hydro rights-of-way that could allow the production of non-timber forest products while meeting Hydro’s mandate of ensuring low-growing vegetation under power lines. BC Hydro has over 73 000 km of power lines of which 17 811 km are transmission rights-of-way (ROW). However, only a small portion of ROW are actually owned by BC Hydro, resulting in the need for Hydro staff and government agencies to become involved before long-term permits are established.

One of the criteria for non-timber forest production establishment on Hydro ROW is that all vegetation is prevented from growing in close proximity of the electrical wires. Vegetation near wires presents a risk that electricity might arc to the ground causing a power outage. Vegetation in the proximity of wires can also create the potential for fires and electrocution to those that happen to be nearby. Ultimately, BC Hydro desires that our ROW are well established in low-growing stable plant communities requiring minimal management.

The cultivation or harvesting of non-timber forest products away from BC Hydro ROW can be a compatible use provided that the applicant is willing to manage all vegetation in the permitted area to ensure no vegetation can grow near the power lines.

Once the applicant identifies an opportunity for non-timber forest production on BC Hydro ROW, they must submit a proposal that will be reviewed by Hydro staff and other agencies. BC Hydro requires that the person or group wishing to establish a right to harvest non-timber forest products from our ROW obtain permission from the property owner.

Hydro staff and government agencies are available to assist with technical details of the proposal. BC Hydro takes into consideration property rights, heritage values, and future ROW maintenance when evaluating applications for compatible use of ROW. Our goal is to find ecologically and socially compatible uses.

To make application for the compatible use of BC Hydro ROW by the harvesting of non-timber forest products, contact the local BC Hydro office and request a “Compatible Use” brochure, or call toll-free 1-800-667-1517.

2.14 Shirley Mah (Centre for Applied Conservation Biology, Faculty of Forestry, UBC/ MOF Research Branch) The Role of Fire in Maintaining Plants Important to Ktunaxa Culture

The purpose of this interdisciplinary study was to examine the inter-relationships between the Ktunaxa people, their cultural plants, and fire. This involved participatory research with the Ktunaxa First Nation through the Ktunaxa Elders Working Group and Ktunaxa Ethnobotany team. Several frameworks were linked to look at this question: Ktunaxa oral history of their plants (ethnobotany), vital attributes theory, ecosystem classification (BEC), and natural disturbance types (NDTs).

The main objectives were:

1. to determine the vital attributes or fire strategy for each Ktunaxa plant;
2. to determine whether the proportions of Ktunaxa plants, by their vital attributes within ecosystems, were consistent with Rowe's hypothesized relationship between different species groups (set of vital attributes) and fire-cycle lengths for southeastern British Columbia; and
3. based on these results, to predict which Ktunaxa plant resources may be adversely affected by reduced fire frequency.

The proportions of species groups, based on the Ktunaxa plants and their assigned vital attributes, were determined for 13 biogeoclimatic (BEC) subzone or variants, ranging from low-elevation ponderosa pine to subalpine ecosystems in the Ktunaxa Traditional Territory. The data for southeastern British Columbia tended to be consistent with Rowe's hypothesis. The Ktunaxa plants most likely to be affected by reduced frequency of fire are plants with the ability to resprout from underground parts after a fire (e.g., black huckleberry), plants that produce wind-carried seed (e.g., fireweed), and shade-intolerant plants that store seed in the soil (e.g., redstem ceanothus).

This work was completed as a Master's thesis in the Faculty of Forestry, UBC, and is available in PDF format from the author.

2.15 Phil Burton (Symbios Research and Restoration) The Wilp Sa Maa'y Harvesting Co-operative and Wild Berry Research in Gitx̱san Traditional Territory

The Story of Wilp Sa Maa'y

Wilp Sa Maa'y is "House for Berries" in the Gitx̱san language. It is a community-based initiative, centred in the Skeena-Bulkley area of northwestern British Columbia, for the sustainable harvesting, processing, and marketing of wild berries and other non-timber forest products. This area is in the traditional territories of the Gitanyow, Gitx̱san, and Wet'suwet'en First Peoples. Many communities in this area are currently dependent on industrial forestry, and often suffer from periods of high unemployment (averaging 52% on a seasonally adjusted basis).

Why a co-operative? We formed a co-operative because it is a democratic way to run a business. Membership is open to the public and an unlimited number of shares can be held by any individual, but there is one vote per member, not per share. This approach allows equitable community participation at all levels. Co-operatives are a way to start a business enterprise without a lot of start-up funds, but which make use of a community's ideas, time, and commitment to place. Members contribute what they can: money, time, facilities, or expertise.

Shares cost \$10 each and all participants in the enterprise (pickers, processors, directors) must be Co-op members.

Our flagship product is a wild huckleberry jam made from berries picked by hand in the mountains of northwestern British Columbia. The main species used in this jam is known by many names: Sim Maa'y ("true berry"), black huckleberry, or *Vaccinium membranaceum*. Our products are sold in glass jars that feature a distinctive northwestern Native art motif on the label; the 250-ml jars are especially attractive: square in shape, like a bentwood cedar box, the traditional storage vessel for dried berries in our area. Soapberries (*Shepherdia canadensis*) and huckleberries, which are stored frozen or canned (250 ml), are sold for local use and for fundraising.

