

CANADIAN SILVICULTURE MAGAZINE

vol.3 no.2

SPRING 1995

In this issue:
**Root deformities
and stability**
**Provincial Auditor's
report on Ontario forests**
**plus regional silviculture
reports from across Canada**

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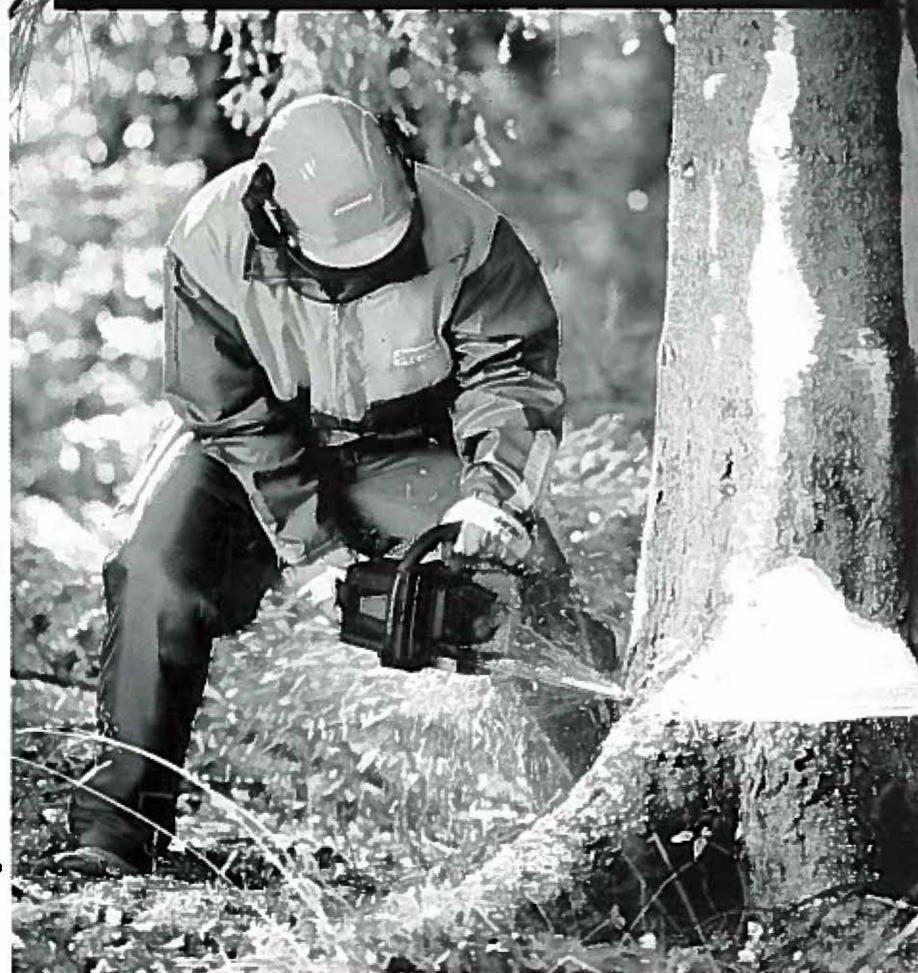
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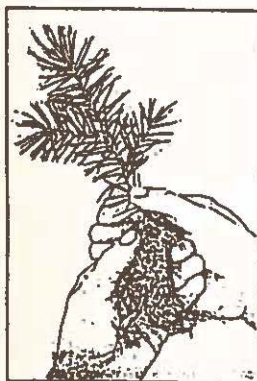
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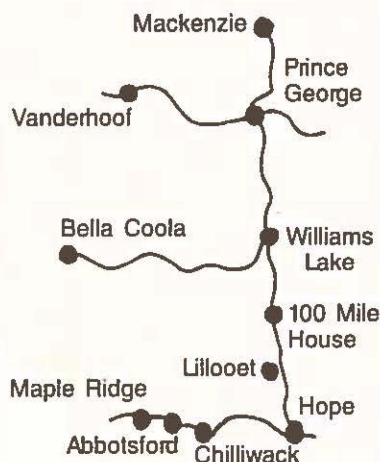
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Root form problems won't go away

Dirk Brinkman

In February 1995, Anders Lindström visited Canada to give two talks. The first was on the Risks of Cold Storage vs. Frost Damage at a horticulture conference in Montreal. The second, which he called "Going to the Root of the Evil," was on the effects of containers on root form, at a Jiffy workshop in Ontario. We are featuring his article of the same name in this issue of CSM.

The urgency of publishing Anders' latest work is brought home by the fact that this winter Anders has done more radio, television and newspaper interviews than during the rest of his entire career. The consequences of poor root form in the nursery stage on private forest land values is big news in Sweden.

Anders also visited BC in February, and I received a first-hand account of the recent effects of root form research in Sweden. Their silviculture industry is currently redesigning all container systems to take advantage of air pruning.

Anders said that poor root form in the nursery has wider implications than the blow-down of Scotch Pine that he reported in the Summer 1993 issue of CSM. Even plantations not affected severely enough to blow-down still suffer significant problems with fibre quality.

Studies of pine plantations revealed that 50 percent of roots were infected with *Armillaria* compared to seven percent in control plantations of naturals. The effect is not limited to pine. Spruce plantations in southern Sweden are also showing unusually high percentages (more than 30 percent) of *Armillaria* infestation. Tests of the fibre quality of the roots suggests there is a significant loss in tensile strength. It is theorized that wind action more easily works

open the poorer fibre to *Armillaria* infection than in a healthy tree.

Anders heads a team of Swedish researchers at the University of Garpingen, whose results indicate that many seedlings planted to become sawlogs may be good only for pulp, and that pulp trees may be worthless. As a consequence of this data, Swedish land owners greatly fear reductions in plantation forest land value that may suddenly be worth less than their mortgages.

(Also noteworthy is that the use of copper compounds for coating seedling containers is banned by the Swedish Ministry of Environment. The Fall 1994 issue of CSM covered the copper coating controversy in Canada.)

Canada's forest sector is as much at risk as are the Swedish landowners and forest industry.

The long-term job security of forest workers and the return on capital

investment for industry are both based on the sustainability of the AAC. This assumes that the billions of seedlings established in plantations throughout Canada will become mature and harvestable.

Anders was surprised at the degree to which Canadian researchers focused on assuring him that there is no root form problem here. For example, he was told that fir is not susceptible to an enduring effect from root deformation, because it has such robust root growth.

When a colleague took Anders to a BC coastal fir plantation, he was alarmed to see how easily 12 year old trees, which looked healthy and sturdy, folded down with a one-armed steady push. Examining the roots of these trees, the deformation introduced by the

container at planting was dramatically evident. Anders felt that a large portion of that randomly selected fir plantation would not stand up to heavy snow loads or wind pressure and will never reach maturity.

I believe it is time for all of us to go about pushing down and digging up our juvenile plantations to see for ourselves if there is something to be alarmed about. If our "free growing" plantations are not free from root form impediments to optimum growth, the personal and corporate investments that make up the forest sector in Canada will be lost.

For two years now I have invoked the ire of many BC silviculturalists because I have repeatedly raised the issue of root form in CSM and other publications.

Some people thought I must have shares in Jiffy — which is not true. Why all this resistance?

There are a number of

concerns and for each there is reason to continue to raise these questions.

1. If reporters write about these problems, it will undermine reforestation funding. The value of all silviculture industry efforts could be undermined.

(Including my own company's twenty-five years of treeplanting and four hundred and fifty million seedlings planted.) There has already been enough controversy about the value of treeplanting compared to natural reforestation.

Today there are many third generation container solutions to the first and second generation containers, so the story is now one of a problem with a solution.

2. It will be expensive to change the nursery systems in Canada. This had

...poor root form in the nursery stage is big news in Sweden...

better be worth doing.

If foresters demand seedlings that do not have root deformation problems, nurseries will rise to the business opportunity.

3. *If we change BC's container systems, much historic research may prove to be unusable.* In fact, if root form seriously affects growth, the conclusions of some seedling research which did not consider this factor may have to be re-thought or abandoned.

Rethinking our assumptions may help put us on a more successful path.

4. *Most of all, the forest sector does not want more pressure on the government to further reduce the AAC.*

Ignoring the problem won't make it go away. The sooner we make changes, the less serious the effect, the more effective reforestation will be, the lower the costs of reaching free growing, the more fundable reforestation, the higher the AAC.

Root form is an issue that you will continue to read about in CSM. ♦

L E T T E R S

FERIC research should not have been released

Dear Editor:

Thank you for reviewing my DRAFT report entitled "Stockhandling from nursery to planting site: an investigation into rough handling and its biological effects."

As mentioned in the covering letter sent to you with the report, all FERIC reports are thoroughly reviewed and edited before being published to ensure that high standards of accuracy and presentation are met. This report, like all other FERIC reports, was sent to several outside experts for critical examination and comments, with the unwritten understanding that the report contain privileged information which was not to be disclosed in any way, shape and form without the express permission of the author. It was

therefore with extreme dismay that I found an article in the Winter 1995 issue of *Canadian Silviculture Magazine*, which included direct quotes from this DRAFT report that you were asked to review in your capacity as a silvicultural contractor.

I consider it highly unethical on your part to use information from this DRAFT report and to publish it in the manner you did. The information you based your article on had not been subject to review, and may be changed or may not be included in the final report following the review process. This was not mentioned anywhere in your article, nor did you mention that you used a DRAFT report. In addition, there are several mistakes and misinterpretations in your article. Most importantly, you did not have permission to transmit the information contained in this DRAFT report to anybody else.

...continued on page 9

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Federal budget slashes to CFS

The 1995 federal budget included "significant changes" for the CFS according to deputy minister of Natural Resources, Jean C. McCloskey. The CFS will have its budget reduced 57 percent from \$220.9 million in 1994-95 to \$95.6 million in 1997-8. Staff at the CFS will be reduced from 1230 to 820 and the 16 CFS regional offices will be reduced to five.

The Department of Natural Resources was one of the hardest hit by the 1995 budget with its overall expenditures going from \$1,012.2 to \$435.2 million in 1997-8. According to the Department's program review, "The emphasis in forestry will be on developing scientific information and technologies that support sustainable development.

Forest eco-systems information and more environmentally-benign forest protection technologies are among the key tools available. A continued priority will be securing national consensus on forest policy issues and positioning Canada in international forestry issues."

— DNR

FRDAs are history

What a difference two years make. According to their 1993 election platform, the "Liberals believe that the Forest Resource Development Agreements (FRDA) were critical to sustainable management of our forests and that the FRDA must be renewed through longer term agreements at adequate levels of funding."

According to their 1995 Program Review, "the government has decided that the FRDAs and the Mineral Development Agreements (MDAs) are not consistent with its newly-defined role. Thus, the FRDAs and MDAs will be

discontinued upon their expiry, ending over 25 years of federal participation in these types of agreements."

— Liberal Party and DNR

Canadian forest products have a "better" year

According to a Price Waterhouse report, total 1993 sales of Canadian forest products increased 13 percent from 1992 to \$37.6 billion. Of this total, \$26.6 billion was exported, as forest products remained Canada's largest foreign exchange earner. The industry remained slightly in the red in 1993, however, with overall losses of \$177 million (compared to \$1.4 billion in 1992 and \$2.5 billion in 1991).

The gap between the lumber and pulp and paper sectors of the industry continued in 1993. Lumber earned \$1.8 billion while pulp and paper lost \$2.0 billion. The forest industry also continued to shed jobs, although the pace slackened from 3 percent of the workforce in 1992 to 1 percent in 1993. Meanwhile Canada's overall harvest increased to 178.8 million cu. m. from 165.8 million in 1992. The report, *The Forest Industry in Canada — 1993*, predicted that profits for the industry would increase to \$1 billion in 1994.

— Forestry Chronicle

BC Forest Practices Board named

BC has announced the membership of its "public watchdog on effective forest management." According to Forests Minister Andrew Petter, "the board is the key to making the Forest Practices Code work."

The board will ensure that forest operators and government enforcement agencies are accountable to the public when the code takes effect in 1996. People

can bring complaints directly to the board which has the power to investigate.

Chair of the board is Keith Moore, RPF, a consultant in forest land management and environmental assessment. Other members are Jack Toovey, former vice-president of Fletcher Challenge (retired 1990); Cathy Mumford, agrologist and silviculture surveyor; Gordon Baskerville, head of the Department of Forest Resource Management at UBC; Cindy Pierce, an independent forestry consultant.

— BC MOF

Forestry and environmental groups oppose Ontario forest act

Ontario's *Crown Forest Sustainability Act* is under fire from all sides. The Ontario Forest Industry Association has concluded that the Bill does not provide for a healthy forest industry which is contingent on healthy sustainable forests; secure tenure and a healthy investment climate; and healthy partnerships with government and other users of the forest.

The Conservation Council of Ontario and the Union of Ontario Indians have said that the Bill "is so seriously flawed that it should be withdrawn." They note that it does not define sustainability and will not require that Ontario's public forests be regenerated. Also the Bill does not include the principles of sustainability adopted by cabinet, does not include plans for protected areas and does not contain reference to audit procedures.

— Forestry Chronicle

BC seed orchard production rising

The Silviculture Branch of BC says that 11 percent of the province's seedlings currently come from seed

...continued on page 50

...continued from page 7

I strongly object to your action in this matter and believe you owe me, FERIC and the readers of the Canadian Silvicultural Magazine an explanation.

Ernst I. Stjernberg, RPF, Senior Researcher, Silvicultural Operations Group, FERIC

Dirk Brinkman responds

It is with great dismay that I read Ernst Stjernberg's letter of Jan. 27, 1995. Please accept my deepest apologies for publishing my comments without Ernst's permission.

There is no good explanation beyond the fact that as a volunteer editor, I have been too busy to do a proper job of controlling and screening content on the last two issues.

I included a copy of my review comments in the package of material to be published and forwarded another copy in a package

to be faxed to Ernst for his comment. My article must have been separated from the FERIC Notes for Reviewer, when they were faxed to him.

Urgent business matters then absorbed me in the last two weeks before taking my family south on a working vacation. I was not aware that the article was published without Ernst having seen it until I returned in January.

I am aware of the "unwritten understanding that the report ... is not to be disclosed.. without the permission of the author."

I apologise that I neglected to confirm my review with Ernst personally. I would be sorry if my review article effects the statement of conclusions in Ernst's work.

Naturally, we are also prepared to publish any corrections to the several "mistakes and misinterpretations" that Ernst refers to in his letter. ♦

Winter storage of seedlings

Dear Editor:

An article in *Canadian Forest Industries* (Oct. 1993), by Dirk Brinkman expressed interest in eliminating dark frozen storage for forestry planting stock.

Because frozen storage is expensive, I have been interested in cheaper outside storage and am convinced that the seedling's photosynthetic machinery is better served by exposing the seedlings to light during winter storage — even under snow.

I reasoned that warmer ice in a seedling plug would prevent critical low root temperature, and excessively long periods during thaws when the seedling

begins to evapotranspire but has no access to free water in the plug. Warm ice goes to water faster than cold ice.

Thus, I built a shelter out of greenhouse plastic with screen sides to get the worst possible cooling. This was modified by heating cables in the gravel, set to turn on when the root plug temperatures went below minus one degree centigrade.

There was no snow cover over the black spruce in Can-Am 3 Multipots.

Growth differences after two field growing seasons are not statistically significant but they show and interesting trends.

Peter Salenius, Canadian Forest Service, New Brunswick

Cable Spacing (cm)	Height (cm)	Root Collar Diameter (mm)	Mortality %	Cable Cost \$/seedling	Electricity Cost \$/Seedling	Plug Temp. (C) 12:00 PM (17/1/92)
25	39	10.3	4.0	0.016	0.011	-6.6
50	38	9.6	4.0	0.008	0.005	-7.0
100	38	9.7	1.3	0.004		-9.3
Control	37	9.7	8.0	0		-9.0
Frozen Storage	35	9.5	5.3	0		-2.0
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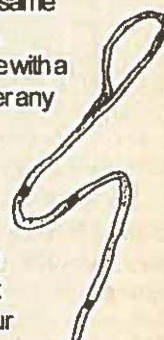
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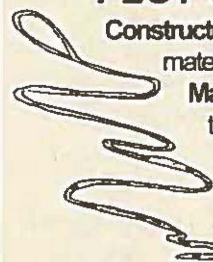
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"Significant changes" for Canadian Forest Service

Jean C. McCloskey, Deputy Minister, Natural Resources Canada

Note: letter to Dirk Brinkman, President CSA, March 6, 1995.

For the CFS, the recent Program Review exercise has consolidated views on how we can best use our unique scientific and policy expertise to promote the sustainable development of Canada's forest resources. Extensive consultations throughout this evaluation, including the Canadian Council of Forest Ministers, have confirmed our priorities in the areas of forest science and policy.

Our research science programs, consolidated across five CFS regional establishments will form a national network with complete access to all research activities regardless of location, and will focus increasingly on issues of national interest. Our policy function will support Canada in key areas such as international forestry affairs, trade issues, federal policy development, economics and national forest data.

This transition will be a challenge for the CFS, since our expenditure reduction targets require us to close several CFS locations. Our research facilities in St. John's, Newfoundland will close, as will the Petawawa National Forest Institute. Our Ontario Regional Office and Forest Pest Management Institute in Sault Ste. Marie will amalgamate. We will also close our district offices in: Truro, Nova Scotia; Rimouski, Quebec; Winnipeg, Manitoba; Prince Albert, Saskatchewan; Prince George, British Columbia; Charlottetown, Prince Edward Island; and Whitehorse, Yukon.

