



CANADIAN  
SILVICULTURE

FALL 2004

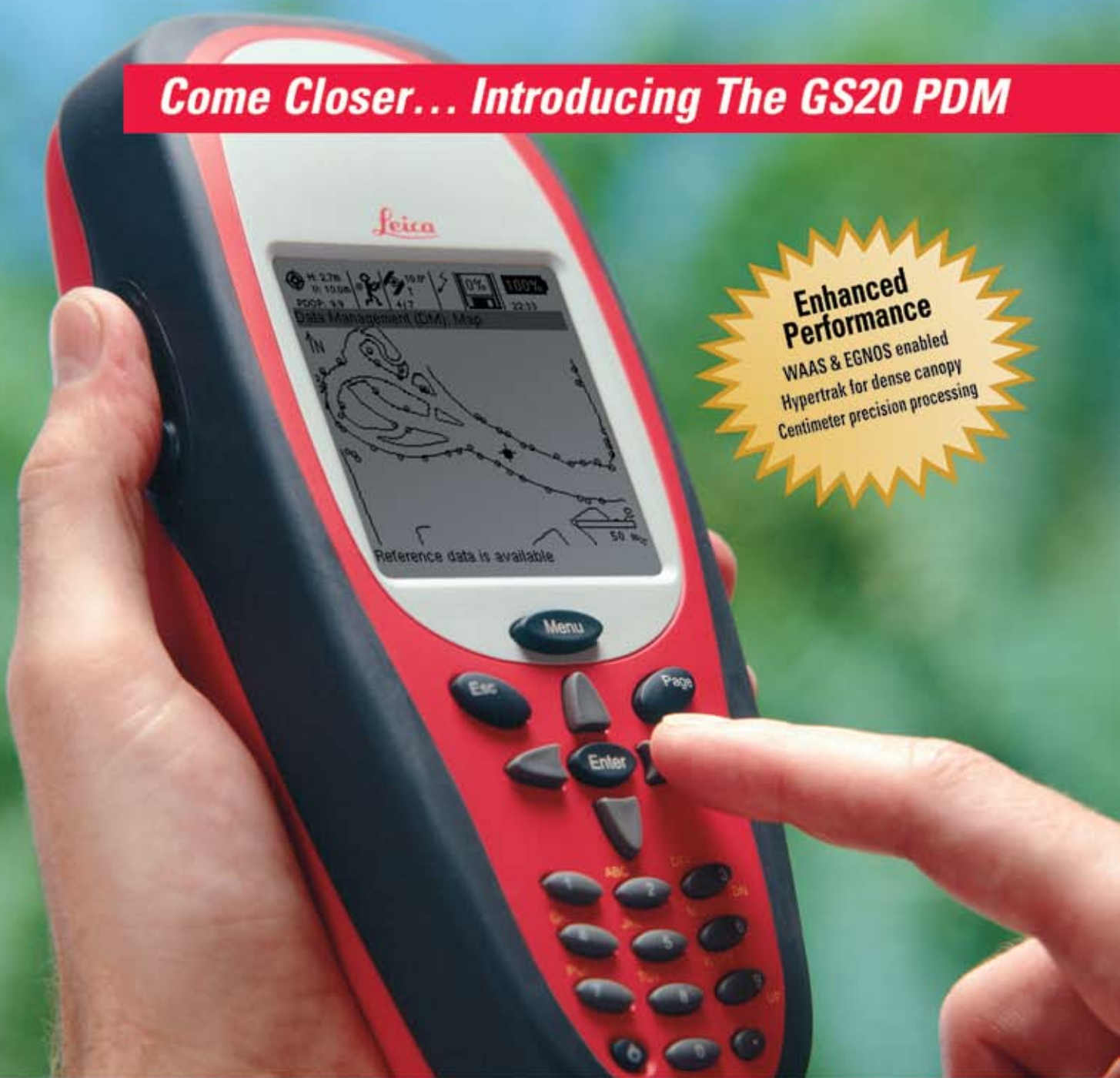


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# Contents

## Columns

- 4 Editorial
- 14 Forest Health
- 16 Western Report by *John Betts*
- 17 Ontario Report by *William Murphy*
- 18 Quebec Report by *Fabien Simard*
- 20 New Brunswick Report by *Gaston Damecour*
- 21 PEI Report by *Wanson Hemphill*
- 22 Nova Scotia Report by *Alan O'Brien*
- 30 Report on Safety

## Promotional Feature

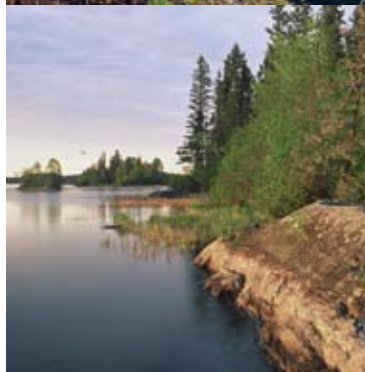
- 12 West Creek Silviculture

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## COVER STORY

### 6 COMMERCIAL THINNING EQUIPMENT REVIEW

The traditional cut-to-length harvester and forwarder team has been used for many years in thinning operations but combi and dual machines are now integrating these processes into one base machine.

## FEATURES

### 9 ABORIGINAL SILVICULTURE IN CANADA

Aboriginal people continue to turn to silvicultural opportunities in an effort to maintain a foothold in the forest sector and continue with the longstanding tradition of practising a stewardship role.

### 23 OPPORTUNITIES FOR CHANGE IN CANADA'S BOREAL FOREST REGION

The Boreal Forest Conservation Framework's goal may conserve the natural, cultural, and sustainable economic values of the entire boreal region. It is the most ambitious national vision for conservation in Canada.

### 27 COMMERCIAL THINNING INCREASES HABITAT VALUE

Carefully designed commercial and pre-commercial thinning can increase the habitat value of areas where species are at risk, while also increasing the value of future harvests.

# Editorial

by Dirk Brinkman

## Restore What You Disturb

In October, the BC Minister of Forests, Mike De Jong, took BC's mountain pine beetle (MPB) challenge to Ottawa and proposed a Federal program of \$850 million dollars over ten years. He explained, "We have pine forests nearing the size of Newfoundland that are dead, and before those forests will be productive again they need to be reforested and revitalized...The Kyoto strategy is built around Canada being a net carbon sink. Forests dying at the rate the beetle is causing in terms of the spreading infestation would reduce us to a net contributor (to Global Warming) as opposed to a net carbon sink." What is the basis for this unique provincial carbon request to Ottawa?

BC's catastrophic MPB epidemic is the result of two human factors: 1. A century of fire protection in pine fire biomes increasing BC's 300 million cubic meters of pine in the 1900s to 1 billion cubic meters of mostly mature pine in the year 2000. 2. A decade of warmer than average winters extending the MPB habitat and creating a super-population sealing the fate of over 80% of BC's pine. The worldwide practice of fire protection and the industrial revolution with its associated climate change combined to trigger this catastrophic forest disturbance.

BC's fire protection stored 600 plus extra megatons (Mt) of carbon dioxide in the pine ecosystems. Now climate change is about to release that carbon back into the atmosphere in a positive feedback mechanism that will accelerate the global warming problem. Annual emissions from BC's MPBs will exceed Canada's total industry emissions of 50Mt/yr, especially if some of the dry dead pine ignites.

This summer, millions of MPB's leaped the Rockies into Alberta on a freak updraft. With prairie winters also warming fire-protected pine biomass,

more Canadian forest catastrophes are inevitable. Even if all global green house gas (GHG) emissions were reduced tomorrow, today's atmospheric GHGs will continue global warming for the next thirty years with predicted temperature increases and climatic anomalies greatest in the northern hemisphere.

Canada negotiated hard in the Global Warming Accord (GWA) to include the right to add managed forests on its GWA account. The age class mix and protection management practices potentially make Canada's forests a net sink for many years. To hedge its risk, Canada also secured the option to put none, some, or all of its managed forests on its account during the First Commitment Period from 2008-2012. It must declare its decision in 2006.

Canada's main risk is from large forest catastrophes with mega-releases of GHGs. New Brunswick's catastrophic infestation of spruce bud worm in the 1970s made Canada's forest a net source for decades.

Canada has two options to manage this risk. One option is to put all of its managed land onto its account and work to reduce the emissions from its forest catastrophes. In that case, the GWA provides for actions that can be taken to reduce the total emissions from forest catastrophes, such as:

- prompt reforestation of unsalvaged stands to reduce the regen lag (Salvaged stands are reforested under BC legislation as a cost of harvesting.)
- salvage before 2008 (This reduces standing inventory at the beginning of the first commitment period.)

Or Canada can keep the specific areas of forest catastrophes in a national large forest catastrophe carbon account. This national account can still use the GWA rules to reforest promptly and maximize salvage, but the dead pine converted to renewable energy (cogen, pellets, biooil,

biodeisel, etc) gains carbon credits from replacing fossil fuels.

Either way, Canada should act to mitigate emissions from its large forest catastrophes.

The federal government has a history of forest adjustment agreements for large forest catastrophes. It has simply never included a carbon benefit aspect to such an account.

Like BC's MPB infestation, NB's bud worm exceeded the province's ability to rehabilitate its forests. NB's bud worm led to the Federal Provincial Resource Development Agreements (FRDAs) for reforestation and silviculture work. NB's catastrophe also led to the first full rotation management plan for a total provincial forest-- something still missing in many provinces, including BC.

