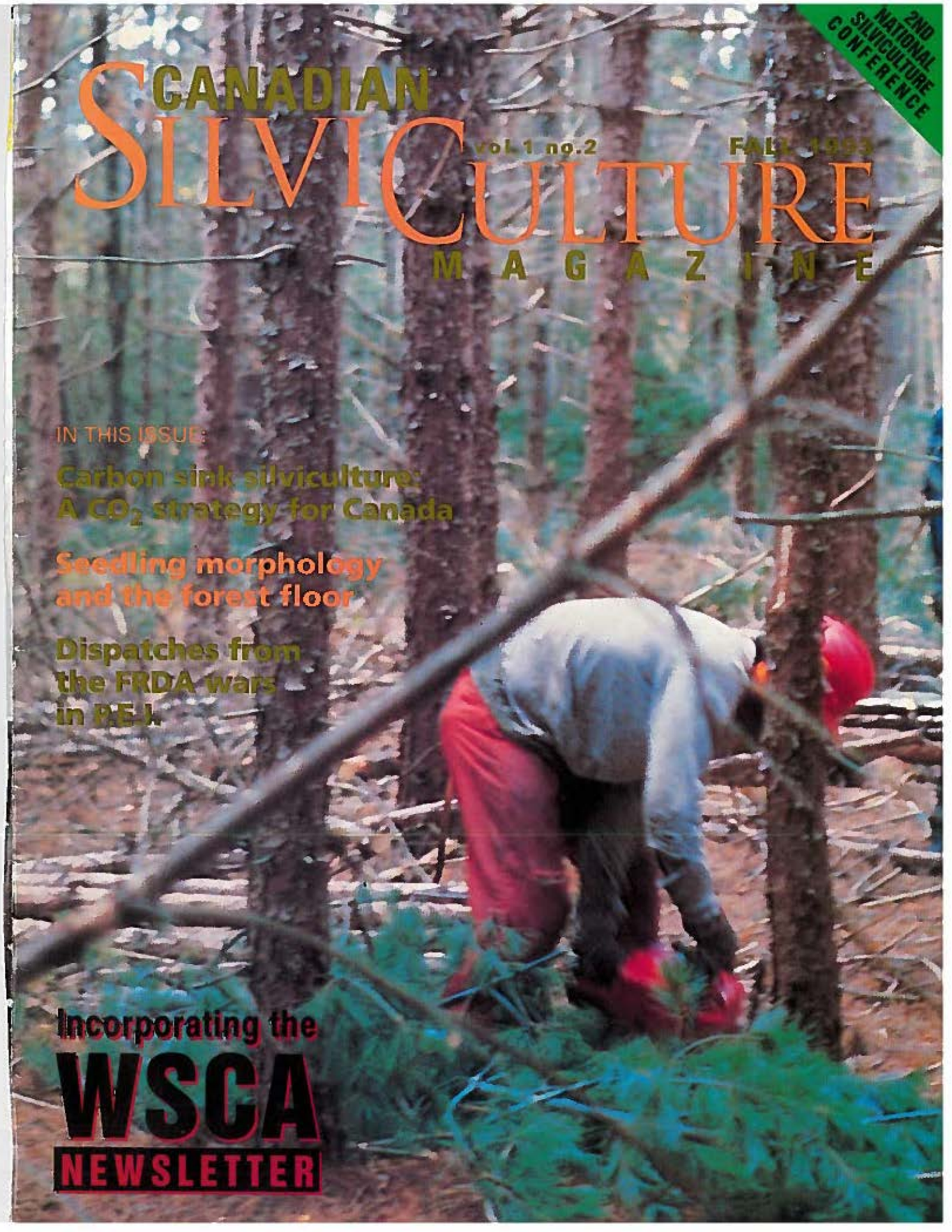
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WSCA
NEWSLETTER

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FALL 1993

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SILVICALENDAR

Second National Silviculture Conference
The conference brings together woodlot and land owners, contractors, foresters, researchers, and policy planners to discuss the rapid changes taking place in silviculture across Canada and abroad.
Theme: Changes at the Stand Level
Location: Toronto, Ontario
Date: September 12-15, 1993
Contact: (604) 683-8254

BC Nursery Association AGM
The Forest Nursery Association of BC AGM will focus on changes the industry has to plan for during this decade to maintain salable products given anticipated changes in forest practices.
Theme: Changing Forestry Practices, Nurseries Meet the Challenge
Location: Courtney, B.C.
Date: September 13-15, 1993
Contact: (604) 387-8936

Silvilog '93
Recognizing the full range of forest values, Silvilog '93 will demonstrate the newest equipment and techniques for woodland management.
Theme: Caring for our Woodlands
Location: Barrie, Ontario
Date: September 15-18, 1993

3rd Inter-American Indigenous Congress
The Inter-Tribal Forestry Association of BC and the National Aboriginal Forestry Association host this follow-up to the 1991 Earth Summit in Rio de Janeiro. Aboriginal representatives from North, Central and South America will analyze the indigenous situation in relation to the management of natural resources and environmental issues.
Theme: Environment and Development
Location: Vancouver, BC
Date: September 15-19, 1993
Contact: (604) 769-4433

Forestry & Rural Development Symposium
The IUFRO is sponsoring a symposium focusing on forestry and rural development in industrialized countries.
Theme: Forestry Symposium
Location: Fredericton, NB
Date: September 19-24, 1993
Contact: (819) 997-1107

Pacific Logging Congress Show
Theme: "In The Woods" Equipment Show
Location: near Seattle, WA, USA
Date: September 23-26, 1993
Contact: (503) 224-8406

Canada-Alberta Partnership in Forestry
The symposium will be of interest to individuals involved with reforestation programs throughout the Northwest.
Theme: Planting Stock Performance
Location: Athabasca, AB
Date: September 21-23, 1993
Contact (403) 435-7210

CIF/IFC & OIFQ Joint Meeting
The Canadian Institute of Forestry (CIF/IFC) and the Quebec Order of Forest Engineers (OIFQ) will jointly hold their annual meetings. An exceptional opportunity to exchange ideas with forestry professionals and create a network of contacts.
Theme: Annual Meeting
Location: Montreal, PQ
Date: September 26-30, 1993
Contact: (613) 234-2242

Canadian Assoc. of Forest Economists
This three day conference will examine such topics as: resource allocation, planning models. Multi-resource and multi-disciplinary approaches will be emphasized.
Theme: Annual Meeting
Location: Parksville, BC
Date: September 27-30, 1993
Contact: (604) 363-0712

Sustainable Development Seminar
Theme: Boreal and Temperate Forests
Location: Montreal, PQ
Date: September 27-October 2, 1993
Contact: (819) 997-1107

Alberta Forestry Show
Theme: Annual Meeting
Location: Edmonton, AB
Date: October 21-23, 1993
Contact: (403) 436-8000

First Nations Forestry Seminar
Third in a series sponsored by the BC Forest Service, Ministry of Aboriginal Affairs and BC Forestry Continuing Studies Network. An opportunity for foresters, managers and First Nations peoples to exchange information on forest resource management.
Theme: Building Bridges
Location: Prince George, BC
Date: October 27, 1993
Contact: (604) 565-5980

Western Forestry Conference
Theme: Annual Meeting
Location: Seattle, WA, USA
Date: December 5-7, 1993
Contact: (503) 226-4562

SILV

Payback Time?
The nation that is the greatest source of global warming gases suffered the three most damaging climatic disasters in it's history in the past twelve months. Hurricane Andrew devastated Florida in Sept. '92. In March '93, the "biggest single storm of the century" (US National Weather Service) dumped more snow, hail, rain and sleet from Florida to Maine than any other storm since 1888. Now the relentless rains flooding the US Mid-West appear to be setting a new record for damage.

Hot Summer in the BC Rainforest
The Harcourt government is under attack from left, right and centre for its Clayoquot Sound Land Use Decision. More than five hundred people have been arrested at the logging road blockade, making it the largest single civil disobedience campaign in Canadian history. Both the federal and provincial Liberal parties have stated they would preserve the entire Sound. Meanwhile, *The Globe & Mail, Victoria Times-Colonist,* and *The Province* have all run editorials criticizing the government for allowing too much of Clayoquot Sound to be logged. *(CSM will be reporting more on Clayoquot Sound next issue.)*

PEI FRDA Extended
After an intensive grass roots lobbying effort, the federal government has relented and provided $1.5 million of one year "phase out" funding for the PEI FRDA agreement. When last April's budget announced that no FRDAs would be renewed, PEI was hardest hit because their agreement had expired and was cancelled immediately. All other provinces had at least two years to run on their current agreements *(See page 26 for more details.)*

Revenue Canada dines on Silviculture Camp Services
WSCA members have reported that Revenue Canada GST audits are requiring silviculture contractors to ante up GST back to January 1991 on fees paid by planters for camp services.

I N E W S

US Signs Climate Change Convention

This spring Clinton signed onto the International Climate Change Convention which Mulroney was first to sign and Bush refused to sign at Rio in 1992. The Rio convention promises to stabilize the concentrations of greenhouse gases in the atmosphere at a level that would prevent dangerous interference with the earth's climate system. One of the main predictions of global warming are an increase in the frequency of climatic anomalies and extremes.

Changes in Ontario Forest Management Policy

Ontario has appointed a provincial forest facilitator to negotiate a new business relationship between the forest industry and the province. Ontario will follow BC, Alberta, and Quebec's lead in requiring industry to pay for forest renewal as the first cost of harvest. Ontario has also released a new forest policy framework which includes the principle that "forest ecosystem types that cannot be returned to similar and healthy forests will not be harvested." *(See page 32 for more details.)*

Hazardous Instability in Global Climate

Two papers in the journal Nature reporting on an analysis of ice cores from Greenland reveals frequent and 'sudden' temperature fluctuations (e.g. 10° C in 70 years in one case) over the past 250,000 years. The temperature stability of the last 8-10,000 year post glaciation period is in fact quite unusual. The feedback mechanisms in the interglacial global climate systems are more potent than suspected.

The hazards of agricultural and forest ecosystem adaptation to abrupt temperature changes were already formidable when this meant a few degrees in a century, now that it could be several degrees per decade the catastrophic risks of global warming have increased exponentially. This not only makes the emergence of civilization an unusual phenomenon it puts a different light on 'old growth forests'.

FRDA as an Election Issue

The Federal government which has made many commitments to sustainable development both nationally and internationally, also declared they are ending their financial contributions to meeting these commitments— namely the FRDA's. Peter Deroche, President of the National Woodlot association, described the new Natural Resources Minister Barbara Sparrow as "tough and charming, but with the simple devotion to the deficit reduction grail that characterizes the government today."

In her Calgary riding, Sparrow faces Preston Manning, leader of the Reform Party, Canada's insipid Ross Perrot of deficit reduction. Joining a crusade to finance net gain forest management may be politically difficult— however, with forest products as Canada's largest export product and wilderness tourism as our fastest growing industry— the economic returns should be self evident.

E D I T O R I A L

Beyond Sustainable Development

Dirk Brinkman

The challenge

Over half the worlds forest cover has been lost in the past one hundred years, reducing six billion hectares to approximately three billion hectares— and the world wide rate of forest loss is still accelerating. Within five years Canada will have to demonstrate that it is practicing sustainable forest management to an international coalition of environmental organizations that will have the capacity to mobilize world wide consumer boycotts.

Development = net loss of forest cover

Historically development in Canada's accessible forests resulted in the conversion of millions of hectares of forestland to farmland, family homes, freeways, power corridors and municipalities. In the remaining forest, increasing losses to wildfires, harvesting without regeneration, pest damage and acid rain contribute to net losses of forestland, forest ecosystem appropriate stocking, forest health and forest values throughout Canada.

No net loss forestry

The CSA and WSCA have always promoted positions of No Net Loss Forest Management where the 'consumer pays'.

Lobbies within this context have included:

1986-7 (WSCA): all Crown lands harvested reforested as a first cost of the harvest. (Adopted by BC in 1987, Alberta in 1991).

1987-8 (WSCA): eliminate BC's provincial NSR Backlog by the year 2000 (adopted by BC in 1988).

1989-90 (WSCA/OSCA): afforest an area equal to any permanent forest land depletion as a cost of all development— e.g.. highway or Hydro line. (Adopted by Ontario Hydro but unfortunately turned into a double accounted program by the fiscally bankrupt Ontario Ministry of Natural Resources. Hydro is now reforesting logged areas that should have been reforested by the harvester or OMNR.)

1990-1 (WSCA/CSA): implement an intensive silviculture strategy to enhance the volume and value in critical age classes to offset the falldown effect of the shrinking commercial forest land base. (The headlines of 100,000 jobs at stake helped commit the BC government to a $1.4 billion dollar program and increased intensive funding at the WSCA 1991 AGM— but this was diverted to job creation in 1993 under BC21. The First Canadian Silviculture Conference also reflected the intensive silviculture theme.)

1992 (CSA/Joyce Murray): initiate a national Carbon Sink Silviculture program of 15 billion trees over twelve years to absorb 50% of Canada's CO^2 emissions.

1993 (WSCA): all private lands harvested reforested to Crown land standards as a first cost of the harvest.

1993 (CSA): all harvested Crown land in Ontario to be reforested as a first cost of the harvest. (Adopted by Ontario March 1993 now being negotiated. The key issue today: Stocking Standards that allow Ontario to do nothing.)

These and many other practical 'No Net Loss' initiatives were presented in the context of sustainable development.

Federal commitments

The Federal government has, committed the country internally and externally, in the context, to:

- reduce our CO_2 emissions by the year 2000 to 1990 levels
- preserve biodiversity
- sustainable forest management.

Through a number of national initiatives including:

- the National Forest Strategy,
- the Canadian Forest Accord,
- the Principles of the National Round Table on the Environment and the Economy in the Forest Sector

And the international agreements which followed the 1992 United Nations Conference on Environment and Development in Rio:

- Convention on Climate Change
- Convention on Biodiversity
- Principles for the Conservation and Sustainable Development of All Types of Forests

But the FRDA funding that would enable us to meet these agreements will not be renewed.

Provincial & industry commitments

Provincial roundtables, Codes of practices and forest industry Codes of Practices and certification commitments (Eg. Alberta's 'Forestcare' products.) have also been made within the same context of sustainable development.

Measuring sustainable development

Criteria that could withstand an environmental consumer audit of the sustainability of the nations' forests have yet to be established. In Sept. '93, there is a Canadian seminar to establish "Criteria for the Sustainable Development of Canadian Forests" in preparation for Canadian participation in the Conference on Security and Cooperation in Europe.

National inventories are compiled each year from individual provincial inventories. The base data in *Compendium of Canadian Forestry Statistics*, (CCFS) published by Forestry Canada in 1992, has changed little from *Canadian Woods*, published by the Federal Forestry Branch in 1951. Although the detail and presentation may have improved, the focus remains primarily on area harvested and volume of product.