We hope to reach national and international markets with our products. Our products and their origins and packaging should appeal to individuals who support wilderness, organic foods, cottage industries, and First Nations connections. However, because we do not have control over all aspects of land management, we cannot label our jams and jellies as "organic." We have placed our product with a number of retailers throughout the province, and are seeking to identify other up-scale shops featuring crafts, Native products, Canadiana, and gourmet products. We see opportunities to list our product in a number of direct-mail catalogues, and through a Web page to sell directly over the Internet. Plans for future products include cedar gift boxes containing assorted combinations of jams and jellies, and a bannock mix.

Steps to developing a non-timber forest product

1. Identify a product:
 - use a resource that is plentiful, renewable, and available
 - develop a product that is feasible, distinctive, and desired
2. Research your product:
 - biology, harvest, processing/storing, uses, markets
3. Develop partnerships and co-operation
 - investors <==> management <==> labour
 - how will your business affect other forest users?
4. Business plan
 - develop a realistic plan: *Think Big But Start Small!*
5. Funding
 - how will you fund your plan?
 - what help (grants, loans) is available?
6. Product development
 - testing and comparisons
 - community involvement (contests)
7. Production and marketing
 - quality control, constant promotion
8. Future plans
 - other products, additional research

Remember these do's and don'ts:

Do:

- Spread the workload among as many members/partners as possible.
- Assign certain tasks to be done on a regular basis, such as updating books, contacting distributors and retailers, updating inventories, and developing new markets.
- Pursue funding opportunities in the form of start-up grants and loans.
- Get involved with research and management initiatives regarding non-timber forest products.

Don't:

- Worry about having everything in place before embarking on such a venture; planning is good, but things won't happen if you don't start!
- Structure your organization too rigidly (e.g., requiring one-quarter of your membership to be present to have a quorum for your annual general meeting is difficult to attain).
- Duplicate existing products and promotional materials . . . be distinctive!
- Try to do too much at once.

Managing for Wild Berries as a Non-Timber Forest Product

Wilp Sa Maa'y and Symbios Research have recently participated in a pilot project for the promotion of wild berry management in the Kispiox Forest District. Wilp Sa Maa'y is promoting recognition and management of the wild berry resource, in support of its initiative to market wild berry products. Interviews were conducted with Elders and berry pickers to find out where people went berry picking in the Suskwa Valley, both historically and currently. This information, in conjunction with an earlier FRBC-funded project on shrub biology, was used to determine the site and stand preferences of black huckleberry, oval-leaved blueberry, highbush cranberry, and soapberry. A number of these plants or their fruits can be sustainably harvested from unlogged stands (e.g., devil's club, highbush cranberry), partially cut stands (e.g., black huckleberry, soapberry), or in the full sunlight of recent clearcuts (e.g., raspberry). This information is being used to suggest where forestry activities might be modified to maintain or enhance the wild berry resource. Because most wild berry species do well in full or partial sun, a sustainable supply of wild berries depends on generating a continuous and sustainable supply of young stands, maintaining wide spacing in old (partially cut) stands or in young (heavily thinned) stands, or reintroducing prescribed burns to maintain traditional berry patches off the timber harvesting land base.

Management for timber and non-timber forest products can proceed with little conflict, if appropriate planning is undertaken. One of the biggest challenges is working at the appropriate scales of sustainability. For example, the Gitksan would like their traditional house territories to be the sustained yield unit for berries and other forest products, but timber sustainability is calculated at the scale of an entire forest district. Managing the age class structure of each traditional territory for sustainable flows of timber, berries, and other forest values would do much to reduce conflicts regarding appropriate forest management. We encourage people to undertake similar initiatives elsewhere for the management of berries and other non-timber forest products.

3 CONSENSUS RECOMMENDATIONS TO POLICY MAKERS

Workshop participants were asked to address four previously identified areas of concern during breakout sessions (see Appendix 1 for a compilation of the issues and concerns raised during these sessions):

1. Information, communications, and research gaps.
2. Management options.
3. Commercialization.
4. Traditional ecological knowledge of First Nations.

Consensus recommendations, by area of concern, are listed below.

3.1 Information, Communications, and Research Gaps

- Ecological baselines for NTFPs should be established: how do they function in the wild, without harvesting?
- Assign responsibility for global research, information gathering, policy overviews, and examination of management models from outside British Columbia.
- Determine ways of bringing interested NTFP parties together to discuss issues of mutual concern.
- Need an information “clearing house” that includes a First Nations agribusiness database and information-sharing protocols for use of databases.
- First Nations treaty processes must be recognized; any NTFP licensing and permitting initiatives must first be considered at treaty negotiations.
- Need to identify the policy makers including MLAs, all levels of governments, Tribal Councils, Crown and private corporations, and share the results of the NTFP workshop with them.

3.2 Management Options

- Integrate NTFPs and agroforestry programming with watershed restoration programming; develop strategies for integrating NTFP values into forest planning and operations.
- Include education programming within any NTFP regulatory frameworks, so that harvesters are aware of best practices.
- Sector should take responsibility for management before government statutory and regulatory initiatives.
- Examine the use and effects of spraying of pesticides and insecticides on NTFPs; also consider in the context of impacts and infringement of aboriginal rights and related health issues.
- Consider using a “community up” versus “government down” process.