BC's proposal includes a timber supply fall down mitigation program to protect communities (especially traditional First Nations communities) in the regions of the forest catastrophes. Mitigation would mostly involve thinning young, high-density stands and then fertilizing them successively to fill in the missing age gaps in the timber supply.

BC's proposal will create carbon benefits, mitigate timber volume/value losses and restore forest stand health. These are all well developed measurable silviculture indicators for a structured disciplined investment. The investment will show high returns for the landowner (both levels of government), communities and future generations, if measured over the whole crown forest within a long-term management plan. As a results-based program, it will demand the best of silviculture professionals and would revitalise BC's industry.

Most importantly, developing a Federal Forest Adjustment Account for Catastrophes will indemnify every province when it is their turn to deal with an inevitable future forest catastrophe.

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by Tim White

**No matter how you look at it, whether personally or in forestry, the word ‘thin’ invokes thoughts of something very desirable to the beholder, but generally something very difficult to accomplish by the participant.**

The definitions of ‘thinning’ in forestry are too numerous to list but simply stated;

“Thinning is the process of removing excess and poorer quality trees from an immature forest to improve the growth and value of the remaining ‘crop’ trees, a ‘Commercial thinning’ provides the forest landowner some financial return, while a pre-commercial thinning does not.”

There are some ‘key words’ in this definition that impact the ‘participants’ in different ways.

It is in the best interest to the land owner to get the ‘commercial’ thinning done as soon as practical so that the crop trees get the benefit of the release for as long as possible.

And it is the objective of the commercial thinning contractor to make a profit on the logging operation.

The problem for the thinning contractor, and his machine operators, is that the trees removed are generally very small in volume and many are difficult to process because they are not the best form. Therefore just when the contractor needs to push for harvesting and processing speed to overcome the small tree size he is faced with a whole range of ‘thinning goals’ that the machine operators must achieve as they treat the stand.

During DEMO 2000 in Kelowna, BC I worked with the BC Forest Service to perform some commercial thinning with a cut-to-length (CTL) Harvester and Forwarder team on some highly visible sites. Our objective was to show visitors, and the BCFS, that we had the machinery and the professional operators available to accomplish a commercial thinning. Everything was ready to go until we received the ‘Goals of Commercial Thinning’ (see box). Our operators did a great job of the thinning but not until after lengthily discussions on the ground so that everyone

#### The Commercial Thinning of Immature Stands in BC is Undertaken to:

- Redistribute the harvest over time
- Meet visual quality objectives and adjacency constraints
- Maintain a variety of stand structures
- Modify the stand structure for wildlife habitat or biodiversity
- Maintain water quality and fish habitat
- Restore the historical ecosystem structure, condition, species composition and processes
- Improve the health and vigour of the residual stand by removing diseased, stressed, wolf or other trees in an improvement thinning
- Salvage the wood volume from natural tree mortality
- Remove fuels and lower the fire hazard
- Promote increased growth on the remaining crop trees, thus shortening the time to achieve a merchantable size
- Improve grazing values for domestic and wild animals
- Stabilize stands against wind throw
- Create uniformity within the stand to lower future harvesting costs

understood what the goals really meant in crop tree selection and tree removals, in that stand.

With all of these time and operational constraints involved it is my opinion that mechanized cut-to-length logging (using a purpose-built Harvester and Forwarder team) is the best logging method to use in a commercial thinning. The economic viability

of this CTL team is dependant on high machine utilization levels and production rates. However Harvester production is impacted most by tree size (read volume) while the production of the Forwarder is impacted most by the forwarding distance. It is difficult to balance, and maximize, the production capabilities of both machines on any one cut block, let alone on generally smaller thinning blocks.

The problem of balancing the production of the two machines is magnified because our immature natural forests in Canada are very diverse. We generally have several different tree species and wide variances in tree size and stand density while our forwarding distance is impacted by streams, slope and ground roughness as well as by our distinct seasons.

The high initial cost of CTL equipment is a significant factor to consider before beginning commercial thinning operations and the owner/operator needs to be aware of how the stand characteristics influence the production of each machine.

I attended DEMO 2004 International north of Quebec City in September looking for new and innovative options for commercial thinning to the now 'traditional' CTL Harvester and Forwarder teams that have been in use in Canada since the late 1980s.

There were CTL Harvesters and Forwarders of many different sizes and brands on display and in action. Most have been on the market for several years and their operators demonstrated the improvements in their capabilities and mechanical reliability and new features. The emphasis on 'user-friendly' computer control and performance monitoring was explained on every site. Many manufacturers displayed their Harvester Simulators to assist in the training of new operators.

Many of the larger CTL logging equipment manufacturers that are represented in Canada have their roots in the Nordic countries where CTL logging was invented. There the forest industry is trying to find new methods to reduce harvesting and thinning costs and they are pressuring the equipment manufacturers to develop new machine concepts. The result has been the creation of several new types of CTL logging machines.

The 'traditional' CTL Harvester and Forwarder 'Team' is now



The operator hooks up the log bunk to the chassis

being compared to two new concepts; 'Combi' and 'Dual' machines.

'Combi' machines integrate the felling, delimiting, processing and loading of the logs and terrain transport on one base machine. An example is the Valmet 801 Combi.


A 'Dual' machine (or 'Harwarder') is based on a forwarder chassis. It functions alternately as a Harvester or a Forwarder by attaching either the CTL Harvester Head or the Loading Grapple to the boom. The transition requires the mounting or removal of the Log Bunks. The CTL Head, Log Grapple and Log Bunks are all equipped with quick-couplings to improve the viability of the machine. Examples are the Ponsse Buffalo (or smaller Wisent) DUAL and the Timbco TF-820D.

When I first heard of these concept machines several years ago I was focussed on evaluating machines for high volume commercial logging operations and discounted their production and cost capability compared to the 'purpose built' machines that I was used to. However after recent further study and with commercial thinning operations in mind I believe these machines have some definite advantages over a 'traditional' CTL Harvester and Forwarder 'Team' that should be considered.

I watched a Ponsse DUAL 'Harwarder' in action at DEMO 2004 and I was impressed. The machine operator harvested some

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# *the forest industry is trying to find new methods to* **reduce harvesting and thinning costs**

trees and then drove back to the 'landing' to switch the Harvester Head for the Log Grapple. In spite of the fact that the site was on a slope the transition went very smoothly (mind you it pays to remember that we were watching a professional, trained operator in action on a carefully planned site). The demo sign said that the average 'change-over' time was 8 minutes. I didn't time this operator but I am sure that on a commercial thinning operation with the Head, Grapple and Log Bunk set out on a nice level surface and with the help of his partner that this time could be achieved.



*Ponsse DUAL as harvester*



*Ponsse DUAL as forwarder*

But beyond watching the interesting 'change-over' from Harvester to Forwarder this 'Dual' (and 'Combi') concept has some merits worth considering for a commercial thinning contractor.

Let's say you contract your thinning services to many different forest landowners, each with different sized cut blocks with different tree sizes, tree species and block shapes. You would obviously start each contract with the machine equipped as the CTL Harvester. The operator would typically harvest for several days before switching over to the Forwarder mode. But with the capability of the on-board computers today the timing for the 'change-over' would not be a guess. You know the capacity of the Log Bunk and the Harvester computer keeps a running inventory of the production.

On thinning blocks where the tree size is small you may harvest for 4 days (or shifts) before 'change-over' but on blocks where the tree size is large you may switch modes every two days to balance the harvest with the forwarding. This feature alone is of tremendous benefit in logging our natural forests of Canada. The base machine would have the highest level of machine utilization doing the most important operation on every cut block.

Since DEMO I have read several articles and studies on these 'DUAL' and 'Combi' machines where production data from operational studies have been used to simulate how these 'Combi' machines would compare to a 'team' of purpose-built CTL Harvester and Forwarder. The results show that production, utilization and costs are surprisingly similar.

But in addition to the lower capital cost, compared to two separate machines, I see several operational opportunities with 'combi machines. It is faster and easier to move one machine from one thinning block to another. Each operator would do a really good job of processing the trees and piling the logs to make them easier to pick up.

I am a strong supporter of 'Split-Shifting' (machine operators work for 3 hours then change jobs to rest) on CTL Harvesters. I believe the 'combi' machine concept is made for this operator scheduling system. The 'resting' operator can do the scheduled service and maintenance on which-ever tool is not in use and his partner can advise him of when the 'change-over' time is coming up to save time.

THIN is still a four letter word but DUAL may be something to study and consider for your commercial thinning operation. ✨

Tim White of White Forestry & Associates is a forest industry consultant. He has been involved with forest harvesting equipment for more than 30 years, over 20 years of that with a major logging equipment manufacturer. He can be reached at tim.j.white@sympatico.ca or (519) 421-5469.