Net loss data

Natural Resources Canada does not have a comprehensive land use data

EDITORIAL

base because each province and territory maintains its own land use planning and allocation process. The history and current rate of net forest land loss in Canada may be easier to reconstruct from satellite information than from compiling harvest data. The Swedish Space Institute currently has the capacity to compare 1973 Canadian Landsat imagery with 1993 French SPOT satellite data. Objective satellite records of the changes taking place in each of Canada's forest ecosystems may confirm the view of Canada's forests that confronts anyone whose eyes are open.

Growing NSR

The 1992 CCFS reports that only about 50% of the Canada's harvest is regenerated while making no comment on the stocking standards used. In many provinces, regeneration statistics that include the "surviving" plantations mask low seedling performance.

Ecosystem Classification in not in place in most of Canada, and many areas are "stocked" with inappropriate species. Some provinces like Ontario and Manitoba harvest without full forest renewal and the CCFS shows NSR still increasing by over 250,000 hectares per year.

Competing sustainable forests

Countries like Sweden that are virtually all 'second+' growth (and even countries like China, who long ago liquidated most of their old growth forests) are now creating more forests than they are losing. They have gone beyond sustainable development to Net Gain Forest Management.

Products from Sweden or China's afforestation of agricultural lands and plantation forests do not have the stigma of being wrested from the last of the earth's resilient ancient forest ecosystems. Seen from the perspective of consumers from countries where formerly great forests are long since gone (such as Britain, Germany or France), to consume products from Canada's current Net Loss Forest Management, is to contribute to the global disappearance of ancient forest ecosystems.

The great ecological wall

Canada's special paradigm for forest products that emerge from forest management practices that sustain the established forest ecosystems— including the old growth— requires a unified national effort. For example, Ontario and Manitoba cannot continue to harvest without renewing to high standards nor can harvesting private land without renewal standards be allowed.

...the Carbon Sink Silviculture Program leads to a CSA vision of the collective ability of Canadians to go beyond sustainable forest management to ***Net Gain Forest Management...***

High standards are the optimum intersection of ecosystem appropriate species with the highest economic value. BC's stocking standards on crown land are the best example of high value standards. BC's standards can double the volume in half the rotation— creating a net gain and facilitating withdrawals for preservation without severe economic effects.

Developing a CSA vision

The CSA represents the community of businesses and people dedicated to supplying silviculture services to land owners, industry and government in Canada.

Silviculture is a net gain culture

The ability of silviculture practitioners to intervene in a stand and enhance forest value is well established. The result of the intervention is a net gain through increased value, volume, improved habitat, earlier stand establishment or an increase in the extent of forestland.

Silviculturalists create a net gain in forest value at the stand level.

Net gain forest management in Canada

The Carbon Sink Silviculture Program proposed by Joyce Murray achieves 50% of Canada's commitment to reduce CO^2 emissions by the year 2000 through afforestation *(the program is featured on page 15 of this issue)*. The CSA adoption of this proposal, leads to a CSA vision of the collective ability of Canadians to go beyond sustainable forest management to Net Gain Forest Management.

Canada has 32 million hectares of nonproductive agriculture land available for afforestation. Progress in the GATT negotiations on agricultural trade may increase those figures up to 100 million hectares.

The right timing is now

The three most expensive climatic events in US history occurred in the past twelve months and they are increasing lumber demand and lumber prices. Canadian forests are beginning to be priced as the unique, scarce, high value, irreplaceable, ancient resource commodities that they are. Forest companies across Canada face a severe timber supply crisis. The price of open market wood has increased to a level such that many mills are looking seriously at buying and afforesting land (or arranging woodlot forest management agreements with farmers) to augment their future supplies.

A National Carbon Sink Afforestation program is an idea whose time has come. Combined with other CSA/WSCA initiatives, it could enable Canada to dominate the environmentally sensitive forest products market. ❖

Seedling roots and the forest floor

Review of natural seedling root morphology reveals little support for current MOF planting regulations, practices, nor the unnatural root geometry of styroblock stocktypes.

By A.C. Balisky, P.O. Salonius, C. Walli and D. Brinkman

Note: This is a condensed version of a research paper submitted to the Forestry Chronicle. *For a complete version or a list of references, please contact A.C. Balisky, c/o Dept. of Forest Services, UBC, 270 - 2357 Main Mall, Vancouver, BC, V6T 1Z4, tel: (604) 822-6021*

Introduction

Increased timber harvesting has resulted in an unprecedented reforestation program in British Columbia with the three billionth tree planted in June 1993. Legislation now requires free-growing plantations to be established on all cutovers in the province. Robust, nutrient-rich planted seedlings were expected to be superior to natural regeneration. Recent experience shows that outplanting, what appear to be, finely tuned biological specimens still results in considerable loss of performance.

Numerous intrinsic and extrinsic factors contribute to poor seedling survival and growth. Inappropriate culture, storage, handling, and transportation, provenance/site prescriptions, and severe outplanting conditions have been implicated in the suboptimal performance of planted stock. The relationship of physiological and morphological seedling attributes to successful regeneration has been studied and a target seedling concept has evolved to facilitate a site-specific approach to reforestation.

However, various environmental microsite conditions impacting on the planted seedling seriously diminish potential growth. Some microenvironmental factors affect the aerial portion of the seedling. But of equal, and the authors feel greater, long-term physiological significance is the soil regime and the biological geometry of the seedling root system. Current planting protocol in BC may inhibit optimal seedling function on numerous outplanting sites and compromise long-term stand stability. Stimulation of root growth by mechanical soil disturbance can be expensive and destructive. Many nursery culture improvements have been based on understanding the natural biorhythms of conifer seedlings. Extending this work to seedling root morphology and rooting location may produce new site-specific approaches based on physiological and ecological evidence.

Planted seedlings

Nursery production of seedlings in BC

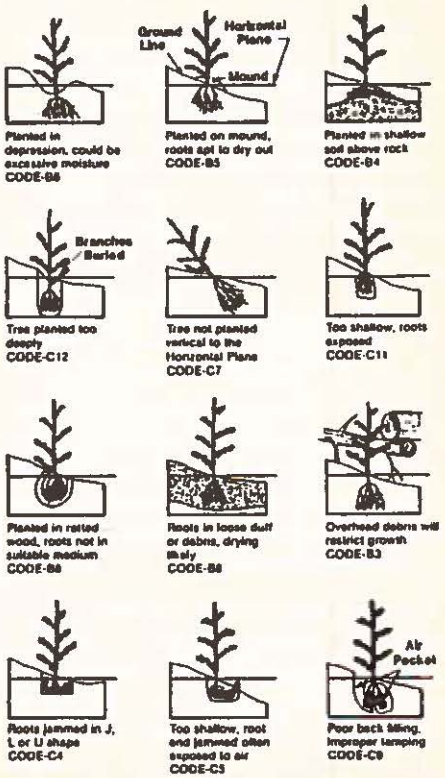
Current annual production of bareroot and container seedlings is over 200 million. Over 30 different sizes and combinations of styroblock and bareroot stocktypes are currently produced in BC. The automation and cultural control, ease of handling and packaging, flexibility in lifting, and the advantages of planting an undisturbed root system are factors that have driven use of container stock. Plug transplants have also been increasingly used. These are container grown for a year, then grown for a second year (or more) in nursery beds before being lifted for outplanting.

Standard planting techniques

On untreated sites, the planter is required to "screef" (remove forest floor) through the organic forest floor to mineral soil. The seedling root system is then inserted into a predominantly mineral soil matrix. For bareroot stock, careful attention is given to establishing a vertical root orientation for at least the length of the shovel blade. For this reason, containerized stock is much easier to plant. The planting slit is then heel-kicked or backshoveled shut against the root system to ensure good root/soil contact. Current regulations specify that roots are to be firmly planted in mineral soil in a vertical orientation. The planting process is easier on site-prepared ground because the forest floor has either been removed, inverted, or mixed.

Root growth of planted stock

Generally, root growth of most containerized seedlings is restricted to elongation of lateral roots that have grown down the container wall to the tip of the root plug. Most root growth is from the lower end rather than from the sides of the root plug. Root growth



of bareroot and transplant stock is also dictated by the location of active root tips. Root tips will be predominantly in the lower portion of the slit if planting meets specifications.

Field assessment of planted seedlings

Assessments of field performance have often been based on above-ground characteristics of the seedling. Survival, height, root collar diameter, and relative height growth rate are useful indicators of seedling condition, but they neglect the root environment. At many nurseries, containerized seedling left-overs or culls can be observed continuing growth for several seasons if they remain in the styroblock cavities. Specifically, shoot growth (and root growth) occurs in spite of the fact that seedling roots are encased within an inert styrofoam environment. While measurements of shoot growth (and root biomass) on these seedlings may indicate healthy growth, an examination of the rooting environment would indicate otherwise. Seedlings growing in a styrofoam rooting cavity can hardly be considered established.

Many plantation assessments in BC have failed to take consideration of the whole seedling system as an integrated unit. Most conventionally planted seedlings in BC are fundamentally flawed because the root environment of these seedlings -- initially in the styroblock container and then eventually at the outplanting microsite -- is functionally identical. When removed from the styroblock cavity, the vertically oriented root system of a typical styroblock-produced seedling is inserted into another functionally inert environment in the mineral soil zone. Bareroot stock is removed from deep, nutrient rich, loamy agricultural nursery soils and placed into a nutritionally and biologically inert mineral soil zone in the field. The whole seedling system, particularly the coupling of seedling roots with the rooting environment, has often not been thoroughly considered in seedling growth assessments.

Naturally Established Seedlings

Rooting of natural seedlings

Natural microsites conducive to seed germination may be conducive to growth of seedlings. Naturally established seedlings respond morphologically to environmental variations. Natural conifer germinants develop an initial geotropic radicle which then develops into a tap root. Lateral root development quickly follows, proliferating into an

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extensive system of lateral roots that colonize the nutrient-rich environment surrounding the organic/mineral soil interface.

Most planted seedlings have an unnatural biological root geometry. The location of the root mass of the planted seedling in the soil profile differs dramatically from that of a natural seedling.

Naturally Established Root Location

Studies of soil microsite and natural conifer regeneration present evidence in sharp disagreement with BC planting guidelines. In Montana old-growth forests, organic soil components support most of the root systems of naturally established seedlings. Moreover, there is a positive association between decayed wood and establishment of natural regeneration, and this is most evident on droughty sites. The decayed wood (the anathema red rot or red duff' in BC tree-planting jargon) occurs in a large enough quantity to act as a moisture reservoir for the establishing natural seedlings throughout the growing season. Based on a strong site-specific relationship between soil microsite, particularly organic components and natural seedling establishment, massive break-up of organic layers should be minimized.

Effects of soil characteristics

Planted seedling growth

Sitka spruce seedlings planted in rotten wood in coastal Oregon grow significantly more in height than those planted in exposed mineral soil. In Alaska, Sitka spruce seedlings do best when planted into undisturbed duff, and seedlings planted into exposed mineral soil experience considerable frost heaving. Interior white spruce seedlings planted in the organic layer manifest greater root, shoot, and total biomass and higher foliage nitrogen levels compared to seedlings planted into mineral soil. The implication is that for the moist cool subzone of BC's northwest Interior Cedar Hemlock zone, where thick forest floors and high water tables prevail, planting in the organic layer will produce better results than planting into mineral soil.

Soil temperature

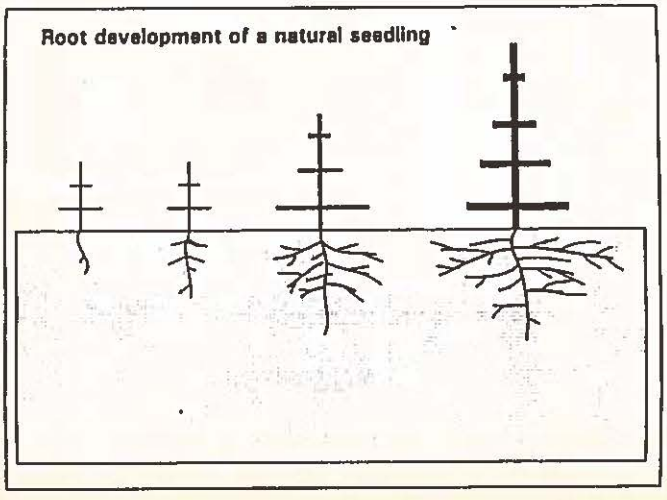
Root growth is very strongly affected by soil temperature. Root growth of many boreal conifer seedlings becomes limited at soil temperatures below 8 to 12 °C. Root-zone soil temperatures (generally at 10 cm below the mineral soil surface for planted seedlings) of cold soil prone forest openings rarely rise above 12 °C during the growing season. Of several measured environmental variables, low soil temperature was shown to be the most important in controlling conifer seedling growth in a boreal environment.

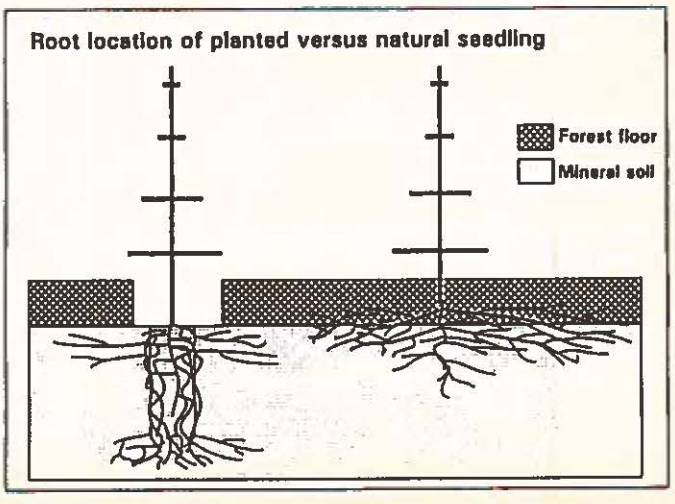
Organic forest floor material is generally a poor conductor of heat (good insulator) with low heat capacity which results in cold mineral soils. Only the top few cm of the organic horizon in an undisturbed forest soil receive significant heat loading. Basic soil physics dictate that there will be an attenuation of heat energy with increasing soil depth. Most of the undisturbed forest land in the province is covered by a significant amount of forest floor. Both ecological and economic considerations suggest that we work with and use the thermal properties of the forest floor instead of working against naturally existing conditions.

Soil moisture

The large pores of decomposing organic matter in organic horizons renders them less able to retain water (once free water has drained) than mineral soils. Evaporation from surface organic horizons renders them frequently drier than mineral soils. The absorbent properties and high water infiltration rates of sphagnum and decomposing organic material makes the forest floor a particularly effective medium for intercepting precipitation. Decomposed wood has been found to function as a slow release aquifer throughout droughty periods.