3.3 Commercialization

- We need to define what an ethical, sustainable wildcrafting industry would look like before we proceed.
- The industry must find ways of respecting and honouring whole communities.
- A “value” for nature must be established.

- Community “grandmother rights” should be respected.
- Elders are increasingly concerned over the commercialization and exploitation of traditional resources such as huckleberries.
- There is an increasingly scarcity of resources for both people and animals.
- Legal constraints and concerns related to community stewardship should be explored, and the “defense of the small community” should be a major consideration in the commercialization of non-timber forest products.
- Commercialization is frequently in conflict with self-sufficiency, Aboriginal respect for the land, and respect for other values and species.

3.4 Traditional Ecological Knowledge

- Most NTFP commercialization currently runs counter to TEK and values.
- All NTFP activities should acknowledge and respect traditional knowledge, aboriginal rights, and aboriginal title.

Workshop participants also posed a series of questions:

- Who are the policy makers?
- What is the relationship of NTFPs with treaty negotiations?
- NTFPs are several separate industries, not one. How do we talk to this fragmented group?
- Who has regulatory jurisdiction? Will the regulatory framework be addressed through treaty negotiations?

Appendix 1 Compilation of Comments Made During the Participant Breakout Sessions

The following is a brief summary of the answers and concerns raised by the four groups.

A1.1 What are the information, communication, and research needs for NTFPs in the province?

- The NTFP sector is a very “informal” one, with no official channels of communication and no industry-wide organization. What knowledge there is, is currently passed by word of mouth. Non-timber forest products need to be recognized in forest inventories and in forest planning; this is essential for sustainable management. Non-timber forest products should be represented in a “planning layer,” with the ecological and management needs of the plants documented, particularly how they respond to timber harvesting. Incremental funding would be required for inventories. However, harvesters are protective of information and may not want these resources represented on development maps—not sharing information is part of the culture of wildcrafting. Consultation with First Nations should take place before any NTFP initiatives are instituted. They have most of the information on NTFPs, and are also in a position to determine what information is proprietary and what can be made public. Enforcement (of sorts) will need to be in place—a community-based stewardship system may work. Transient workers generally have no vested interest in the local resources.
- In many instances, commercial pickers may not even be aware of First Nations’ use and rights in the areas in which they are harvesting.
- More research like Wendy Cocksedge’s inter-species study is needed. Also need a system to get information out; extension. If a permitting system is in place, ecological and sustainable harvest information could go out with the permit. Experienced harvesters could train new harvesters to retain integrity through the chain.
- We should know what ecosystems contain what important plants and how we can help to manage for these plants. Agroforestry systems are a possibility as we open up the canopy through timber harvest.
- We need to educate the public on what they are buying, to make them realize the uniqueness of these products.
- NTFP producer alliances should be set up, but chances are there will be squabbles and internal competition for markets.
- Until the provincial government recognizes First Nations, we [First Nations] will never be in a position to command research dollars.
- First Nations natural resource management capacity building is essential. Right now we don’t have the resources, but Delgamuukw has opened the door.
- Define what is meant by commercial, non-commercial, community, and private harvesting of NTFPs.
- Research on prescribed burning has been focussed on its effects on trees and grass; need to broaden this to include effects on huckleberries and other non-timber forest products.
- Forestry: It is really hard to manage for non-timber forest products when we don’t know the impacts of various timber harvesting systems.

- Communication: How non-timber forest products are managed properly (e.g., collecting moss for floral use: when moss is picked, it takes a long time to grow back). This research needs to be conducted and conveyed to harvesters and buyers.
- The people who are experienced at managing and harvesting NTFPs should be approached. Collect their knowledge about sustainable harvesting and put it into an extension pamphlet.
- There is quite a bit of information out there already, perhaps too much? How do you sift through it for the kernel of wisdom?
- Patents: I know now why First Nations don't share information. I can see why they won't.
- NTFP management training should draw from the fields of horticulture, silviculture, and ecosystem restoration.
- It is important to collect the inventory of plants, but to also include the uses of them as well the knowledge that has been handed down about them.
- Potential methods of information distribution: the Internet is an obvious choice; set it up like the U.S. Fire Effects Information System Web site. A searchable NTFP database is already available at: <www.ifcae.org/cgibin/ntfp/db/dbsql/db.cgi?db=bib&uid=default>
- The Native Plant Society of B.C. newsletter (*Menziesia*) is another vehicle for the distribution of information.
- Research can sometimes be too human-oriented, looking at just the dollar-generating aspects instead of the whole plant.
- There is very little information on basic ecology, or what is or is not a sustainable harvest rate. The U.S. Forest Service is doing some work on this topic.
- Moss harvesting (for plant baskets) is becoming a concern in the province because of the limited amount available: it grows very slowly and is a prime food for the endangered mountain caribou.
- We don't need to know everything about an organism; the "Keep it Living" principles established by Nancy Turner's group may be enough.

A1.2 What are the community or local resource management concerns for the NTFP sector (issues and options/actions)?