# ABORIGINAL SILVICULTURE

by Lorraine A. Rekmans

*Forestry operations and silviculture are prime opportunities for economic development for more than 80% of First Nations in Canada who are located in forested regions. However, aside from economic opportunities, silviculture represents a deeper tradition for Aboriginal people, whereby they can maintain their relationship with the land in a stewardship role.*

*The relationship with the land is at the heart of all approaches to forest management.*

Forestry operations and silviculture are prime opportunities for economic development for more than 80% of First Nations in Canada who are located in forested regions. However, aside from economic opportunities, silviculture represents a deeper tradition for Aboriginal people, whereby they can maintain their relationship with the land in a stewardship role. The relationship with the land is at the heart of all approaches to forest management. Many First Nations' people across Canada have a long-standing tradition of being engaged in silviculture and have been active in harvesting, tree planting, site-preparation and fire fighting operations for generations. Historical records from the former Department of Lands and Forests in Ontario, for example, demonstrated significant levels

of involvement in forest operations by Aboriginal peoples. Historically, most forest regions in Canada were sparsely populated, and as a result the forest industry and government relied heavily on the labour force provided from people in existing Aboriginal communities. Today, there is a shift in Canadian demographics, demonstrating a trend back to earlier times when non-Aboriginal populations in rural Canada were much smaller than they are today. These trends indicate a significant migration of non-Aboriginal people from northern rural-based communities in Canada to urban centres. Statistics Canada data, from the most current census, reveals that Aboriginal populations in northern rural communities across the country are growing significantly and have the fastest growing youth population

in Canada. The Aboriginal youth population currently comprises nearly half of the total Aboriginal population and is growing rapidly. One third of the Aboriginal population is under the age of 15 and 42% of the Aboriginal population in Canada is under the age of 19. These figures are significant to bear in mind, because this work is very physically demanding. The average age of a silvicultural worker is about 32. The trend towards younger Aboriginal people in forest regions will be a significant factor in the forest sector in the next five years. Also, the very location of Aboriginal communities in forested regions was a good rationale for the reliance on local populations to conduct forest operations in the past and will be a key focus in the forest sector again in the near future.

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Aboriginal people continue to turn to silvicultural opportunities in an effort to maintain a foothold in the forest sector and continue with the longstanding tradition of practising a stewardship role. Silviculture represents an opportunity for Aboriginal peoples to preserving traditional forest related knowledge in a practical way. It is an integral part of any Aboriginal approach to the management of forests.

A recent study published by the National Aboriginal Forestry Association (NAFA) last year on Aboriginal-held forest tenures has revealed that Aboriginal people harvested less than 2% of Canada's total allowable harvest in 2002. In terms of forest management activity, it is clearly in the area of silviculture where most Aboriginal people are engaged, however, that is not to say that Aboriginal people are not interested in forest harvesting and value added opportunities. The level of Aboriginal involvement in the forest sector is influenced by a number of factors including the lack of tenure availability. Sometimes it is the lack of access to forest tenure and associated value-added opportunities that lead Aboriginal communities into the silvicultural field. Other times it is the lack of capacity in Aboriginal communities that causes a reliance on silvicultural work in efforts to build capacity. NAFA estimates that there are fewer than 80 Aboriginal Professional Foresters across the country. Many First Nations do not have forestry programs in their communities, and often it is these silvicultural contracts with industry and government that provide the only source

of forest related employment and training.

Forest companies across Canada are increasingly recognising the value of working with Aboriginal communities in partnership arrangements to assist with capacity building and development of opportunities for Aboriginal people to share in the benefits derived from forest management. Alberta Pacific for example, has developed an Aboriginal business plan and is actively recruiting Aboriginal employees in all areas. There are approximately 43,000 Aboriginal people living within or adjacent to Alberta Pacific's forest management area. Alberta Pacific has worked with communities to develop a number of business ventures, including a wood harvesting company with Bigstone Cree Nation and is working on a plan for a custom hardwood sawmill in the Wabasca area. The company has worked with Aboriginal trappers as well, hiring them to monitor specific areas in order to measure the impact of logging on yields. Trappers are sometimes engaged in environmental monitoring or beaver control, road location and identification of sensitive sites.

Development of Aboriginal run silviculture



enterprises continue across the country, however, many of these initiatives are small seasonal contracts which are extremely labour intensive offering only marginal profits. In Ontario, the Mississauga First Nation, located just east of Sault Ste. Marie, is developing a forest management plan and business plan for new lands acquired as the result of a land claim settlement. In an effort to prepare for the management of these new reserve lands, the members of the First Nation undertook a manual tending contract with a local company as part of an effort to build capacity. The forestry program at the North Shore Tribal Council, which is comprised of seven First Nation communities on the north shore of Lake Huron in Ontario has undertaken a seed collection contract with the Northshore Forest and Ministry of Natural Resources. The forestry program manages the entire contract for 400 hectolitres of white and red pine. One community in the Tribal Council has undertaken a basal bark application project for the Northshore forest as well.

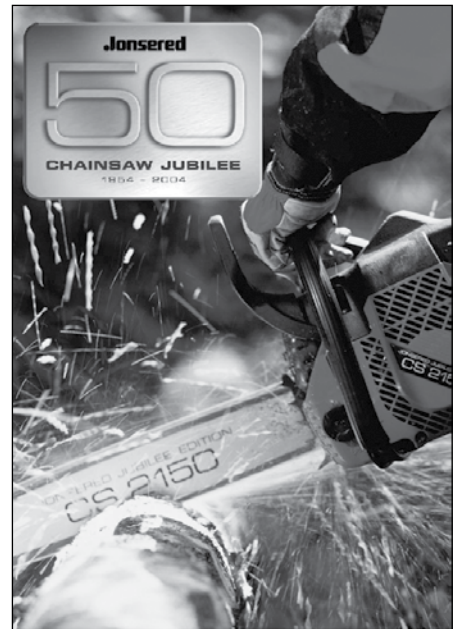
The Cayoose Creek Band, in British Columbia has developed a community-based natural resource company called Redlands Resources and will focus on block layout, wildlife tree location, riparian management zone layout and archaeological inventories with a focus on GIS mapping. There are 165 people in the band and many reside on three reserves near the Fraser River, just south of Lillooet.

As developments to build the foundation for forest management continues in the Yukon, both the Yukon government and the First Nations are working towards meaningful partnerships that will ensure forest management opportunities are distributed in an equitable way. The Yukon government and the Kaska Nation have signed an agreement in principle that will create a legislated forest management authority with equal Kaska/Yukon representation responsible for forest management activities in the Southeast Yukon. In the Yukon, silviculture and forestry workers are a small occupational group, however 60% of this workforce is First Nations people.

Aboriginal communities are also interested in new and innovative approaches to forest management in an effort to address multiple Aboriginal forest values, such as the Akwasasne First Nation who is working with the South Nation Conservation Authority in Ontario to develop a management approach to ensure the viability of black ash. Akwasasne First Nations, and other First Nations along the St. Lawrence River, use black ash for their multi-million dollar basket weaving industry. There are no current inventories of black ash in Eastern Ontario, therefore no one knows if there is a supply of black ash for "seven generations"; this is critical, as only 10% of the black ash is considered to be suitable for basket making by First Nations.








The project will consist of an inventory of black ash in the project area in an effort to analyze the sustainability of current stock. The First Nation will participate in a supply and demand analysis and work to determine management approaches necessary for sustainability. The First Nation will also work with the Ferguson Forest Centre to grow black ash trees for strategic transplanting. Finally the First Nation will negotiate long-term agreements with the conservation authority for harvest.

Lorraine A. Rekmans is Executive Director of the National Aboriginal Forestry Association in Ottawa and can be reached at 613-233-5563 or [Lrekman@nafaforestry.org](mailto:Lrekman@nafaforestry.org)



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# West Creek Silviculture

## Changing the Silviculture Landscape Through Technology

As the silviculture industry becomes more and more reliant on emerging technologies, inputting, extracting and managing data is becoming an increasingly daunting task for many companies.

The silviculture industry is changing at a rapid pace. For smaller contractors and organizations to keep up, they must employ the latest in technology or be left behind. That doesn't mean, however, that they have to have the expertise in-house to implement these rapidly changing technologies. West Creek Silviculture provides these forward-looking organizations with the practical support they need to implement these changes, quickly and efficiently. Setting up the data properly from the outset will mean a smooth and seamless transition to technology-based information management.

Electronic data transfer in the field is an increasingly cost-effective way of planning and managing the silviculture process. There is a vast reduction in the use of paper and the paperless field office is quickly becoming a reality. The data

is more accurate, cleaner, and easier to work with.

West Creek Silviculture helps companies of all sizes manage the data process and can assist on an as-needed basis to ensure that contractors have easy access to critical data when they need it. The company first assesses the needs of the contractor and helps to develop a strategy to convert systems. West Creek acts as a liaison between the contractors and forestry companies as well as the Ministry of Forests. While acting as a prime contractor, West Creek helps with implementation, providing data entry and conversion services, ongoing support as well as IT and software support.

The company's founder, Derek Belsham has over 20 years of experience in both computer technology and the forest industry. While working on a degree in Computer Science in 1974, Derek became intrigued with the forest industry and left to pursue a career in silviculture. He later went back to university and finished his degree at UNBC in computer sciences. He now has both the industry and computer knowledge to head up

one of the industry's leading technology-based firms.

Derek started to develop the use of SAP in the mid 1990s and released it to the industry in 2000. But it was the development of the palm pilot PDA in 1997 that revolutionized collecting and transferring data, which was just what contractors needed to help manage plots.

The SAP program utilizes Personal Digital Assistants (PDAs) in the initial collection phase and then transfers the data to the PC environment for compilation and reporting of data. By using the Seedling Assessment Program (SAP), data is entered with a palm device in the field. The data is entered only once, reducing the likelihood of errors in the data re-entry process. It uses Crystal Reports allowing for easy exporting to various formats and email attachments. It used to take up to three hours to complete one report manually, but with the assistance of SAP, up to nine reports a day can now be generated.