Conventional planting dogma gives the impression that organic horizons cannot provide adequate moisture for seedling growth. However, drought effect in organic horizons is not a limiting factor in all areas. Moisture does not limit survival or growth of





seedlings planted in the organic layer in the Interior Cedar Hemlock moist cool subzone. Soil moisture is an absolute necessity for seedling growth. However, the shallow rooting characteristics of naturally established seedlings in subboreal/boreal climates suggest that there is adequate moisture generally available in the organic layer.

Soil physical properties

Soil physical properties affect root growth by presenting mechanical obstacles to root elongation and branching, and by regulating moisture, aeration and temperature. Bulk density generally increases with increasing soil depth. Bulk density differences of between five- and ten-fold have been reported between the organic layer and the uppermost mineral soil horizon. Increased bulk density translates into lower porosity, poorer aeration, slower water infiltration (which also affects nutrient diffusion), and greater mechanical impedance to root penetration.

Frost heaving is affected by soil texture, structure and hydraulic conductivity (as well as an ample water supply); it is most often associated with silts and loams, and less frequently in clays, and only rarely with sands or gravels. The large, non-capillary pores of organic materials impede the movement of water upward which is necessary for ice layer formation and subsequent frost heaving. Increasingly deeper placement of seedling roots in the soil profile to avoid frost heaving has been suggested; but this may only exacerbate nutritional, moisture, bulk density and temperature problems.

Soil biota and nutrients

Soil biota may be of greater importance in forest soils than in agricultural soils. Various organisms are important to the decomposition of organic matter. Five to twenty-fold decreases in soil decomposer organisms have been reported between the forest floor and the uppermost mineral soil horizon.

The symbiotic relationship between mycorrhizal fungi and seedlings has been shown to influence seedling survival and growth. Ectomycorrhizae, with their network of hyphae, increase the ability of seedlings to absorb nutrients and

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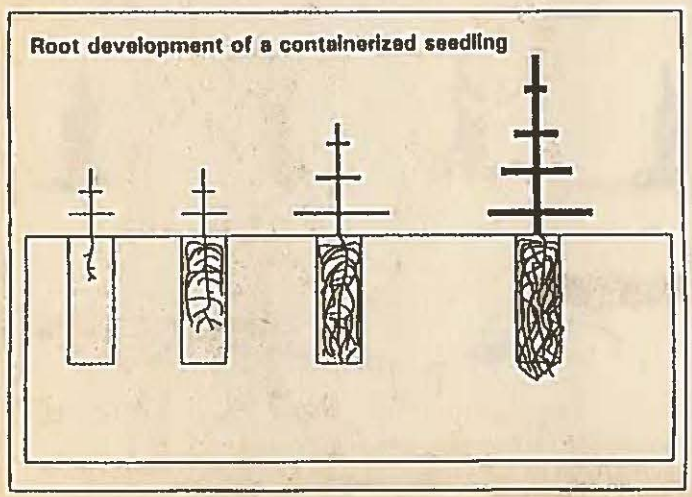

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moisture. The organic soil components support virtually all the ectomycorrhizal root systems of naturally established seedlings.

The forest floor is the prime nutrient reservoir in the forest ecosystem and nitrogen is considered the critical nutrient. The organic layer contains most of the nitrogen stored in a forest soil. Placement of seedling root systems in, or near, this nutrient-rich zone would seem to be a reasonable practice.

Site preparation

Mechanical site preparation is now the most common solution for ameliorating poor soil conditions. The premise is that seedling roots must be planted into a mineral soil matrix in a vertical orientation. Instead of modifying seedling root morphology in the nursery and altering conventional planting techniques, considerable resources are expended rearranging the natural soil surface characteristics to accommodate the unique root geometry of nursery seedlings and associated planting methods. The long-term biological and environmental effects of site preparation are largely unknown. Site preparation, predicated on the unique root morphology of nursery produced seedlings, is a costly component of silvicultural activities.

Although a case has been made for the ecological soundness of clearcutting in some forest ecosystems because it mimics natural disturbance events, there are few naturally occurring phenomena that remove or invert the forest floor on large areas on forest land. Site preparation can produce further negative environmental disturbance to soil structure resulting in impaired drainage, aeration, and loss of nutritional matter. Certain forms of site preparation, particularly rototilling, may improve the long-term productivity of a site.

Developing new stock types

Summary of root morphology

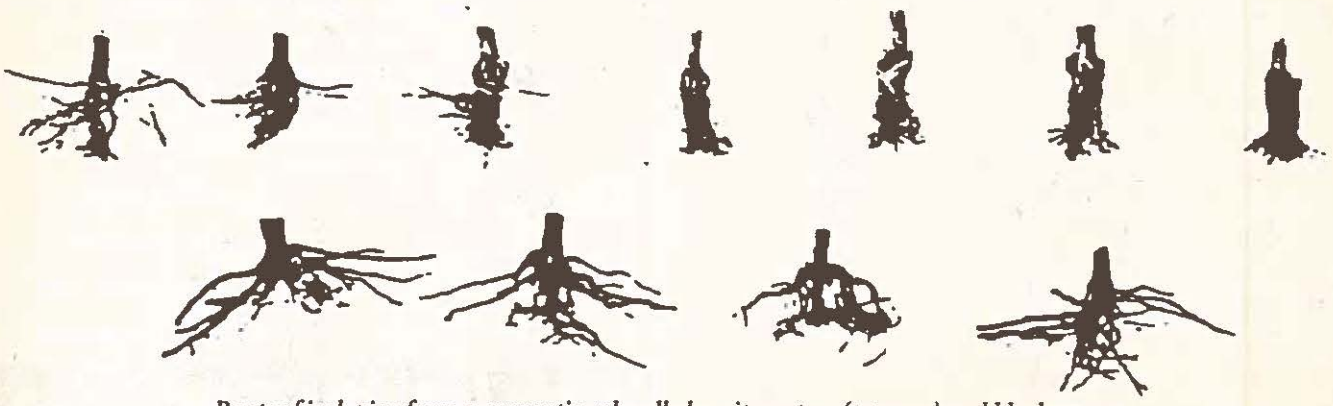
Naturally established seedlings root almost exclusively in the interface between mineral and organic layers, providing strong evidence for the suitability of this medium as an adequate rooting environment. Soils generally get harsher with depth -- more cold, less nutrients, higher bulk density, and less biological activity. The physiological effectiveness of directing roots vertically into a progressively less favourable environment is suspect. Alternative root morphologies and planting strategies that mimic natural seedling growth will facilitate seedling establishment and growth, and reduce regeneration costs.

There is renewed interest in the role of root morphology in terms of its effects on seedling establishment. There has been an increase in requests for stocktypes that promote more natural (lateral) root growth. New stocktypes must be: capable of rapid, lateral rooting in an undisturbed forest floor, easily integrated into current practice, not labour intensive or space consuming, and easily packaged and transported. A valid concern to nursery operators is the requirement for further capital investment and learning of new cultural and technical regimes that will be associated with industry requests for these new, biologically superior stocktypes. Regardless, the biological benefits of new or modified stocktypes warrant changes in nursery infrastructure. Cost effectiveness considerations must include establishment success when comparing new stocktypes with currently used ones. While efficiency of production and outplanting are concerns, ultimately, vigorous seedling growth upon outplanting is what foresters are chiefly interested in purchasing.

Modifications to styroblock containers

There is a distinct trend towards the use of larger diameter containers. The premise is that larger seedlings compete more vigorously for nutrients and light than smaller seedlings. Production of seedlings in copper-treated containers and plug transplants has also increased. The use of root growth inhibitors (usually copper compounds) to coat container walls has been found to be an effective means of promoting a more natural root form and improved growth in outplanted containerized seedlings.

The copper-coated container system is an adaptation to BC's conventional nursery operations and outplanting technique, and so it has blended easily



Roots of jack pine from a conventional walled cavity system (top row) and black spruce from a free standing mesh covered plug system (bottom row) after three field seasons.

into current practices. This method attempts to correct the problem of deformed roots but it falls short of addressing the deficiencies in rooting environment. Vertical orientation of the plug may be of considerable value if planting directly into organic layers with the plug base contacting the top of the mineral soil layer, but it is less important when planting directly into mineral soil. Unless the root plug is extracted before the roots reach the sidewall, die-off of lateral root tips may reduce optimal root egress upon outplanting. If extracted before sidewall contact is made, the plug is often not sufficiently root-bound and partially or wholly disintegrates with handling required during outplanting. When planted, the weak root plug compresses into the flat spade cut after tamping, thereby losing the necessary configuration which supports root egress on all sides.

Plug transplants offer seedlings with the most fibrous root mass possible in two growing seasons. Although transplants may perform better than conventional containerized stock in some environments, they are expensive, space consuming, and labour intensive in the nursery. From a biological standpoint they fit within the traditional paradigm of site preparation and mineral soil planting. Biologically, transplant stock may not be much of an improvement over containerized styroblock stock.

Altering conventional planting techniques is currently widespread in industry. Foresters are now routinely disregarding the notion of duff or "red rot as unacceptable planting medium and are permitting planters to simply plant through organic horizons such that the upper half of the plug is surrounded by organic material and the lower portion of the plug is situated in the upper mineral soil horizons. The integrity of the forest floor is thus maintained to utilize its various natural benefits, while a consistent supply of moisture may be provided by mineral soil contact. Lateral root development can proceed from the sides of the plug into organic material. However, most new root growth in BC's current styroblock plugs is from the terminal tip of the root plug and remains directed into nutrient-poor, cold, mineral soil. The use of copper-altered root systems would be effective as they begin to shift the balance in favour of more lateral root egress.

Other hardwall container experiments are proceeding where the whole plug is planted into deep organic layers. Forest industry stock requests have been made for transplant stock that have had the lower portion of their root mass chopped off so as to minimize the depth to which the growing root tips are planted. An equally severe solution is to split the root plug up the centre to within 2 cm of the top of the plug. The split plug is inserted at the organic/mineral soil interface with half of the plug lying horizontally one way and the half other lying horizontally in the opposite direction. Preliminary trials have shown that seedlings are developing root systems very similar to those of natural seedlings. Although harsh, these methods mimic root wrenching techniques commonly practised in bareroot nurseries and may not adversely affect overall seedling performance upon outplanting.

These methods require a small change to existing nursery facilities, no loss of space or efficiency, and suggest a growing appreciation of the more favourable growth conditions existing in or adjacent to the organic/mineral interface. But, because of the limitations of working with BC's hardwall container stocktypes, effective options are limited. While these are a few suggestions that can be used with existing stocktypes or perhaps developed as unique solutions, there is much that can be readily adopted from eastern Canada and Scandinavia that effectively deals with the issue.

An alternative to the styroblock system

Container evolution, particularly in eastern Canada and Scandinavia, has resulted in a diverse array of stocktypes. Some of these options offer an increased sophistication in managing the root growth problems inherent to many container systems. A well-known horticultural container, the meshwall concept (JiffyTM), was adopted for silvicultural application by Jan Ellingson in New Brunswick in 1983. Over the past nine years it has become abundantly evident that the growth

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benefits accrued by a seedling endowed with a natural root system are profound.

The premise upon which the meshwall concept is based is that at the time of outplanting, root tips should be positioned and free to explore organic and mineral soil horizons in any direction without first having to overcome root-training caused by container configuration. Due to the recent advent of container systems such as the meshwall, results of rigorously conducted field trials comparing the long-term growth of meshwall seedlings to stocktypes in all other categories are not yet available. Preliminary results from stocktype field trials in Ontario with black spruce and jack pine seedlings show that meshwall stocktypes consistently exhibit well-distributed lateral root growth, and always rank better than other stocktypes in terms of root scores and growth performance.

Outplanting trials in New Brunswick have shown profound differences in root form of conifer seedlings planted as hardwall stocktypes and meshwall stocktypes. Excavated roots from a hardwall container variant with plastic membrane cavities were compared with those from a free-standing meshwall plug system (JiffyTM). Jack pine seedlings from plastic membrane cavities did not have adequate root development at 12 or 14 weeks from seeding to hold the soil together and allow for normal plug extraction; the plastic cavity was carefully cut off the fragile soil plug before planting. Seedlings grown in these cavities for 16 weeks and longer were extracted and planted in the normal manner. The mesh that holds the JiffyTM plug together allowed black spruce seedlings to be easily planted at any time after seed germination; the mesh is not an inhibitor to root egress from the soil plug into the field soil. Jack pine seedlings with juvenile rooting systems in fragile plugs (which are not yet root-bound) produced natural root form when outplanted. Longer nursery rearing in walled cavities results in the growing points of primary support roots being directed to the lower part of the root plug. Roots in the JiflyTM system, in the nursery, grow out to the confining mesh and are air pruned; if irrigation is properly controlled, very little inter-rooting occurs between neighboring plugs. Upon outplanting, these air-pruned primary roots recommence growth and develop a natural root form, even after prolonged nursery rearing. Moreover, meshwall containers can be grown in a finer peat allowing for more fine root development permitting increased number of lateral root tips.

...the implication is that for the moist cool subzone of BC's northwest Interior, planting in the organic layer will produce better results than planting into mineral soil...

Sound biological alternatives are available for promoting natural rooting of planted seedlings. These options may include creative adjustments to existing hardwall stocktypes, changes in planting strategy, creation of new stocktypes, adoption of a meshwall system or a combinations of these. Use of a hardwall variant (copper-treated container stocktypes) or adoption of the meshwall system appear to be the best solutions currently available.

Conclusions

Current research in regeneration silviculture has focused on the physiological aspects of nursery produced seedlings. Many improvements in nursery cultural practice have been realized by capitalizing on the insights gained from an understanding of the natural physiological biorhythms of conifer seedlings. However, it appears that the underlying constraints of an unnatural root geometry, coupled with misguided planting techniques, may be serious impediments to seedling growth which are not offset by overcoming gross physiological malfunction caused by poor nursery cultural practices.

The evidence suggests that current seedling growth limitations are probably due more to suboptimal microsite conditions and exacerbated by the unnatural seedling root form produced by conventional containers and subsequent associated planting procedures. Perhaps further gains can be made by mimicking the rooting patterns of natural regeneration. The use of specific root morphologies and outplanting techniques to facilitate more natural root development and to best take advantage of local microsite conditions are needed. The time for a paradigm shift in nursery culture and outplanting methodology is here.