- Community forests: the opportunity for broad-based, community-wide representation to determine what resources are taken out of a forest has never existed before. We like the Silva approach: go to community and ask them what they use and for what?
- Licensing or permitting of some form or other is needed. How would you approach this: through compliance and enforcement? How would you find the manpower?
- Discussion around youth programs and the training issues around this. Mentoring for youth; it is difficult to find knowledgeable people and funds to establish mentoring programs; educated persons are already making good money.
- Need to define: managing for what? Relationships between plants? Community concerns? Ecosystem management: retaining ecosystem integrity will solve some of the issues raised.
- What is sustainable? We lack knowledge about what "sustainability means."
- An overall provincial strategy for NTFPs is necessary: we don't know what everyone is doing.
- Look internationally to different associations or groups involved with NTFPs (e.g., food and agriculture organizations) to draw from their experiences and models. Newsgroups on

the Internet could be useful; also setting up a discussion list. Access to Internet may be a barrier?

- Permitting NTFPs can provide some idea of how much is harvested, who is doing the harvesting, and in what manner the harvesting is done. Permitting should be locally controlled, with community policing and ability to assess fines. But who would be issuing the permits, and for whose benefit? First Nations? Government?
- Before harvesting we do an inventory of plants. Then we do an assessment after the inventory to see what the effects are. The bears are coming down for the berries. None of the huckleberries are replanted. I would like to see this included in the forest development plan. When you open up the forest, different plants will grow.
- What choices are there in timber and non-timber forest products management? Because these are such difficult decisions, we need lots of information and knowledge first, and local communities need to set their priorities. The biggest problem I see is that the community's priorities change over time. I think it is important to have a plan. The community needs to develop a long-term process.
- Forest resources need to be controlled by communities. Some kind of legislation will inevitably come into place. It may be a requirement that knowledgeable people do the harvesting.
- Negotiate enforcement agreements to control access by commercial pickers; charge fines to pickers who infringe on Aboriginal harvesting areas.
- Questions of proprietary rights and intellectual property rights must be addressed.
- Joint management (timber, First Nations, Ministry, wildlife groups, NTFP harvesters) may be required, for instance, in the use of prescribed burning.
- Need areas set aside for traditional use and separate areas for commercial use (question if that will protect traditional values).
- Must meet community needs for medicinals: consider both wild and community medicinal gardens.
- Use of rights of way to grow species where Natives have priority access.

A1.3 How should NTFPs become commercialized, or should they?

- Yes, they should become commercialized: if the harvest can be sustainable. Harvesting should be done in some places, but not others. Commercialization may save some of these places.
- Because of the economic system we live in, you must assign some kind of commercial value to everything.
- Local commercialization may be viewed as acceptable, while globally it is considered unacceptable, due to the overall scale of use.
- NTFPs can become an intermediate source of income, offsetting the very slow growth and maturity of trees.
- We can have extreme diversity, but limited abundance: buffalo? salmon? Give some respect; use what you take, replace what you take; better utilize the resources.
- Commercialization is already happening: we need to accept it, but how? Look at the spiritual side. NTFPs have possibly been used for thousands of years as trade items, food, medicines, and ornamentation; all have different uses and should be recognized.

- The commercialization issue is more critical for First Nations; they don't need to give out all uses or purposes of plants.
- Patents are a big issue, especially when the information has been handed down for thousands of years. Who really owns this information?
- Guilds are one possible answer, as in the "Certified Mushroom Pickers Guild." They can hold workshops on ethics, and the importance of the local community. If someone overpicks, they get kicked out of the guild.
- If we develop a business, we need to think about local markets, and about our own needs.
- The Nuu-chah-nulth were concerned that there were economic development opportunities, and if they didn't take advantage of these opportunities, then they would be taken by outsiders.
- Self-policing (i.e., organic certification, "special forest product" certification in Vermont). Markets must demand that products are harvested in a certain way. There should be a distinction between local versus transient harvesters. Assign tenure system for a product or group, and control how the product is dealt with. Tenures could be based on bioregions, First Nations land, or local community. The community would manage the industry, but First Nations' interests must be protected above the tenure because the government could come in and say an action is in the interest of community economic development. How would tenures affect recreational pickers?
- Maybe certain plants shouldn't be commercialized: "when you put a price on something, you destroy it."
- Certified NTFPs: could create incentives to sustainably harvest species of high value. Role of First Nations in eco-certification: classification of wild, natural, organic. Promoting commercial growing: propagation crops of medicinals would take stress off wild populations. Need plant analysis to determine active ingredients, whether they are affected by cultivation. "Bio-prospecting" by pharmaceutical interests: MUST have Elders' sanction; protocols involved.

A1.4 What is the role of Traditional Ecological Knowledge (TEK) and First Nations in NTFP sector?