In addition to easy data collection and transfer, SAP also utilizes Global

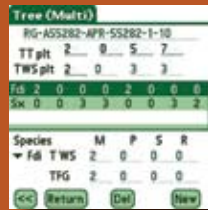
## PDA Screen Shots



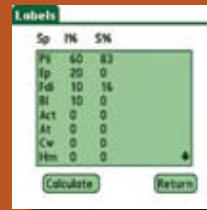
Block list



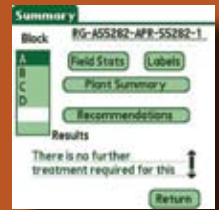
Plot details



Tree report



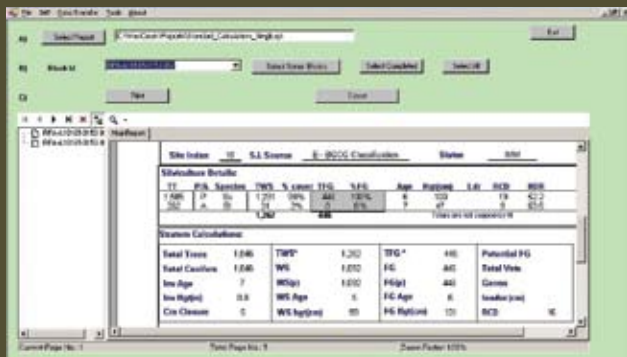
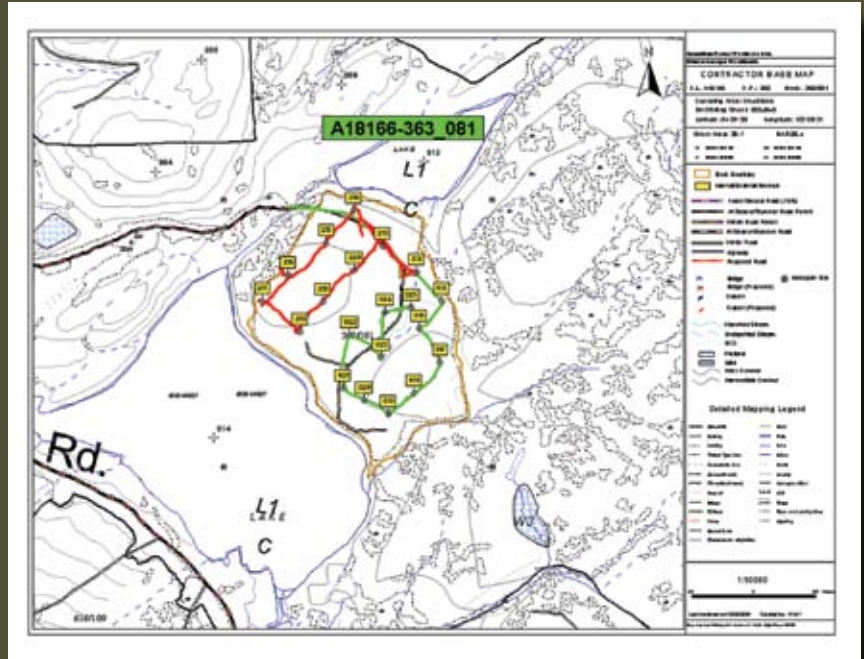
Labels



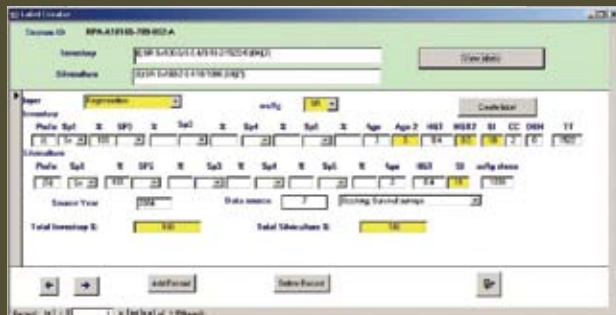
Summary

Positioning Satellites (GPS) to establish the plot's centre. This is an accurate method of calculating the plot while being environmentally friendly by not using string. It is also very easy since it doesn't require a compass or hip chain. It fully meets MOF requirements as the plot centre is predetermined before they go in the field. Plots are easily loaded into the GPS, which leads surveyors directly to the plot. The program records the path of the surveyor and the plot centre is recorded and later downloaded into a map program to produce the final plot map.

Seamless data transfer with programs such as Genus and Phoenix is a huge savings for licensees. Costly data entry and re-entry is virtually eliminated, meaning that projects that used to take up to three months to manually input the data, can now be done in minutes! Stocking standards are



Crystal report



Label creator

downloaded at the beginning of the season and survey results are then uploaded back to these programs at the end of the season. Programs such as Genus are revolutionizing the way forest companies and silviculturists are managing today's forests, but simply having the latest programs at your disposal is not enough. West Creek Silviculture is an IT specialty company working within the forestry and silviculture industry to help organizations with seamless electronic data transfer.

As the Ministry of Forests becomes more and more reliant on technology, such as XML, to manage its data, it is critical that companies and contractors of all sizes also adopt these new data standards in their business practices. As of 2004, MOF has made it a requirement that all data submissions be in XML format.

West Creek Silviculture can assist your organization with the expertise, both in information technology and in forestry, that you need to simply and easily adapt to these changes. Increased efficiency, improved productivity and seamless integration mean an improved bottom line.

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# Forest Health

often don't show above ground. To confirm presence of root rot in a tree, researchers must dig up roots, or cut into root and stem bark. But Natural Resources Canada researchers at the Canadian Forest Service's Pacific Forestry Centre in Victoria may have found a less intrusive way to determine if healthy-looking conifers are afflicted by root pathogens.

Technician Arezoo Zamani and scientist Rona Sturrock have successfully extracted from Douglas-fir needles a fluid found to contain an intact, potentially anti-fungal enzyme. It's an "endochitinase", the sort of protein many plants produce when fighting fungal infection.

"Our initial results with both seedlings and mature trees suggest that endochitinase protein levels in the foliage of root-diseased trees are significantly greater than levels in foliage of non-diseased trees," says Sturrock.

Infection, though, is not the sole stressor to boost chitinase production in trees. Needles contained higher levels of the enzyme in winter and early spring than in warmer months



suggesting that it might also act as an anti-freeze! So Zamani and Sturrock will next try to confirm what exactly the enzyme they found is responsible for and what different enzyme levels might mean. "If nothing else, this work enhances understanding of what is going on in a tree at the cellular level. We're able to actually observe defense-related compounds being expressed in response to disease and other stresses," concludes Zamani.

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**Moth mothers modify spruce**

When summer is only two or three months long, and you're a new-hatched spruce bud moth larva, you can't wait around for days before dinner is served! So, believe it or not, spruce bud moth mothers modify tree-growth patterns and timing to benefit their offspring.



This is the finding of Natural Resources Canada research scientist Dr. Allan Carroll at the Canadian Forest Service's Pacific Forestry Centre in Victoria, and Dr. Dan Quiring of the University of New Brunswick in Fredericton.

How do the moths do it? They lay their eggs at the base of a spruce tree's buds. When the eggs hatch, the larvae feed on the buds and shoots and, in many cases, chew right through the tree's new stems. Inadvertently or not, the larvae "prune" the tree!

Pruning makes two things happen. Secondary buds, otherwise dormant, burst early the following spring, and canopy closure is delayed. That promotes early bud burst too.

The result is exquisite timing. Larvae that hatch sometimes days or weeks before buds "naturally" burst are guaranteed a much earlier buffet of tender greenery. "What's more, the next generation of moths appear to key in to the hedge-like shape of the damaged trees, selecting them over healthy trees as good places to lay their eggs," concludes Dr. Carroll.

**Next Issue**

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# WESTERN

## SILVICULTURAL CONTRACTORS' ASSOCIATION

by John Betts, Executive Director

### Corporate Concentration, Competition and Contracting

If the word oligopoly is not part of many silvicultural contractors' lexicons it should be. It means a state of limited competition in a market shared by few buyers or sellers. The more familiar word monopoly is defined as a state where a buyer or seller has exclusive control of a market. The two words are related, particularly in the economic sense, in that they can both impair proper competition and the benefits it provides to the public and to free enterprise. Both federal and provincial laws protect markets from dominance by monopolists or oligopolists.

For years the BC forest sector has continued a course of corporate concentration. Today, two major mergers are continuing this trend: the West Fraser/Weldwood and the Riverside/Tolko amalgamations. They are just two in a long list going back into the last decade. Most contractors today compete for contracts between fewer and fewer clients as a result of corporate mergers. To the pessimist the silvicultural market is moving towards a form of corporate feudalism, where participants increasingly depend on a diminishing number of patron companies for work. Whether the latter is true or not, the

resulting dependency of contractors on fewer forest companies casts doubts on whether we actually have a functioning market for silvicultural services. There may be just too few buyers.

A major licensee recently announced its intent to tender future treeplanting in a single contract, involving tens of millions of trees, spanning two provinces and possibly a few years. This is not a new trend. Other companies, including government's BC Timber Sales, have been increasing contract size. One of the effects of this is that contractors compete more fiercely for artificially shrinking market opportunities, even though the volumes may actually be increasing. In a market with few buyers, such as the forest sector, these tactics can drive dependent contractors out of business. They also have an overall depressing market effect, as displaced firms try to find other footholds in a buyer's market. They also affect the 'winner' of such contests because they must now increase their investment and dependency on a single client, and that has some potential drawbacks.

A few years ago, it would have been difficult for forest companies to organize the market so much in their favour.

The diversity of buyers ensured protection against such influence. What is happening today should signal to contractors the inordinate effect forest company buyers have on the competition for silvicultural work. It should signal that the silvicultural market is an emerging oligopoly, if it is not one already. And it should signal that the buyers have the advantage, and some appear to be taking it.