While conventional outplanting and associated mechanical site preparation has met with adequate success at various locations around the province, the new free-growing regulations as well as increased critical public environmental scrutiny compel foresters to re-examine traditional practices and assumptions. The varied soil and climatic conditions characteristic of BC preclude use of any single outplanting system. A case has been presented for the reconsideration of the role of the forest floor as a viable rooting medium. A change in the geometry of planted root systems may facilitate the growth of biologically and morphologically sound trees. The various root form and outplanting problems cited are evident in many plantations throughout BC's varied biogeoclimatic zones. The alternatives presented here warrant prompt review of operational silvicultural practices in BC. ❖

Carbon Sink Silviculture: a global warming strategy for Canada

By Joyce Murray, Chair of the Board, Brinkman & Associates

15 billion tree carbon sink silviculture program could help meet Canada's international CO_2 commitments and head off international boycotts of our forest products.

Note: This article is based on Murray's 1992 MBA thesis, Global Warming Policy Analysis. It is a condensed version of her talk to be given at the 2nd National Silviculture Conference.

Last month I spoke to an audience of business people in Vancouver. They wanted to know how are we really doing with our forests. I told them that, at the level of seedling culture, we're making breakthroughs in improving root formation and seedling survival rates; at the project level, were planting healthy mixed species forest for ever lower cost; at the provincial level — with some glaring exceptions such as Ontario — our harvesters are replacing harvested forests. But, unfortunately, at the national level we are losing forested area and biomass in a big way.

This is not a technical article but a wake-up call. We silviculturists must not miss an important opportunity. Forest management has become not a national but an international concern and responsibility. Now is the time to put forward a credible program that joins our urgent tangible timber supply and forestry image crisis, together with the threat of future global catastrophe from climate change. Taken together, these challenges create the momentum for a new large-scale national silviculture program.

We live on an increasingly vulnerable planet which loses forest cover every year. Earth has lost the equivalent of fully half its forest cover, equivalent to three billion hectares, over the past 100 years. Tropical nations are losing a net 17 to 20 million hectares of forest cover a year and this figure is still increasing. In Canada we are losing forests also: a 1991 report concluded that each year 18 million tons more biomass is being removed from forests than is replaced through forest and plantation growth; 250,000-plus hectares a year are harvested and not regenerated adequately each year on average, according to Forestry Canada in 1990. Add to this the millions of hectares of forests lost each year to pests, fires, urban and industrial development, roads, powerlines, and on and on.

We are mismanaging our forests. One result is mills closing from inadequate raw material supply. Another is conflict: industry and government push for harvest in heritage sites that many people want to see protected. Yet another result is our poor image as forest managers and the imminent threat of losing international market acceptance of our forest products. We have already lost important export sales. This problem will only escalate as credible spokespersons convince the American and European public that buying Canadian forest products is a bad environmental choice, and as boycotts and trademarking take effect. We are at a crossroad and headed toward the sunset -- not 30 to 50 years but three to five years away. Canada's 20-billion dollar annual forest-products trade-surplus is at stake. I call this an urgent national crisis.

We all know the various benefits of forests. We only imagine the damage and change to ecosystems and communities caused by removing half the earth's forest cover. If we in Canada can't manage our total forest resource sustainably, then how on earth will poorer nations do it? It's easy to get discouraged and to feel cynical in the face of this problem.

Global warming: Is it really a problem

The risk that the earth's average temperature will heat up over the next

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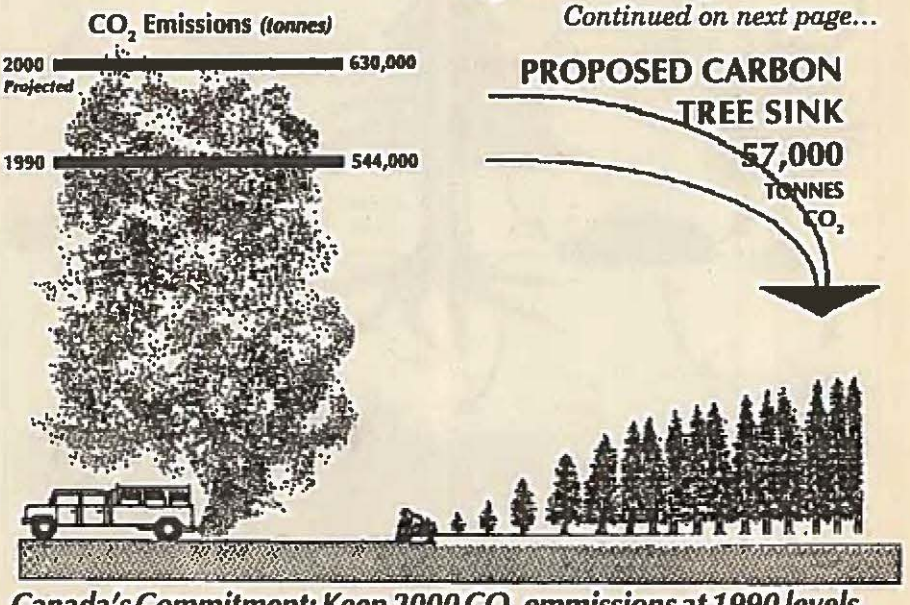

Canada's Commitment: Keep 2000 CO_2 emmissions at 1990 levels

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decades is common knowledge by now. A certain flow of greenhouse gas emissions is a natural phenomenon, and a necessary thermal blanket keeping the earth's temperature at a level comfortable to living organisms. Climatologists know that the flow and concentrations of greenhouse gases are increasing at an accelerating rate from human activities integral to daily life the world over. CO_2 is half of the problem since it lasts in the atmosphere for up to 200 years. The other gases such as NO_2, CH4 and CFCs are the other half of the problem. About half the extra CO_2 emission is re-absorbed in ocean and land carbon sinks, while the other half accumulates in the atmosphere. These greenhouse gas emissions are by-products from burning fossil fuels in vehicles, industries and power plants; from deforestation, wood fires and slash burning; from industrial products such as foams, solvents aerosols and refrigerants; and from agricultural practices and chemical use. Daily life in other words.

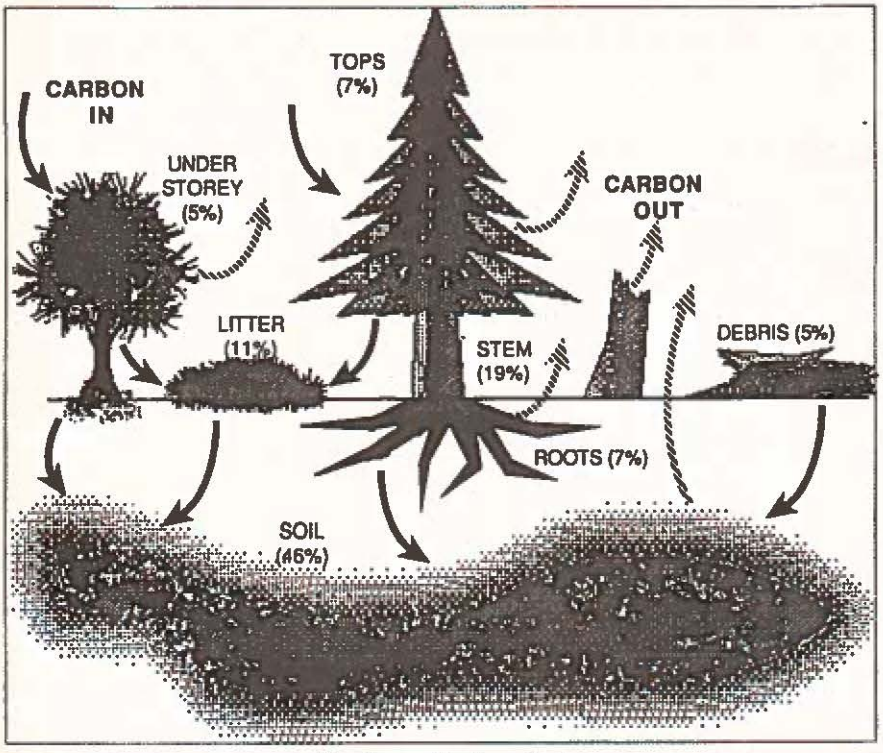
There are various predictions and uncertainties as to what effect this increase in greenhouse gases will have on climate and what specific impacts will result in regional economies and environments. An international panel of 200 scientists that spent several years studying the problem concluded in their 1991 report that, under a "business-as-usual" scenario, average climate is likely to warm at a rate of one-fifth to one-half degrees per decade. This means that, before the end of the next century, average temperatures will have risen by two to five degrees and climbing. Even if no further artificially produced gases were emitted at that point, the climate would continue to warm until an equilibrium point were reached at twice that level, or four to ten degrees higher on average. There are many unknowns that have not yet been factored into the models, some of which may reduce the rate of warming and some which could accelerate it. Even doubters don't deny that there is a possibility, the risk does exist for a catastrophic warming that could have disastrous and unforeseen consequences.

We are not yet certain this will occur, and I am not planning to argue that it will. We watch climate anomalies and extremes, which are becoming much more frequent, and wonder. But let's not waste time waiting for the definitive proof that global warming will or will not be a problem. **The key to the issue is this: once we know for sure, it will be too late to do anything about it.** Knowing that the effect of increasing greenhouse gas emissions is effectively irreversible, is cumulative, and could lead to catastrophic climate disruptions, can we afford to ignore the problem? We can not. We have only this planet to live on. We can not afford to take a gamble that we can't afford to lose.

Four scenarios for response action are commonly discussed:

1. Business As Usual
2. First Step
3. The 50 Percent Solution
4. Global Warming Halted

Without discussing the details of the four scenarios, let me point out that the Framework Convention on Climate Change negotiated at the Earth Summit last year states a commitment to stabilize the concentrations of greenhouse gases in the atmosphere at a level that would prevent dangerous interference with the earth's climate system. Achieving this requires scenario #4.



The Forest Carbon Cycle

Predicted Impacts of Global Warming Within 60 –100 years

- Sea-level rise up to 1 m. causing damage to coastal communities, population dislocations, flooding and salination of productive farmland.
- Increased incidences of climate anomalies, violent storms and hurricanes
- Higher incidences of exteremly hot dry days affecting urban areas and agriculture
- Decline in forest health; losses from temperature stress, fires and pests.
- Changes in precipitation, soil moisture and run-off levels up to +/- 50%
- Lower levels of inland water bodies such as the Great Lakes and St. Lawrence River
- Possible disruption of entire ecosystems, ocean currents, phytoplankton levels
- Higher levels of warming in Canada than global average (40% higher in souther Canada and up to 200% higher in Northern parts during winter).
- Global economic damages in the hundreds of billions of dollars a year

Scenario 4. Global Warming Halted

- Eliminate CFCs by the year 1995;
- Halt net area of forest lost by the year 2000
- 160,000,000 hectares additional reforestation by 2020;
- reduction of CO_2 emissions to 80% of 1988 levels and further 50% reduction by 2030
- Reduction of CH4 and N2O levels to 75% of expected concentrations by 2050

Causes of greenhouse gas emissions

Let's take a quick look at the underlying systemic causes. These are classic failures in the efficiency of markets and of government interventions.

Externalities: We don't fully price environmental costs and benefits into our transactions. This means that activities such as driving a gas guzzler are over-consumed since they are artificially cheap in real terms. Activities that are beneficial such as planting trees are under-produced since they seem artificially expensive.

Public good problem: As a nation we tend to underproduce activities such as reducing greenhouse gas emissions for which the benefits accrue to other nations that aren't paying the bill. We worry about losing competitiveness internationally if we spend money to correct the problem and our trading partners take a free ride on our efforts.

Myopia: We tend to overvalue short-term benefits and undervalue long-term benefits. This leads to a bias against spending money now to prevent problems or supply benefits in the future. The effect of this short-sightedness is that future generations will be paying for today's party.

Interest group pressure: Industries that will have to adjust or lose market as a result of change will tend to pressure governments not to make changes. The coal or petroleum industries for example can be a very powerful reactionary force. This is because reduced fuel combustion concentrates adjustment costs within relatively few strong organizations, while the benefits are diffused over a large population of individuals less motivated and less organized to press their case.

A made-in-Canada response strategy

Globally, the greenhouse gas problem needs to be effectively addressed in order to slow the rate of climate warming. How are we Canadians doing? We have the highest per capita CO_2 emissions of any nation and our emission rate is increasing; Canada is predicted to experience much higher warming than the average; we are comparatively speaking a wealthy nation; and the Canadian government's policy is one of CO_2 stabilization at 1990 levels by the year 2000, which fits response scenario #2 First Step.

So what's the problem. The problem is that this policy has been in place for

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NET COST SUMMARY
for Proposed Fifteen Billion Tree Carbon Sink Silviculture Program

Program Segment	Program Portion (%)	# units (000 ha)	Cost/ha ($)	Gross cost ($million)	(k=5) Economic Benefit ($million)	(k=8) Economic Benefit ($million)	(k=5) Non-consump. Benefit ($million)
1. Tropical	10	1250	504	630	0	0	0
2. Urban	10	1250	14400	18000	0	0	10816
3. Non-commercial	20	2500	1037	2593	0	0	29
4. Timber supply	50	6250	1132	7075	7075	855	539
5. Bio-fuel supply	10	1250	1164	1455	1455	42	0
Total	100	12500		29753	8530	897	11384

	(k=5) Net cost ($million)	(k=8) Net cost ($million)	Carbon sink per hectare (metric Tonne)	Total Carbon Storage (000 Tonne)	(k=5) Net Cost ($/T Carbon)	(k=8) Net Cost ($/T Carbon)
1. Tropical	630	630	370	462225	1.36	1.36
2. Urban	7184	11240	247	308150	23.31	36.48
3. Non-commercial	2564	2575	123	308150	8.32	8.35
4. Timber supply	-539	5883	123	770375	-0.70	7.64
5. Bio-fuel supply	0	1413	247	308150	0.00	4.59
Total	9838	21740			3.78	9.73

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three years and virtually no concrete steps have yet been taken. Discussion has taken the place of action, no measurable programs have been put in place. In fact, we are moving backward with cuts in budgets for energy conservation, renewable energy and reforestation, coupled with continued support for gas, oil and coal mega-projects. The governments stake in the Hibernia oil project dwarfs the Green Plan's combined seven-year budgets for global warming, acid rain, ozone depletion and international progress on the environment. It's business as usual in Canada. The government is stalling until international agreements are in place forcing action.

Let's be very clear that waiting for international joint action on global warming effectively means the choice to do nothing. With the ozone problem, twenty years will have elapsed between commencement of international agreements and phase-in of the agreement. Greenhouse gas production is much more complex and integrated into the fabric of life. Let's say 30 years on this one. That's too late.

Concrete action to decrease emissions are already being taken by some European nations and the US, so the risk of Canada losing international trade competitiveness is exaggerated. Our foreign aid program is a precedent of Canadian dollars used to accomplish a public good with perhaps fewer tangible benefits for Canadians than can be provided by an aggressive global-warming response. Potential gains in competitiveness will emerge as we develop technologies and expertise that can be traded internationally. Canadian action will bring international prestige, will contribute to a new norm which other industrialized nations will eventually undertake, and will encourage poorer nations to factor the global-warming problem into their development policies and programs. Lack of action will crystallize their resistance to shouldering a part of the burden. The case for taking action on global warming is very persuasive.