- The two different systems of knowledge (TEK and Western science) really are complementary.
- Must value First Nations knowledge; it must be treated respectfully. Keep native plants alive, tend to their health, and share information on them. Value system of Natives and non-Natives is different; to them, the earth represents a life-long school of learning: TEK isn't used as a tool; it is a whole approach and knowledge gained. This knowledge provides time-depth that scientific knowledge doesn't. First Nations science is an experiential science. Simple access to information doesn't span the gap between TEK and Western science. Bridging between licensees, ministries, First Nations has to be taught in the institutions (colleges and universities).
- In the past, private corporations have exploited hereditary First Nations' knowledge. First Nations should have the right to use their hereditary knowledge and benefit from it.
- Traditional Ecological Knowledge: what does it mean? First Nations didn't come up with the term. First Nations know about sustainable harvesting, and this is knowledge we need to gain from them.

- Because of population growth, people are realizing that demands for forest products are increasing. Need a balance: provincially, federally, and globally. We need to diversify our economy. I would like to see a provincial task force for these NTFPs.
- First Nations should set the terms for NTFPs and non-Natives participate in the process, if we want.
- There is a great opportunity, during the treaty-making process, to embrace sustainable ways of managing natural resources.
- There is a definite role for Elders in guiding development of the NTFP industry.

Appendix 2 Workshop Evaluation Responses

1. How would you rate the organization of the session (i.e., use of time, organization of handouts, etc.?)

Poor	1
Average	12
Good	24
Very Good	7
No ranking	1

Comments: More handouts would be excellent

2. How was the rate of presentation?

Too fast	0
About right	39
Too slow	4

Comments: One person said: first day, about right; second day, too slow.

Two people said a little bit slow.

Most seminars like this are really fast, but this was perfect.

3. Please rate the usefulness to you of the information presented.

Average	5
Good	24
Very Good	17

4. How closely did the workshop meet your expectations?

Poor	1
Average	13
Good	20
Very Good	12

Comments: Far exceeded my expectations.

5. How adequate were the workshop facilities?

Average	3
Good	16
Very Good	27

6. Overall, how would you rate this workshop?

No ranking	1
Average	7
Good	19
Very Good	19

Comments: Amazing.

7. Do you currently gather/harvest non-timber forest products?

Yes	28
No	18

If so, which products are of greatest concern to you?

- Berries: wild strawberries, blueberries, saskatoons
- Wreath materials: willow, turning Oregon Grape, boughs (fir, cedar)
- Huckleberries, blueberries
- Berries: saskatoons, huckleberries
- Ceremonial plants (sweetgrass, D. willow fungus)
- Medicinals and plants that grow in moist habitats that are affected by excessive timber harvest or cattle grazing
- Forest botanicals
- Berries
- Mushrooms
- Berries
- Herbal medication
- Having to pay a user fee would be a concern if the B.C. government implemented a permit system.
- Oregon grape berries, elderberry
- Huckleberries
- Huckleberries, bitterroot, saskatoons
- Medicinal plants
- Berries
- Roots
- All
- Huckleberries
- Various teas
- Soapberries, berries of all kinds
- Sap from birch, alder, and Douglas-fir
- Yew wood
- All type of berries
- Antlers (drop-offs)
- Fish and game
- Rocks, etc.
- Huckleberries
- They all are
- Salal
- *Vaccinium* spp. Berries: many wild berries including blueberries, strawberry, salmonberry, etc.
- Greens such as dock, nettle, etc.
- No medicinals – yet
- Mushrooms
- Medicinals
- Timber harvesting by-products
- My concern is unethical exploitation, pesticide/herbicide use
- Huckleberries
- Small quantities of berries and plants for consumption in my household
- I don't make any "products." I just eat some stuff right now. Possibly could be into some

level of harvest activity for food products, botanicals, or medicinals in the future.
Ecological integrity is my greatest concern.

- Wild berries (but not for profit)
 - Forest medicinals
 - Recreational mushroom/berry picking
8. Please indicate other organizations or individuals that you feel would benefit from this type of workshop.
- People harvesting in important areas may benefit from the experience of learning about NTFPs and meeting people who need them; it is more difficult to ignore an experience than a vague faraway thought
 - Perhaps health food store managers or entrepreneurs interested in starting an NTFP/food co-op
 - Northern Interior Forest Extension and Research Partnership, International Right of Way Association (Victoria Chapter)
 - More MOF, MELP representation
 - Any small community would really benefit from this type of workshop
 - Forest Industry, Community groups, First Nations, research/academia, government resource agencies
 - Municipal governments
 - Economic officers of First Nation bands
 - Youth, contractors, silviculture, loggers
 - Silviculture workers
 - Crafters (i.e., Kootenay Pine Cone Co.)
 - Public advisory committee (Creston B.C.)
 - Business sector
 - First Nations on TUS need more Elder involvement for they are not too knowledgeable on the values to FN/TUS
 - MOF staff.
 - Major forest licensees, MOF operations managers
 - Forest industry; workshop between wild crafters and foreign markets
 - NTFP industry representatives, more wildcrafters
 - Women's co-op (St. Mary's), Devco; bands
 - Economic development officers
 - Resource managers (industry and government)
 - Broader-based? United States, rest of Canada, etc. Representatives from post-secondary institutions (university, technical, etc.)
 - MOF, MELP, rural communities
 - People involved in small business start-ups and economic development in rural British Columbia: community futures officials, etc.
 - Government policy analysts
 - Harvesters
 - Other government agencies (e.g., MELP), relevant forest licensees, schools and universities, perhaps local chamber of commerce