The following article "Natural Resources Canada: Strategic Renewal," provides additional information on our departmental changes and future directions. Please note that there is no reference to the Maritimes Forestry Centre in Fredericton, New Brunswick. This centre will remain open but will

undergo staff reductions similar to the remaining centres.

Notwithstanding these times of profound change and the effect on all aspects of our organization and our partnerships, Natural Resources Canada remains fully committed to continuing to work cooperatively, through the

Coalition and other venues, in making the National Forest Strategy and our goal of sustainable forests a reality across Canada. The federal contribution to Coalition initiatives will remain. The importance of the Strategy, both at home and abroad, requires our continued attention.

Changes in Regional Facilities

Newfoundland	St. John's	Corporate Regional Office	Closed
		Newfoundland Forestry Centre	Closed
Nova Scotia	Dartmouth	Atlantic Geoscience Centre	Reduced
	Amherst	Legal Surveys	Reduced
	Halifax	Corporate Regional Office	Closed
		MDA Office	Closed
	Truro	Forestry District Office	Closed
	Sydney	Cape Breton Coal Research Labs	Commercialization Study
P.E.I.	Charlottetown	Forestry District Office	Closed
Quebec	Sherbrooke	Legal Surveys	Reduced, Relocated - Québec City
		Canada Centre for Geomatics	Reduced
	Sainte-Foy	Québec Geoscience Centre	Reduced
		Laurentian Forestry Centre	Reduced
	Val-d'Or	Forestry District Office	Closed
	Montréal	Corporate Regional Office	Closed
	Rimouski	Forestry District Office	Closed
Ontario	Toronto	Legal Surveys	Reduced
		MDA Office	Closed
		Corporate Regional Office	Closed
	Elliot Lake	Mineral Sciences Lab	Consolidated to Sudbury
	Sault Ste. Marie	Forest Pest Management Institute	Reduced, Consolidated to S. Ste. Marie Forestry Centre
	Chalk River	Petawawa National Forestry Institute	Closed
Manitoba	Winnipeg	Legal Surveys	Reduced
		Forestry District Office	Closed
		Corporate Regional Office	Closed
Saskatchewan	Regina	Legal Surveys	Reduced
	Saskatoon	Mineral Science Office	Closed
		MDA Office	Closed
		Corporate Regional Office	Closed
	Prince Albert	Forestry District Office	Closed
Alberta	Devon	Western Research Centre	Reduced
	Edmonton	Northern Forestry Centre	Reduced
	Calgary	Inst. of Sediment. & Petrol. Geology	Reduced
		Corporate Regional Office	Closed
British Columbia	Victoria	Pacific Forestry Centre	Reduced
	Vancouver	Legal Surveys	Reduced
		GSC Cordilleran Division	Consolidated to Sidney
		Corporate Regional Office	Closed
	Prince George	Forestry District Office	Closed
N.W.T.	Yellowknife	Legal Surveys	Reduced
		GSC Branch Office	Closed
Yukon	Whitehorse	Legal Surveys	Reduced
		Forestry District Office	Closed

Natural Resources Canada: Strategic Renewal

Note: Edited version of the Federal DNR Program Review released, February 27, 1995.

The Government of Canada is committed to deficit reduction, economic growth and responsive, efficient government. The Department of Natural Resources will play a prominent role in implementing the government's agenda as it relates to energy, mining, forestry and geomatics. It will continue to promote the sustainable development and responsible use of Canada's natural resources. At the same time, the department will seek new ways of delivering programs and services at lower cost to Canadians.

The department is moving through a period of dynamic change. Over the next three years it will adopt new ways of doing business.

Program review

The most comprehensive review of federal government activities ever undertaken, has been a catalyst for renewal. It represents part of what must be a continuous effort to "get government right" while, at the same time, making it more affordable for Canadians.

Under the review, all departments were asked to evaluate their programs against six criteria: public interest; role of government; federalism; partnership; efficiency; and affordability. The final outcomes, as determined by the government, are reflected in the Budget.

Departmental impacts

Overall DNR resources will decline from \$1.012 billion in 1994-95 to \$435 million in 1997-98. These reductions are presented in Table 1.

Reductions of this magnitude mean that significant staff reductions will take place. It is expected that approximately 1450 positions will be eliminated over the three-year period ending in 1997-

98, a reduction of about 28%. Resources have been redistributed among sectors of the department according to Program Review results.

Regional impacts

Decreasing budgets and a redefinition of Natural Resources Canada's focus means rationalizing the department's regional presence. For example, the Geological Survey of Canada (GSC) will consolidate its regional operations into four laboratories; the 16 Canadian Forest Service centres will be reduced to five. The total number of regional offices will be reduced from 55 to 30.

The federal role in Natural Resources

Natural Resources Canada will maintain a presence in areas of federal responsibility, such as international trade and science and technology. Through consultations, a federal role has been confirmed that is complementary to the role of the provinces. It should be exercised through leadership, coordination and partnerships.

The department will continue to work with the provinces and other stakeholders to establish and meet common national and international objectives. Such efforts will further the department's commitment to revitalize

the resource sectors in a sustainable manner. They will also help ensure that critical export markets remain open to Canada's natural resource products and that new markets are developed.

Direct financial support

The department's new role will take it out of the business of direct financial support to the resource sectors.

Through Program Review, the government has decided that the Forest Resource Development Agreements (FRDAs) and the Mineral Development Agreements (MDAs) are not consistent with its newly-defined role. Thus, the FRDAs and MDAs will be discontinued upon their expiry, ending over 25 years of federal participation in these types of agreements.

A new focus

Program Review confirmed the department's primary business lines of policy and science in energy, mining, forestry and geomatics. Natural Resources Canada policies will be based on sound science and science activities will be directed by policy priorities.

Approximately three quarters of the department's resources will be devoted to scientific and technical activities, with the remainder divided among

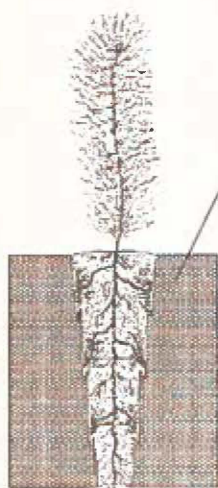
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Table 1. Estimated financial and human resource impacts.

Sectors	Financial Impacts (\$ millions)		Human Resource Impacts (Full Time Equivalents)	
	1994-95	1997-98	1994-95	1997-98
Canadian Forest Service	220.9	95.6	1230	820
Mineral and Energy Tech.	124.1	85.3	911	720
Geol. Survey of Canada	110.7	75.8	983	741
Geomatics Canada	95.1	63.6	894	672
Energy Sector	351.7	46	304	223
Mining Sector	25.8	16.7	168	142
Corp. and Support Services	83.9	52.2	727	448
Total	1012.2	435.2	5217	3766

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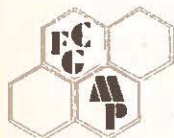


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policy development, energy efficiency and alternative energy programs and administration.

Much of the department's scientific work will be delivered through a consolidated network of regional laboratories. Each of these labs will have a national mandate.

The department will focus on:

- sustainable development of natural resources;
- revitalization of the natural resource sectors;
- national and international leadership;
- knowledge of the landmass and natural resources; and
- health, safety, and resource-related environmental concerns.

Sectoral highlights

The emphasis in forestry will be on developing scientific information and technologies that support sustainable development. Forest ecosystems information and more environmentally-benign forest protection technologies are among the key tools available. A continued priority will be securing national consensus on forest policy issues and positioning Canada in international forestry issues.

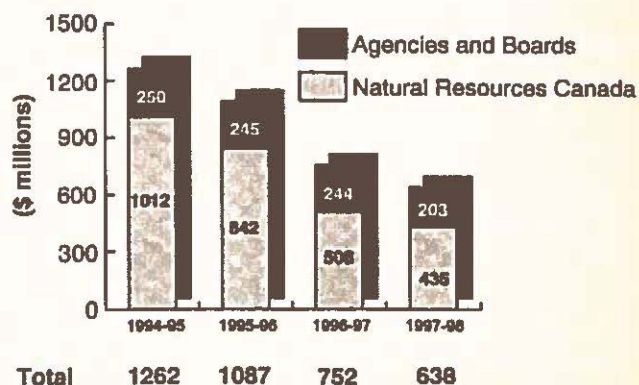
Through knowledge of the landmass, the department will continue to provide the geoscience that underpins energy and mineral discoveries. Such research is also key to understanding natural hazards, like earthquakes, landslides and naturally occurring toxic substances. These are important public health and safety issues. Because the provinces are responsible for their resources and many aspects of land management, geoscientific work in the provinces will only be conducted on a cost-shared and fully-collaborative basis.

Public and private goods

During these changing times there will continue to be one constant: the department's commitment to activities that contribute to the public good. These will include the development of scientific knowledge, standards and regulations, and products and processes that promote health and safety, and environmental protection.

Where those activities also serve the needs of industry, business will be conducted in partnership with stakeholders.

Figure 1. Natural resources funding.



If departmental activities serve the needs of a single company, that company will be expected to pay the cost of the services it receives.

Approach to renewal

These changes will take place over the next three years. Nevertheless, managers will meet with employees immediately to explain the impacts of Program Review. Stakeholders will also be kept informed. In the coming months, decisions will be made about the department's organizational structure. All relevant information will be passed along to staff and stakeholders in a timely manner.

In the meantime, a number of internal processes are being simplified so that tasks can be carried out in the most efficient and effective manner.

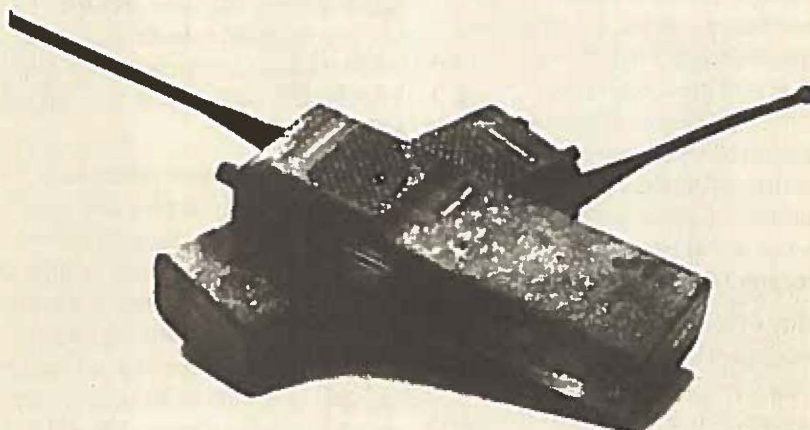
Human resource issues stemming from the budgetary reductions will be given high priority and will be dealt with openly. As an organization strongly committed to the principles of excellence, an employee-focused, client-driven philosophy, the department is well-positioned to address change in its working environment. The new Natural Resources Canada will continue to foster a creative environment within which employees are respected team members.

Conclusion

Natural Resources Canada is a dynamic and adaptive organization. It will continue to respond to changes in its operating environment. The sustainable development and responsible use of Canada's natural resources will be a prime focus of Natural Resources Canada activities.

The challenges ahead, while considerable, can be met. The department will adjust to the changing circumstances, and with the help of employees, stakeholders and partners, it will evolve into an organization that effectively deals with the issues and requirements of the 21st century. ♦

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Going to the root of the evil

Root deformities and stability

Anders Lindström & Lars Håkansson

Note: reprinted from *Small Scale Forestry* with permission of the authors.

Questions dealing with plantation stability are currently subject of international interest. Several research teams are involved in establishing how container design, species, growing time, site preparation and site influence stability. It is of great economic importance that we avoid less suitable methods and correct, where possible, mistakes already made. Root deformation affects not only tree stability but also future wood quality and susceptibility of trees to sicknesses.

The ability of roots to keep the tree upright depends upon the container used in the nursery and the time the seedling spends in the container. It also depends upon tree species, soil and type of site preparation.

Since the 1970s it has been known that some seedling production systems have problems with deformed root systems, which reduce the stability of the tree as it matures. These problems may start after five years, depending upon the rate of seedling growth. Root deformations can affect the growth and quality development of the young stand and increase the risk of fungi attacks, primarily on the root system. Once the

tree's vitality is reduced, the risk of fungi attacks on stems or shoots also increases.

The ultimate result of root deformation is that the tree falls over and dies because impeded root development results in poor anchorage of the tree. The tree can also break at the root collar level.

The problem has been evident specifically in Scotch pine and lodgepole pine plantations. These species lack Norway spruce's ability to produce adventitious roots as a means to improve a root system which was inadequate at the time of planting. Only a couple of studies of Norway spruce stability have been made. We still lack information on stability of birch plantations.

Container design which permits the root to grow in a spiral towards the bottom of the container has been a major factor in causing root problems. The result of "root spin" is a poor connecting section between stem and root due to horizontally oriented wood fibre, which favours breakages, or a distribution between side and bottom roots which reduces stability.

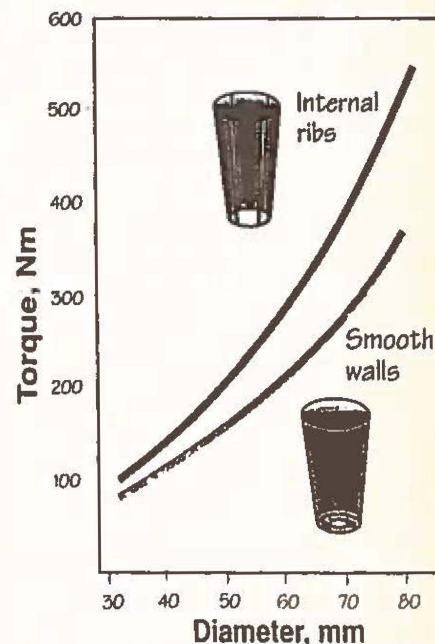
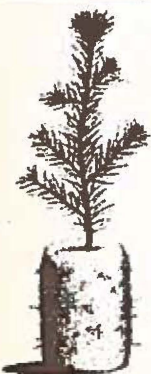


Figure 1. Seedlings cultivated in pots with guide bars stand a pulling test better than those in pots without guide bars.

New types of containers

The containers associated with the root spin problems were generally abandoned in the early 1980s. Today's hard plastic containers are equipped with inside guide bars and a large opening in the bottom. Examples



(roots are air pruned)

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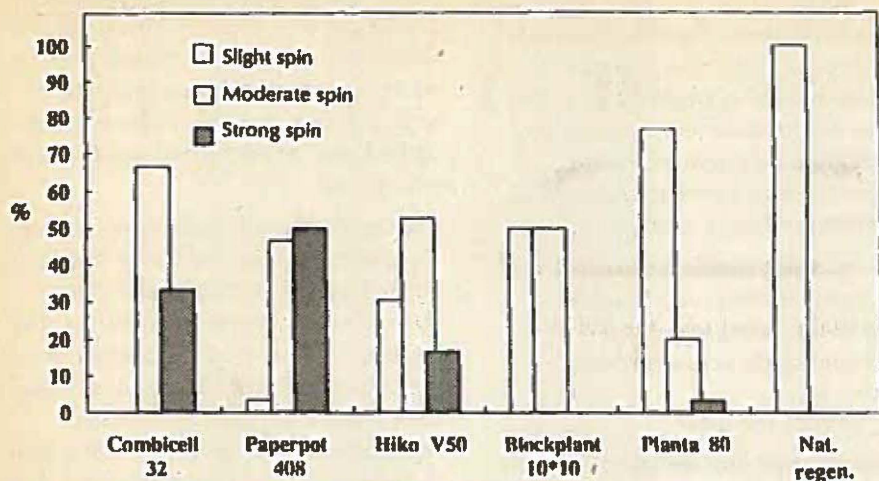


Figure 2. Root spin in different container systems and in natural regeneration. The Scots pine root systems were evaluated after 7-8 seasons in the field.

include Hiko and Blockplant.

Figure 1 shows how seedlings grown in systems with or without guide bars respond to a pulling test nine years after being planted. Another container type is Plant System 80 which has vertical bars holding the growing substrate. The root is formed through a process of air and mechanical pruning. The above mentioned systems have fewer problems with root spin than the older systems like Paperpot (Figure 2).

New hard plastic containers are under development, in which a combination of guide bars and root pruning will form the root system. Examples of this approach are Plantek and BCC sideslit containers. The Jiffy pot, which is quite common in Canada, holds the growing substrate together with a net stocking so that the roots can freely develop sideways.

Too long in the container

Stability problems in the field increases if the seedling is kept too long in the nursery (see Table 1). Even seedlings grown in containers with guide bars can develop root spin problems if they are kept there too long.

The container's small size compacts the roots, increasing the risk of attacks from root pathogens such as *Armillaria* spp. The problem can be reduced by pruning lateral roots, or by using larger containers.

Stability problems are mainly associated with pine. However, a recently published American study shows that container-caused root deformations for spruce seedlings can lead to deadly *Armillaria* infections. In general this means that container design and

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Pulling tests

To establish a benchmark measurement of seedling stability, we have worked with pulling and bending tests. In a pulling test, a planted tree is pulled in a predetermined direction and angle, while the power used is registered. The relation between tree diameter and torque can then be calculated. Bending tests can only be done on younger trees. The tree is bent by hand until the top touches the ground. The reaction of the tree is recorded in five classes:

1. Limited impact (lean < 40°);
2. Stem breakage;
3. Upbroken root system;
4. Root breakage;
5. Strong remaining lean (>40°).

Fibre tensile strength and strain in the root clump are measurements which can be used for early root quality tests.

In summary, criteria for a seedling with good stability are:

- No root spin;
- No development restriction for the main root;
- Time spent in the container should be adapted to container type and density;
- The seedling has a high root growth potential;
- All seedlings separated before planting (one seedling per pot).