A Canadian action plan

What should a Canadian action plan include? The government has already identified the various sectors that will lead the charge and the kinds of programs needed. We know what to do, and we need to do it all:

- Improve industrial, building and appliance efficiency standards
- Implement graduated vehicle efficiency standards
- Support the alternative energy sector with government purchases, and research and investment incentives
- Reduce transportation inefficiencies by factoring emission costs into transportation policy and infrastructure decisions
- Replace current agriculture support programs with ones which encourage atmospherically friendly agricultural practices such as organic farming
- Tax polluting facilities or require that incremental greenhouse gas emissions be offset by the producer
- Stop net forest losses and increase forest cover and carbon absorption capability

Silviculture is a Canadian global-warming response strategy that stands in a class by itself. Other programs will encounter technological challenges and industry resistance to changes. Larger investment in productive capacity and changes in individual lifestyle will be needed. While these challenges must be overcome, they will also slow the rate at which programs can be implemented.

Silviculture, on the other hand, is immediately implementable. We could begin now. The Canadian silviculture industry has the necessary expertise, contractors, labour, and nursery capacity to undertake a massive carbon sink program. The industry is able to create diverse, ecologically functioning, healthy forests. Sufficient suitable sites are available. An incremental one billion trees a year could be planted and managed, without unmanageable adjustment.

Carbon sink silviculture is a win-win program for Canadians. The extra timber will relieve the timber supply limitations that the forest industry is experiencing; pressure on heritage and special forest areas such as Clayoquot Sound that deserve protection will be reduced; degraded wilderness sites that are not commercially economic to replant will be restored; members of the international community, many of whom have come to accept and expect strong environmental regulations in their own countries, will take notice as Canada announces a more than doubling of its current silviculture program.

...waiting for international joint action on global warming effectively means the choice to do nothing...

When people tell me, "Forget global warming -- in these deficit-ridden times, you will never convince me Canadians will take action on something they can put off for the future," I reply to them, "Forget selling forest products outside this country within about two years." Perhaps I am being alarmist. But with John F. Kennedy, Jr., and other experienced activists on the case, Canada will soon be seriously losing market confidence in its products. International buyers won't be swayed by Canadian forest industry or government arguments, print ads or lobbying. They will want to see concrete action. Here is where the risk of global warming disaster and Canada's forestry crisis combined create a powerful logic for moving past roadblocks towards carbon sink silviculture.

A proposed carbon sink silviculture program

Let me outline how we could implement a carbon sink program large enough to make a serious dent in our greenhouse gas-abatement promise to the international community.

1. How large should the program be? Several benchmarks support the choice of a program consisting of 12.5 million hectares treated or 15 billion trees planted over 15 years.

2. How can we protect the program from structural failures? We will need to build in some principles for ensuring ecological vitality, long-term funding protection, and for involving multiple jurisdictions.

3. What will we use to guide us in designing a program for maximum efficiency from both an economic and a broader social perspective? Clearly defined goals and constraints can be used to predict the efficiency and success of program components.

4. What kinds of practical alternatives should be considered when the program is being designed? A large program will need to be diverse for many reasons. Its components can be Canadian and tropical plantations; reforestation, afforestation and carbon storage enhancement; urban, rural and wilderness areas; rehabilitation, recreation and commercial end products; all have a place..

5. What will the program cost? By selecting an array of program options that collectively best satisfy the various goals and address the practical constraints, we can analyze the total cost of the program. The key to determining the real cost is to deduct future commercial and non-commercial benefits.

Analyzing a hypothetical 15-billion tree program composed of 10 percent tropical, 10 percent urban, 20 percent non-commercial, 50 percent timber supply and 10 percent bio-fuel supply forests, the net cost will be $3.78 to $9.73 per ton of carbon avoided, using a five percent and eight percent discount rate to discount future benefits. This is an entirely back-of-the-envelope exercise and was designed more to illustrate the process than to come up with the definitive cost of this program. But it does use very conservative estimates on non-commercial benefits, based on economic studies of the values individuals are willing to pay for forest recreation sites. For example, sites further than 250 kilometres from an urban centre were given zero recreational value. At the time of my research, there had been little serious costing of alternative ways to reduce greenhouse gas emissions. From what I could find, this carbon sink program compares very favourably with estimates of other carbon mitigation programs.

How much will this carbon sink cost and who will pay? The net cost will be roughly $10 to $22 billion depending on the expected return on investment. The European Economic Community and the USA are further ahead than Canada in developing fair and efficient mechanisms, and we can borrow ideas from them.

Objections to carbon sink

Here is a summary of my responses to the main objections I hear when I preach carbon sink silviculture:

1. We don't know for sure what global warming will mean.
I say we don't need to know for sure. We just need to know that we can't take the risk.

2. The problem isn't sufficiently immediate to take priority over other economic crises in Canada.
I say that coupled with the looming contraction of timber supply and customer confidence, silviculture sink programming responds to an immediate economic crisis, as well as going a long way to meeting our global-warming limitation commitment.

3. Canada can't act on its own.
I say Canada must act on its own. Global agreements will be too late, and already we lag behind the programs of some other nations.

4. Where would the money come from.
Money can be found to finance necessities.

Envisioning the future

Let's imagine a network of new silviculture projects across Canada; Canadian partnerships with communities in less-developed nations to create forests where they have long been removed and the soil degraded; Canadian silviculturists are sought-after specialists with plum contracts selling services, expertise, equipment, and regeneration systems to other countries.

Picture a doubling of the national total of silviculture at its peak several years ago, a billion more trees planted each year for the next 15 years. In cities everywhere new trees provide shade, wind shelter, insulation from heat loss; in urban areas, municipal and industrial waste lands are now green; road margins, cutbanks, highway dividers are forests; marginal and abandoned agriculture lands that can't support current food crops economically are growing trees that will reduce the pressure to harvest contentious forest in the future; formerly degraded, hard-to-reach, fire burned, high-altitude or poor soil sites, are again growing their indigenous forest mix for wildlife habitat, for recreation, perhaps even for eventual harvest; Canadians are celebrating reports of successful new community forests in places like Guatemala and the denuded Lacondon forest region in Mexico. Canada is setting a new standard for net gain forest management and our customers are impressed.

If this picture looks like a Utopian dream, well, it may be. But at the same time, it is a cost-effective and practical policy response to the threat of global catastrophe that we face as an entire human community. It is home-grown Canadian strategy for accomplishing a task that we as a nation have collectively committed to achieving, the promise made to the entire international community to do our part to prevent catastrophic global climate change. ❖

Making Intensive Silviculture Pay

New mechanisms are needed to make intensive silviculture more attractive, especially on smaller or volume-based tenures.

Glen Wonders ,Carrier Lumber Limited

Note: The following is a condensed version of the talk Wonders gave to the WSCA's 12th Annual Convention, Feb. 11, 1993

Does intensive silviculture pay for small licensees

As an operational silviculturist from a company that has volume-based replaceable and non-replaceable tenures, clearly intensive silviculture does not pay. Why would anybody go out and make an expensive investment into an area where there's absolutely no guarantee that you'll ever recoup that investment? I have no doubts that just about every license has an area which technically would support some level of increased investment. But it would be much more difficult to find the licensee with an volume-based tenure that'll be willing to make that investment. In all reality, when that investment comes to fruition, that licensee will not have the opportunity or won't even be around.

Another challenge to investment in intensive silviculture is that we have to make sure that public needs are accommodated within managed stands. We in silviculture are being scrutinized as much as the people in harvesting right now. This is really apparent in the Western Chilcotin where our salvage license is. People will ask us, "Why are you going in there again? We thought once you're done harvesting, and once you'd done silviculture, you were done with that area. We don't want it spaced. By spacing it, you're taking away cover for wildlife."

We have to look beyond just the elements of each silvicultural action. We have to propose a really long-term view of those stands, from harvest to rotation harvest. People are not expecting us to go back into those stands and space. And you can say, "Well, we advertised development plans, we advertised PHSPs" — but these people don't understand those things. People need to understand that we are managing stands differently than the stands that came before. We're not going to leave them alone. And we have to make sure that, when we do that, we know all that the public needs and demands.

...another challenge to investment in intensive silviculture is that we have to make sure that public needs are accommodated within managed stands...

Carrier Lumber's experience in the Western Chilcotin

In many ways, the Carrier Lumber experience in the Western Chilcotin is a good example of why intensive silviculture isn't actively funded by some area-based tenures. The Western area, Chilcotin areas of Anaheim and Tatla Lakes where Carrier operates, lie within the pine and spruce sub-boreal zones and the montane spruce zones. The area macro-climate is hot; it has a hot, dry summer and cold dry winters. The soils are relatively poorly developed, often stony and generally infertile. The dominant tree species are lodgepole pine, the Interior variety, and the white englemann spruce in areas where there's moisture collection. These stands have been characterized in terms of relatively low forest productivity — the major problem that exists in the Western Chilcotin and Eastern Chilcotin.

Poor growing sites are dominated by mature and over-mature lodgepole pine, which are heavily infested with dwarf mistletoe, western gall rust and ever-increasing levels of mountain pine beetle. Since the late 1970s, the Forest Service began noticing increasing levels of attack by the mountain pine beetle, and as a result, offered a non-replaceable ten-year license which was to salvage some five-million cubic metres of dead, dying and threatened lodgepole pine. But many are reluctant to take these licenses.

The early 1980s were characterized as a very poor time for the lumber sector. And this license offered some major obstacles. For one thing, the West Chilcotin has no source of power — any power that's out there is a result of BC Hydro's diesel generators. The alternative of a major milling capacity out there is very difficult. There are also no natural gas pipelines, so kiln drying of any type of lumber is impossible. Harvesting operations would take into account up to 80 percent dead volumes and that the stands would have yields as low as 50 to 100 cubic metres per hectare. All this adds up to a very unattractive license. The license was again advertised one year later, and again there were no takers.

The license was out there for a fair time, and Carrier put one proposal in, which was accepted. Carrier proposed to bring in modular saw mills which were designed and built in Prince George, with their own power-generating capabilities. With this in mind, Carrier set out to deal with the lodgepole pine that was under attack. There were four mills: of them, one was from Houston, BC, and two were built in Prince

George, and moved down to the Anaheim and Tatla Lake areas. Each mill is capable of milling about 300,000 cubic metres per year. About 50 trucks were needed to move the mills around. By this time, the original ten-year tenure of the salvage license had shrunk to seven years, but the license proceeded anyway, because the mountain pine beetle program, or problem, had expanded, not contracted.

With no natural gas pipelines to the West Chilcotin, the only way to dry lumber is by air; hence, you need a tremendous area within which to air-dry it. Stands that are about 65 percent dead standing-timber were common of the type of stand Carrier was operating in, indicating the extent of the problem in the Western Chilcotin. Another dying forest Carrier encountered was up to about 85 percent dead.

With this latter stand, which was predominantly dead, we used a roadside harvesting system. Dead trees will remain standing for anywhere up to ten years; we'd be able to salvage the trees after five years standing dead. The only harvesting alternative of which we were aware would be to ball and chain them down, since they were all dead, and start reforestation. To ball and chain them down and dispose of the wood would probably cost $750 a hectare. Another alternative was to leave them the way they are; but as those fall over, you're just asking for a major fire.

Sanitation spacing

Onto the silviculture for a typical cut block, about three years post-harvest. Because of the relatively difficult drying site, reforestation from naturals is a fairly slow process. Therefore, we estimate that it takes up to seven years to get full seeding establishment on these blocks. Our blocks are logged in both summer and winter, and cone distribution is generally very good. The Forest Service is very aggressive in ensuring that any left-over sources of dwarf mistletoe infection are knocked down prior to establishing a new stand. This is commendable, albeit somewhat questionable in terms of forest health practice because it has ramifications in the forest management process elsewhere.

A stand that has had mistletoe eradication treatment looks very barren. It is unattractive to wildlife and to the many lodge owners of the Western Chilcotin. They see us going back into these stands — knocking down the stems that are — as a very negative continuation of a negative thing. Granted, most of the lodge owners would not like to see us there in the first place, but when we are there initially, they do try to work with us. Only when we go back into some of these stands, and knock down everything that we left, like small islands of pine, do they really get upset.

...sanitation spacing is a questionable practice because there's no guarantee reinfection won't occur over an 80–120 year rotation...

One other really major altercation of aggressive mistletoe treatment is that it creates its own NSR. You go into some of these areas, and you only have a few stands that are coming in anyway, and if you go in and saw them down, you create your own NSR problem. This really becomes an acute problem in those blocks which have a lot of rock or stony soils. The mistletoe eradication treatment, or sanitation spacing, is a questionable practice because over an 80-to-120-year rotation, there's no guarantee that any form of reinfection won't occur. While I've seen the research on the estimated rates of spread of dwarf mistletoe, the problem in Western Chilcotin is so widespread — it's just virtually everywhere — that I really am doubtful that any type of sanitation-spacing program will have a long-term effect. The presence of dwarf mistletoe reduces the total potential of future growth by 20 to 30 percent. I'm not sure we gain that back in a spacing program.

The main purpose of the dwarf mistletoe eradication program is that the Ministry of Forests can then check us off to free growing. By this I mean that if we've done the program on a block to their satisfaction, then, when we're audited, the Ministry of Forests will consider those areas free growing, regardless of whether or not dwarf mistletoe is starting to re-establish itself on the edge of the stand.

I mentioned that we also create our own NSR in some of the more difficult growing spots by performing dwarf mistletoe eradication. As a result, we're actually doing a fairly extensive planting program in the Western Chilcotin; for the period of 1992 to 1994, Carrier Lumber will plant about 1.6 million seedlings, most of which are spruce, in the Western Chilcotin.

Changing silviculture requirements

It is difficult establish trees in the Chilcotin. This is not to say that reforestation and forest-management objectives cannot be met — they can. But they have to take into account changes in policy and public attitude towards what's needed and what's wanted on each piece of land. When Carrier Lumber was first invited by the Province to commence operations in the Western Chilcotin, our job was to find a way to salvage dead and dying trees, produce jobs, and establish a new crop of trees.

As a result of a new article, 129.3(4), we now had to see these trees to free growing. In other words, we now have a $6 million liability in the Western Chilcotin because most of these stands are going to need some form of spacing up to fifteen years henceforth. Our salvage license is over at the end of this year. We went down under one set of rules, the rules were changed— and that's government's right. But we have

no source of income for any of that area any more, and we have liabilities which may take us up to fifteen to twenty years to clear. That's really the source of some of the things that are going on with the government in the Cariboo now. It's a tough sell, a decade-and-a-half liability with no income. Anyway, Carrier has been doing the job in basic silviculture, and we plant every year, so that's not a problem.