Forest companies have a legitimate right to extract value from the marketplace. Fair competition is what the silvicultural contracting industry is built on. It fosters innovation, invention and harnesses entrepreneurial energy to constructive purposes. However, forest companies do not have the right to extract concessions from contractors through abusing their domination of the market. Take it or leave it negotiations, or one-sided tendering practices that succeed largely because contractors have few other buyers or markets to go to are predatory and ultimately destructive. They can also be reviewed by both provincial and federal agencies, if complaints from contractors or their associations are judged to have merit.



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# ONTARIO

## FOREST RENEWAL CO-OPERATIVE INC.

by William F. Murphy, RPF General Manager

Forest Renewal Co-operative is making a presence with Forest 2020 in Northwestern Ontario. With the efforts of Steve Dominy and Darren Allen of Forest 2020, Tarlok Sahota of the Thunder Bay Agriculture Research Station and the private land owners in and around the Thunder Bay area, our Co-operative is going to be replicating treatments on growth of four species - two native (Red pine and White spruce) and two non-native (European larch and Norway spruce) to find out if their interaction will increase their growth potential to meet Canada's Kyoto Protocol commitment for carbon sequestration. In addition to helping mitigate greenhouse gas

emissions, these plantations established on older fallow fields devoid of shrubs and trees, will enhance the property values, provide potential sources of non-timber products, possibly improve local watershed quality and provide wildlife habitat.

Forest 2020 is promoting this effort of tree planting with Trees Ontario Foundation. There are two goals to this initiative. The first is the research, within small areas, on various aspects of the Kyoto Protocols. The second is to put into production 1200 hectares of fallow fields by 2005.

Forest Renewal Co-operative Inc. will be looking to private individuals to provide

a portion of their land for production purposes. This is the first afforestation incentive in this region since the Woodlot Improvement Act, which was a Ministry of Natural Resources mechanism to provide trees to be planted on private land. The WIA has since gone by the wayside, and now for one year, the Forest 2020 Initiative will be providing dollars to establish afforestation efforts on private land.

If you are a landowner in and around the Thunder Bay area, and wish to participate in this program, please call (807) 343-8313 to get further information.

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Richard Lepage of Pineland Forest Nursery with a white spruce seedling at Hadashville Manitoba. This Seedling got its start in a Styrobloc 77/170 and is just one of over 7 billion Styrobloc grown seedlings planted to date.

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# QUÉBEC

## ASSOCIATION DES ENTREPRENEURS DE TRAVAUX SYLVICOLES

par Fabien Simard, ing. f. Directeur général

En septembre dernier, le ministère des Ressources naturelles, de la Faune et des Parcs du Québec (MRNFP) a annoncé à l'AETSQ qu'il jonglait avec l'idée de recourir, dès avril 2005, au libre marché pour déterminer la valeur des travaux sylvicoles, en remplacement de la grille de taux actuellement utilisée. En 1996, pour pallier à la précarité des entreprises sylvicoles, le gouvernement avait élaboré cette grille de taux pour fixer la valeur des traitements au Québec, valeur déterminée à partir des marchés des années précédentes. Depuis ce temps, le gouvernement procède annuellement à l'indexation de la grille selon l'IPC au moyen d'un décret ministériel.

Vous vous souviendrez que, dans les articles précédents, nous vous faisons part de l'existence au Québec de la Commission d'étude sur la gestion de la forêt publique québécoise, communément appelée la Commission Coulombe, mise en place en janvier 2004 pour dresser le portrait de la situation de gestion de nos territoires publics. Or, le MRNFP ne semble pas saisir qu'il était prématuré, voir même indécent, de proposer des changements majeurs à l'industrie avant même d'avoir pu prendre connaissance des recommandations de la Commission, qui déposera en décembre 2004 un rapport recommandant des améliorations pour bonifier le régime forestier dans une perspective de développement durable. Le Ministère posséderait-il un agenda caché ayant décidé depuis longtemps des changements annoncés, et ce, malgré l'intégrité et la bonne foi de la

Commission Coulombe? Depuis 1996, nous constatons que, sauf l'instauration de la grille de taux, peu de modifications ou d'améliorations ont été apportées à l'environnement concurrentiel de l'industrie. Pour l'AETSQ, il est clair que si le MRNFP va de l'avant avec son projet de libre marché, sans se préoccuper des changements à apporter à l'environnement, l'industrie sylvicole fera un bond en arrière de vingt ans. Nous entrevoyons trois conséquences majeures pour l'industrie :

1. Baisse des conditions de travail des ouvriers sylvicoles
2. Réduction de notre capacité à réaliser les stratégies sylvicoles
3. Baisse des marges bénéficiaires des entreprises sylvicoles

Les entrepreneurs sylvicoles représentés par l'AETSQ sont conscients que des changements devront être apportés à la méthode utilisée pour la détermination de la valeur des traitements sylvicoles. Toutefois, avant de se lancer tête première dans un libre marché des travaux sylvicoles, ils croient qu'il est essentiel de mettre en place un environnement concurrentiel juste et équitable pour l'ensemble des intervenants de l'industrie et ainsi préparer le terrain à moyen et à long terme.

Pour l'AETSQ, un environnement concurrentiel passe par un minimum de changements soit l'établissement de ces sept éléments qui ont d'ailleurs été présentés en 2002 au Comité sur la valeur du traitement sylvicole :

- mise en place d'un fonds dédié à la

mise en valeur des forêts pour permettre aux travaux sylvicoles de ne plus être tributaires de la récolte.

- répartition uniforme sur cinq ans des travaux sylvicoles planifiés au plan quinquennal
- accréditation des compétences des entreprises
- octroi de contrats à long terme
- ajustement des normes techniques pour équilibrer le coût bénéfice de chaque intervention
- ajout de la valeur des coûts de planification au coût d'exécution dans le taux des activités
- reconnaître les compétences des travailleurs par rapport à une norme professionnelle certifiée.

Selon la vision idéale de l'AETSQ, le ministère devrait donc, à court terme, attendre le rapport de la Commission Coulombe en plus de mettre en place les recommandations énumérées plus haut pour favoriser l'établissement d'un environnement concurrentiel. Il pourra ensuite évaluer l'efficacité de chacune des mesures réalisées et procéder, si c'est toujours sa volonté, à un ajustement dans le but ultime d'instaurer le libre marché. Ce laps de temps lui permettra peut-être aussi de réfléchir aux raisons qui l'ont poussé en 1996 à instaurer la grille de taux. Je vous laisse sur une citation de George Santayana qui date de la deuxième guerre mondiale : « Those who cannot remember the past, are condemned to repeat it » (Ceux qui ne peuvent se remémorer le passé sont condamnés à le répéter)

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# QUEBEC

## TRANSLATION

by Fabien Simard, RPF, Executive Director

Last September the Quebec Ministry of Natural Resources, Wildlife and Parks (MRNFP) announced to the AETSQ that it was toying with the idea of resorting, as of April 2005, to the free market to determine the value of silvicultural activities, in place of the rate schedule currently in use. In 1996, in order to relieve the precarious state of silvicultural companies, the government had devised this rate schedule to fix the value of forest management work on the basis of market forces in the preceding years. Since that date, the government has moved each year to index the schedule by ministerial decree in keeping with the Commodity Price Index.

You will recall that in earlier articles we mentioned the existence in Quebec of the Commission to Study the Management of Public Forests, commonly referred to as the Coulombe Commission, set up in January 2004 to describe the management situation in our public lands. The Ministry does not seem to have realized, however, that it was premature, if not inappropriate, to propose major changes in the industry before having the benefit of the recommendations of the Commission, which will submit a report in December 2004 recommending improvements designed to enhance forestry management with a view to sustainable development. Does the Ministry have a secret agenda that has long ago assumed the announced

changes, regardless of the integrity and the good faith of the Coulombe Commission?

Since 1996, we note that, except for the creation of the rate schedule, few changes or improvements have been implemented in the competitive environment of the industry. For the AETSQ it is clear that if the Ministry proceeds with its market pricing initiative, without taking account of changes needed in the environment, the silvicultural industry will move back twenty years. We foresee three major consequences for the industry:

1. A decline in the working conditions of silvicultural workers
2. Reduced capacity to meet our forestry strategies
3. A decrease in the profit margins of silvicultural businesses

The forestry contractors represented by the AETSQ are aware that modifications will have to be made in the method used to calculate the value of silvicultural work. Nevertheless, they believe that, before plunging head first into a free market in forestry work, it is essential to create a fair and impartial competitive environment for all participants in the industry and thus to prepare the groundwork for the mid and long term.

For the AETSQ, a competitive environment implies a minimum of change, or at least the incorporation of these seven elements, which were presented in 2002 to the Committee on the Evaluation of

Silvicultural Activities:

- establishment of a fund dedicated to forestry utilization so that silvicultural activities will no longer be dependant on harvesting
- uniform distribution over five years of the silvicultural work projected under the five-year plan
- accreditation of contractors' competence
- granting of long-term contracts
- adjustment of technical standards to balance the cost benefit of each activity
- adding planning costs to the execution costs in the rate schedule
- recognizing the skills of workers in relation to certified professional standards

According to the AETSQ's ideal outlook, the Ministry should, in the short term, await the report of the Coulombe Commission while implementing the recommendations listed above to encourage the establishment of a competitive environment. It will then be able to evaluate the effectiveness of each measure undertaken and to proceed, if that is still its wish, to make adjustments with the eventual intention of creating a free market. This time lapse will perhaps also allow it to reflect on the reasons that influenced it to set up the rate schedule in 1996.