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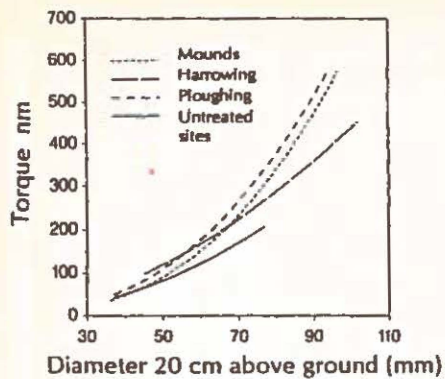


Figure 3. On ploughed sites a higher torque was needed to bend the lodgepole pine trees 10°.

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growing methods have a major impact on all seedlings future development in the field.

It appears that root pruned seedlings are less sensitive to a longer growing period than seedlings grown in conventional containers with guide bars. Root pruning also reduces root deformations. Root pruning can be done mechanically, chemically or with air. Root pruned seedlings, however, will need a recovery period to avoid water stress when planted.

Several studies indicate that the key stability factor is the relation of root size to above-ground size. A large root area does not seem to compensate for a strong deformation. Recent studies indicate that root deformation and low soil temperature can explain stability problems on high altitude sites in Norrland (north Sweden), both factors resulting in reduced downward root

development.

Naturally regenerated seedlings normally show better stability than planted seedlings because of large root areas, lack of root deformations and uniform root distribution. Their root area is also dispersed among a few large roots. All of these factors enhance stability.

Even bare root seedlings can suffer root deformations if the roots become compressed during transplant operations or the actual planting.

20 – 30 years later

Information on how root deformations develop over a longer period of time is available for bare root stock. Studies done in the early 1970s show that root deformation in planted bare root seedlings can be rather high, both for pine and spruce up to 20-30 years of age.

Container seedlings were first used on a large scale in Sweden in the early 1970s which means that we still lack information on how container stock root deformation affects trees over a long

period of time. A recent study observed the stability of a couple of 20-year old pine container stock plantations. The results indicate that the trees still have a weak section in the root-to-above ground portion, even when the root spin itself has grown over.

The tensile strength and strain values of wood samples from the stump region of planted trees were usually lower than those of naturally regenerated trees. The lower wood fibre strain of planted trees may explain a higher frequency of basal stem bends compared to naturally regenerated trees (see Table 2). Stability in these container stock plantations was lower than with naturally regenerated stands. However, differences were less at 20 than at 10 years of age. This can be interpreted as suggesting that stability improves over time.

The shocking discovery was the high percentage of rhizomorphs of Armillaria on the root systems of older trees. Although this normally decreases substantially at about 15 years, this was not the case in the study. Several factors indicate that root deformation may be

Age of seedlings (month)	Proportion of seedlings (%) with			Number of trees
	Upbroken root	Root breakage	Lean >40°	
3-4	0.0	1.6	1.6	126
5-6	0.0	6.8	5.5	162
7-8	1.4	9.0	10.4	144

Table 1. Scotch pine trees reactions to bending down after 7-8 seasons in the field. The material is divided on age of the seedlings at the time of planting. The trees were chosen at random from plantings in the central parts of Sweden.

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the key reason for the continued presence of the fungi. We could not find any rhizomorphs on naturally regenerated trees of the same age class.

Site preparation can help or damage

Root deformations are most serious in compact, cold, fine soils which are poorly aerated. Site preparation improves root growth conditions. As part of the Råtan site preparation trials in Sweden, a stability test was performed in 1993 on lodgepole pine planted in 1982.

The results showed that trees planted in the top of tilts after ploughing and in mounds showed good stability, whereas poorer stability was found on harrowed or non-treated sites (Figure 3). The large root biomass in tilts after ploughing may explain the good stability of trees in this treatment.

Comparisons of the relationship between root area and stability indicates poorer stability on ploughed than on mounded sites, probably due to differences in soil compaction (not shown). However this is compensated for by better root development for trees on ploughed sites.

A 1988 study showed a proportionately greater number of asymmetrical root systems on ploughed sites (terrace planted), regardless of species (Scotch pine or lodgepole pine), and regeneration material (bare-root, containerized seedlings). In general, the lodgepole pine had poorer stability than Scotch pine. The study predicted that lodgepole pine plantations on ploughed

sites will suffer more wind and snow damage than plantations on unploughed sites, since plough furrows are often oriented in the same direction on the entire site thus creating the same asymmetrical root systems.

Wood samples

We have recently started using a new technique which uses samples from the root system to test wood strength. Judging from what we have found so far, it seems more important than ever to concentrate resources on cross-faculty research on root deformation since the consequences are so wide-ranging. We do not know the potential of wood quality reduction in our plantations. Neither do we know the impact on the future health of the planted trees, or which silviculture methods should be used in stands with stability problems. Since the problem with root deformation begins in the nursery, we should focus our efforts on improving containers and production techniques. ♦

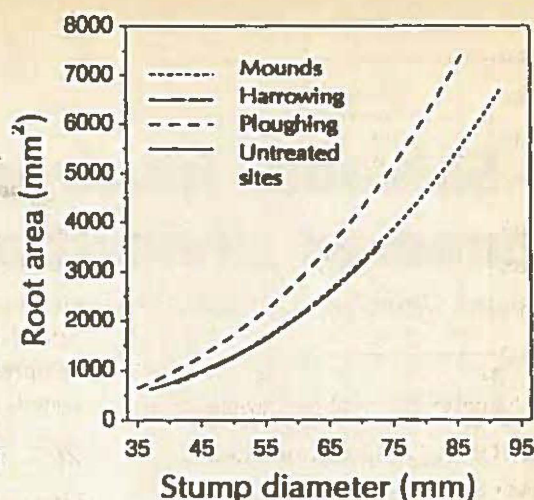


Figure 4. Lodgepole pine seedlings planted in the top of tilts after ploughing had the largest root area (the section surface of the root on a certain distance from the centre of the root system) 11 years after planting.

For more information, or a list of references, contact:

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Lars Håkansson, Forest engineer, Tel 46 225 261 87, Fax 46 225 261 00, E-mail. Lars.Hakansson@prod.slu.se

Type of seedlings	Proportion of stem base bends (%)				No. of seedlings
	Straight stem base	Slightly bent stem base	Strongly bent stem base	Very strongly bent stem base	
Paperpot	38	55	5	2	100
Kopparfors	30	40	20	10	10
Natural regeneration	75	25	0	0	20

Table 2. Planted Scotch pine trees had more stem base bends 20 years after planting than naturally regenerated trees.

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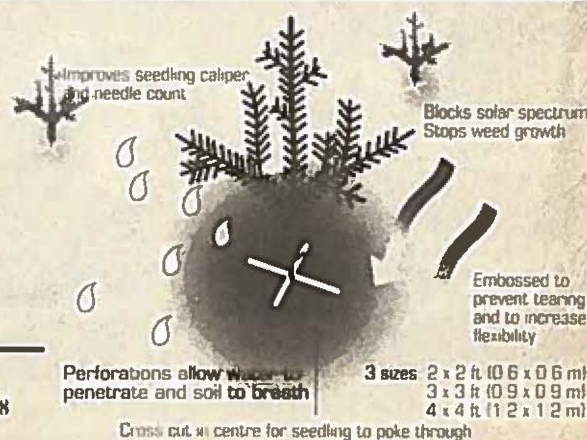
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El Salvador inspires Canadian silviculture workers

Michael Simpson, *The GAIA Project*

Over 95% of El Salvador has been deforested leaving this former tropical jungle in a state of semi-desertification according to the World Food Organization. Nestled between Guatemala, Honduras and Nicaragua, El Salvador lies on the Pacific side of the Central American isthmus in a region known more for its wars and human rights abuses than its environment.

El Salvador became infamous in the 1980s for its death squads and violent 12 year civil war. In 1984 and 1985 the Salvadoran airforce dropped over 2.8 million pounds of bombs on the countryside with devastating environmental effects.

The country also has a reputation as one of the world's leading consumers of pesticides and illegal chemicals such as DDT (almost 4.5 pounds of this deadly chemical for every acre of cropland). The country was quickly becoming an environmental nightmare. But El Salvador has since become a hotbed of environmental restoration and an

inspiration for Canadian silviculturalists.

Led by a group called the Salvadoran Centre for Appropriate Technology (CESTA), El Salvador is experimenting with tree planting as a social as well as environmental restoration process. CESTA initiated a Forest of Reconciliation to commemorate the 75,000 people killed in the war.

The idea, according to Dr Ricardo Navarro, Director of CESTA, is to "plant one tree for every person, soldier, civilian or guerrilla that was killed in the war." In this way CESTA has gained the support of both the rich and poor in El Salvador. The project is in its third year of development and has seen some major gains in the war torn region of Guazapa

Guazapa was subject to some of the heaviest fighting in the war. Few trees now protect the hydrological cycle, so the rivers in Guazapa are now drying up. The rainy season has been reduced by two months and even then the rains only come once or twice a week. Almost

90% of the remaining water in the countryside is contaminated. With reduced water supplies, the Salvadorans are forced to drink whatever water they can locate. Even in the capital San Salvador, water was found to be 627% above acceptable contamination levels in the three city markets.

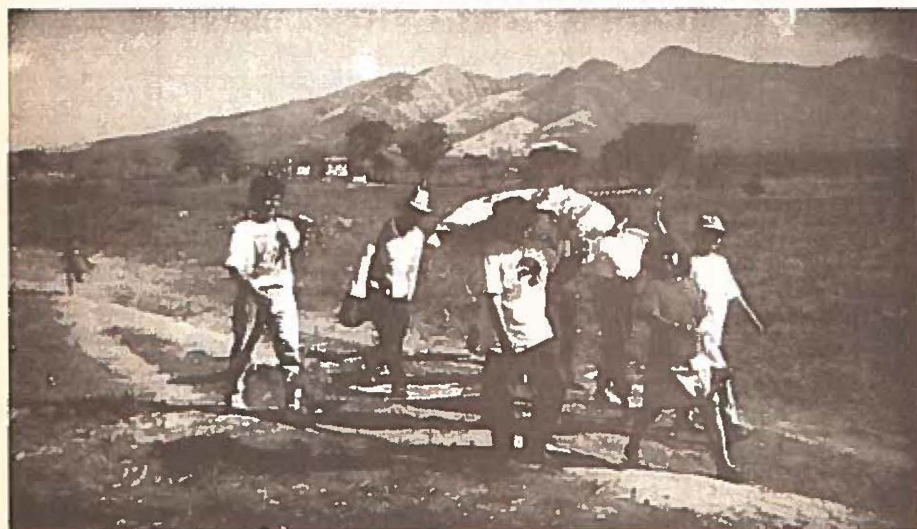
"With these trees we hope to bring water back, we hope to bring life back to Guazapa," stated Navarro. It is a dream shared by Canadians.

In 1994 a group of tree-planters from Brinkman & Associates Reforestation participated in a Day of Donations to raise money for the Forest of Reconciliation. Inspired by the visit of Carmen Barrera of CESTA, Fred Schutter's crew challenged other tree-planters to donate all or part of their wages on World Environment Day — their goal was to raise 10,000 dollars.

More than 70 tree planters participated in this Day of Donations and achieved their goal of 10,000 dollars. One small crew raised over 1200 dollars. Also Jiffy Products Ltd. of New Brunswick donated 50,000 containers to aid in nursery development which was complemented by 500 trays from the Ontario Ministry of Natural Resources.

Jackie James a cook on one of the crews said: "One day of cooking for the life-time effect of a few hundred trees in Carmen's country, where they are so desperately needed, feels great!"

In Canada, CESTA has developed a partnership with the GAIA Project. Supported in part by CIDA's Environment and Development Support Program (EDSP), the partnership serves to raise awareness about the environmental crisis in El Salvador and to promote appropriate technologies. Part of the GAIA Project's



Carmen Barrera of CESTA (in red) carrying planting gear along with some of the El Salvadoran reforestation crew for the Forest of Reconciliation.

work is to facilitate exchanges of resources and information. In this context, the GAIA Project sponsored Dirk Brinkman and Joyce Murray's visit to El Salvador in March of 1994. According to Brinkman their trip served to "orient us to the problem of reversing tropical deforestation in its most difficult context, and to inspire us through CESTA's numerous initiatives throughout the country."

This year CUSO and the GAIA Project will be sending a Canadian Forester to El Salvador for two years to help with the Forest of Reconciliation.

Here in BC the GAIA Project sponsored the 1994 visit of Carmen Barrera, a CESTA eco-promoter who works on the Forest of Reconciliation. Her tour in Canada included visits to several tree planting camps as well as communities from Tofino to Nelson. Like many Salvadorans, Carmen has seen the dark side of war. Working in an underground hospital, she fought with the Farabundo Marti Liberation Front to save lives. Today she fights alongside



Destroyed village in area near community nursery.

former army soldiers to save El Salvador's dwindling forests.

An integral part of the Forest of Reconciliation is to educate about the role of trees in ecosystems. El Salvador has 19 distinct forest ecosystems, so the idea of planting just one type forest

would not serve to maintain biodiversity nor would it fully promote reforestation in different parts of the country. CESTA has since developed the idea of a variety of "daughter forests" around the country. One

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Watering trees in a community nursery.

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example is the mangrove swamps on the coast where tree planting is as simple as collecting, the six-inch long mangrove seeds and gently "planting" them in the mud. Of the 118,000 original hectares of mangrove swamp only 2720 remain intact. This ecosystem is vital to the marine life that is the mainstay of the communities in these areas.

According to Isra, another CESTA eco-promoter, "The people depend on the mangrove swamps so we try to teach them that for every tree they cut they should plant two trees." Brinkman believes this is a good start but that El Salvador really needs an integrated approach.

Brinkman commented, "Deforestation has many causes and reforestation has to have many motives. However, it is only a solution if it has the support of the local people and the land owners — so somehow there has to be a clear benefit in restoring the forest. To this end, through a program they call 'Eco-conscience,' CESTA has initiated an incredible diversity of programs involving local communities with the goal of education through participation. It was an honour to assist in planting CESTA's Forest of Reconciliation. We gained more than we gave to these people."

In the meantime CESTA continues to promote appropriate technologies that range from composting toilets to pedal powered corn grinders in the hope that ecological awareness will become a way of life for Salvadorans. This year the GAIA Project will sponsor a second visitor from El Salvador. Yolanda is a biologist with CESTA who is working on watershed restoration. She will be visiting tree planting camps and watershed restoration projects in BC between May 15 and June 5.

The success of Yolanda's visit depends on the participation of interested crews. If you know of a tree planting crew that would like to host Yolanda and an interpreter for an evening's presentation on the Environment and Forest of Reconciliation in El Salvador please contact the GAIA Project. Also, any crew that would like to participate in the second Day of Donations on June 5, 1995 is invited to call the GAIA Project in Victoria at (604) 384-1534. ♦

Health and safety in treeplanting

Dirk Brinkman

In preparation for the 1995 season, the BC Silviculture Practices Branch of the Ministry of Forests is publishing the *Treeplanters Guide to Safe Practices* for workers, contractors and contract administrators.

The Guide will stimulate the four groups interested in safe and healthy working conditions in silviculture:

1. Workers — by informing them
2. Government — by summarizing various regulations
3. Customers — by informing them
4. Employers — by pressuring them through informed clients, employees and government administrators.

Informing workers

There will be enough copies printed for circulation to all fifteen thousand workers.

This kind of wide distribution was a goal of the now defunct Pacific Reforestation Workers Association. Several workers' rights and safety booklets for workers were produced by the PRWA and other spontaneous groups of workers, more recently, one was published by Alberta Occupational Health and Safety.

The concept has always been one of informing workers of their rights, and through education, creating changes in working conditions.

Government regulations

Government regulations are proliferating. But in the case of WCB First Aid requirements, are being downgraded for treeplanting, making them more appropriate.

The WCB every decade or so, casts off its old exoskeleton of regulations and replaces it with a newer, larger, and more complex set of legal boiler plate and claws. In 1993, Bill Williams and I

spent ten days of our time renegotiating the Silviculture Camp Standards with the expectation that this would grow into a completely new pincher. Three years later, this new set of regulations has still failed to emerge from the Board of Governors.

After waiting this long, I doubt that the Silviculture Camp Regulations will ever emerge to be hardened in the salt of a public review process.

Construction employers were aghast at the potential precedent set for their industry if that kind of regulation was enforced for silviculture. This unborn regulation may have been part of what dislodged Jim Dorsey, Chair of the Board of Governors, who employer representatives charged with over enthusiasm for too many inflexible regulations.

Most contractors do not need more regulation. An MOF Guide which informs the workers and the clients, however, may help us to evolve to a safer working environment.

Last summer's Rollagon fatality appears to have been a case where a WCB regulation may have been useful — informed workers may have been better able to protect themselves (see the Coroners report in the last CSM issue). BC, one of the steepest jurisdictions in the world, is the only state or province north of the Guatemalan border which does not have safety regulations for workers using ATVs and Quads. However, a very similar incident occurred in Alberta two years ago, where there was such a regulation.

Customer insistence

After eleven treeplanters were killed within three weeks in 1991, Alberta's

Ministry of Occupational Health and Safety made it clear that it would treat the Alberta Forest Service, or pulp and timber companies as the prime contractors, and implicate them in any liability rising from poor safety practices on their lands, along with their independent contractors. In many cases, this resulted in closer communication and cooperation between industry and the contractors to ensure safe practices.

Throughout Canada, most forest companies are very aware and responsible about safety and expect

contractors to be far more safety conscious than government district representatives.