Silviculture investments

It's repeatedly mentioned that investment in intensive forest management on volume-based tenures is not economically viable. It's highly doubtful whether any company, large or small, would invest in it. In any intensive activity, you're probably not going to get the investment back for at least four years. Add that to the fact that in forty years this company may not exist — smaller companies change hands, get bought out, go bankrupt. The initial quick solution to this is to hand out a bunch of area-based tenures. But it's very unlikely that the public is going to stand by and watch us hand out TFL after TFL after TFL. They're highly uncomfortable with that process.

I also don't think that it's any guarantee that forest stewardship or tenure can handle the log flow, or that stewardship and investment can handle the pieces of tenure which are longer. I just don't think it's guaranteed that you're going to get intensive silviculture. The way silviculture is paid for, whether it is basic or even incremental, is as the final "hoop" that a company has to go through. The less a company can spend on silviculture, I'm afraid, the more it actually makes.

The truth of the matter is that silviculture, while accounted for earlier on in stumpage, is actually paid for by the company as it's doing it. You cannot discount future silvicultural activities to Revenue Canada. If you were able to pay for silvicultural activities up front, instead of paying for them after logging the block, then you'd have that money regardless if the company disappeared, was bought out, went bankrupt, etc. You'd also have a greater source of investment dollars for intensive silviculture. The only inherent danger in this is that any time silvicultural funds are set up by government, they usually dip in for other reasons.

The current system of silviculture funding

Let me give you an example of what I mean. Our present system of silviculture funding, as I indicated, comes after we have done all our operations in terms of harvest on a particular block. We go out, harvest, log, and pay some stumpage at that time, based on the volume that we take off that piece of land. Then, we manufacture our product, and end up with a total liability. We sell the product, get a gross profit, and immediately, 50 percent of that goes to the revenue department of the Canadian government in basic corporate tax. So here's the profit, but you haven't done anything in terms of silviculture yet. Then, you fund the basic silviculture, and you're left with some net profit after silviculture.

...Even if that company doesn't disappear, they're going try to minimize the investment in the silviculture to get more profit...

The problem with this is that you're not guaranteeing the funding for silviculture. There is a tremendous liability out there. And every time a company disappears, who inherits that? Well, the taxpayer does. You do not have any guarantees that company will actually do that silviculture work. Even if that company doesn't disappear, they're going try to minimize the investment in the basic silviculture to get more profit.

Investment in silviculture is based only on achieving minimum to maximize the profit. That's the bottom line, and silvicultural budgets are unknown. You're not going to plant any more trees than you need to. You're not going to do a brushing if you don't need to. You're not going to site prep if you don't need to. Moreover, you do not really know the entire silviculture budget. In fact, you do not even have a formalized silviculture budget at this point.

Upfront funding for silviculture

An idea that's been kicked around by the Forest Resources Commission is that we pay a silvicultural levy right up front. Obviously, this is a very simplified version of what happens, how to calculate stumpage, and how we pay for silviculture. Essentially, though, this is the way the system works. Using arbitrary numbers to illustrate, imagine that the harvest and operating costs and stumpage are the same, two dollars per cubic metre. For the silvicultural levy, put in not only a dollar for basic, but a dollar for intensive. The sub-total at this point is minus four dollars. You manufacture, you're minus five or six. You sell the product. and you're up at plus two; you pay taxes, down to plus one, and you're still at plus one. But you have funded basic and you have funded intensive silviculture — that is the major difference from the way we do business right now.

All the silviculture is taken care of at this point. You have secured funding because you've asked for that money up front. You cannot get away from that. You cannot go out and harvest one stick of wood on a block before you pay for the silvicultural levy. You have no other silvicultural funds; therefore, the silvicultural plans are a lot more concrete and a lot more known. And the silvicultural funding is not based on any product value, be it lumber or pulp. Whether the markets go up or down, you still have the same funding. Paying a silviculture levy up front offers a lot of advantages.

I believe there are two other advantages to going to the pay up front method: first, there is one agency developing a long-term site prescription, including intensive silviculture. Second, only one agency for dealing with grievances such as in the Western Chilcotin and around the Prince George area, where people were under the impression that once the harvesting operations and basic silvicultural obligations are met, the blocks would be left alone.

It was also proposed by the Forest Resources Commission that a Crown Corporation for reforestation be established. A real advantage of that would be that all silvicultural expertise would be located within one agency, as opposed to blocked out between the Ministry and a bunch of small companies.

Les Reed stated at the last Northern Silviculture Conference in Prince George that the status quo doesn't exist any more in BC. He qualified that by saying we need to locate those immature stands that support investment. I believe the only way that we can support, or sustain our resource, while achieving an integrated approach to forest management, is to utilize better administrative and technical procedures. Reliance on the status quo in our administrative system will ultimately lead us to having to accept the status quo in terms of forest productivity.

I would like to conclude by saying that a lot smaller companies would support an upfront silviculture levy such as this, but a lot of the larger ones don't. The reason for that is because it costs a smaller company like Carrier more to get into a silvicultural program. Larger companies have their own way of dealing with silvicultural costs, they are able to defer costs, and move things around more. Smaller companies, like Carrier, don't have a lot flexibility—they do things as fast as possible anyway, so most of them think it's a good idea. ❖

PRESENT SYSTEM OF SILVICULTURE FUNDING		PAY UP FRONT SILVICULTURE FUNDING	
Harvest Operating Costs	−1.00	Harvest Operating Costs	−1.00
Stumpage	−1.00	Stumpage	−1.00
		Silviculture Levy (1.00 Basic + 1.00 Intensive)	−2.00
Sub−Total	−2.00	Sub−Total	−4.00
Manufacturing Costs	−2.00	Manufacturing Costs	−2.00
Sub−Total	−4.00	Sub−Total	−6.00
Product Revenue	+8.00	Product Revenue	+8.00
GROSS PROFIT >	+4.00	GROSS PROFIT >	+2.00
Federal Corporate Taxation @ 50% of Gross Profit	−2.00	Federal Corporate Taxation @ 50% of Gross Profit	−1.00
PROFIT before Basic Silviculture >>	+2.00	NET PROFIT >>	+1.00
Fund Basic Silviculture	−1.00	Basic and Intensive Silviculture already funded	
NET PROFIT AFTER BASIC SILVICULTURE	+1.00	NET PROFIT AFTER BASIC AND INTENSIVE SILVICULTURE	+1.00

1) Silviculture funding not guaranteed
2) Investment into silviculture will be decided upon based only on achieving minimums to maximize profits.
3) Silviculture budgets unknown.

1) Secured basic and intensive silviculture funding.
2) Known silviculture funds, planned silvicultural activities.
3) Silviculture funding is not based on lumber market (ie Product Value), MOF already has funding.

CSA NATIONAL SILVICULTURE REPORT

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2nd National Silviculture Conference

Silviculture— Changes at the Stand Level is the theme of the 1993 National Silviculture Conference being held Sept. 12-15 at the Regal Constellation Hotel in Toronto, Ontario.

The conference will examine ways in which various challenges in forest management are being addressed across Canada and around the world through the practice of silviculture.

Those challenges include biodiversity, pest management, wildlife management, ecosystem approaches to silviculture and other topical issues that are making headlines and the key questions Canada's forest managers are wrestling with.

Presentations will also deal with issues such as Canada's position in the world marketplace, the question of how Canada's forests should be managed, a national CO2 program, native forestry, community forestry and the policy changes needed to practice more intensive silviculture.

There are several special features planned for the three-day event. The opening plenary on Monday, Sept. 13 has Adam Zimmerman, former chairman of Noranda inc. discussing the importance of silviculture on a global environmental scale. A silviculture debate on Tuesday features a discussion of silviculture from the perspective of a forest industry representative, an ecologist and an environmental forester. A second panel discussion at noon on Tuesday looks at "selling" forestry to an urban population.

Another special feature is the Wednesday session devoted to small scale forestry focusing on woodlot management, tax implications, marketing of woodlot products, environmental considerations and many other topics.

The international component of the conference features overviews of silvicultural practices in the USA, China, Russia and Scandinavia.

This event provides a rare opportunity to gather with foresters, woodlot owners, and silviculture contractors from across Canada and learn first hand about the challenges that they are facing and the ways these challenges are being met. ❖

Liberal Party Policy on FRDA

from the Liberal platform

In 1982, the Liberal government announced a federal forest-renewal program, and since then, forest-management activities in every province have been supported under the FRDAs. These agreements have become the major source of funding for forest management, with the federal government contributing 56 percent of the total $1.1 billion spent in the first five-year agreements. Approximately 80 percent of this money was devoted to silvicultural practices such as site preparation, regeneration and stand tending, with the remaining funds devoted to research, small woodlot owners, and assistance for Aboriginal Peoples to develop forestry practices on their own lands.

Unfortunately, the 1993 federal budget announced the termination of all FRDA agreements upon expiry. This move by the federal government will result in lost jobs in a program that contributed to sustainable development (tree planting, site preparation and other silvicultural practices), integrated resource management, improved forestry data, human resource development, public awareness, small-scale forestry, aboriginal development and technology transfer.

Liberals believe that the FRDA agreements were critical to sustainable management of our forests and that the FRDA agreements must be renewed through longer-term agreements at adequate levels of funding to strengthen the commitment of governments. The amount of silvicultural effort and its effectiveness, has very significant implications for the long-term health of our forest industry and our forest resources. ❖

Sustainable Development Conference

J.S. Maini

Note: This letter was sent on Aug. 13, 1993.

Under the sponsorship of the Conference on Security and Cooperation in Europe (CSCE), a Seminar of CSCE Experts is being hosted by Canada on the subject of "Sustainable Development of Boreal and Temperate forests" in Montreal, September 27 to October 1, 1993. A Canadian position with respect to criteria and indicators for sustainable forestry is being prepared to be tabled at this Seminar.

Natural Resources Canada recently hosted a 2-day meeting of the Canadian Delegation to the CSCE Seminar as part of the consultative process in preparing a Canadian position on criteria and indicators. At that meeting, participants were involved in extensive discussions on the formulation of appropriate criteria and indicators that would enable us to assess our performance toward our objective of sustainable development of the forest.

Based on the comments by the members of the Canadian Delegation and others, we now have a revised draft paper for the next round of our consultation process. Specifically, I would appreciate your views on the criteria and any important item that we may have missed. As we are working on a tight schedule, we would appreciate you returning your comments by August 20, 1993.

We will then prepare a further revision based on your comments on this second draft. The position developed will then be carried forward to the Canadian Council of Forest Ministers at its meeting in the first part of September.

Thank you again for your cooperation during this somewhat condensed process. ❖

Nova Scotia Silviculture

Over the next several issues, the Nova Scotia Silviculture Contractors Association NSSCA will be publishing short articles on the province's silviculture contracting industry. Insights into the Nova Scotia make-up will provide the context from which issues of concern will come.

Meeting NS Training Needs

Jim Verboom, Pres. NSSCA

The Forest Regional Training Committee (Forest RITC) is a team effort involving government, industry and labour to deliver training where and when it is needed in the forest industry of Nova Scotia.

The Committee is comprised of thirteen representatives of the thirteen major stakeholders in our industry: these include the seven major forestry associations and the six largest forestry employers in the province. In addition, we have four government "advisors" on the committee. They are from EIC (our funding source), Forestry Canada, NS Department of Natural Resources and NS Department of Education.

The mandate of the committee is to identify the training needs of our industry and to develop these needs into a training plan. Once Employment and Immigration Canada has allocated a budget based on the plan, the committee purchases the training needed from whichever trainers will give us the best quality service per dollar package.

This approach to the delivery of training has had very positive results: trainers are learning to deliver relevant courses on what the customer (the trainee) wants and needs. Small contractors and landowners, who do not have the resources and contacts to tackle the usual parade of red tape to access funding, have very quick and direct access to seats in courses. Trainees speak highly of the courses that directly address subjects they wish to learn about. ❖

NS Silviculture Contracting

Jim Verboom, Pres. NSSCA

The silviculture contracting industry of Nova Scotia had its birth in 1978, with the signing of the first Federal-Provincial agreement for Forestry Development.

In January 1983, the signing of our second agreement (FRDA) saw the introduction of an "approved silviculture contractor status" system. This status was attained by meeting a list of prerequisites and entitled the contractor to an additional percentage on all his or her work. This contractor rate was designed to cover the cost of payroll benefits and supervision.

Since the advent of this system, 260 individuals and companies have attained this status. As of August 1993, only 89 have maintained their status.

Nearly all our work is on small private landholdings that are less than 2000 hectares, with an average lot size of a little over 40 Ha. Our average job size is just over four Ha.

This has led to the development of an industry where the average contractor works with a two-person crew during the day and does the paperwork in the evenings. Most people work within an hour's drive from home. ❖

Nova Scotia Silviculture Contractors Association

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Jim Verboom, President

MARITIME SILVICULTURE REPORT

Dispatches from the FRDA wars in PEI

As reported in the last issue of CSM, the federal government has decided not to renew the FRDA agreements. PEI was the first affected because their FRDA was cancelled last spring. As a result of a massive grassroots lobbying effort, the federal government was persuaded to provide one year "phase out" funding for the PEI FRDA. The following is selection of letters and articles from the PEI campaign, which may be only the first battle in the national FRDA wars.

PEI Gets FRDA Phase Out Dollars

Wanson Hemphill, PEIFIA General Manager

On July 13, Veteran Affairs Minister Peter McCreath announced on behalf of Natural Resources Minister Barbara Sparrow the federal government's provision of $1.5-million to phase out forest activities initiated under the Canada/PEI 1988-93 FRDA.

This announcement provided money to continue forest management treatments until March 31, 1994, and will allow some time for PEI to explore future forest-management options and plan for new federal/provincial/private forest-management approaches.

How did this short-term relief happen? The PEI Forest Industry Association (FIA) is an umbrella group formed in 1991 to help all sections of the PEI forest industry to work together for common goals. With the April 26 budget cancellation of FRDAs, FIA immediately began to organize and mobilize support. Emergency public meetings in Wellington and Montague each drew 300 people, $1200 in donations, and a list of volunteers from across the province. Following hundreds of letters, faxes, telephone calls, media coverage, lobbying MPs and MLAs, letters to the editor, and meetings with Forestry Canada, PEI governments, and ACOA,the PEI Government received $1.5 million to help us phase out FRDA activities.

A rally on May 20 in Charlottetown, where 300 forest supporters demonstrated outside a provincial cabinet meeting, obtained a continued provincial commitment to forest management, showed support for the industry, and drew public attention to our problem. Quebec and New Brunswick sent three van loads of woodlot-owners groups to attend our rally.