I close with a quotation from George Santayana that dates from World War II: "Those who cannot remember the past are condemned to repeat it."

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# NEW BRUNSWICK

## AGFOR REPORT

by Gaston Damecour

### The Final Report of the Select Committee

In July 2003, an all-party Select Committee on Wood Supply was appointed by resolution of the Legislative Assembly to review the findings of the Jaakko Pöyry Consulting (JPMC) report and to make recommendations on the future direction of forest management of Crown lands. The Committee took a year to review 200 presentations and 121 written opinions before producing its final report on September 15, 2004. Following is an overview of the Committee's report.

A press release accompanying the report says, "While the committee does not endorse the Jaakko Pöyry strategy as a 'go forward' one, it instead recommends a more holistic approach – managing for a forest of greater diversity." The release says the Committee's response to the Jaakko Pöyry report "should not be misconstrued as disregard for the forest sector and its economic importance."

In the Executive Summary, the Committee acknowledges the complexity of the issues facing forest management in New Brunswick. It fully realizes the importance of the forest industry in providing wealth and employment; it recognizes that New Brunswickers are the owners of the public forest and should be in control of its future; and it understands industry's desire for a secure wood supply.

The Committee firmly believes that the public forest should be managed in accordance with public values and that balance and compromise are essential.

The recommendations are, not surprisingly, organized by the following categories:

- Governance and Accountability;
- Forest Management Objectives;
- Allocation of the Resource and

- Distribution of Benefits; and
- Provincial Wood Supply.

#### **Governance and Accountability**

The recommendations support public participation, and transparency and openness of accountability to the people of New Brunswick, from Crown operators' (licensees and sub-licensees) performance to reporting to the Legislature. The exercise just completed by the Committee should serve as a model.

The recommendations include specific measures and resources, including a person to be assigned to oversee the implementation of the Committee's recommendations. Clearly, the Committee does not want to see its report collect dust.

#### **Forest Management Objectives**

Industry's request for clear and quantifiable wood supply objectives is supported and extended to all commercial tree species with modifications to harvesting practices and expanded silvicultural guidelines while "maintaining important ecological features of the forest." The recommendations are a clear endorsement of current trends.

#### **Allocation of the Resource and Distribution of Benefits**

These recommendations are aimed at establishing social accountability to the population at large and specifically, to the rural population. These, together with those on governance and accountability, are significant recommendations of the Committee.

#### **Provincial Wood Supply**

The essence of this category is the

support for primary source of supply from private woodlots and for an increase in Crown royalty rates to reflect an increase in forest management and silviculture. The increase in royalties would be deposited in a dedicated fund. The Province would commit, on a five-year basis, to the level of funding for silviculture needed to reflect Crown wood supply objectives and management strategies. An important assignment of this nature is not done with the status quo in mind.

The report is a moderate and balanced synthesis of the incredible amount of input received by the Committee. It is non-offending. The Committee avoided a venture into uncharted territory such as the concept of community forests. It does provide a vision with clear direction.

Gaston Damecour is a registered professional forester. He is a senior consultant and principal of AGFOR and has been instrumental in bringing about significant changes in the forest sector by representing governments and industries on such issues as health and safety, standards for forestry equipment, industrial relations, wood allocations and forest management policy.



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# PEI

## FOREST IMPROVEMENT ASSOCIATION

by Wanson Hemphill, Manager

### PEI FIA's Forest Health Statement

Many people want healthy forests for beauty, air quality, water quality, wildlife and biodiversity. But what are healthy forests, and do they mean different things to different people?

When Islanders see a clearcut, some see devastation and loss of biodiversity, some see money and jobs, and others see the start of a new forest or alternate land use.

Is it better to leave a forest to fall down or blow over than to create wealth and jobs? Is there a way to harvest forests sustainably and still maintain the many values healthy trees provide humans, animals and ecosystems? There are many answers to these simple questions depending on whom you ask and their level of interest and experience. However, some things seem clear:

- PEI forest owners decide what happens on 87 per cent of PEI forests. Most owners will not see the trees they plant mature, but someone will.
- Healthy forests benefit everyone and everything.

- There are many more options with a forest of long-lived tree species (300 years) than with a forest of short-lived species (60 years).

- A mix of softwoods and hardwoods of different ages and sizes benefits more wildlife species and biodiversity.

- Islanders have cut the best quality trees for 300 years, resulting in the remaining lower quality trees being seed trees for the forests. By taking lower quality trees, and leaving the best long-lived trees for seed trees and to grow into more valuable timber, tree quality can be improved. By planting quality long-lived tree species where none now exist, quality and species diversity can be reintroduced.

- Leaving dead trees and tree parts in forests benefit wildlife, biodiversity, future trees and the many soil micro-organisms.

- A healthy forest in a wet area will be different, with different species, than one in a dry or upland area.

- Approximately the same volume of low

quality and small trees can grow on a site as high quality trees with room to grow.

- Approximately the same amount of higher quality lumber can be taken from a quality forest of multiple ages, on a regular basis, as by planting and clearcutting every 60 years.

Given the above conditions, what can PEI forest owners do to contribute to healthy forests?

- Learn more about their forests and their management options. There is no shortage of information from Government forestry departments or private forestry groups like PEI Forest Improvement Association

([www.forestimprovement.ca](http://www.forestimprovement.ca)).

- Take advantage of Government programs that provide generous incentives for management plans, non-clearcut treatments, and reforestation.

- Make trails in your woods and feel the peace and quiet.

- Visit one of six Provincial Demonstration woodlots with groomed trails, signs and lots of birds.

- Protect and enhance streams, springs and brooks on your property.

- Leave brush piles for wildlife homes and place birdhouses near water.

- If harvesting, request references and contracts from forest contractors and a commitment to follow the new Voluntary Sustainable Management Practices.

- Ask for advice from several forestry professionals.

- Look at what has happened on other woodlots over time.

- Make your forest a better place for people, animals and birds.

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# NOVA SCOTIA

## SILVICULTURE CONTRACTORS ASSOCIATION

by Alan O'Brien

The Nova Scotia Silvicultural herbiciding season, which goes from August 15th to October 1st has concluded. Herbicide treatments are used to develop naturally occurring softwood stands and softwood plantations. The softwood trees are released from suppressing short-lived species (Pin Cherry, Grey Birch, Aspen) and coppiced Red Maple stems. The herbicide also limits vegetative root competition from raspberry and ericaceous shrubs to promote growth of the desired species. The softwood trees remaining on the site receive more light, water and soil nutrients in post treatment growing seasons. The majority of the sites being treated in Nova Scotia would become softwood dominated sites over time regardless of spraying. The difference in the two sites (herbicide, non-herbicide) could be measured in basal area growth of the softwood trees. With early growth being concentrated on trees that would not survive the rotation paradigm on the non-herbicide sites, and early growth concentrated on

softwood trees on herbicide sites. Spraying herbicides on softwood stands shortens the rotation time (harvest dates). Helicopters and ground equipment are used to apply chemicals to treatment sites in Nova Scotia. Helicopters are equipped with GPS technology that store files (polygons) of spray blocks. The system also records when and where the spray boom is engaged. This technology has reduced the risk of off target mishaps. With much of Nova Scotia land base being held by private interests, the technology has been a favourable option for spraying contractors.

Herbicide is an important forest management tool, with environmental and public interest groups putting pressure on governments to protect crown land and remove it from forestry production, to provide wood fibre to the mills in the future.

Recently there has been much media attention devoted to the ongoing controversy of herbicide spraying. In my

opinion, much of the print media in Nova Scotia has presented a biased view of facts and information related to spray operations and contractors. Reports continue to be printed stating that Vision kills hardwoods on sprayed blocks, with no mention of the economically worthless hardwood species being targeted on the sites. The fact that the site being sprayed may only be done once in 60 years is also not reported. The editorials are always questioning industry's motives about spraying and say that they're applying pressure to contractors or landowners to have treatments done. I personally have not been pressured by industry to have herbicide work done on any private woodlot, and know of no other contractor that has. The NSSCA supports the correct use of herbicides in Nova Scotia on forested land. It is an effective management tool when used correctly and will increase the annual allowable cut for the province, hence keeping the sawmills supplied with wood fibre in the future.