As forest renewal

is increasingly privatized throughout Canada, customer insistence is a growing factor for improving safety awareness — even more so as the treeplanter gains importance in the marketing image of forest products.

Employer motivation

Some contractors have always understood that healthy workers who feel safe are productive workers. Illness and injury translates into losses, while high productivity translates into profits. Not all contractors, however, have realized that the corners they cut to reduce costs can also reduce profits and increase WCB costs. Alberta introduced a program in which employer-initiated safety and training programs and costs are repaid from future rate reductions by the Ministry of Occupational Health and Safety. Some contractors, working closely with their employees and forest industry clients, have used this program very successfully.

*... most contractors do
not need more
regulation...*

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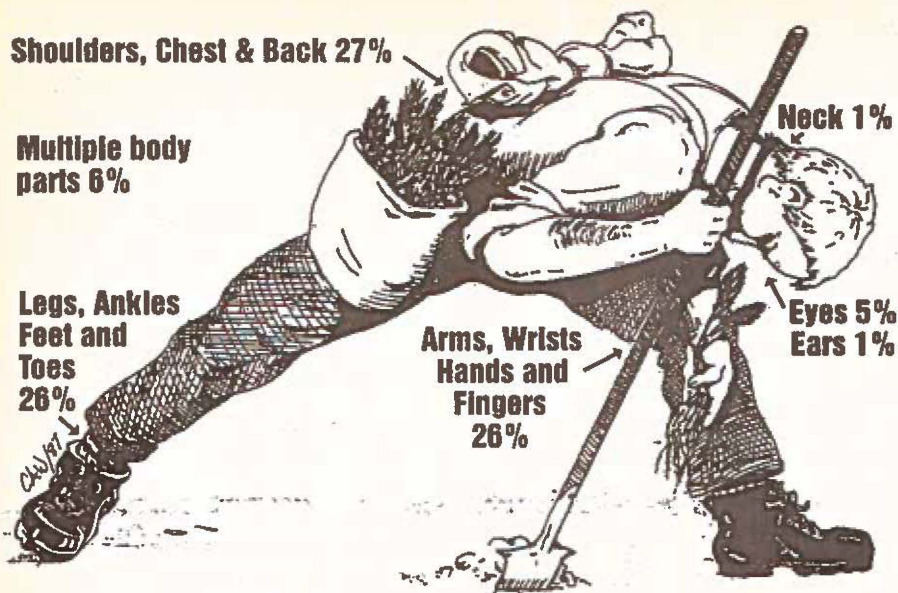


Figure 1. Location of injuries for forest renewal worker

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A guide to safe practices for the whole industry will also increase contract supervisor awareness.

In 1990, in recognition of the importance of contractor awareness, the WSCA published a small book called *Silviculture Employment Issues*, which summarized many workers' rights and contractors' obligations.

Prioritizing treeplanting safety issues

Getting the whole spectrum of safety issues into an appropriate context of priorities, with stronger and weaker regulations balanced according to risk, is seldom the basis of the kind of regulatory framework guiding an industry. The following classifies treeplanting hazards based on magnitude and immediacy of the risk.

Fatalities

Transportation

Risk of vehicle accidents poses the greatest danger to treeplanters. Both ATV and truck accidents have caused more fatalities than any other aspect of treeplanting. In 1991 there were 11 vehicle related deaths in Alberta and BC.

The key to safety in vehicles is experienced, well-trained drivers who drive equipment that undergoes regular safety checks and maintenance.

Vehicle inspection and driver certification are the main regulatory solutions.

Bears

The second most life threatening hazard for treeplanters is bears. Each year planters are mauled, every two or three years there is a fatality.

The sudden appearance of large crews, camps and lunches, the intensive coverage of every square meter of the site with hand tools, all add up to a uniquely intimate interface with bears and their habitat. Combine this with bears' wide range of moods and behaviour, and frequent incidents become the norm.

Ministry of Environment, whose wildlife officers are responsible for disposing of or removing nuisance bears, seldom respond to treeplanters requests to assist in the removal of a nuisance bear. Most often it is the contractor who takes preventative action, outside of the law, to protect the workers.

Injuries

Muscle, ligament and joint injuries

Muscle, ligament and joint injuries, frequently arise from fatigue, falls, repetitive strain, twists, wrenching or impacts on the job. This array of physical abuse can be managed. A national review, comparing provincial statistics to various provincial regulations and practices needs to be implemented so that solutions can be shared. For example, Quebec has banned kick screening due to the number of knee and ankle injuries, BC requires it on virtually every planting spot.

Research also needs to be collated on the controversies over which tools to use: blades, d-handle or straight, short spade or shorter, tiny blade or rounded rubber shock handle or unbreakable.

Keeping your tools light and having a wide selection in order to vary the muscle groups you are working, is still the general level of good information available. Diet, attitude, staying in shape year round and being aware of the stress in joints, ligaments and muscles is also good protection.

The MOF *Treeplanters Guide to Safe Practices* suggests preventative exercise programs to prepare for new work. A number of contractors have developed their own in-house preventative programs.

Slips, falls and pokes

Poor footwear, worn caulks and poor training have caused many preventable slips, falls and injuries.

It is useful to be aware of which parts of the body are most frequently injured. In 1992, Lorenzo Rugo of the Canadian Forestry Service summarized ten years of BC's data for various parts of the body. A similar chart is being used in the Guide.

Sickness & stomach disorders

Unclean drinking water and unhygienic food handling are the main causes of sickness. Camp Standards vary throughout Canada, with absolutely no common requirements in any province. It is time for a national framework of regulations and standards for each activity in silviculture.

Visible and invisible irritants

Pesticides on the seedlings, fires, smoke and particles from fresh burns and herbicides join the collection of irritants in our artificial environment and contribute to the risk of triggering an adverse long-term effect such as emphysema, cancer, gene damage and damage to a developing foetus, all of which could as easily be blamed on secondary smoke. During the early eighties, working through the PRWA, several of us defined the right of workers to know what they are being exposed to, and to choose whether or not they want to be exposed (see "Caution Before Yield, Pesticides on the Seedlings" by Ted Davis).

While the risks are real, the odds are usually low that exposure on one particular run will trigger an adverse response.

Prevention usually begins with the kinds of recommendation in the *Treeplanters Guide to Safe Practices*, but may also warrant refusing to handle seedlings recently treated with

pesticides or to work in a still smouldering burn.

We have sent planters to the hospital who could not see because of the irritation to their eyes from the fine dust stirred up by their planting. Every few years one of our crews is sprayed accidentally by herbicides. Henry Brownrigg, PRWA leader, died from a brain tumour in 1988, which he and some of his doctors believe may have resulted from pesticide exposure.

Snags

While WCB insists on falling all snags on wildfire and logging sites, no silviculture worker in the past ten years has been killed or even seriously injured by a dead standing snag. Many silviculture workers have been injured by snags underfoot. Statistics of the number of fallers injured or killed while making the site safe for silviculture workers are unexamined.

I am sure that the number of faller deaths and serious injuries are far higher than the number of injuries that would occur if the treeplanters were

permitted to plant their way through standing snags. Naturally, winds of over 15 kilometres per hour would result in the crew moving to a clear block. This would leave more vertical habitat and improve the quality of the planting site.

Prioritizing safety issues for other silviculture activities

Activities such as site preparation, working in a nursery, power saw spacing, planting with hand tools, brush saw thinning, operating single grip selection harvesters, each have a unique profile of health and safety hazards.

In all of these areas, many workers, employers, field crew bosses, contract inspectors and clients have a surprisingly varied view of how to prioritize for basic safe working conditions.

I look forward to further sound balanced work in silviculture safety, and perhaps other booklets such as the *Treeplanters Guide to Safe Practices* for these other activities. ♦

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Silviculture study will help our industry

Jim Verboom, Vice President, CSA

Steady progress is being made on the Human Resource Development sponsored National Silviculture Industrial Adjustment Services (IAS) Study. Since the last update in the Fall 1994 issue of CSM, the committee has completed Phase I of the IAS — the final report of the committee follows in this issue.

Lack of Recognition and Profile of our part of the forest industry has been identified as the main problem facing us. The solutions to nearly all the other problems we face will be much easier to develop if we are considered an equal player in the process.

In order for contractors and workers to gain recognition within and outside of forestry, we must identify our profile and convey it to others. Some of the information that identifies us is readily available, e.g., numbers on volume of trees planted, hectares treated, dollars spent and wood cut area available.

However there appears to be little data available that defines the profile of Silviculture Business entity, the silviculture entrepreneur or the silviculture worker.

The Committee will commission a study through an independent consultant, who will attempt to quantify some of the following information: size and nature of companies, gross payroll, season of operations, size of company, number of employees; contractor's education, experience, goals; employee's education, training level, concerns in health and safety, and so forth.

This is where we need your co-operation. Someone may be contacting you soon to ask you a few questions. Your help will mean a lot to our industry.

Some of the information asked for will be sensitive in nature. The consultants hired will be judged for their ability to keep individual survey results confidential. All results will be worked with and presented in totals and averages only.

This information is critical if we are to develop accurate and creditable profiles of the businesses, entrepreneurs and workers in our industry. With such a profile, our leaders can do a much better job effecting changes that will

lead to a forest that is better and more cost effectively managed. ♦

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Hewers of wood and drawers of misunderstanding?

Lorenzo Giovanni Rugo, Economist, CFS, Hull, Québec

Bruce Little's article "Hewers of wood and drawers of extra UI" (*Globe and Mail*, Jan. 2, 1995) reported that during 1986-90 the "forestry industry" received \$6.17 in unemployment insurance (UI) benefits for every dollar it contributed — more than fishing, agriculture and construction received from the UI plan.

The article was based on a Statistics Canada study by Miles Corak and Wendy Pyer that was released in Dec. 1994, "The distribution of UI Benefits and Taxes in Canada."

At first glance, I could not conceive the Canadian forest industry, being one of the largest contributors to Canada's Gross Domestic Product (GDP), enduring another blemish. Closer examination of

the *Globe and Mail* article revealed a very narrow definition of the "forest industry" and distortions in the reported contribution of the forest industry to the UI plan and to the Canadian economy.

Little focused on one small, albeit important, segment of the forestry industry: logging and forest services. The logging industry provides raw material for the forest products industry and forest services (largely silviculture) provides services to replenish the forest resource for future generations.

The forest products industry, consisting of wood and pulp and paper industries, represents the larger industry group within the forest sector, and was included in the Corak and Pyer study. Had Little's article discussed the contribution of the whole industry, his conclusions would have been reversed.

The total forest industry is a net contributor to the UI plan, meaning they draw less from the UI plan than they contribute to the economy. In 1990, the forest sector contributed 4.5% to GDP: 3.8% forest products industry and 0.7% logging and forest services.

During that same year, fishing contributed 0.4%, construction 6.4% and agriculture 4.6% to GDP. In terms

*...as a social resource,
forests are thought
of as a means to
reduce Canada's
unemployment
problem...*

of UI benefits, large employers such as the Canadian pulp and paper industry received a mere sixty cents for every dollar contributed.

Returning to our troublesome

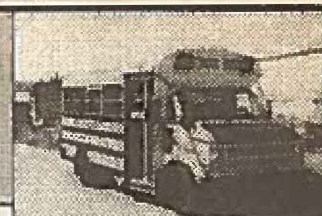
figure of \$6.17 drawn in UI benefits for every dollar contributed, what could possibly be said? Canada's forest resource is simultaneously a social, economic and environmental resource. As an environmental resource, forests are increasingly used to maintain a degree of biodiversity. As an economic resource, forests are traditionally thought as providing the forest products industry with the raw wood fibre for the production of goods such as paper, kraft and lumber.

As a social resource, forests are thought of as a means to reduce Canada's unemployment problem through job creation programs directed at Canada's young, chronically unemployed, and displaced workers. The social use of forests for job creation programs can provide some explanation for the wide variance between dollars contributed and received from the UI program.

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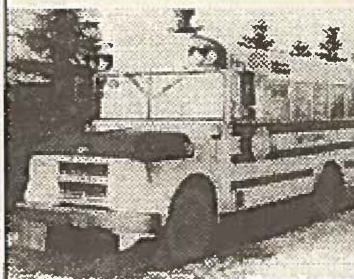
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The 1980s were Canada's "job creation years" in forestry. For example, between 1982-87 approximately 26,000 short-term jobs were created in forest services through job creation programs such as Local Employment Assistance Program (LEAP), New Employment and Expansion Development (NEED), and Canada Community Development Projects (CCDP). These programs were directed at unemployed Canadians, not only unemployed forest workers.

Approximately \$256 million dollars from UI funding were channelled into these job creation programs, which explains the divergence between dollars contributed and dollars received. If one was to filter the job creation money employed from UI funding, the variance could be made much smaller.

Even though UI funds were used for job creation, Canadians as a whole benefited in the end.

Between 1982-87, over 1200 projects were completed under such programs. These projects focused on improving the wood stocks in all provinces. In addition, workers sponsored through job creation programs helped to increase the number of hectares sylviculturally treated from 500,000 ha in 1982 to well over 1,200,000 ha in 1987.

Finally, modifications to the unemployment insurance program in 1993 will reduce the dependency on UI income. These changes include: 1) no regular benefits paid to those who quit a job without just cause or who were fired for misconduct, and 2) benefit rates are reduced to 50% for those refusing a suitable job. Predictably, one could expect a reduction in the variance between dollars contributed and received from the UI program.

A campaign of misinformation appears to be the mainstay in today's winner take all forum. Powerful lobby groups are often at logger heads over the direction that Canada's forest management agenda should take.

The reliability of statistics can only be assured if they are appropriately and correctly interpreted. One can only conclude that Canada's forest industries are the "Hewers of wood and drawers of misunderstanding." ♦

*...a campaign of
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forum...*

This article does not represent the views or position of the Canadian Forest Service.

Industrial adjustment committee final report

Gaston Damecour, AGFOR Inc., Chairperson

Note: This is an edited version of the IAS final report released on December 1, 1994.

The silviculture industry has had growing pains; some are linked to the development and implementation of effective forest management policies. The CSA and its provincial affiliates face changes to their industry without their participation; yet, they are the men and women who do the work.

The Association has sought various approaches to bring issues to the forefront, with limited success. As the silviculture industry matures, it needs to become an active player in its own development. The entrepreneurs, men, women and students consider this economic activity as an essential part of their livelihood.

Purpose of the IAS committee was to:

- 1/ To identify issues that hinder the silviculture industry;
- 2/ To develop a strategy to deal with the issues that respects the urgencies and the priorities as viewed by the participants from across Canada.

Issues

The first step for our IAS committee was to focus on relevant issues. The first meeting did not produce a consensus on the priorities; it did produce a list of ten issues rated on their frequency and importance. The results are as follows:

Short list of issues by topic

- A/ Training & effectiveness: 57;
- B/ Recognition (not listened): 40;
- C/ Profile: 32;
- D/ Funding (ERDAs): 21;
- E/ Funding flow (How \$ are used): 15;
- F/ Value vs. Price (Low bidding): 18;
- G/ Aboriginal Inclusion: 14;
- H/ Labour Abuse: 14;

I/ Labour displacement (NAFTA & UI): 9;

J/ Internal issues of unity in the industry: 6.

Training & effectiveness

From the outset, the issue of human resource development was on everyone's agenda as witnessed by the high score above. The problem is that institutions (Community Colleges, Trade Schools) do not focus on the practical side of doing the work. Most felt that workers were ill prepared for the work environment. Gilles Riverin, a seasoned silviculture worker from Chicoutimi, Québec, commented: "Trainees do not always walk out of the training ready for what they are walking into."

Wayne Brown, representing Corner Brook Pulp & Paper, indicated that, "Lots of government money is spent on training, but wasted in institutions." He feels that there is "bang for the buck" to be had if the training dollars are "channelled to the field."

Recognition & Profile

Recognition & Profile are related and, combined, have the highest score. Issue after issue included the fact that governments and the forest industry do not listen to the silviculture practitioners. The relationship between recognition and profile is that profile develops or engages recognition.

The silviculture industry, by nature, does not have much visibility. The work occurs on several sites over the operating season without fanfare. There is no massive display of equipment or labour that the public can see, and if

they do, it is not permanent. The fact that work is nomadic (sites change regularly), with little visibility does not diminish its importance. This is where profile is relevant.

Nova Scotia contractors solved many problems by gaining recognition from both levels of government. They have a fixed price system where value, not the lowest price, is what gets the work. Other examples involve teaming up with a more prominent organization, such as l'Association des entrepreneurs sylvicoles du Québec working with the l'Association des Industries Forestières du Québec (AIFQ) to deal with living conditions and camp facilities.

Having profile and recognition is considered the first step in obtaining results on all other fronts. A profile will also improve awareness within the silviculture industry, enhance

participation and ultimately credibility, as emphasized in Brinkman's opening remarks: "We would like a common course of action... A

common voice will give strength."

...lots of government money is spent on training, but wasted in institutions...

Funding (ERDAs), funding flow, value vs. price (low bidding)

The issues surrounding funding exist across Canada. The importance of each issue will vary from the Pacific to the Atlantic. In Atlantic Canada the relative importance of private woodlots is more important than in BC. The issues range from the availability of funding (in the east) to how silviculture dollars flow (or don't flow) in Québec, to the issue of value vs. low price.

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In Atlantic Canada, important cuts (or possible elimination) of the ERDA funding have the silviculture industry worried. One year without funding would see years of Human Resource Development go down the drain.

In Québec, and in other areas of Canada, the forest industry receives a rate to have silviculture done. The

problem is that not all of the funds make it to the contractor — the forest industry keeps a portion for administration.