9. How do you feel the workshop could be improved?

Content

- More specific examples of NTFP management (like Phil Burton)
- More clarity around objectives of workshop, end goals. Good discussion on Aboriginal issues, not usually seen.
- More on market access (cross-section of current and upcoming species: wild edibles, medicinals, etc.), Elder's plant use demonstration, more resource material
- Research presentations were of most value to me
- It was fine as is!
- Good
- Would be good to have more concrete examples of organizational or regulatory structures (even if informal structures: like to Wilp Sa Maa'y example)
- More information about specific products; there was a large focus on huckleberries, which was not very relevant to me. I also would have liked to see presentations discussing the ethics of gathering in specific cases.
- Smaller segments of presenters, overload of things to absorb
- More information on Aboriginal use of plants, if that is OK
- More emphasis on First Nations and less on commercial aspects
- More FN-driven
- Commercial business and how to stop it. FN need to know that these kinds of businesses, which they do not want happening, are already out there. TUS representatives need to be aware that roots, berries, etc. are only harvested at their time and not as you please. Other-wise medicinal plants lose their significance in healing, etc.
- More field time
- Less intense presentation on 2nd day
- Personally, I would be very explicit to my presenters and direct them to not be too engrossed in the minutia of their work and ask them to remember their audience (e.g., Wendy's presentation was too indulgent; Shirley's presentation was great, but she needed to get more practical and not elaborate so much on her methods). Perhaps one solution would have been to have theme sessions: you let the specialists (First Nations or scientists, say) do their thing, but emphasize that they must provide definitions and not use jargon so that they don't lose "the other half" of the audience. Also the wrap-up from the breakout sessions was WEAK. The four groups could have been compiled into one document, which gets handed out to the participants and one *good* speaker goes through it in 10–15 minutes.
- Need value-added market nexus?
- Content was excellent: would have been nice to have heard more from First Nations perspective. Many thanks to all the speakers!
- Very good variety here: this is important. Including mushrooms might be good. The "how-to's" and practical stuff were well done and important to include. Just as important as "big picture" presenters. Would be good to hear more from the Elders: First Nations and other. How about more poster presentations?
- More emphasis on First Nations decision-making models. Creating action plan for building relationships with First Nations acknowledging TEK.

- Principles of ethical wildcrafting
- More handouts, etc. available when entering workshop, if possible. Involve the Elders more as speakers or make sure some of their opinions are brought to the forefront of discussions.
- More First Nations speakers
- How about intellectual property rights and related issues as a topic next time, as there seems to be a lot of misinformation out there.
- Excellent information. A good blend of academic and practical information. Could be more First Nations speakers.
- I loved the informal approach and the broad range of topics and presenters. It would have been nice to see even more contribution by the Ktunaxa, to really explore their perspective on appropriate ways to balance cultural sustainability and modern use of NTFPs.

Delivery

- More small group discussion
- Set-up two mikes on either side of the room
- The walk in the woods was crowded. Start later and have a campfire discussion into the evening.
- Good
- Would have helped perhaps to give the presenters a stronger indication of the demographics or interests of audience
- Well paced, didn't hurry anyone unnecessarily
- Stay on time
- Good, but have more time to absorb
- Start on time and stick to the agenda
- More walks with Elders/Aboriginal people
- Should try to start on time
- Okay
- Outdoor presentation (weather permitting)
- Loved the relaxed pace. It felt respectful to both speakers and audience.
- Would be good to have a remote clicker for the slide projector
- Send out list of participants by e-mail or post to Web site to allow people coming from other areas to car pool, etc.
- Microphones good to use, but a bit awkward. Lapel mikes for speakers would be good.
- Great. Could keep eye on time for a couple of the longer presentations.
- I think that a great range of subjects could have been encompassed, if the time slots were shortened a bit to accommodate more speakers
- The field walk could have been organized better (smaller groups)
- One other suggestion would be to organize the ethnobotany walk on Tuesday into smaller more manageable groups perhaps

Facilities

- Great facility (cool and comfortable), excellent food
- Good

- Great
- Good
- Same unless smaller groups
- Food on breaks: for meals was excellent
- Okay
- Good: need tables to work on
- Excellent food
- Excellent: no cheese from plastic please. I would encourage you to make at least some effort to reduce the very excessive waste from the meals (styrofoam of all things!). I don't recall reading that meals were included so I brought food!
- Great: great show by actors; the host community is incredibly gracious. Thank-you! Let's dance next time, bring your fiddles.
- A real privilege to use Ktunaxa facilities, though hard to be in a gym on two such gorgeous days
- The tipi's were great. Wish I'd known to bring my sleeping bag.
- A bit better directions to site (more signs); in general, facilities worked very well
- Great; food wonderful
- The room, food, all the helpers were wonderful
- Wonderful
- The food was plentiful and delicious

Location

- If the location was more central to British Columbia, that may draw a larger group? I assume the long drive deterred some.
- More central location