Rumours of federal sympathy to PEI's unfair situation became common. Quebec and New Brunswick's continued lobbying helped put assistance packages back on the table. Everyone worked together to get help for PEI. FIA, PEI MPs in Ottawa and the provincial Premier and Forestry Minister lobbied with daily information exchanges. FIA, with a lot of help from the media, tried to keep the struggle in the news with a different angle and analysis each week. PEI's Premier obtained a commitment at the first Minister's conference in Vancouver on July 3, leading to the announcement on July 13.

What we have learned from this effort

1. The most effective lobbying tools are:
   - Meetings and organizing volunteers
   - Developing a lobby strategy
   - Letters and faxes with follow-up phone calls from different people
   - Media education and good media coverage
   - Political connections with phone and lobbying to all parties
   - Networking with other provinces and keeping the pressure on

2. Federal/provincial agreements have a lot of politics attached to them.

3. Politicians, the public and media have to be educated on the values of forest management.

How we can prepare for forest management after March 31, 1994

Future forest-management programs will require new approaches and partnerships. The current government still seems committed to getting our of FRDAs as soon as possible. Liberals are working on a forest policy stating that "FRDAs agreements must be renewed through longer-term agreements at adequate levels of funding to strengthen the commitment of governments."

Constitutionally, forest management is a provincial responsibility, but an argument can be made for federal responsibility of private woodlots.

It's important for forest associations of industry and woodlot owners across Canada to work together on areas of mutual concern and agreement. Although each province has different needs and forest-management deliver-structures, there are many areas for mutual efforts and joint lobbying. FIA urges all groups across the country to work together and seek forest-management commitments from all candidates before the next federal election.

For further information and networking, please contact:
PEI Forest Industry Association, c/o Wanson Hemphill, Covehead Road, RR 1, York, PEI, C0A 1P0; tel (902)672-2114, fax (902) 368-4713.

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Ian Dennison, President

PEI FRDA Extended

Ian Dennison, President, PEI Forest Industry Association

Somehow, we turned it around. You must have read in the premier issue of *Canadian Silviculture Magazine* how PEI's forestry agreement was first on the chopping block. Even as late as May 26, former finance minister Don Mazankowski was reiterating the stand his government took in the April 26 budget. On May 26, he wrote, "Extending the expired agreement would not be consistent with the objective of streamlining federal spending in this sector ..."

Yet on July 8, it was officially announced that the federal government was contributing ad additional 1.5-million dollars to see us through until next March 31. How did this turnabout happen?

Answer #1: Persistence in the face of constant rebuffs and apparent failure.

Answer #2: "We" in the forest, and all the good folks we mustered to fight on our behalf. This is everybody from the Premier of the province, to journalists and TV reporters sympathetic to our case, to cabinet ministers and their supporting cast of bureaucrats, to woodlot owners willing to risk an interview and their picture in the paper, to silviculture workers willing to write a letter to the editor or pester their elected representatives, to environmental organizations who were willing to write to Ottawa, to woodlot owner associations from Quebec and New Brunswick who travelled to PEI to join in our roaring chainsaw demonstration at the government buildings (scheduled to take place during a cabinet meeting), to MP Joe McGuire who persistently nudged Minister Oberle in Ottawa and relayed the results to us, and to our association who wrote, phoned, faxed and wrote/phoned/faxed again to all of the above.

The interesting part of getting other folks on side in your struggle is that about the time you're ready to give up, their next burst of energy kicks in. Cultivate alliances all over the map, for it is the cumulative effect of many voices in many places that will have the desired effect.

The barrage of NOs from Ottawa

They kept saying no, we kept on bugging them ...

Finance Minister Responds

Don Mazankowski

Note: *Letter from the then Minister of Finance to the PEI Forest Industry Association, May 26.*

Thank you for your letter of April 28, 1993, in which you expressed your concerns about the impact on the PEI forest industry of the measure announced in my April 26, 1993 budget not to renew Forestry Resource Development Agreements as they expire.

The 1993 federal-budget decision not to renew Economic and Regional Development Agreements (ERDAs) in both forestry and mining was part of a government-wide package of fiscal restraints needed to reduce the deficit.

Forestry ERDAs and their predecessor agreements under the General Development Agreements were a useful tool over the last several years to promote, in cooperation with the provinces, the sound management of the resource base and the development of the forestry industry throughout Canada. The achievements of this cooperation over all these years now warrant the streamlining of federal spending in this sector, particularly at a time of fiscal restraint.

Extending the expired agreement would not be consistent with the objective of streamlining federal spending in this sector. That being said, I wish to assure you that the federal government will honour outstanding commitments made under the recently expired PEI Forestry Resource Development Agreement, including anticipated payout obligations in 1993/94.

The non-renewal of the PEI agreement will probably require that the PEI industry explore new approaches. With the experience gained in forest management over the years, under the various forestry agreements and the sizeable investment which have already been made in the PEI forestry sector, I am confident that new partnerships will be realized, possibly with the Government of PEI which has responsibility over matters of natural resources management, to ensure the continued development of PEI forest resources.

Once again, thank you for sharing your concerns with me. Please do not hesitate to do so again should the need arise.

Forest Minister Responds

Frank Oberle

Note: *Letter from the then federal Minister of Forestry to PEI MLA Walter Bradley, April 29.*

You will have heard of the decision announced in the budget not to renew certain Economic and Regional Development Subsidiary Agreements when the current ones expire. This includes all forestry development agreements.

As a result of this budget measure, the proposed Canada/PEI Agreement will not be renewed. I regret that, as a result of this decision, I am not in a position to offer any extension. However, we will meet our obligations during the "payout year" of the recently expired agreement.

Over several years, your predecessors and other members of the Canadian Council of Forest Ministers have been engaged in discussions regarding the role of the federal government in forestry. In light of the revised National Forest Strategy and the decision not to renew the Forest Resource Development Agreements, it would seem opportune to discuss the nature and scope of our future relationship.

Our budget decisions were not taken lightly. I am sure that you will appreciate the financial situation that made them essential.

MARITIME SILVICULTURE REPORT

The politics of patriot missives and telephone scuds

We managed to get federal and provincial PEI politicians into to the game of lobbying Ottawa

Calling on Ottawa

Catherine Callbeck, Premier of PEI

Note: The newly elected Premier of PEI wrote to Prime Minister Brian Mulroney, May 3. We had coaxed an election promise out of the Premier ...

On behalf of the people of Prince Edward Island, I wish to express my concern for the Federal government's recent decision not to renew or extend our forest development agreement. Like the Federal government, we too are implementing deficit control measures, so I can appreciate the need for Federal restraint. However, I would like to state that this decision unfairly impacts this province because of its abruptness and the lack of other viable options for our forest sector.

In 1992, PEI voted overwhelmingly to accept the recommendations of the Charlottetown Accord. Its guarantee of Federal support for regional economic development programs was seen as a major benefit because Islanders understood the advantages of assured funding for programs such as the Forest Resource Development Agreement. Unfortunately, the demise of these programs will hamper the development of our resources.

Over the past six months, staff from the Province have been meeting with their counterparts at ACOA and Forestry Canada to discuss a new multi-year Agreement. These negotiations were carried out in an atmosphere of cooperation and trust, so it came as a surprise when ACOA unilaterally announced on March 8, 1993 that there would only be a one-year extension to the present Agreement. Based on this minimum level of commitment, the industry and the Province also made financial commitments for the 1993/94 year. Many contractors undertook training programs for silviculture workers and purchased new equipment, while the Province seeded its greenhouses and made commitments to woodlot owners based on ACOA's statement. Obviously, the announcement that the Agreement would not be renewed was devastating to those with investments in the forest sector.

I would also like to point out that seven provinces have two years left in their Agreements, while New Brunswick has one year and Quebec has three. This time lag will allow them to plan before those Agreements expire, something we have not had the opportunity to do. This is hard to swallow, particularly in light of the fact that the FRDA comprises approximately 60 percent of the Provincial forestry budget, and private and public job losses will exceed 250.

We want the forest resources of PEI to play their part in the economic and environmental development of the region, and we also wish to be treated fairly, something I believe you will support.

The forests of this nation offer something to each and every Canadian and Islanders are no exception, because we believe sustainable forest management will benefit both our economy and our environment. I trust that this matter will receive your fullest attention and that we can work together for the betterment of the Island's forest resources.

MP lobbies for FRDA

Lawrence MacAulay, MP for Cardigan, PEI

Note: *Letter to John Crosbie, Minister responsible for the Atlantic Canada Opportunities Agency, May 5.*

I am writing to express my extreme disappointment about the decision of your government to cancel Forest Resource Development Agreements.

The cancellation of this program has caught the provincial government and industry players in Prince Edward Island totally off guard and ill prepared for the consequences. All other provinces will have an opportunity to prepare to lessen the impact your decision will cause. Because the previous agreement with PEI expired on 31 March 1993, Islanders will have absolutely no time for adjustment. This will have a devastating impact on the forest industry in PEI.

You may recall that in March, I wrote your office seeking a five-year extension of the existing forestry agreement. I feel that if Prince Edward Island is to have proper forest management, and if the industry is to develop economically, a five-year agreement is necessary. Over the last ten years, the forest industry in PEI has grown and is one of the bright lights of the Island economy. If Prince Edward Island is to continue its economic diversification, then a five-year agreement is needed.

"I've had more calls over this than any other issue" –MP

Newspaper excerpt, PEI

Note: We got everyone on the phone and put our MP's to work ...

The federal budget announced this week pulls the balance of regional development out from under the weaker provinces in Canada, says Cardigan MP Lawrence MacAulay.

In an interview Wednesday, MacAulay said the death of the forestry agreement will have the most immediate and devastating affect on the province.

"I've had more calls over this than any other issue," he said. "Forestry in the Cardigan riding, like elsewhere in this province, means jobs and it's going to hurt an entire industry that has been growing steadily."

MacAulay said the sudden cancellation of the regional forestry agreement was particularly bad since PEI was just re-negotiating a new contract, while other provinces are still involved in some level of development agreement ...

There are over 1000 people directly employed in the forest sector in Price Edward Island. The federal government's contributions under the Forest Resource Development Agreement counted for 60 percent of all spending in this important field.

According to the Provincial Department of Forestry, at the very least, one-third of all jobs in the forest industry in Prince Edward Island will be lost. To put things in perspective, in terms of the impact this will have on the Island economy, it would be the equivalent of over 28 000 jobs lost in Ontario at the stroke of a pen. It is simply unfair for a federal government to inflict such hardship on any province, particulary one with an unemployment rate over 16 percent.

If the situation were not bad enough, the decision of the federal government to give up its role in the forest industry is further complicated by the fact PEI is being abandoned without any chance to prepare. Most provinces have two or three years to prepare for the end of their agreements, and Quebec will have five years. Prince Edward Island was abandoned without any notice. Transitional assistance must be provided so that participants in the PEI forest industry have an opportunity to make the best of this very bad situation.

It is urgent that you seek the support of your colleagues, the Minister of Finance and the Minister of Forestry, to ensure the future of this important Island industry. If the decision to eliminate Forest Resource Development Agreements is not reversed, the PEI forest industry will be devastated. As well, if transitional funding is not provided for this year's requirements, then there will be immediate job losses. With so much economic bad news, Islanders deserve better treatment from their federal government.

I thank you for your consideration of this matter and look forward to your early reply.

News from the trenches

The newspaper editors were supportive ...

National Forest Week: pardon us for not celebrating

from a PEI newspaper editorial

When Walter Bradley was sworn in last month as the minister of a new superportfolio — Agriculture, Fisheries and Forestry — skeptics feared it would be difficult, if not impossible, for one person to handle all three areas of responsibility. Surprisingly, a few weeks into his new job, it's Forestry that's taken up much of his attention. And as he proclaimed this, May 2 -8, as National Forest Week, foresters here have some deep concerns that are dousing any enthusiasm they might have had for the special week. Many are wondering if they have any future at all in this industry.

"National Forest Week offers us the opportunity to show our appreciation for the many gifts our forests bring to us all," the minister said in declaring the special week. "Islanders are proud of their forests and take great pride in the proper management of these resources."

It's too bad Bradley's sentiments weren't shared by his federal counterparts who, in last week's budget, announced they would not renew any of their forestry agreements with the provinces once current projects expire. The Island's forestry agreement, which pumped $14.2-million of federal money and $9.9-million of provincial money into the industry over the last five years, expired March 31. Much to the chagrin of several hundred forestry workers in the province, the agreement won't even be extended by a year so that expires roughly the same time as in other provinces.

Estimates vary, but it seems at the very lest 200 jobs (and as many as 500) will be lost as a result of the agreement coming to an end. That's quite a blow, particularly to companies in the industry which have invested money in equipment and training in recent years. The federal-provincial agreement has helped them plant millions of trees, thin thousands of acres of forests and build hundreds of kilometres of wood roads. With the discontinuation of the agreement, the money invested over the past ten years in this industry may go for naught without continued weeding, thinning and planting ...

So pardon foresters if they're not dancing for joy on this, National Forest Week. If the federal government wants to do something meaningful that will give forestry workers in this province a real boost, review and renew the forestry agreement — or at very least extend its life by another year ...

Woodcutters city-bound in protest against Ottawa

Excerpted from an article by Stephen Sharratt in a PEI newspaper

Disgruntled forestry workers plan to descend on Charlottetown next week and make a little noise — and no one can make noise like a woodcutter.

"You could say we have the ability to bring the metaphor to life," said Ian Dennison, president of PEI Contractors Association. "And when we fire them up, we won't go unnoticed."

Hundreds of Islanders earn a living in the $17 million PEI forest industry and will gather in the capital, likely next Wednesday, to attract national attention to their plight ...

"It would appear the feds don't want to even open the door a crack and want to play it tough," said Dennison. "We're very dismayed at this attitude, but we're not dead yet."

The death of the forestry agreement, cost shared between the federal and provincial governments, will prompt hundreds of lost jobs as forestry management programs wither and die.

Dennison maintains the forestry industry is a force to be reckoned with.

"We can't all hop on a bus and go to Ottawa, so we will make our point in Charlottetown. It's like the domino theory ... first we tumble, and then the other provinces follow suit when their agreements expire ..."

MARITIME SILVICULTURE REPORT

PEIFIA/SCA Allies in the FRDA Wars

In addition to lobbying by other silviculture associations such as the CSA (see letter on the next page), we managed to gain visible support from a wide variety of groups in PEI.

Chamber backs foresters

Newspaper excerpt, May 19

Note: One such group was the Chamber of Commerce...

The Greater Summerside Chamber of Commerce is throwing its support behind the forestry industry as it fights to maintain government funding for forestry programs.

John MacDonald, director in charge of forestry, told members at the monthly meeting that local business has a lot to lose if forestry is hurt. There's an estimated 1,000 direct forestry jobs on PEI, which contribute to about 3,000 indirect jobs.