In New Brunswick the rates are calculated on an "at cost" basis with allocations for the silvicultural workers, supervision, and overhead, — yet, a certain amount of silviculture is done below the rates.

Pricing has not kept up with the times. Gilles Riverin indicates rates are the same as ten years ago, while the demands/standards imposed on the worker have increased.

Many silviculture businesses are forced to use UI as part of the remuneration of workers. Most agreed that this is

common practice and that it leads to labour abuse.

The issue of value vs. price is a major problem across the country. For example, the value of suitable accommodation and transportation for workers is not considered by the client — low price is the criterion.

It has taken press coverage of fatalities and illness on some operations to drive this point home to the forest industry and to the governments. Governments are responsible for such health and safety legislation

and for the management of public lands.

Training is yet another example: an employer who actively trains a work force to be competent does not command a premium — over one that does not train and has a 300 percent turnover of disgruntled workers.

Almost every provincial association has attempted to talk with industry and government; there have been a few successes, and some setbacks.

...it has taken press coverage of fatalities and illness on some operations to drive this point home...

Aboriginal inclusion

Canada's aboriginal people share essentially the same concerns as the other members. In addition, they seek fairness of access to business opportunities and to effective training suited to local conditions. There are some valuable aboriginal silviculture examples in Canada; there could be others if there were fewer "exclusions" because of relationships with governments. As an issue, Aboriginal Inclusion, according to this group, is a "given" and everyone will benefit by dealing with the issues this way.

Labour abuse

In part, labour abuse is a result of all of the above. Every member expressed examples of worker abuse, ranging from pay methods, to camp facilities (or the lack of them), to plain health and safety issues including the uses of chemicals (without suitable warning or precautions). The question of certification was raised as a method of controlling labour abuse.

According to Gloria Hiltz, a veteran of the silviculture industry in BC: "If we are going to certify workers... we need to certify contractors (performance rating system)." Such a system exists in Nova Scotia where

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there is a premium pricing system for certified contractors which can be lost due to poor performance by a contractor. To achieve the level of recognition and legitimacy that Nova Scotia enjoys requires that someone listens to you.

Labour displacement

Displacement is an issue in all provinces except NS and PEI. Two important sources of displacement are present. The first is from the ranks of the chronically unemployed that governments wish to have doing silviculture or incremental silviculture.

The governments do not consider the already precarious situation silviculture workers and contractors are in. Any increase in capacity will negatively affect the existing silviculture industry.

A brief presenting the NB's silviculture industry as a legitimate form of business was instrumental in changing what appeared to be a major make work project for a thousand workers: the government decided to use the existing channels to do the work. Similar massive employment initiatives are underway in BC.

The second source of displacement is

related to imported labour, which is, as part of NAFTA, already common in Northwest USA.

Internal Issues

Issues of unity in the silviculture industry were not discussed at length. While the various associations represented most of the silviculture work done, they did not represent most of the businesses. Crises seem to have been a hard way to increase membership temporarily. The awareness generated by a profile would be very effective internally.

Priorities

The next step was to prioritize the issues and to select achievable targets for any subsequent actions. The priorities may be developed based on the following criteria:

- Must have a positive influence on the sector;
- Must be achievable within the life of an IAS Committee (using 18 months as a benchmark);
- Must have widespread/national applicability — there is room for regional differences, however, there needs to be some consensus without distorting the intended results to achieve a consensus;
- Urgency must be considered —

some issues only require timely and effective action as opposed to a longer developmental exercise;

- Level of effort/time to results — some issues can be dealt with quickly by bringing the right people together;
- Chronology — some actions have to occur before other issues can be dealt with effectively;
- Outside issues will have an impact on the industry either gradually, or over a short period, for example: a) Changes to the UI system, e.g. 20 insurable weeks, the concern over repeaters; b) Changes in the pulp & paper industry — a 30 percent reduction in labour; c) Lack of competitive wood costs which include forest management and silviculture; d) Land-use pressures change the type of silviculture work.

Strategy

The second meeting focused on several issues related to the strategy of "Where do we go from here?" The discussions included:

- Representation from Labour, Industry, and Government;
- The level of resources available to deal with the issues;

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- Detail of the information required to be effective in achieving recognition and profile.

The strategy having the highest potential of success within a limited budget involves the IAS process with the national and provincial associations.

Essentially, the provincial associations would assist in the collection of information by facilitating contacts and by providing local support. Data would be collected and analyzed by an organization to maintain confidentiality, objectivity and credibility.

Chair's commentary

The following comments are for your consideration and do not reflect or imply any consensus by the committee.

Training is the responsibility of the employer.

The problem may be that training has been misused. In AGFOR's 1988-89 work on the human resource requirements for New Brunswick's forest sector (*Meeting the Challenge* — 1989), we found businesses training extensively at their own expense who felt that they could not operate any other way.

AGFOR's conclusion was that many employers, including Government, routinely use training dollars in lieu of their own budget. The study also concluded that there had to be an investment by the employer vs. some token cost to ensure better results both during and after training. Is ours a case of getting what you pay for?

The lack of recognition was consistently in the background of most items, only NS has such recognition and their problems are somewhat different.

Québec has had some success through an alliance with the "client" who is the forest industry. The Québec government has yet to acknowledge the association on its own. Partnerships may be useful in establishing credibility and in selling the silviculture and the forest industries.

Profile is how most Canadian forest industry documents start. For example: jobs = 285,000 + 502,000 indirect; \$8.9 billion in wages; \$23 billion in exports; and the list goes on. To be listened to, you have to sell your industry and yourselves on your own — not on some theme, whether related or not. Your entrepreneurship is a politically correct and timely approach.

Funding of ERDAs and the flow of funds are crucial at this time. An industry and its workforce cannot be put on ice for two or three years. Canada would stand to lose years of development —

not to mention outraging forest workers/entrepreneurs.

Value vs. Price is a tough one, linked to standards of employment and of forest management, etc. We saw four scenarios ranging from low price rules, to preferred status, to four-year agreements and to Nova Scotia's fixed price regime.

The principle of value is in recognition and, to some extent, marketing — Dirk Brinkman's flyer is an example. Recognition and premium dollars do not come together; one leads the other, as in NS.

Aboriginal inclusion is not stand-alone, but an integral part of every item; every opportunity should be used to build on this. Operationally, aboriginal peoples share the same concerns and to some

extent they are developing their profile at the table with the non-aboriginal silviculture industry, in a sort of partnership.

Labour abuse may have to be further divided, as some issues are to be dealt with from within as the silviculture industry matures. Others will benefit from improved profile and the legitimacy of the silviculture industry.

Labour displacement is an urgent issue in all provinces except NS and PEI. Silviculture industry representation is, on average, low. In terms of volume of work or size of businesses, representation is considerably higher and it could be considered self-serving by many officials.

We have seen agricultural marketing boards who claim to represent the industry, which is true if we exclude the smaller operators from recognition. This phenomenon exists within your ranks, especially among the nonmembers.

Recommendations

The strategy involving limited resources and a proactive role by the national and provincial associations appears to offer a timely and cost-effective means of achieving a positive impact for both recognition and profile. Timely, because it can be set up quickly, while allowing you to adjust your efforts as the industry changes. You should keep in mind your respective availability through the calendar year.

The changes that are happening in our industry are due, in part, to the improved markets for forest products, these opportunities are not eternal. It would be prudent to reassess conditions regularly and focus energies where they can produce the best results.

The opportunities will have a sense of urgency attached to them as other organizations rethink and readjust their positions — you want to be part of that. ♦

*...aboriginal inclusion
is not stand-alone, but
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Creating a level playing field: The three tier rate solution

New Brunswick Independent Silviculturalists Association — L'Association des Sylviculteurs Indépendants du Nouveau Brunswick

Note: A discussion paper presented to: The Senior Management Committee, Canada / New Brunswick Cooperative Agreement by the NBISA

On December 15, 1989, the government of Canada and the government of New Brunswick entered into the Canada/New Brunswick Cooperation Agreement on Forestry Development (FRDA).

The purpose of the Agreement was to: "Enable Canada and New Brunswick to financially support initiatives in the intensive management of New Brunswick's forest to increase the sustainable supply of softwood and high quality hardwood timber, thereby improving future wood supply, while encouraging the sustainable development of new income and employment opportunities."

The objective of increasing the sustainable supply of softwood to an average of 7.47 million cubic metres has not been met. The reason for not meeting this objective was an increase in the amount of land set aside for stream reserves, wildlife management areas and other types of reserves.

There have also been some problems in increasing the sustainable income and employment generating potential. This paper will address problems, real or perceived, that our membership has brought to our attention.

Discussion

The major concern of our membership with respect to the FRDA deals with the "Private Woodlot Resource Development" program, more specifically "Silviculture Assistance."

The problem as described by our members is that a single price per unit treatment places them at a competitive disadvantage when compared to other groups. This is mainly due to the fact that other groups do not have to pay all of the cost components that make up the total cost of the treatment.

In order to understand how various groups can have different cost for the same treatment, it is important

to understand the various components that make up the total cost of the treatment. To demonstrate we will use the NB

Department of Natural Resources and Energy 1994 daily cost analysis for an average pre-commercial thinner (see Table 1).

Percentages will replace cost for each of the items. The use of this cost analysis does not in any way constitute our members' approval of the way it was derived or of the percentage cost per item used. This cost analysis is used as a reference and is for demonstration only.

Some of the items mentioned in Table 1 are not cost factors for all work groups. To illustrate our point we have chosen three different employer groups. We will itemize the portions that the employer group need not pay and express actual cost as a percentage of total cost.

The cost of statutory holidays, if applicable, will be kept constant. Licensee/Contractor Administration and Overhead Cost are described as the cost of producing a weekly payroll.

Variations from our outline may occur but we believe that our numbers are representative.

The individual silvicultural contractor

The silviculture contractor is responsible, either directly or indirectly, for all of the cost items listed Table 1. There is however no mention in this case of profit or training allowance. This is why it is so important for our members to be able to collect the woodlot owner contribution.

The marketing board work crews

There are two cost items where the marketing board crew has savings in operating a pre commercial thinning crew based on the cost analysis provided. The first item is the Administration and Overhead Cost.

...continued on next page

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Roland Roy,
President

...continued from previous page

This cost, although real, is covered under sub-program 1.7 Program Support.

The second cost item is not as apparent and is much dependent on interpretation. The supervisor's daily remuneration along with the associated vacation pay, statutory holidays and social cost should also be paid in part by the sub-program 1.7 Program Support. The reason for this is that the foreman as a representative of the Marketing Board has two capacities. One of which is to represent the employer and the other is to represent the body responsible for Program Support. This salary should then be allocated to the respective accounts for payment.

We suggest that one quarter of the wages should be paid through sub-program 1.7 Program Support. This gives us a

Thinning Saw Operator	Percent
Daily Remuneration	60.12%
- Vacation Pay	2.40%
Statutory Holidays	1.88%
Social Cost	
- UIC (4.298%)	2.69%
- CPP (2.6%)	1.63%
- WCB (2.37%)	1.48%
Transportation	5.55%
Saw Depreciation, Gas and Oil	7.90%
Equipment and Supplemental Expenses (Files, Blades, Safety Clothing, etc.)	2.14%
Forman	
Daily Remuneration	6.66%
- Vacation Pay	0.27%
Statutory Holidays	0.21%
Social Cost	0.64%
- UIC (4.298%)	
- CPP (2.6%)	
- WCB (2.37%)	
Transportation	1.67%
Licenses / Contractor	
Administration and Overhead	4.76%
Total	100.00%

Table 1: 1994 daily cost analysis for an average thinner

Source: Department of Natural Resources and Energy, Timber Management Branch, Basic Silviculture Reimbursement, April 1, 1994 to March 31, 1995.

reduction in treatment cost of approximately 6.75 percent. The reduction in cost can be increased if the owner's contribution would be credited against the cost of the operation. This would provide an extra 10 percent reduction in cost, for a total of 16.75 percent.

The woodlot owner

The woodlot owner we are describing in this example is one who will do the work personally, or have the work done by a relative or a friend and does not pay any of the social cost or provide any supervision. The savings for such a woodlot owner are numerous and amount to a large percentage of the total cost.

These savings include vacation pay (2.40 percent), statutory holidays (1.88 percent), social cost (5.80 percent), supervision (9.45 percent) and administration and overhead (4.76 percent). This gives us a total saving of approximately 24.25 percent. Again the reduction in cost could be increased if the owners' contribution would be credited against the cost of the operation. This would give us a total reduction in cost of 34.25 percent.

How this has affected the individual contractors

By default the contractor has the highest apparent cost of the three scenarios outlined. This has placed them at a great disadvantage and has led to a reduction in the amount of work available to our members. I would like to point out that the actual cost and the apparent cost should not be confused.

Reduction in work available

Two items have caused a reduction in work available for our membership. The first item is the need to collect the owner contribution.

It is often the case that when a contractor requests payment of the

owner contribution, the woodlot owner responds that other people are ready and willing to do the work for the subsidy rate. This places the contractor in a situation of doing the work for nothing or not doing the work at all.

The second item that reduces the amount of work available is the fact that more owners are now performing or hiring directly themselves. This in itself is not bad however when you consider that the woodlot owner can reduce direct treatment cost by the amount of the owner contribution and make a revenue of 24.25 percent, it provides a great incentive for doing the work personally.

Request to "work under the table"

Some of our members have been asked to provide work "under the table" by workers who are eligible for UI. This would allow workers to receive their unemployment benefits while earning an extra undeclared income. This request is often associated with a comment such as "Joe Woodlot needs to have some work done and he is willing to pay cash, if I can not get the same deal here I will go work for him."

This presents the contractor with two problems at once: potentially losing trained workers, or agreeing to these conditions and risking the chance of paying heavy fines if caught. This type of underground economy is very costly to contractors and to government.

The three tier rate solution

The three tier rate solution is not a new concept. However it has not received much support from woodlot owners and marketing boards, the reasons for which will become apparent shortly. The three tier rate solution proposes three rates based on the actual cost dependent on which work group is responsible for carrying-out the job.

These rates would reflect the actual cost of the operation for each of the groups. Given the scenario we have outlined

above, the individual contractor group would receive full reimbursement plus the woodlot owners' contribution.

The marketing board would receive 83.25 percent of the reimbursement and the woodlot owners would receive 16.75 percent of the reimbursement. This would place all workers on a level playing field as far as receiving compensation for the actual cost of doing a specific job.

The owners' contribution is the only way contractors are able to make a profit, provide training, invest in technology or upgrade their skills without reducing the daily remuneration of the worker. In order to achieve the Agreement's objective of increasing the sustainable income and employment generating potential, it is imperative that the contractor have a recourse to collect the owners' contribution.

The marketing boards should be responsible for collecting the woodlot owners' contribution. This would reduce the potential of the woodlot owners playing one contractor against another in order to have contributions reduced or eliminated.

In order for the government to collect taxes on any income received from the Agreement, the marketing boards should be required to produce T4s for all people receiving moneys from the FRDA. Producing T4s would also reduce the use of cash payments by woodlot owners as they would want expenses to reduce the net income from the silviculture treatments.

Conclusion

Apparently our membership sees a problem with the way past FRDA funding was allocated. Our membership was placed at a great competitive disadvantage. The result of which has

been to greatly reduce the amount of work done through the Agreement.

We believe that a three tier rate structure would be an equitable way to level the playing field. Also, having a recourse for collecting the woodlot owners' contribution would reduce the occurrence of having a woodlot owner play one contractor against another. Finally, having the marketing boards produce

*...the individual
contractor group would
receive full
reimbursement...*

T4s would reduce the occurrence of "working under the table." This would add revenues to the governments coffers.

Recommendations

1. The problems we have outlined are not based on "real" numbers but rather a general feeling from our membership. A study into the implication of this proposal is required. The research should consider the amount of work done by each worker group, the amount of money each group declares as income and the number of weeks of employment produced by each group.

2. A three tier rate structure should be considered. The possible increase in area treated for a given amount of block funding should be determined. Its effect on the annual allowable cut should be calculated.

3. Possible income tax revenue derived from producing T4s should be considered. We believe that the government would be more receptive to funding a program which has the capability of producing revenue through an increased tax pool.

4. The marketing board should be responsible for collecting the woodlot owners' contribution. This would ensure the viability of silvicultural contractors. It would also place them on a level playing field with the other work groups. ♦



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Checkoff: Private sector forest renewal contribution in PEI

Ian Dennison, President, PEI Forest Industry Association

The checkoff idea has been simmering quietly for a couple of years. However, as with the public acceptance of government debt reduction policies, it didn't take root until late last fall. What would happen, asked Cecil Trainor, a sawmill operator in PEI, if a dollar from every cord produced went toward silviculture?

Trainor is one of two sawmill representatives on the directorate of PEI's Forest Improvement Association. FIA also has two woodlot owner reps, two logging/silviculture contractor reps and one woodworker rep at the table.

Some basic principles were agreed to:

- a \$1.00 — 2.00 per cord checkoff would be collected at the mill gate;
- Checkoffs would apply to all sawlogs harvested on the Island, regardless of whether they were sawn locally or off-island;
- Firewood would not be subject to checkoff;
- Pulpwood might be subject, but at lower rates than sawlogs;
- Enabling legislation would be requested from government; and
- Sawmills would be compensated for collecting checkoffs, at four or five percent of checkoff.

Directors were asked to take the proposal back to their associations for discussion, and FIA meanwhile met

with the province in order to outline it to them. All associations agreed in principle with the proposal, adding some qualifiers:

- The silviculture funds collected through checkoffs would be administered by FIA — specifically, how the money is spent will be determined annually;
- Administration costs could not exceed 20 percent of the total;
- The landowner contribution of \$40 per acre to help cover replanting costs will be maintained, the \$80 per acre fee for more densely treed sites will be dropped to \$40 per acre; and
- Sawmills will be asked if they will match contributions.