Other

- One of the prominent group conclusions that seemed to come out of the discussions was a need for better communication system regarding the value and uses of NTFPs. More information about contacting people (phone numbers, e-mail, the creation of a knowledge bank to which we could go), both to contribute and to learn would be wonderful. Thank-you, what an amazing seminar.
- Enjoyed the walking tour: dedicate whole afternoon (as option, post-conference tour)
- Good, but more emphasis on larger scale—not just British Columbia; would have liked to have had an opening prayer in the local Ktunaxa language
- Also I would liked to have seen some of the conflicts between First Nations and non-First Nations addressed in a constructive and head-on manner. As it was, these issues surfaced as an undercurrent which was somewhat swept aside.
- Presenters could have provided more handouts
- Good overall
- Like to have more First Nations people speaking
- More field review, less indoors
- Great presenters, good variety
- Thanks for the warm hospitality

- Thanks to the organizers. The dates for the workshop are difficult for gardeners and many wildcrafters are also gardeners. If you're planning another one, winter is probably a better time.
- The entire effort seemed to be well organized: congratulations
- Very good feeling here—very comfortable—very close. The facilities (i.e., one big room) probably helped this. The food was great, the walk was great. Excellent opportunity for input with the breakouts and with the end “shopping list.”
- Advertising: found at last minute
- My compliments to the cooks: excellent food and a great value for the entry fee. Would be nice to avoid throwaway styrofoam in the future. Thanks; a very interesting workshop with a great informal flow.
- No styrofoam dishes or plastic please
- I really enjoyed the mix of research, First Nations, industry, and government; well done. Thanks to the Ktunaxa.
- Great job!
- The play on Tuesday night was fantastic. Overall, a great job! Will contact information be compiled in the conference proceedings??

Appendix 3 Workshop Participants (presenter's names appear in bold typeface)

Name	Affiliation	City/State/Province
Adrian, George	St. Mary's Band	Cranbrook, B.C.
Alexander, Carol	Ktunaxa Kinbasket Tribal Council	Cranbrook, B.C.
Andrew, Paul	St. Mary's Indian Band	Cranbrook, B.C.
Auld, Francis	Confederated Kootenay Tribes	Pablo, Montana
Bahe, Velma		Bonnars Ferry, Idaho
Barr, Joanne	Tobacco Plains Indian Band	Grasmere, B.C.
Basil, Caroline	Tobacco Plains Indian Band	Grasmere, B.C.
Birdstone, Denise	Ktunaxa Kinbasket Tribal Council	Cranbrook, B.C.
Blackbear, Everet	Lower Kootenay Band	Creston, B.C.
Blackwater, Reuben	Ministry of Forests	Cranbrook, B.C.
Bodell, Bryan		Vancouver, B.C.
Bodley, Peter	Forestry Consultant	Creston, B.C.
Bowden, Shane	Ministry of Forests	Nelson, B.C.
Braybrook, Doug	Crestbrook Forest Industries	Fernie, B.C.
Brost, Ali	Ministry of Agriculture and Food	Creston, B.C.
Brown, Dave P.	Crestbrook Forest Industries	Cranbrook, B.C.
Burton, Carla	Wilp Sa Maa Berry Co-op	Smithers, B.C.
Burton, Phil symbios@bulkley.net	Symbios Research	Smithers, B.C.
Capilo, Annie		Cranbrook, B.C.
Carver, Martin		Nelson, B.C.
Casmen, Cheryl	Ktunaxa Kinbasket Tribal Council	Cranbrook, B.C.
Chalifour, Paul	Ministry of Forests	Cranbrook, B.C.
Clement, Conrad	St. Mary's Band	Cranbrook, B.C.
Clement, Keith	Ktunaxa Kinbasket Tribal Council	Cranbrook, B.C.
Clement, Victor		Cranbrook, B.C.
Cocksedge, Wendy wcocksedge@hotmail.com	University of Victoria	Victoria, B.C.
Cote, Diana	Invermere Forest District	Invermere, B.C.
Craig, Juliet	Ministry of Forests	Nelson, B.C.
Dar, Saleem	Resource Environment	Vancouver, B.C.