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# FROM CONFLICT to COOPERATION

## Opportunities for change in Canada's boreal forest region

by Cathy Wilkinson

*It was almost one year ago that an extraordinary group of Canadian leaders created an opportunity. The announcement of the Boreal Forest Conservation Framework opened the door to change – positive change in how we plan and manage for the future in Canada's boreal region. Almost a year later, the opportunity is still there for the taking.*

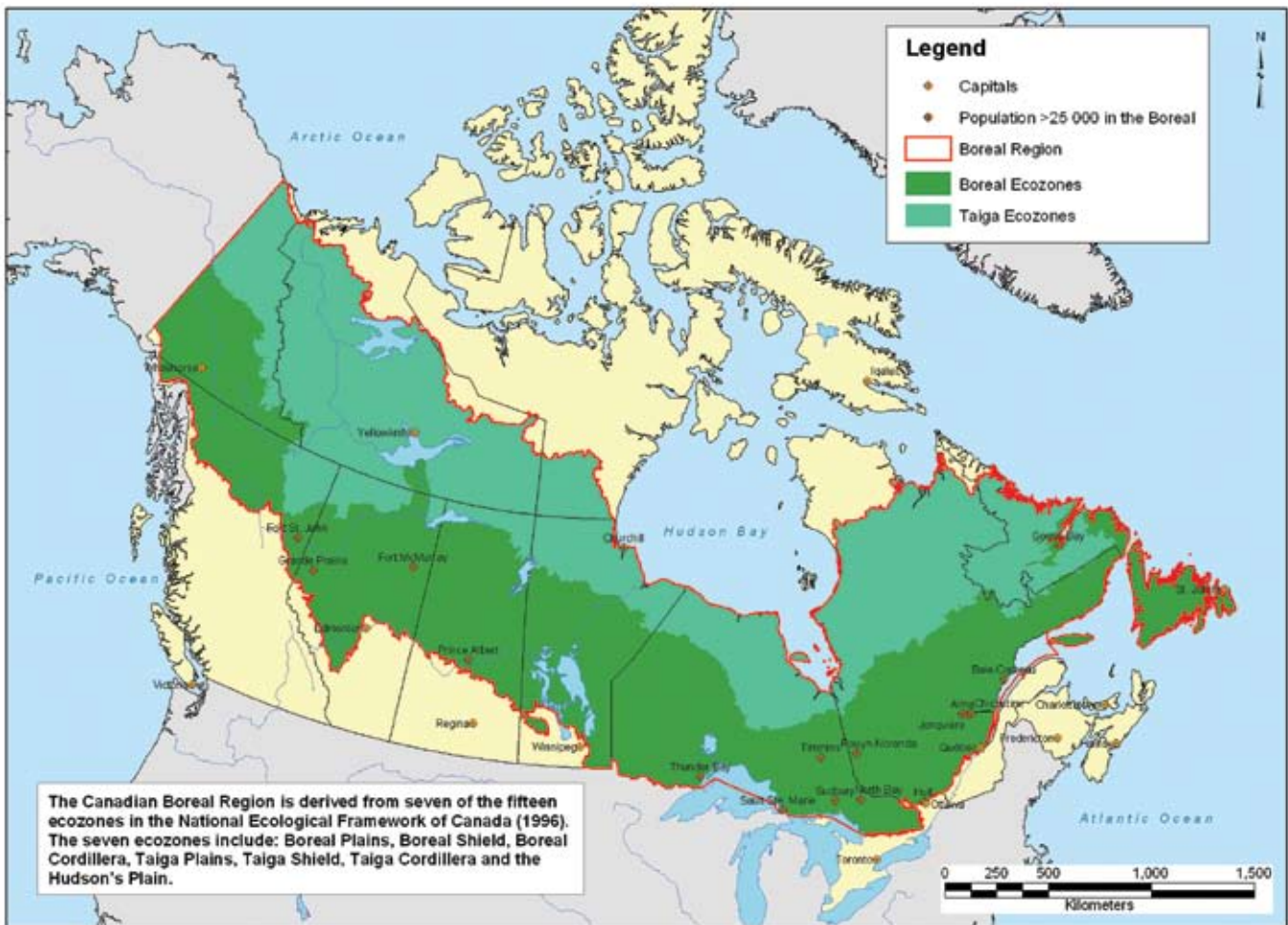
The Boreal Forest Conservation Framework is arguably the most ambitious national vision for conservation in Canada. It represents the collective wisdom of our country's leading resource companies, First Nations and conservationists. Historically unlikely allies, the 11 signatories of the Framework are united in recognizing that all who depend on the forest must come together to plan for its future. And they have joined together in a groundbreaking partnership because they recognize that the importance and urgency of conserving Canada's boreal region requires an approach out of the ordinary.

So, why the boreal region? Canada's boreal region is fully one-quarter of the world's remaining original forest. It is part of a worldwide great northern forest that circles the globe and extends into Alaska, Russia and Scandinavia. It is one of the last remaining intact forest ecosystems on the planet and is home to healthy populations of bears, wolves and caribou. A third of the continent's bird life nests there. This region stores more freshwater in wetlands and lakes, and more carbon in its trees, soil and peat than anywhere else on the planet. And hundreds of First Nations communities rely on it in the same way they have for millennia. The boreal is, in short,

a rare original. It is among the last opportunities we will ever have on this planet to carefully manage a large-scale ecosystem in a truly sustainable way. The Boreal Forest Conservation Framework is a way of thinking about the boreal differently and on a much larger scale than ever before. This new approach reflects the unique character of the boreal. For instance, the ecological processes of the boreal forest depend on regular, large-scale disturbances. Fire is a key regenerator of the forest. It needs a vast sweep to kindle the natural cycles of the region. Insect infestations also have a role, and their periodic population surges feed birds and other

photo: Garin Lenz

## Canada's Boreal Region



keystone species in the ecosystem. Water is another force shaping the region, and it too requires uninterrupted space to cycle through the boreal's millions of lakes, rivers and ponds. By their nature, these features of the forest need both adequate room to move and adequate connections to one another. The Framework has been designed to recognize these scale-dependent requirements, which science tells us are key to maintaining the integrity of the boreal ecosystem.

The goal of the Boreal Forest Conservation Framework is to conserve the natural, cultural, and sustainable economic values of the entire boreal region. It aims to protect at least half of the region in a network of large, interconnected protected areas, and support sustainable communities, world-leading ecosystem-based resource management practices and state-of-the-art stewardship practices in the remaining



landscape. In implementing this vision, the Framework emphasizes collaborative conservation planning, strong aboriginal involvement, and enhanced data gathering and dissemination.

In promoting a conservation approach for the entire boreal region, the Framework recognizes that conservation challenges and opportunities will vary. What may be achievable in a particular region at a given point in time will be influenced by a variety of factors including: existing industrial allocations; land ownership patterns; the evolving status of Aboriginal and treaty rights; and land use planning exercises. As such, the Framework represents a national vision and goal for the region as a whole, rather than a formula to be applied on a unit-by-unit basis in a particular part of the boreal region.

Framework signatories, who form the Boreal Leadership council, include



a national vision and goal for the  
**region as a whole**



Alberta-Pacific Forest Industries, Domtar, Suncor Energy, Tembec, Dehcho First Nations, Innu Nation, Poplar River First Nation, Canadian Parks and Wilderness Society, Ducks Unlimited Canada, Forest Ethics and World Wildlife Fund - Canada. Together, these signatories have influence over a significant portion of the total boreal region in Canada. Individually, they can have a direct impact by the choices they make. Collectively, they form a remarkable stakeholder group whose ideas and views can be a compelling source of inspiration to other stakeholders and governments at all levels. Rather than simply pressuring the government from afar, this group wants to work with and within governments to engage government policy and decision-makers in further refinement and implementation of the Framework vision. The Framework does not intend to take the place of government policy, it seeks to inform it.



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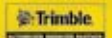




photo: Garth Lenz

Moreover, the Framework is a product of the recognition on all sides that the traditional approach to environmental issues and conflicts will not achieve conservation goals on the scale and in the timeframe that we need to act. The Framework represents a new tool in our toolkit for change, and a vision for the future around which like-minded stakeholders can come together, within and across sectors.



photo: Garth Lenz

A year after the Framework launch, Canada's boreal still represents a most significant national and international conservation opportunity. We take for granted the vast forests in our backyard. To us, they seem abundant and unchanging. But our boreal region ISN'T a place where time stands still. Over the past decade, development has moved north into our wilderness at an increasingly rapid pace. Canada's boreal region is a unique place, and it offers us a unique opportunity to balance industrial development with protection of some of the world's most precious remaining ecosystems. It is a time-limited opportunity. Right now, less than 10 per cent of the boreal region is strictly protected from development, and there is no consistent application of sustainable development practices. Decisions made now and in coming years across the country will determine the fate of this irreplaceable natural treasure. The threat to conservation is real. Time is short. But the possibilities are tremendous for a proactive conservation approach grounded in science and made real through leaders with vision. ✦

Cathy Wilkinson is Director of the Canadian Boreal Initiative (CBI), an independent organization working with conservationists, First Nations, industry and others to link science, policy and conservation activities in Canada's boreal region.

# Commercial Thinning Increases Habitat Value

by Tanis Douglas

*Conflict in forest management is a recurring theme in BC, as wood production is often perceived to be at odds with other forest values, such as biodiversity and wildlife habitat. However, managers in BC and in the Pacific North West are discovering these trade-offs are not always necessary.*



## Mandatory BC Faller Certification

The newly formed BC Forest Safety Council, representing all major forestry organizations and the Steelworkers-IWA Council, has partnered with the Workers' Compensation Board to make the Faller Certification Program a priority. The mandatory certification applies to all BC production fallers including: snag fallers, forest fire fighters who fall trees, silvicultural fallers, seismic fallers and some arbourists who fall large trees.

Experienced fallers must apply as soon as possible to demonstrate they meet mandatory safety certification requirements under the new program. Eventually, if you are not certified, you are not a faller, and you won't be cutting down trees.

Fallers with at least 120 days' experience can become certified by passing a written or oral test-and-skills demonstration up until July 31 2005. Fallers who are not certified by that date, will be required to complete an extensive training program to be introduced in early 2005.

Experienced fallers meeting the above criteria should contact the Forest Safety Council at **1-877-324-1212** to apply for their mandatory certification.

### Deadlines to keep in mind:

- Register by Dec. 31 2004 and the fee is \$150
- On Jan. 1 2005 the fee to register increases to \$250
- April 1 2005 the fee to register will be \$600
- After July 31, 2005 no applications for mandatory certification will be accepted.