Quite a number of issues need to be decided, including:

- How will checkoffs be collected for wood leaving the Island? Will off-Island mills participate? Or would checkoffs be collected at the ferry tollbooths?
- What treatments will qualify? Will infrastructure such as roads, stream crossings, and boundary lines be funded? How much of thinning treatments will be done?
- How many dollars per cord is acceptable/reasonable/useful to get the job done?

Interestingly, the province came back to the table with a challenging proposal:

- \$5.00 per cord checkoff would support only 30 percent of a proposed 1.7 million dollar annual silviculture program; and
- Harvesting contractors would have increased responsibilities in pre-harvest stand assessment, filling out applications with landowners and looking after site preparation duties — which are currently looked after by provincial government forest technicians. ♦

FRDA waiting for program review

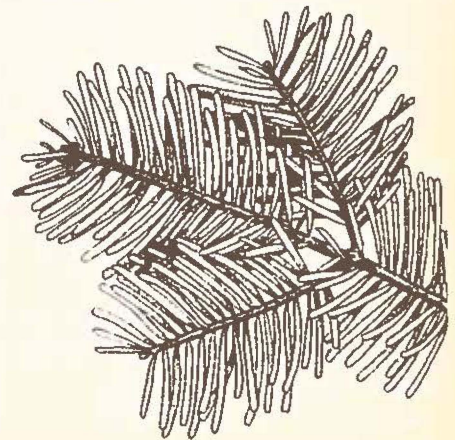
D. Ian Glen, Deputy Secretary to the Cabinet Operation Branch

Note: Edited letter to Ian Dennison, President PEIFIA, Feb. 8, 1995. This is a reply to Dennison's letter that was printed in the Fall 1994 CSM.

On behalf of the Prime Minister, I am replying to your letter in which you expressed concern about the March 1995 expiry of the Canada-Atlantic Cooperation Agreement for Forestry Development.

As you are likely aware, the federal government is currently undertaking a Program Review to see how we can best manage and deliver programs and marshal scarce financial resources as effectively as possible. We are determined to find the most efficient and cost-effective ways to return Canada to fiscal health while increasing productivity and sustained job growth. In this context, we are reviewing our many federal-provincial agreements and attendant allocation of funds to see what kind of arrangements we can afford to continue to support.

I assure you that your views will be borne in mind as the Government determines its course over the next few months with respect to arrangements with the provinces. ♦



PEI Forest Industry Association

Box 27, Victoria PEI
C0A 2G0

Ian Dennison, President

Liberals not living up to commitment

Ian Dennison, President, PEI Forest Industry Association

Note: Edited letter to David Dingwall, Minister Responsible for ACOA, March 11, 1995.

Today I hopped on my snowshoes to go and cruise a woodlot. I passed through a stand that had been harvested and replanted six years ago. Weed trees were overtopping and suppressing the planted trees, and I made a mental note that we should come back this spring with clearing saws to perform a maintenance operation.

Then it struck me that there might not be any program to do that.

It doesn't seem right to me that we would just abandon the twenty million trees that we took such care to plant on PEI over the last ten years. Surely it would be a gross mismanagement of public moneys already invested in our forest resource to not continue to look after it.

Forest plantations take ten years to reach "free to grow" status. At the present rate of deforestation the world over, a tree planted and cared for now will be a very valuable thing in forty years. The payoffs in terms of jobs created and maintained will give an extraordinary return on a small investment — to say nothing of the important role our forests play in creating and cleansing the air we breathe and maintaining a constant supply of safe water to drink.

We understand the severe financial constraints that governments are under, and that is why forest stakeholders — including contractors, woodlot owners, sawmillers and forest workers — have jointly agreed to make a contribution to silviculture from every cord of sawlogs harvested.

We are willing to share the responsibility with governments, but we certainly need some lead time to get our checkoff system operational. Beyond that, we could not go it alone and do an adequate job of it.

I think you would agree that the public expects their elected leaders to protect and preserve our forests.

Finally, there are promises to keep. "Should we form the government after October 25, we are committed to renegotiation of the federal-provincial (forestry) agreements upon expiry, keeping in mind our commitment to fiscal responsibility," wrote Prime Minister Chrétien in October of 1993.

We would be willing participants in some kind of co-operative forest renewal venture, and we ask you to give our request urgent priority, await your considered response. ♦

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Is there a tomorrow for NS forestry?

Jim Verboom, Vice President, CSA

How are we in Nova Scotia going to keep forest management going? The Federal government has withdrawn from its role of investing in an industry from which it draws millions in revenue each year.

Rather than lament our misfortune, we need to design and implement a new system that will put our industry on a foundation that is much more stable than anything most of us have known thus far.

Nova Scotia has about six months to decide what it will do to follow up the Federal-Provincial funded forest management programs. If by mid-summer there is nothing in place for the future, we will lose many highly skilled and experienced people to other provinces where effective and efficient forest renewal has become a way of life.

We need a mechanism that will turn our apparent consensus — that the user of the resource should pay for the renewal of the resource — into action.

The Coalition of Nova Scotia Forest

Interests has a draft currently circulating for comment, which outlines several strategic directions that will provide the framework inside which any future forest renewal and enhancement will be done. This is a major step in the right direction.

The draft calls for forest regeneration to an "acceptable stocking level of forest species."

The definition of this phase is what silviculture is all about: a site covered with raspberries and gray birch, or a site 100 percent stocked with a mix of Acadian Forest species like what was here four hundred years ago?

Other questions which need to be addressed include whether five years an appropriate time-frame in which to establish "acceptable stocking level of forest species?" And, if our standard should be "free to grow"?

The Nova Scotia Forest Accord, signed last December by nearly every forest interest group in the province states our Vision: "Our goal is to maintain and enhance the long term health of our forest ecosystems for the benefit of all living things, while providing environmental, social, economic and cultural opportunities for the benefit of present and future generations."

How this Statement will be translated into the field will no doubt lead to much debate. A few things that we who care about our resource will have to watch for are:

1. Regardless of who promotes them, we must ensure programs proposed are silviculturally sound and meet our goal as listed above. We must be careful that we are not swept along to support projects that are pure public

relations or designed to meet the minimum of some international standards with little regard for their ability to sustain our resource.

2. To date, there is a huge imbalance in the lobbying on our new forest

strategy.

Industrial forest interests have been very professional and effective in putting forward their ideas. Very

few silviculturalists whose primary interest is renewing and enhancing the resource feel free to speak up. Without a few brave individuals to speak up and a minister who is prepared to take a few risks, Nova Scotia will continue to see forestry driven primarily by commercial interests.

3. We must arrive at a fair balance between the need of landowners and contractors to expose the oligopoly that exists in Nova Scotia and our need to keep as many manufacturing jobs home as possible. Producers of round wood should not be expected to subsidize industries that can not operate at wood prices and specifications found in neighbouring provinces and states. Our recent increase in round wood exports from NS has helped prove what is really going on here.

4. We must find a fair compromise between the rights of private property owners to do as they wish with their land and the rights of our society to expect and need some forests in the future. This debate exists in other provinces also but in NS we have 52 percent of our land and two-thirds of our wood production tied up in it. ♦

*...we need a mechanism
that will turn our
apparent consensus
into action...*

Nova Scotia Silviculture Contractors Association

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Dan Dorey, Vice President
Mike Kennedy, Treasurer
John Sutherland,
Safety & Training
Richard Countaway,
Accreditation

NS Silviculture contractors concerned with forest environment

George Chisholm, past president, NSSCA

Note: Presentation to the Proposed Systems Plan for Parks and Protected Areas in Nova Scotia from the NSSCA.

Silviculture contractors offer a unique perspective on the forestry scene because they deal primarily with small woodlot owners, yet market their products to the commercial forest industry. Small woodlot owners have diverse interests and expectations from their woodlots. Contractors have noticed an underlying theme evolving: they are concerned about the forest environment and this has been felt by a number of contractors for some time.

The issue of the forest environment jumped to the fore of the NSSCA at a strategic planning workshop held two years ago. NSSCA members realized the

need to become more proactive rather than reactive in order to survive as an industry. The facilitator for this workshop was the president of Canadian Silviculture Association, Dirk Brinkman.

As NSSCA president, I was involved as a committee member for Voluntary Planning, Forestry Sector, which was given the mandate to adapt the Canadian Forest Accord at the provincial level.

An ambitious agenda was initiated to develop an action plan for the 96 commitments to the National Forest Strategy. The Committee went through each commitment making recommendations for Nova Scotia's

adoption and implementation. Upon completion in the spring of 1994, the provincial strategy was accepted by the NS Minister of Natural Resources.

A public signing of the Provincial Actions Plan for the National Forest Strategy by the Minister of Natural Resources, Don Downe, and the Provincial Coalition members, of which the NSSCA was a signatory, was recently completed Dec. 22, 1994.

The Action Plan document contains nine chapters of which the first — Forest Stewardship, The Forest Environment — makes reference to the Parks Proposal. The document refers to a network of

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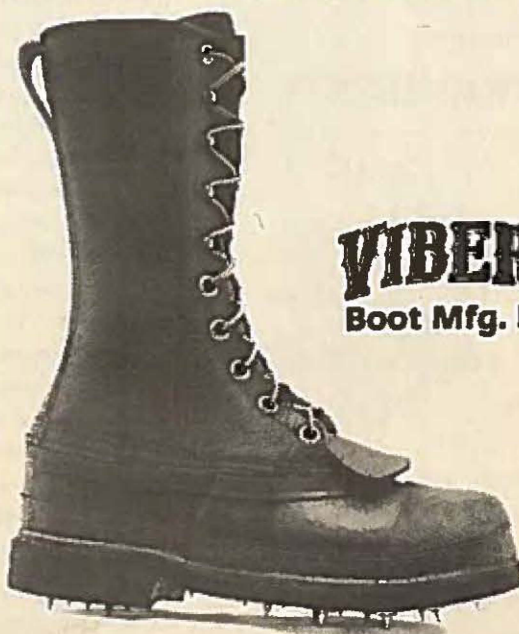
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protected areas, and a working definition of old growth forests.

The objective is to complete a network of protected areas, by the year 2000, which is representative of Nova Scotia's forest landscapes and ecosystems. This would incorporate areas of unique or outstanding natural value, and offer wilderness recreational opportunities.

The Action Plan also seeks to develop a working definition of old growth forests (including various categories of old forests) and to formulate strategies for ensuring protection and re-establishment of old forest types. Strategies will be developed to ensure continuation of old growth through designation and protection of priority sites on Crown land, and of stewardship initiatives on private land.

The Canadian Silviculture Association and NSSCA along with many other organizations have demonstrated support

for the Bruntland Report recommendation that 12 percent of land bases be preserved in a natural state.

The NSSCA is able to support the Action Plan and the Bruntland Report because our members have been on the front-line of the action. We have seen the impacts forestry practices on the forest. Our job is to find better ways to reforest and to minimize the impact of present-day forestry practices.

The dilemma is that more activity and intensive management, to make the forest grow more fibre above what is the normal process, results in increased potential to disrupt the natural forest eco-system. Thus there is a need for some natural areas as controls to measure these changes to the forest.

The forests of this province have tremendous potential to yield more volume and valuable wood fibre for present and future industries using better silviculture techniques. However, present-day fibre costs at the mill-gate do not reflect reforestation costs, merely harvesting costs. This has been the tradition since Europeans settled here over 200 years ago. Because of ownership and an abundance of forest resources there has been no long-term commitment to reforestation. These issues have to be addressed but do not preclude the issue of park reserves. The issues have more to do with sustainable development.

Due to technological advancement during the past 10 to 15 years, the forest industry is now equipped to harvest smaller and smaller trees, making trees 20 to 30 years old economical to harvest. Without some sort of forest resource controls we will quickly spin into a severe forest degradation scenario.

It is important to note that many silviculture and forestry practices can be adapted to minimize disturbance and sometimes to even enhance wildlife. However, forest activity and wilderness areas are not compatible.

Our association feels that by increasing

silviculture activities on more productive sites and better utilization of the remaining resource that areas can be set aside. Once these areas are decided upon as preserved sites there should be clearly defined boundaries with well-established buffer zones where controlled activities may take place.

With these conditions in mind, we support the Proposed Systems Plan for Parks and Protected areas. ♦

Landowner trust fund

Jim Verboom, Vice President, CSA

Nova Scotia Woodlot Owners & Operators Directed Services Coop Ltd. (WOODS) is a small coop of landowners and contractors working together to deliver forest management services and market wood products.

Founded in 1989, the Coop has struggled by until this fall, when preparation work resulted in WOODS acquiring a lead role in a \$4.5 million, 2.5 year contract to export coal mine pit props overseas.

As part of its development, WOODS has agreed in principal to set up a Forest Renewal Trust Fund. This fund will provide a means by which buyers and producers of wood dealing through the Coop can channel funds into the regeneration of sites harvested. In respect to the wood being purchased for the pit prop export, WOODS is putting five percent of the roadside value of the wood into the Trust Fund to the credit of the landowner from which the wood came.

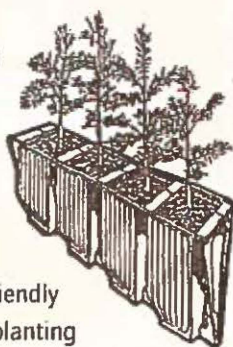
The board of directors of the Coop is currently working on putting in place mechanisms to govern the operations of the fund. Anyone with ideas to help make this project succeed, or knowledge of a similar project already in existence is asked to contact Jim Verboom, Middle Musquodoboit, (902) 384-2206. ♦

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Ontario forest management audit

Office of the Ontario Provincial Auditor

Note: Excerpts from the 1994 Value for Money Audit of the Ontario MNR.

Ontario's forest covers an area of about 80 million hectares. Approximately 88 percent of the forest is owned by the Province. The provincially owned portion of the forest is divided into 89 distinct management units, each of which falls into one of three categories:

- 28 Forest Management Agreement Units (FMAs)
- 47 Crown Management Units (CMUs)
- 14 Company Management Units (CUs)

Based on discussions with Ministry staff, 1993-94 expenditures for forest management were estimated at approximately \$200 million, including approximately \$100 million for silvicultural (regeneration) activities.

Objectives and scope

The objectives of our audit were to assess, with respect to Forest Management, whether:

- applicable legislation and appropriate administrative practices were being followed;
- resources were managed with due regard for economy, efficiency and operational effectiveness; and
- program goals were clearly defined and performance was monitored and evaluated on a regular basis.

We reviewed detailed information with respect to four FMAs, three CMUs and one CU.

Audit observations

Our audit was conducted during a period of restructuring and change. The more significant of these changes are:

- the recent report of the Forest Policy Panel which defined potential new directions for long-term forest policy;

- an environmental assessment for timber management on Crown lands in Ontario;
- corporate reorganization and downsizing through which responsibility for forest management has been combined with the Ministry's other mandates; and
- the appointment of a provincial negotiator whose objective is to negotiate a new business arrangement whereby FMA companies assume more financial responsibility for forest renewal in their areas.

Our recommendations complement many of these initiatives which are designed to strengthen forest management in Ontario and to ensure that the Ministry meets its goal of long-term sustainable development of the Province's forest resources.

Silvicultural funding

The term "silviculture" includes all aspects of regeneration after a site has been harvested, such as site preparation, planting or seeding and tending. The Ministry provides the funds for silviculture.

Starting in 1992-93, FMA funding has been determined using a formula developed in consultation with the forest industry. Previously, funding provided to individual FMA companies was based on negotiations and historical spending patterns.

Under that formula, 70 percent of the funding to Forest Management Agreement companies is allocated based on the four-year average of area harvested. The remaining 30 percent is based on each FMA's forest growth rate and site difficulty.

While the formula is a more objective

and equitable approach to funding, it does not consider work requirements identified in the individual plans or schedules.

Silvicultural funding for CMUs and CUs is determined by the Ministry's internal priority-setting process, again without reference to work requirements under the individual management plans or work schedules.

Our review of actual silvicultural funding during the five years of the most recently completed set of Timber Management Plans (TMPs) for the FMAs, CMUs and CUs included in our sample indicated that funding inequities exist both among units in the same category and among different categories.

While FMAs were funded at between 100 percent and 115 percent of TMP work requirements, adjacent CMUs received as little as 30 percent of what they needed. In addition, much of the funding provided in recent years to CMUs has not been ongoing program funding but rather one-time capital funding such as that provided under the

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Grant Brodeur,
President

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jobs Ontario Capital program.

This has made it particularly difficult for Ministry staff to plan for silvicultural work on Crown units for the coming years.

Work planning and priority setting

FMA's require that TMP's be submitted six months prior to the start of the applicable five-year period and be approved at least two weeks before going into effect. Annual work schedules (AWS) must be submitted four months prior to the start of the year and be approved at least two weeks before going into effect.

However, final funding is often not approved until part way through the year when the Ministry receives approval for its budget.

Over a five-year period, AWS related to a particular TMP should address the targets established and approved in that Plan. However, we found that there were significant differences between the work planned in these two documents. Additionally, while actual funding provided by the Ministry was usually insufficient to perform all work planned, neither the TMP's nor the AWS identified which work should be given priority.

As a result, we found that most forest units planted as many seedlings as possible in the spring of each year. However, other planned work, such as tending which is normally undertaken later in the year, could not be completed due to financial constraints.

Timely tending is necessary to ensure that competing vegetation does not impede desirable regeneration. This is usually accomplished through the use of chemical herbicides although thinning and pruning may also be used.