Name	Affiliation	City/State/Province
Dalgarno, Kevin Kevin.Dalgarno@BChydro.bc.ca	B.C. Hydro	Vernon, B.C.
Denise, Dianna	Kootenai Tribe of Idaho	Bonner's Ferry, Idaho
Dickie, Angus	Penticton Indian Band	Penticton, B.C.
Dureski, Brian	Crestbrook Forest Industries	Cranbrook, B.C.
Ellis, Doug	Essential Resources	Salmo, B.C.
Enstacle, Jeff	Whispering Pines/Clinton Band	Kamloops, B.C.
Eugene, Audrey	Shuswap Band	Radium Hot Springs, B.C.
Eugene, Marge	Shuswap Band	Radium Hot Springs, B.C.
Eugene, Xavier	Shuswap Band	Radium Hot Springs, B.C.
Faust, Ramona	Harrop Procter Comm. Co op.	Procter, B.C.
Francis, Audrey	Ktunaxa Kinbasket Tribal Council	Cranbrook, B.C.
Gravelle, Dan	Ktunaxa Kinbasket Tribal Council	Grasmere, B.C.
Gravelle, Elizabeth		Cranbrook, B.C.
Gravelle, Ralph	Tobacco Plains Indian Band	Grasmere, B.C.
Gravelle, Theresa		Cranbrook, B.C.
Hallman, Richard Richard.Hallman@gems6.gov.bc.ca	Ministry of Agriculture	Creston, B.C.
Hills, Bev	Ktunaxa Kinbasket Tribal Council	Kimberley, B.C.
Holmes, Debi Rae		Wasa, B.C.
Hunter, Allan		Cranbrook, B.C.
Hunter, Gloria	Ktunaxa/Kinbasket Tribal Council	Cranbrook, B.C.
Ignatius, Albert	Lower Kootenay Band	Creston, B.C.
Jacobs, Agatha		Creston, B.C.
Jacobs, Wilfred	Ktunaxa/Kinbasket Tribal Council	Cranbrook B.C
Jenkins, Chris	Ktunaxa Kinbasket Tribal Council	Cranbrook, B.C.
Jimmie, Francis	Lower Kootenay Band	Creston, B.C.
Jimmy, Christine		Cranbrook, B.C.
Joseph, Eva		Windermere, B.C.
Joseph, Nap	Ktunaxa/Kinbasket Tribal Council	Cranbrook, B.C.
Jules, Sydney	North Thompson Indian Band	Barriere, B.C.
Keefer, Michael mkeefer@cyberlink.bc.ca	Ktunaxa/Kinbasket Tribal Council	Cranbrook, B.C.
Kingsland, Barbara	Harrop Procter Com.Coop	Nelson, B.C.

Name	Affiliation	City/State/Province
Kivi, K.L.		Nelson, B.C.
Kubian, Jason	Ktunaxa Kinbasket Tribal Council	Nelson, B.C.
Lantz, Trevor	University of Victoria	Victoria, B.C.
LeBourdais, Ed	Whispering Pines/Clinton	Kamloops, B.C.
Lezard, Lloyd	Ktunaxa/Kinbasket Tribal	Cranbrook, B.C.
Mackenzie, Kierin	Parks Canada	Radium Hot Springs, B.C.
Mah, Shirley Shirley.Mah@gems8.gov.bc.ca	Ministry of Forests	Victoria, B.C.
Mahseelah, Mary	Tobacco Plains Indian Band	Grasmere, B.C.
Marra, Jack	Crestbrook Forest	Creston, B.C.
McCoy, Laura	Ktunaxa/Kinbasket Tribal Council	Cranbrook, B.C.
McCoy, Peter	Ktunaxa/Kinbasket Tribal Council	Cranbrook, B.C.
McKenzie, Evan		Nelson, B.C.
Morris, Rosalie	St. Mary's Band	Cranbrook, B.C.
Mullet, Patrick		Kaslo, B.C.
Munson, Thomas	Ktunaxa/Kinbasket Tribal Council	Cranbrook, B.C.
Pascal, Hazel		Columbia Lake, B.C.
Paul, Arthur	Shxw'ow'hamel First Nation	Hope, B.C.
Peacock, Sandra	University of Victoria	Victoria, B.C.
Peet, Scott	Wyndell Box	Wyndell, B.C.
Pierre, Joe	Lower Kootenay Band	Creston, B.C.
Pierre, Theresa	Tobacco Plains Indian Band	Grasmere, B.C.
Pukanich, Allison		Williams Lake, B.C.
Richards, Rebecca	University of Montana	Missoula, Montana
Richardson, George N.	Crestbrook Forest Industries	Cranbrook, B.C.
Robinson, Diane		Robson, B.C.
Rose, Lillian	Invermere Forest District	Windermere, B.C.
Rowed, James	KWC	Vancouver, B.C.
Sauer, Kirsten	UBC	Vancouver, B.C.
Slater, Bob	Penelakut Tribe	Chemainus, B.C.
Smith, Jim	Pathfinder Forestry	Creston, B.C.
Stanley, Mike	Ktunaxa/Kinbasket Tribal Council	Cranbrook, B.C.
Stanley, Paul	Ktunaxa/Kinbasket Tribal Council	Cranbrook, B.C.
Streloff, Ken	Crestbrook Forest Industries	Jaffray, B.C.

Name	Affiliation	City/State/Province
Teasley, Arlene	Lower Kootenay Band	Creston, B.C.
Tedder, Sinclair Sinclair.Tedder@gems1.gov.bc.ca	Ministry of Forests	Victoria, B.C.
Teneese, Adrian		Cranbrook, B.C.
Turner, Nancy nturner@uvic.ca	University of Victoria	Victoria, B.C.
Valerie, Huff		Trail, B.C.
Walter, Gitta		Winlaw, B.C.
Walter, Wendy	Creston Area Economic Development	Creston, B.C.
Whitehead, Jim	Ktunaxa Kinbasket Tribal Council	Cranbrook, B.C.
Whiten, Reg C.		Moberly Lake, B.C.
Wiensczyk, Al	SIFERP	Williams Lake, B.C.
Wignatus, Lillian	Ktunaxa/Kinbasket Tribal Council	Cranbrook, B.C.
Williams, Leo	St. Mary's Band	Cranbrook, B.C.
Wolfhead, Roxanne	Shuswap Band	Cranbrook, B.C.
Zelch, Karen		Moscow, ID/83843