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Commercial thinning before



Commercial thinning after

It is possible to enhance or preserve non-timber values while managing for wood production; thereby avoiding the “either-or” choices that have often characterized the debate. This is especially true for previously harvested areas that were managed to standards not in keeping with today’s knowledge and societal expectations. For instance, extensive areas of dense, young, closed canopy stands provide little habitat for many forest species. Carefully designed commercial and pre-commercial thinning can increase the habitat value of these areas, while also increasing the value of future harvests.

What follows is an excerpt from a booklet describing current silvicultural efforts to address the top ecological issues in BC’s managed forests (Douglas, 2003). The ecological issue addressed here is the lack of natural structural elements (or species) in second growth

stands, and a snapshot of the issue is presented below. Tamihi Logging from Chilliwack BC provides an example of commercial thinning that meets objectives to create future spotted owl habitat while still being economically profitable. Other ecological issues and examples of silvicultural approaches to address them are presented in the original document, accessible on the web at: [www.serbc.info/resources/file\\_repository/Ecosystem\\_Restoration.pdf](http://www.serbc.info/resources/file_repository/Ecosystem_Restoration.pdf)

#### Ecological Issue

Loss of natural stand structure or species or genetic mix due to:

- Highly uniform harvesting practices – particularly clear-cutting without appropriate retention of wildlife trees, living and dead large wood in riparian areas, and wildlife tree patches
- Silvicultural practices resulting in high stand uniformity – development

of dense monocultures, highly uniform tree spacing, and very high levels of crown closure

- Short rotation forestry resulting in lack of recruitment of important stand structural attributes

#### Impacts

- Limited habitat value due to high uniformity and lack of stand structural elements like large wildlife trees and coarse woody debris
- Virtual elimination of shrubs and herbs due to high crown closure
- High risk of pest or disease damage to highly uniform stands

#### Prevention

- Proactive design of harvest to retain structural elements
- Maintenance of species and genetic diversity during reforestation
- Design of reforestation to produce higher diversity in densities through management of stocking levels and minimum spacings

#### Restoration approaches

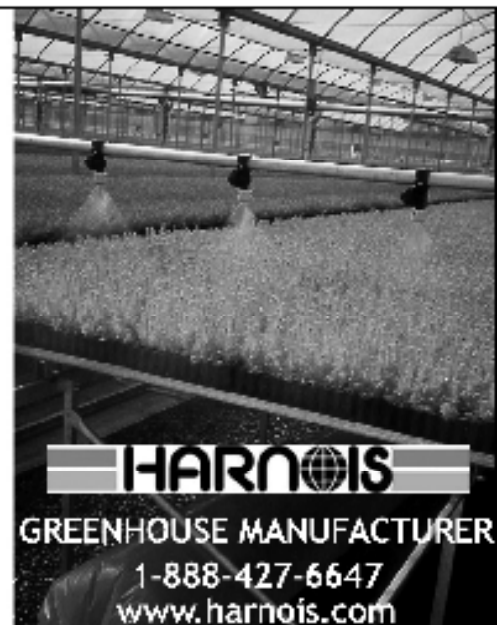
- Pre-commercial or commercial thinning to reduce crown closure and stand uniformity
- Introducing stand structure in selected areas through wildlife tree and CWD addition techniques



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## Case Study: Commercial Thinning for Spotted Owl Habitat

Tamihi Logging has tenure within a Spotted Owl Activity Centre near Chilliwack, BC. In designated spotted owl areas, timber harvest is restricted or modified in order to maintain or enhance habitat for the owl. In this case, commercial thinning is underway to improve habitat for spotted owls in a 60-year-old Douglas-fir stand, enhancing it from Type C (Suitable) to Type B (Moderate) habitat, while at the same time making a profit.

Spotted owls require relatively open habitats with large diameter trees and snags, a multi-layered canopy, and

relatively high amounts of shrub and coarse woody debris cover – conditions typical in old forests. Tamihi Logging created a stand that will eventually achieve Type B habitat (suitable for owl foraging, dispersal and roosting, but not nesting) at stand age 120, by removing trees surplus to the minimum stand attributes specified in the Spotted Owl Management Plan. In order to do this, they cruised the block and compiled the gross and net volumes available for harvest. Net volumes were calculated by deducting the target stand density

from the gross stand density, equally distributed across all diameter classes. This volume was available for harvest subject to meeting other constraints specified for the post-treatment condition, such as minimum inter-tree distances of six meters, and distribution of dominant, co-dominant and intermediate stems.

Harvesting is done on a mark-to-leave basis, and stems are hand-felled and skidded to a central landing with a rubber-tired skidder. Where pre-existing access is inadequate, extraction corridors are felled using the six-meter spacing rule. Operations are conducted on snowpack to minimize site disturbance. Numbers of snags and coarse woody debris are also increased as part of the operation to within the range specified for Type B owl habitat. Stem density is taken down to an average of 320 stems per hectare (sph), varying from 260 to 380 sph. A second entry in thirty years (stand age ninety) is scheduled to further reduce stems to an average of 210 sph.

The area is ideal for a commercial thinning operation – flat terrain adjacent to a public road, with a pure Douglas-fir timber type of above-average log size and quality for the age of the stand. As a result of this, and because of a favourable export permit, a profit of approximately \$42.00 per cubic meter was realized on the 980 cubic meters harvested from this block to date. 🌲

For more information or a site tour contact Jan W. Jonker, Tamihi Logging Co. Ltd., Chilliwack BC.  
Phone: 604-792-8777  
Email: [tamihi@uniserve.com](mailto:tamihi@uniserve.com)

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# Report on Safety

A base study prepared a year ago by Forrex for the Silviculture Sector of the Forest Industry in BC provided some insight and confirmed some of the intuitive understanding of those working in silviculture concerning the state of the safety culture in their sector.

According to BC WCB statistics, for the five-year period of 1998 to 2002, the total cost of claims paid for silviculture workers was \$12.8 million. There were over 2,500 claims for an average of about \$5,000 per claim and an average time loss of 36 days. Those assessed in the mechanical spacing and thinning category were paid \$5.1 million in claims. There were 950 claims at an average of \$5,400 per claim with a time loss of 41 days. The base assessment rate in 2003 was 6.5% of payroll. The claimed injury rate averaged 22.6 per 100 person years of WCB covered employment over the five years. For comparison, the rate was 17 per 100 for those employed in treeplanting.

The frequencies of the six highest causes of accidents, from high to low, were defined as: struck by; fall from same level; fall from elevation; overexertion; involuntary motion; and repetitive motion. The frequencies of the types of injuries were: miscellaneous strains; cuts; crush, bruise; back strains; dislocation, fractures; and scratch and abrasion. The body parts most often involved were: wrists and fingers; knees; back; ankle and toes; and eyes.

In struck by incidents, workers are hit by something or falling against something. Many such incidents are serious. Specifically they include such actions as kickbacks from chainsaws, getting hit by branches and limbs, crushes and bruises to fingers, and striking oneself with a scythe. Such incidents lead to the conclusion that workers need to increase the awareness of the limitations of their tools and the hazards of using them in the field. While the employer bears some responsibility in ensuring a safe workplace, the workers themselves need to be self-motivated to look after their individual safety. Workers need to be made aware of the inherent personal safety risks and how to reduce them or avoid them altogether.

In addition to that, employers and workers must put more effort into finding ways to avoid repetitive use injuries. Workers also must be made aware of risks to avoid overexertion, which is the primary factor in back injuries.

What's more, workers need to avoid falls, including the type of falling which includes controlled level changes such as jumping off the back of a pick-up truck. It also includes falling from the same level as a result of twisting an ankle or tripping over a limb or rock. Workers must be reminded to be observant while moving from one location to another. It is part of their work and it is a time during which they must continue to be vigilant of workplace dangers.

as to and from work. Vehicular accidents, whether automobiles or ATVs are involved, often result in serious injuries and deaths. Workers need to slow down, learn to properly load vehicles, and understand the limitation of their vehicles. They especially need to know the limitation of ATVs. Employers must establish and enforce tighter guidelines for vehicle operations and provide vehicles that are matched to the worksite.

While the environment in which brushing and thinning takes place is not much different than that of other silviculture workers, the workers use more dangerous tools, with the exception of those working as firefighters. Thus, they are prone to more serious accidents. It is incumbent on silviculture contractors as well as their workers to ensure that they are aware of the hazards and risks of their work.

Programs being developed through the initiative of the WSCA, with financial assistance of the WCB via organizations such as FISA in the past and the new BC Forest Safety Council, will continue to work to raise the level of awareness of the cause of workplace injuries and to provide assistance in improving operations guidelines, tools and standardized training.

Joachim Graber is a Safety Auditor and Trainer and can be reached at [jo@jo-kat.com](mailto:jo@jo-kat.com)

## INDEX TO ADVERTISERS

Arbortec Industries	7
Barton Insurance	15
BC Forest Safety Council	27
Beaver Plastics	17
Brandt Tractor	BC
Budget Car & Truck Sales & Leasing	14
Cansel Resources	17
Daimler Chrysler	IBC
Deakin Equipment	22
Dendrotik	26
Fandrich Cone Harvesters	16
Forest Care	21
Forrex Forest	20
Gateway Helicopters	19
Honda Power Equipment	5
Industries Harnois	28
Jonsered	11
JRP Consulting - Plant Wizard	25
Leica Geosystems	IFC
PRT - Pacific Regeneration Technologies	10
Superior Propane	29
UVIC	14
West Coast Helicopter	21
West Creek Silviculture	12
Workwizer	18

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