While the FMA's actually planted more trees than planned under either the TMP or AWS, only about 65 percent of the tending work planned under the

TMP was actually performed. Similarly, the CMU's planted approximately half of the trees planned under the TMP, but only performed two percent of the planned tending work. By not doing tending, significant expenditure invested in planting could be lost.

For example, the cost of seedling, site preparation and planting are a minimum of \$700 per hectare while chemical tending is less than \$100 per hectare. Ministry staff had identified areas that were planted and eventually overrun by competing vegetation due to lack of tending.

Recommendations

The Ministry should:

- allocate silviculture funding with appropriate recognition to the needs of CMU's;
- relate silviculture work proposed in the AWS more closely to the approved TMP. Where significant differences exist, explanations should be provided;
- provide funding to individual units in accordance with the needs identified in the TMP and AWS; and
- prioritize funding and work requirements to ensure that critical functions such as tending receive appropriate attention.

Ministry response

The Ministry has not undertaken a full silviculture program because of inadequate funding. The Ministry is in the process of initiating silviculture trust funds and/or special purpose accounts. We expect that, over time, this funding mechanism will provide sufficient funds so that the number of hectares regenerated annually will equal the number of hectares harvested annually.

The first trust fund/special purpose account will be established in 1994 and the trust fund approach to funding silviculture will be completely implemented by 1997. At that point, there will always be enough silviculture dollars available in the trust/ special account to undertake the following year's silviculture activities.

Silvicultural activities work requirements

The TMP and related AWS are set out the planned renewal and maintenance activities for each forest unit. These plans represent, in a professional forester's opinion, the minimum work required in each forest unit to meet the Ministry's objectives. We noted that on average the managed or "artificial" regeneration reflected in these plans totalled approximately 28 percent of the planned harvest cut.

We found that for the four FMA's we reviewed the companies were generally meeting their TMP silvicultural work requirements in each of the areas of site preparation, artificial regeneration and maintenance. However, CMU's and CU's had significant shortfalls in meeting their work requirements.

Recommendation

The Ministry should ensure that silvicultural work is equitably distributed between all types of forest units and is commensurate with TMP requirements.

Ministry response

The Ministry agrees with this recommendation. The Ministry has had to make some difficult funding decisions based on financial restrictions. In general, The Ministry has provided more funding to the FMA program because of the contractual nature of the agreements with the forest industry.

The trust fund/special purpose account mechanism will ensure that there is adequate funding to undertake the forest renewal program. The proposed *Crown Forest Sustainability Act* will not permit harvest without regeneration.

Renewal treatment selection

The selection of an appropriate renewal method for specific sites and species is guided by the silvicultural ground rules in the TMP or the FMA. These ground rules generally provide for regeneration options ranging from no treatment to site preparation and planting.

Although FMA companies are expected to prepare both the TMP and AWS in compliance with the ground rules, Ministry foresters would in most instances, lack specific details about the local site conditions to ensure that the most appropriate species and most cost-effective regeneration method had been selected. Instead, the Ministry relies on the FMA companies to make the most appropriate selection.

However, in our view, the companies have an understandable bias towards site preparation and planting over other forms of regeneration. Site preparation and planting provide the most assurance that a specific site will regenerate to the desired species in the shortest period of time. At the same time, site preparing and planting is also the most costly form of regeneration, with the total cost being borne by the Ministry.

In addition, we were advised by Ministry staff that during the current period of funding constraints, all forest units make every effort to plant as much as possible of their allocation of seedlings which may have been ordered several years in advance. This may leave little or no funding for less expensive methods of regeneration such as seeding which may be an equally appropriate method of regeneration in many circumstances.

Thus, while seeding was as high as 45 percent of total artificial regeneration in one unit, two other units did not use seeding at all. On average, seeding comprised approximately 20 percent of regeneration treatments.

Recommendation

The Ministry should ensure that individual sites are regenerated with the most appropriate species using the most cost-effective method of regeneration.

Ministry response

The Ministry agrees with this recommendation. This is the objective of the Ministry and industry field foresters. Site preparation and tree

planting does provide the most assurance that a specific site will regenerate to the desired species in the shortest period of time.

We agree that the existing arrangement with industry has favoured site preparation and planting since the total cost has been borne by the Ministry.

There have been times, also, when funding has been previously invested into tree production and foresters have been requested to utilize the trees that have been grown based on earlier forecasts of need.

Our current negotiations with industry, the establishment of trust funds and/or special purpose accounts, and the requirement to regenerate all areas harvested will encourage the use of the most cost-effective method of regeneration.

Silvicultural work standards and assessments

FMA's

It is the position of the Ministry's foresters that FMAs are responsible for setting work standards and ensuring that third-party contractors comply with them. Although Ministry staff sometimes do attend in the field while the work is undertaken, they generally provide only informal comments and feedback to the FMA companies.

We were advised by Ministry staff that while a more formal "audit" of both the quality and quantity of silvicultural work was performed in the past, this has been discontinued for the following reasons:

- staff constraints;
- not too many problems were found in the past, giving the audit process questionable value; and
- FMA companies check the work of their sub-contractors.

Instead of monitoring in detail the progress of the work as it occurs, Ministry staff advised us that they now rely on the fifth year stocking and "Free

to Grow" assessments required under the FMAs to determine the quality and ultimate success of artificial regeneration. We note that where such regeneration is unsuccessful, FMA companies are obliged to re-treat the area at their own expense.

Ministry staff could not identify areas where that had occurred. In our opinion, waiting five or more years before making any assessment of the quality of regeneration efforts may be too long. Also, as noted later in our report, Free to Grow assessments are not being done on all regenerated areas.

CMUs

For CMUs, detailed work expectations and standards are defined and communicated to the contractors through tender and contract documents and the Ministry's *Guide for Contract Tree Planting*.

We noted that in three of the four CMUs we reviewed, the Ministry assessed the quality and quantity of tree planting. When contractors failed to perform up to standards, adjustments were made in the amounts paid. However, we also found that other work such as site preparation or tending was often not formally evaluated or not evaluated at all.

Recommendation

The Ministry should establish the work standards and assessment procedures necessary to better meet its responsibility for effective regeneration of forests.

Ministry response

The Ministry agrees with this recommendation. As part of the proposed *Crown Forest Sustainability Act*, the Ministry has begun the development of procedure manuals. One of these manuals will outline silviculture standards and assessment procedures.

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Survival assessments

The survival of trees is based on the ratio of living trees to the total number of trees planted. Conducting survival assessments on CMUs has been a normal Ministry practice. The purpose of these assessments is, in part, to provide survival results for tree planting. The Ministry's 1993-94 Work Program Planning Guideline confirmed a commitment to complete survival assessments.

For three of the four CMUs we reviewed, Ministry staff have completed survival assessments on most sites. In the fourth, no assessments have been done since 1991 while previously, they were done only sporadically. On most sites, survival rates ranged from 68 to 96 percent.

In contrast, survival assessments have generally not been completed on FMA lands. For three of the four FMAs we reviewed, only one survival assessment had been completed, while no assessments had been completed in the fourth.

In addition to assessing seedling survival, survival assessments also assess the degree of competing vegetation and, if necessary, make recommendations for tending treatments. However, to the extent assessments have not been undertaken, the need for tending treatments is not known. Since the Ministry pays FMA companies for each tree planted and bears the cost of the seedlings provided, these assessments need to be done on a systematic basis.

Recommendation

The Ministry should establish a survival assessment policy for all plantings.

Ministry response

The Ministry accepts the fact that there were differences in the way assessments were undertaken on Crown units and FMAs. Industry has not found it cost effective to undertake a formal second-year assessment.

The Ministry will establish a survival assessment policy for all plantings on Crown Land. The new policy will enable us to have enough information to ensure that we do not lose any silvicultural investments already made into the site.

Free to grow assessments

A Free to Grow assessment is the ultimate indication that a particular area has been successfully regenerated.

Regenerated areas are declared Free to Grow when the new trees meet minimum height, stocking and growth rate standards, and are essentially free from competing vegetation. Only new stands that are declared Free to Grow are included in the Forest Resource Inventory and are considered in the Annual Allowable Cut calculations.

FMAs state that it is the company's responsibility to submit requests for Free to Grow assessments to the Ministry, which in turn must undertake the assessment, maintain records and submit stand descriptions to the Forest Resource Inventory.

Where minimum stocking is not in accordance with the ground rules and the original regeneration treatment was paid for by the Ministry, the company is required to re-treat the site at its own expense.

For CMUs, the TMP requires that Free to Grow assessments be undertaken four to ten years after regeneration treatments depending on the species and renewal treatment used.

In order for the fifth-year stocking and Free to Grow assessment process to effectively monitor the success of artificial regeneration, the Ministry would need a system which identifies sites for assessment when they are due.

However, in the absence of such a system for both FMAs and CMUs, and in view of the fact that only areas submitted by the companies are assessed in FMAs, there is no assurance that artificially regenerated areas receive Free to Grow assessments

when they are due.

In fact, we found that many of the Free to Grow assessments were done on areas left for natural regeneration many years ago, not more currently regenerated areas. We also found that, in four of the areas reviewed, Free to Grow assessments have only been undertaken in the last several years.

Without stocking or Free to Grow assessments the Ministry would not be able to identify which areas should be re-treated by the companies and whether sustainability is being achieved. The Ministry would also not be able to determine whether it is fulfilling its objective of sustaining the forest by generally replacing harvested trees with the same species.

On some FMA lands the area declared as Free to Grow is only a small fraction of what was harvested. For example, for two FMAs the area of the desired species which was declared Free-to-Grow was less than 20 percent of what was harvested.

Recommendation

The Ministry should:

- develop a monitoring system that will identify all areas due for a fifth-year stocking or Free to Grow assessment;
- ensure that all stocking and Free to Grow assessments are performed within the time frames specified in the FMAs and ground rules.

Ministry response

The Ministry recognizes deficiencies in the existing fifth year stocking and Free to Grow assessment procedures. As part of the development of the proposed *Crown Forest Sustainability Act* the Ministry is in the process of reviewing its existing assessment methods.

Procedures, timing and standards will be part of the Silviculture Operations manual being developed as part of the proposed *Crown Forest Sustainability Act*. ♦

Forest renewal strategy in BC

Roger Stanyer, CEO, Forest Renewal BC

Note: Edited version of a presentation to the 14th Annual WSCA Conference & AGM, Thursday, February 2, 1995.

Forest Renewal BC flows out of an exercise called the Forest Sector Strategy, an advisory committee to government that has been in existence since early 1993. The advisory committee was made up of people representing various interests in the forest industry: environmentalists, natives, large and small companies, interior companies, value-added companies, independent loggers, labour, universities, and communities.

They were all represented on the Forest Sector Strategy Committee to discuss the industrial strategy for the forests of British Columbia. Forest Renewal BC is one piece of that larger strategy.

We have not been re-investing the kind of money back into the forest land-base that many people believe are necessary, if we are going to:

- maximise the commercial forest benefits and enhance the value of timber;
- avoid degradation of environmental values;
- increase value-added;
- retrain our labour force; and
- ensure stability of the communities.

Industry understood that there was going to be an increase in stumpage and said they would prefer it be done through legislation. That way, future governments wanting to tinker with the system would have to do it in the Legislature – under full scrutiny of the opposition. Although there is government representation on our Board, the majority are industry stakeholders who participate in the process.

The government also promised an independent Board. Industry perceived this to be a sincere effort by government to address many of their

concerns about the process, and to provide some surety for the future of forest renewal funding.

The funding for Forest Renewal BC (FRBC) is a complicated formula that represents a doubling of average stumpage across the province, based on a lumber price of about \$350US

per thousand. It is a sliding scale, and if the price gets down to about \$275 per thousand, then no revenues flow to the FRBC.

In other words, the stumpage increase would be wiped out by a price downturn, to try and keep the industry competitive over the economy's peaks and valleys.

One of the things that foresters have said to us over and over again, is that forestry expenditures cannot be subject to annual budgets. Maximizing forest growth requires planning to make those expenditures over the entire cycle, which means insulating funding in some way. FRBC is working on a methodology to do that.

FRBC is planning for a rainy day fund, to ensure that when the business cycle goes down, FRBC will be able to continue spending throughout the growth cycle of the forest. Obviously, the size of the rainy day fund that we put aside is a primary concern.

Our projected revenues are \$400 million a year. Currently there is a lack of human resource talent across the province to spend that much money. We do not have enough foresters, geotechs, or planners. As things sit now, the rainy day fund

could amount to a billion dollars in just two or three years.

A major concern is that a billion dollars will look pretty attractive to governments wanting to balance budgets. If we don't generate enough support across the province for FRBC, then this fund may simply be

captured. In spite of promises, the bottom line is that government can take the money out of the fund. The Board of FRBC is working on

ways of dealing with this concern.

We've started planning how we will spend our budget once we're fully

...maximizing forest growth requires planning to make those expenditures over the entire cycle...

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revved up to \$400 million a year. We expect to spend about \$200 million a year on the ground, or about 50% of our funding. The next largest portion of expenditures is 20% of the fund (possibly \$80 million) on the workforce issues: retraining workers, better education for working on the land, better education facilities, employment adjustment, and new kinds of employment.

The next budget allocation is about 15% to environmental spending. The largest programs at this time are the watershed restoration projects

managed by the Ministries of Environment and Forests: putting old logging roads to bed, enhancing water quality and fish habitat. Environmental expenditures also include issues around inventory of other kinds of things that represent what we consider to be our forest environment.

The last two major portions of the expenditures at about 7.5% each (or \$30 million dollars), are communities and value-added.

Initial discussions about value-added addressed the possibility of direct financing for value-added operations. However, investing in particular plans, means either subsidizing them against competition that is already in the business, or subsidizing them in access to suppliers through bidding processes.

This raises issues of countervailing duties and competition, both in the marketplace, and on the raw materials side. People that are already in the value-added industry are cautioning us a great deal about assisting others to get into the market.

The Board has said that, for the time being, we will only fund big picture things in value-added, such as assisting the industry in the marketplace, or assisting linkages between value-added producers and primary producers. One of the projects we are currently working on is an electronic bulletin board for value-added. People with wood for sale will be able to advertise on the

bulletin board and those looking for wood supply will be able to directly access a range of primary producers.

The issue of supporting communities is even fuzzier, in

that we are to assist communities with diversification *within* the forest economy. When people bring plans to us to put in a bottled water plant, or a rubber remanufacturing plant, or a whole bunch of things, we have to say that is not possible. You must talk to us about assistance to maintain the forest industry in your town and see where we go from there. There are also a variety of issues around creating community natural resource boards.

Over the next short period of time, we will be developing our 1995-96 business plan. We are starting to work with the Ministry of Forests about how to deliver programs. We have hired a contractor to examine what kind of a delivery system we need for FRBC over the longer term.

This year we will be relying extensively on the Ministry of Forests to assist us in these areas. But the long-term goal of FRBC is to attain a situation whereby many of the plans are being formulated through the stakeholders of the industry, through some licensees or communities,

associations and others.

The FRBC ensures that there is financing to get the work done, and ensures that we can do it in a way that is incremental. The silviculture industry is concerned that FRBC not be an opportunity for either industry or government to off-load their responsibilities for basic silviculture. We agree with that one hundred percent, and we must try and find ways to ensure that this does not happen.

This does not mean that only things related to basic silviculture can be funded by FRBC, an example is the NSR backlog in some parts of the province. If we were to rely simply on the Ministry and their budgets to look after all of these things, it would be a long time before that non-commercial brush is converted into stand.

Whether proposing silviculture investment, or investment in the community, the first thing we look at from a FRBC perspective is whose responsibility is it. If it is nobody's responsibility, then we will take it into consideration. If it already is somebody else's responsibility, that is a basic budget stop.

I would like to make a few comments on workforce issues. One of the things that the Forest Sector Strategy Committee recognized early on was that there is a great deal of adjustment to come into the industry as annual allowable annual cuts trend downward, and as technology develops – both of which displaces workers. If we're serious about community stability, then we have to be serious about the people that are currently working in the forest industry.

This is a sensitive area for silviculture contractors who move across the province from job to job and want to get their fair share of that work. In my view, even as we try to retool the existing workforce, there will also be a

*...you must talk to us
about assistance to
maintain the forest
industry in your town
and see where we go
from there...*

great deal of opportunity for contractors, as most of FRBC work will be done through the contracting community.

I see a tremendous expansion in the contracting community because we are going to be spending a lot more money in areas that traditionally haven't had sustainable funding.

We will be making an effort to keep forest industry people who are losing their jobs employed through FRBC process. But there are a lot of places in BC, such as the Interior, where licensees by and large do not have their own crews. They will rely on people that have serviced them in the past – the silviculture contractors. FRBC is not going to stand in the way of that happening, although we are encouraging companies to look after their workforce.

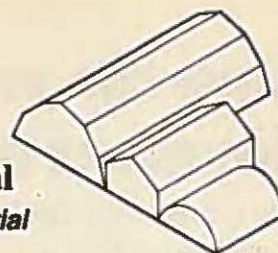
For example, we are working with a large licensee in the Interior, who has a mill in a fairly rural setting, and they're going to knock a shift off the mill because they don't have the wood available. Some workers want to take a retirement option, but other people, who are relatively young, don't want to leave their community. A lot of them are natives and that is where they live.

The company is saying they want to do things differently this time. Instead of laying off the twenty junior people on the seniority list, they want to make long-term employment available in the timberlands through FRBC.

People who want to make a lifestyle change will be trained to do incremental work. However, they won't stop at basic training. They hope to upgrade the training levels and to engender interest in areas such as inventory, cruising, stand management, management strategies, and so forth. ♦

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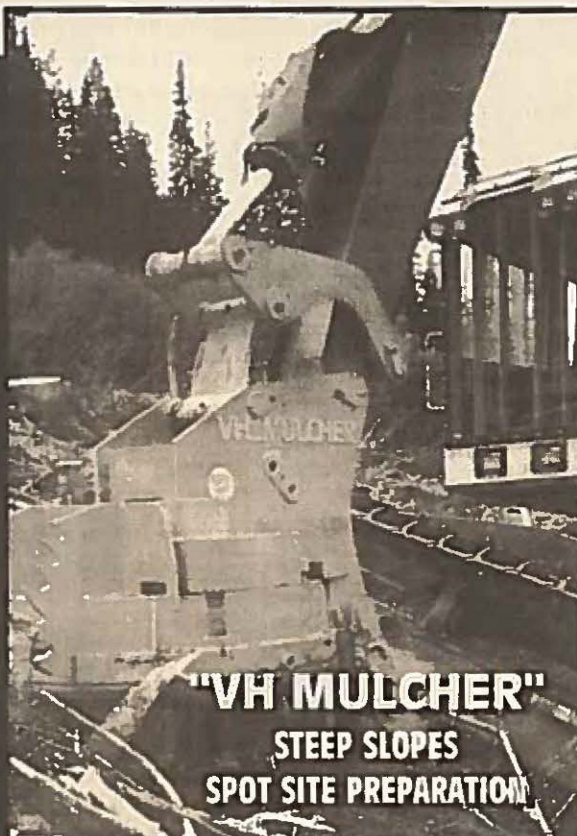


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Blowing the whistle: employment and professional issues

J. Geoffrey Howard of Connell Lightbody, Vancouver, BC

Note: This article was originally published in the BC Registered Professional Foresters' Forum. It is reprinted with the permission of the author.

With recent changes to forestry management standards and heightened scrutiny of forestry practices, professional foresters will occasionally confront situations where the forestry practices of their employer violate forestry regulations. They must be aware, not only of their professional obligations to protect the public interest in our forests, but, also the potential consequences to their livelihood if they decide to "blow the whistle" on violations. Professional foresters working as consultants also face the same issues.

The Association of BC Professional Foresters (ABCPF) Code of Ethics contains several specific provisions which must be followed in cases where an employer or client company is apparently breaching forestry management rules. Rule 2(b) explicitly requires professional foresters to uphold professional principles above the demands of employment or consulting relationships.

In other words, company orders are no defence for a failure to fulfil professional duties such as the promotion of truthful and accurate statements on forestry matters. Rule

2(c) requires a member who believes an employer's practice is "detrimental to good stewardship of forest land" to firstly attempt to obtain a solution from the employer if practical and ultimately to report the practice to the ABCPF Council.

While this obligation is broad enough to cover forestry practices which are damaging to the forest without being illegal, it would clearly apply to breach of forestry management regulations or license terms. Foresters can be disciplined by Council for failure to follow these rules.

From an employment perspective, an employer would not be entitled to fire or discipline a forester who

...an employer would not be entitled to fire or discipline a forester who reported a detrimental forestry practice to Council in good faith...

reported a detrimental forestry practice to Council in good faith since this is legally required. However, in some cases, a forester may believe it is necessary to report the

employer's practice to the Ministry of Forests or the Ministry of Fisheries and Oceans in order to protect the environment. Can the forester be fired for taking such a step?

The vast majority of foresters are considered professional or management staff and so have no job security of the kind enjoyed by

unionized employees. The law generally allows the employer to terminate at any time on notice. Only where the employer can prove just "cause" is the employer permitted to "fire" the employee without any notice or severance. The legal issue is whether "whistle-blowing" can be just cause for dismissal.

As a general proposition, the law requires employees to obey the instructions of management and refrain from complaining about employer actions to third parties such as government. In fact, it is surprising how Victorian attitudes requiring a "servant" to obey the "master's" instructions still pervade the law in this area. It is not enough that an employee honestly believe that an employer is not conducting its business in a proper, ethical or environmentally sensitive manner.

The courts have consistently ruled that the employer is entitled to determine how its business is run. Employees, even senior managers and professionals, are insubordinate if they refuse to follow instructions or appeal to outsiders. In some cases, even an environmentally detrimental forestry decision which is reportable to Council may have to be carried out by the forester.

However, judges also recognize that reporting employer misdeeds may be excusable in some circumstances. One reasonable excuse would be where the employer's actions are illegal. Before blowing the whistle, an employee should be sure there has been a violation. The incident

should be provable and the legal standard breached should be a clear and objectively measurable one.

Absent an emergency, the employee should first try to have the employer address the problem. Appealing to the media may not be seen as an appropriate response, since it will generally lead to public embarrassment for the employer. Reporting an incident to government authorities is more discrete and can be justified as upholding the law.

Generally speaking, foresters working as consultants enjoy even less security in their work. A client company can terminate arbitrarily the consulting assignment without notice or compensation, unless the consulting contract provides for a minimum duration of the assignment or requires notice to be given. Absent such protections, the whistle-blowing consultant forester can be terminated as a reprisal.

However, if the company is violating the new *BC Forestry Practices Code*, it is not permitted to penalize a forester, whether acting as an employee or a consultant, who complains of violation of the *Code*, gives evidence or otherwise assists in enforcement action.

Unlike some whistle-blowing legislation, the *Code* does not provide employees or consultants with an explicit right to reinstatement through an administrative process. It is possible that a court would nonetheless rule that dismissal for whistle-blowing under the *Code* is illegal and order reinstatement or compensation.

Foresters should still remember that forest company breaches of other legislation are not covered by similar whistle-blower protection. Moreover, the decision to be a whistle-blower will still be a difficult one regardless of the

formal legal protections. In many cases, whistle-blowers find that their careers and working

environment are negatively affected by their decision to report a violation. ♦

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CANADIAN SILVICULTURE MAGAZINE

ADVERTISING DATES

Summer 1995

Booking Deadline: June 9
 Published: June 30

Fall 1995

Booking Deadline: September 8
 Published: September 29

To book your advertising in the Canadian Silviculture Magazine please contact Neil Monckton at (604) 669-3975.

SILVIDATES

Sustainable Forests Conference I

This international conference will provide exchange of knowledge on sustainability aspects of the world's remaining natural forests (boreal, temperate, tropical lowlands and uplands). Each aspect will be discussed in light of demographic changes and the world's growing demands for forest resources.

Theme: Global Challenges and Local Solutions

Location: Saskatoon, SK

Date: May 29 - June 1, 1995

Contact: (306) 922-1944

Sustainable Forests Conference II

Though unrelated to *Sustainable Forests Conference I*, this symposium will also be looking at similar issues regarding sustainable forest practises, with particular emphasis on implementing ecosystem management.

Theme: Implementing Ecosystem Management

Location: Sault Ste Marie, ON

Date: June 5-9, 1995

Contact: (705) 759-2554

Montane Alternate Silviculture Systems (MASS)

The MASS project is examining alternatives to clearcutting for high elevation costal old growth forests. Topics include: harvesting economics, windthrow, stand dynamics, regeneration, soil impacts, microclimate and forest health.

Theme: MASS Project's Initial Findings

Location: Courtenay, BC

Date: June 7-8, 1995

Contact: (604) 755-3500

Coastal Silviculture Committee

The agenda for the workshop has not been finalized but it will include several field trips in the Whistler area focusing on silviculture practices.

Theme: Summer Workshop

Location: Whistler, BC

Date: June 21-22, 1995

Contact: (604) 387-8940

**Planted Forests:
 Implications for a Sustainable World**

This symposium will emphasize planted forest systems in appropriate context with other managed forests and native forest ecosystems. Speakers will discuss opportunities and challenges associated with managing planted forests as diverse as the cultures in which they occur.

Theme: Planted forests and the role they play in sustainable societies.

Location: Corvallis, Oregon, USA

Date: June 28-30, 1995

Contact: (503) 737-2329

Second Canadian Urban Forests Conference

This conference is sponsored by the National Community Tree Foundation, the Canadian Forestry Association and the Windsor Parks and Recreation.

Theme: TBA

Location: Windsor, ON

Date: July 16-20, 1995

Contact: (519) 255-6270

1995 CIF/IFC Annual Meeting

Over 300 people involved in the forest industry, fisheries, wildlife, environment, government, research, engineering and other related fields will meet to discuss integrated resource management in a time of unprecedented change in forestry.

Theme: Integrated Resource Management: Results in Action

Location: Halifax, NS

Date: August 20-24, 1995

Contact: (613) 234-2242

Ontario Boreal Forest Management

In the context of today's realities and challenges, such as the new Crown Forest Sustainability Act, this workshop will provide increased knowledge of ecosystem structure, composition and function — as well as insights into necessary tools and practices.

Theme: Advancing Boreal Mixed Wood Management

Location: Sault Ste Marie, ON

Date: October 17-19, 1995

Contact: (705) 949-9461

Advanced Forest Herbicides Course

Current techniques and principles of Integrated Forest Vegetation Management will be examined in reference to the broader scope of Integrated Resource Management. Topics include: environmental impact evaluation methods, human health concerns, evaluation management options, program management and conflict resolution.

Theme: Planning, Implementing and Evaluating Integrated Forest Vegetation Management

Location: Thunder Bay, ON

Date: September 23 - October 1, 1995

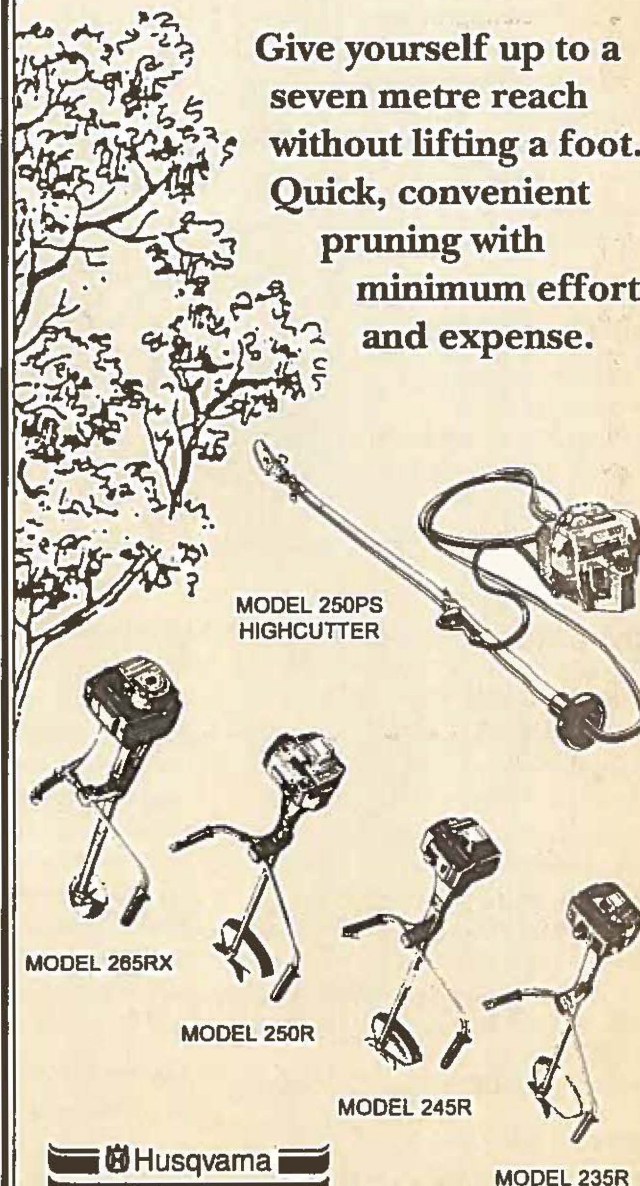
Contact: (705) 949-9461

To list your event, please send your correspondence to:
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...continued from page 8

orchards with the balance coming from natural stands. It estimates that by the year 2000, 50 percent of seedlings will come from the province's 15 seed orchard complexes. Most of that gain will be in the interior of the province as the coast has already reached approximately 50 percent.

— Logging & Sawmilling Journal

BC's botanical wealth detailed

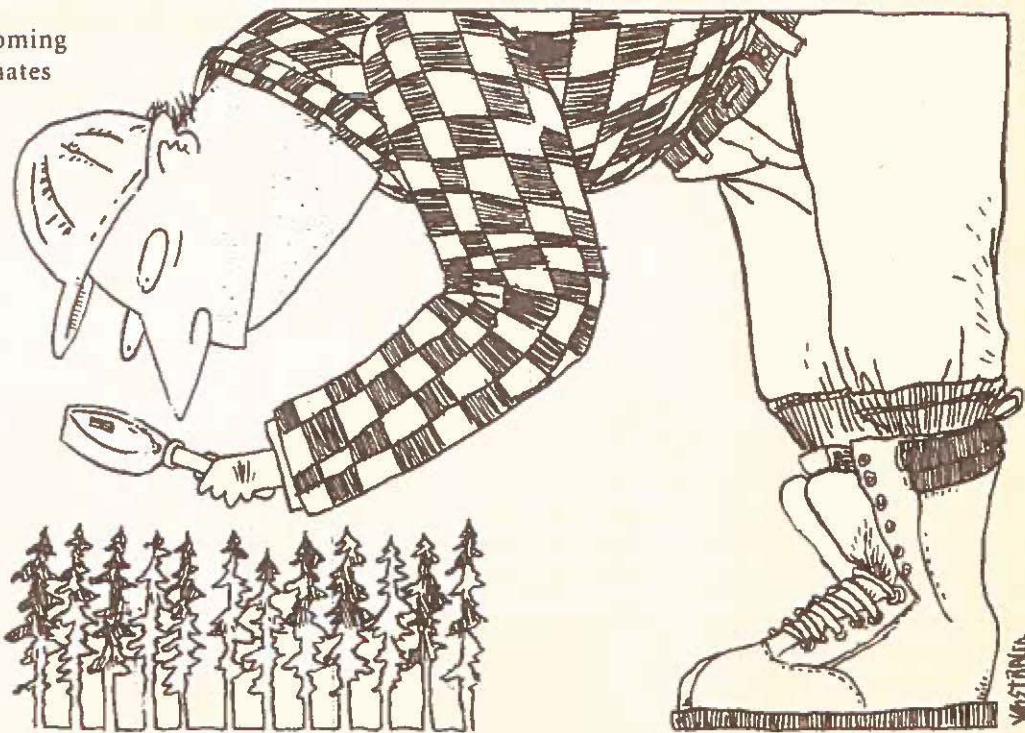
BC's MNR has released a new report entitled *Botanical Forest Products in BC* which describes BC as a "treasure chest" of botanical forest products. It identifies more than 200 species of local plants used for their fruit, vegetable, flower and medicinal properties. Botanical resources are also big money makers for BC.

The report cites the pharmaceutical potential of the province's plants such as western yew — whose bark contains taxol, a drug used in anti-cancer treatment. Coincidentally, a University of Illinois cancer researcher recently announced that betulonic acid, which is found in birch bark, has shown "amazing" results in treating human melanomas in lab mice.

— BC MOF and The Vancouver Sun

French floods called unnatural

The worst floods in history hit France this January, killing 15 people, washing out 40,000 homes and ironically leaving 230,000 people without water. But some ecologists are blaming mankind, not nature, for much of the destruction. A major contribution to the flooding has been the nation-wide



DIRK VAN STRALEN ILLUSTRATION

reshaping of agricultural land over the last 30 years.

The scheme replaced small fields in different stages of cultivation and sowed in diverse crops with vast expanses of land from which rainwater drains more rapidly. The situation has been made worse by the use of modern pesticides that reduce populations of moles and earthworms which keep soil porous and better able to absorb rain.

— The Vancouver Sun

Greenhouse gases or clear-cut effect?

BC Environment Minister Moe Sihota has called on Canada to initiate "tough action to reduce the greenhouse gases which affect climate change." Sihota says BC has already experienced the impacts of climate change, referring to the nearly half a million Pacific salmon that died last year in the Fraser River due to the highest water temperature in half a century.

"Major climate change could seriously disrupt not only fisheries, but other eco-systems including wildlife and forestry," said Sihota.

— BC MOE

Big bad icebergs

For the first time in recorded history, it is possible to circumnavigate James Ross near the Antarctic peninsula. The Larsen ice shelf which normally forms an icebridge between the island and the mainland is crumbling due to water temperatures that have risen 2.5°C in the last 50 years.

One result of the ice shelves turning to slush is massive icebergs (recently sightings include one the size of Luxembourg). As long ago as 1978 a paper in the journal *Nature* urged scientists to look to Antarctica for early indications of the greenhouse effect — among them the breakup of ice shelves off the Antarctic peninsula.

— Time Magazine

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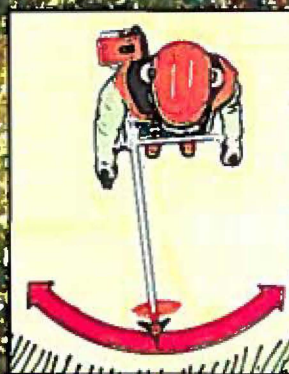
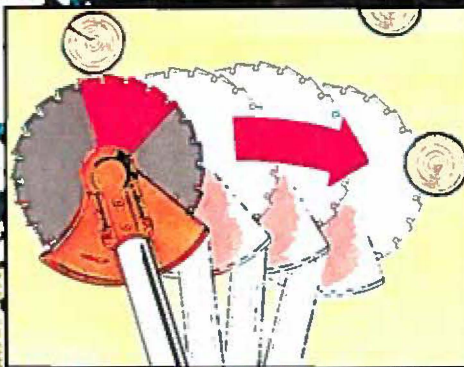
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