The chamber has sent a letter to the Forestry Minister Frank Oberle, listing its concerns about the federal decision to end forestry funding agreements. PEI's agreement ended March 31, giving the industry little time to prepare for the cut. Most other provinces have a year or two before the cuts have an impact.

Woodlot owner says government should see forest for valuable trees

Excerpted from an article by Stephen Sharratt, in a PEI newspaper.

We had help from woodlot owners willing to go public ...

Doug Johnston learned the value of forest management back in 1952, when his father cleared a prickly overgrown woodlot along the Brudenell River and planted pine trees.

Those trees are thriving today, but if government doesn't recognize the value of PEI forests, they will descend into useless and overgrown tracts of land, Johnston says.

A retired civil servant who ran in the last provincial election, Johnston said it's time government and the public recognized the value of the forest industry.

"We're piling up enormous deficits future generations will have to pay for, and at the same time, doing very little to invest in something they can benefit from in the future," said Johnston, who manages and thins his own woodlots as much for pleasure as for resource management ...

He said the province has generated a tremendous pool of expertise because of the forestry agreement and that only the surface has been scratched in regenerating forests.

Environmentalists also want FRDA

Diane Griffin , Executive Director, Island Nature Trust

Note: *Letter to Louis Landry, Minister of the Environment, May 10. We got help from an environmental group ...*

As I discussed with you yesterday and with the Hon. Jean Charest by telephone on May 1st, we have a situation arising from the recent federal budget that causes negative environmental consequences for Prince Edward Island. I have enclosed a copy of a letter I received from the PEI Forest Technicians Association which gives a good overview of the situation.

In particular, the agreement provided a means to incorporate wildlife-habitat management techniques into forest-management operations. Even more important from the view of the Island Nature Trust was the recognition and protection of special forest natural areas that was possible as a result of this agreement. In fact, the PEI Department of Energy and Forestry was so committed to this that it entered into a contract with Island Nature Trust to assist in the protection of natural areas. As a result of the progress that was made, PEI received the highest score of any province in the 1992 World Wildlife Fund's report card on progress in protecting endangered spaces.

In the interests of environmental protection, what can be done to provide an offset for the loss of the forest agreement?

Silviculture workers joined the fray

Gregg Murphy

Note: This letter to the editor by a silviculture workers was printed in a PEI newspaper.

I am taking the time to write to you as a concerned silviculture worker.

It has come to my attention that the so-called experts, in their three-piece suits, want to put an end to forestry on PEI. They have given the Island funds in the past to maintain the woodlots. We depend on these funds to manage the forest, such as planting and hardwood thinnings, as well as pre-commercial thinnings.

Without the funds for these operations, the only way for a cutter like myself to make a living is by clearcutting. I can't see myself staying in the woods if all the trees continue to come down and none are put back in the ground for future generations. If anything, they should put us cutters out of work and continue to plant the trees. They never did consider their children or their children's children. All they think about is the almighty dollar.

Cutting and planting go hand in hand, and there will always be people cutting. At the very least, they could spend a few almighty dollars to try and keep trees here on PEI.

Victory at last, or is it...?

Government Provides PEI with $1.5 Million

Communique from government of Canada, July 13.

Note: The federal government give in a little...

The Honourable Peter L. McCreath, Minister of Veterans Affairs and MP for South Shore, Nova Scotia, announced on behalf of the Honourable Barbara Sparrow, Minister-designate of Natural Resources, that the federal government will provide $1.5 million to phase out the forestry activities initiated under the Canada/Prince Edward Island Forest Resource Development Agreement which expired on March 31, 1993.

Two five-year forestry agreements were signed between the federal government and Prince Edward Island, one in 1983, and another in 1988. As announced in the April 1993 budget, the Economic and Regional Development Agreements in forestry are not being renewed upon expiry. Prince Edward Island is the only province that would not have had the benefit of a transition period without this phase-out assistance.

"We are very pleased to see this announcement," said Wanson Hemphill, General Manager of the PEI Forest Industry Association. "We have talked to Peter McCreath and several other federal politicians over the last few weeks and they were listening. These funds should help ensure a strong and vibrant forest industry in the province."

Funding for Forestry Projects Announced

Communique from PEI Dept. of Agriculture, July 13

Note: The politicians declare victory

Today, the Minister of Agriculture, Fisheries and Forestry Walter Bradley expressed his pleasure with the recent announcement of $1.5 million in federal transition money for the Island's forest sector. These funds will conclude the 1988/1993 Canada/Prince Edward Island Forest Resource Development Agreement (FRDA), and provide the Island's forest sector with time to begin seeking alternatives for current forest-management programs.

The funding was made available after the provincial government and the forest industry expressed concerns over the April federal-budget announcement that the federal government would be withdrawing from forestry agreements, leaving Prince Edward Island as the only province without an agreement.

"This $1.5 million will enable us to continue forest-management efforts for this year," said Bradley. "It is important that we have received this support to the Island's silviculture industry to ensure that the gains made over the past ten years are not lost."

Bradley said that the funding will continue to be allocated for forest-management activities on private and provincially-owned woodlots. These activities will be carried out by private contractors and woodlot owners, and the level of forest management will be similar to that of last year. As well, the Department will continue the production of seedlings currently growing in the greenhouse and fund technical support for delivering the forest-management program.

Although the overall level of funding is below that of last year, the Minister said that through the consolidation and downsizing of the Forestry Division, administrative and program delivery costs have been reduced, allowing the dollars saved to be spent on silviculture work. He said the Department and the forest industry are also discussing ways of reducing the cost of forest-management activities.

Bradley said he was confident this year's program will resume quickly as the provincial government had committed its share of funding for forest management earlier this spring.

"I am very pleased we have been able to secure this funding for forestry projects for this year," said Bradley. "This will enable us to maintain our programs for the current year, while providing government and the forest industry with time to explore alternative forest-management options for Prince Edward Island."

The forestry industry employs more than 1000 people in the private and public sectors, and adds approximately $17 million annually to the provincial economy.

Government replies to CSA FRDA letter

Ross Reid, Minister for ACOA

Note: This letter was received on Aug. 19, 1993. See the last issue of CSM for CSA President Dirk Brinkman's letter to Prime Minister Mulroney requesting an extension of PEI's FRDA.

Thank you for providing my predecessor with a copy of your letter of June 9, 1993 addressed to the Right Honourable Brian Mulroney regarding the expiry of the 1988-93 Canada/Prince Edward Island Forest Resource Development Agreement and the federal government's policy decision not to renew the Agreement.

The responsibility and overall mandate for forest management activity rests with the provinces and while it is recognized that this situation necessitates very difficult choices on the part of the Prince Edward Island government, provincial Ministers will have to decide how best to allocate their available funding to continue their forestry programs. In an effort to assist the Government of Prince Edward Island with this change in situation, the federal government will provide $1.5 million in 1993-94 for the transition of forest management responsibility. These funds will provide the necessary assistance to facilitate the transition.

I appreciate being made aware of your concerns. ❖

ONTARIO SILVICULTURE REPORT

Minister of responds to CSA proposal for Ontario silviculture policy

Howard Hampton, Minister of Natural Resources

Note: *This letter was received on Aug. 19, 1993. See the Summer 1993 issue of CSM for CSA President Dirk Brinkman's detailed proposal about reforming silviculture policy in Ontario. The appointment of provincial facilitator Bob Carman, to negotiate a new silviculture policy is also reported in the issue.*

Thank you for your letter of March 17, 1993, about the direction of Ontario's silviculture program. I appreciated the opportunity to discuss this matter with you in March, and apologize for the delay in responding.

I have read your comments and recommendations with interest and have shared your letter with the Ministry's forestry staff in Sault Ste. Marie. I understand that they will be in contact with you about some of these issues. I encourage you to discuss your views with them in further detail.

Mr. Len Wood, my Parliamentary Assistant and MPP for Cochrane North, and I have been touring Northern and central Ontario in order to better understand the biological and economic implications at the local level of these silvicultural changes. We have met with Ministry and industry foresters, community groups and those involved in the silviculture business. The Ministry wishes to ensure that changes to silvicultural practices occur in a way that is sensitive to local requirements.

You may be interested to know that Mr. Bob Carman has been appointed by the Government as Provincial Facilitator for talks with the forest industry on a new forest management business arrangement. He plans to hold discussions with the forestry industry, both FMA and non-FMA , and other groups to hear ideas on a new forest management relationship. His goal is to develop a model which has the support of the forest industry and the Ministry by the spring of 1994.

He can be contacted at the Office of the Provincial Facilitator, 555 Yonge Street, 8th Floor, Toronto, Ontario, M7A 2H6, or at (416) 314-1539.

Given the fiscal realities that this Government is facing, I believe that we must explore the most effective and efficient way to plan and carry out regeneration activities on all of the areas harvested in the province.

Provincial forest facilitator responds

Bob Carman, Facilitator

Note: *This letter was received on July 19, 1993. See letter above for more information.*

I have been appointed by the Minister of Natural Resources to facilitate negotiations between the Ontario forest industry and the MNR concerning a new business relationship.

The Minister has forwarded to me a copy of your presentation. I appreciated reading you comments on a dedicated source of funding for silviculture and on "end results" in growing standards. These points are certain to receive close scrutiny in our discussions.

Thank you for your thoughtful advice.

Ontario stock quality assessment project

from an MNR press release

Minister of Natural Resources, Howard Hampton, has announced a Stock Quality Assessment Project which allows nursery staff and foresters to submit seedling stock for testing of its viability through the Seedling Certification program. Ensuring that planting stock is consistently of the highest quality will lead to substantial cost savings by reducing the need for sites to be replanted when seedlings do not perform well.

Already in 1993 over 60 million bareroot and container seedlings were certified. Testing procedures include visual examination, root growth potential tests and, where needed sophisticated physiological examination. MNR is committed to the principle that all seedlings to be planted will be evaluated through this program.

Micro-Tek Labs in Timmins will provide seedling testing in partnership with the existing laboratory at MNR's Ontario Forest Research Institute in Sault Ste. Marie.

Ontario Forest Policy Panel releases report

from an MNR press release

The Ontario Forest Policy Panel has released recommendations for a comprehensive forest policy framework. The report, called *Diversity: Forests, People Communities*, includes a goal for Ontario forests, principles for sustaining forests and using forests, strategic objectives for addressing major forest values, decision making protocols and an implementations agenda.

The proposed framework sets out objectives for:

- conserving the natural diversity of all aspects of the forest, including animals, plants and other forest organisms
- protection of natural heritage forest lands for the future
- water, air and soil quality
- employment related to the forest
- defining how the land-base may be managed to produce fibre and wood for commercial use
- food, fur and other renewable forest goods
- how we encourage investment, adapt to market values, and raise revenue in the forest
- forest based tourism and recreation
- cultural and spiritual fulfillment
- the increase of knowledge and a better understanding of how to achieve forest sustainability

For information on obtaining copies of *Diversity: Forests, People Communities*, contact Ontario MNR Communication Branch at (416) 314-2095.

Principles for sustaining Ontario forests
from Diversity: Forests, People Communities

- Ontario will maintain ecological processes essential for the functioning of the biosphere, and conserve biological diversity in the use of forest ecosystems.
- Large, healthy, diverse and productive forests are essential to the environmental, economic, social and cultural well-being of Ontario, both now and in the future.
- Forest practices, including clearcutting and other harvest methods, will emulate, within the bounds of silviculture requirements, natural disturbance and landscape patterns.
- **Forest ecosystem types that cannot be returned to similar and healthy forests will not be harvested.**
- Forest practices will minimize effects on soil, water, remaining vegetation, wildlife habitat and other values.

WSCA NEWSLETTER REPORTS

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BC silviculture milestones

Dirk Brinkman, President WSCA

Note: This letter was sent to Dan Miller, Minister of Forests, June 4, 1993 on the occasion of planting the province's 3 billionth tree (see below).

Congratulations are due to the people of British Columbia for having supported responsible forest renewal legislation.

The three billionth tree, while no longer a real milestone, reflects the magnitude of the forest renewal program.The great milestone of today is the fact that all areas harvested are being successfully reforested to free growing stands which suit each site's forest ecosystem.

Another milestone is that the 700,000 bectares of targeted backlog i snearly stocked.

A third milestone is that the silviculture industry has stablized and becomeprofessional.

A fourth would be putting in place a preservation program for conserving BC's forest ecosystems within a new code of forest practices.

Sorry I cannot be there. On that day Joyce Murray receives the SFU Dean's convocation medal for acedemic excellence in the Graduate Business program. As you know, her thesis on Global Warming: Policy Analysis & Proposal for a Carbon Sink Silviculture Program (see article on page XX of this issue) has become a WSCA policy platform. Balancing BC's CO2 emissions with carbon sink silviculture could be another milestone.

May the little tree you plant harbour many happy insects and birds and die of respectable old age and not from climate change.

Thanks for inviting me and Happy Planting.

Minister plants 3 billionth tree

From MOF press release

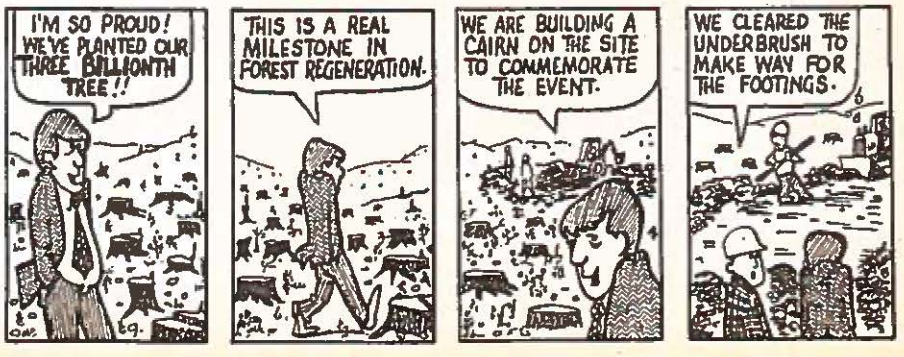
On June 4, 1993 BC Forest Minister, Dan Miller, symbolically planted the province's three billionth tree, a Douglas fir, in Kamloops. Miller said it was a significant milestone in BC's reforestation and forest management history.

The BC Forest Service planted the first seedling in 1930 and the two billionth was planted in 1989. In 1991/92, more than 229 million seedlings of 19 different species were planted on over 199,000 hectares, almost double the amount planted in 1980.

"Reforestation is a critical component of forest management in BC," Miller said. "Tree planting helps speed up the reforestation process." Natural regeneration is still used in about 50% of the areas reforested, but if often takes three years longer for a natural seedling to become free growing than it does for a planted seedling.

Miller made a commitment "to continue our aggresive reforestation program to ensure all harvested areas are reforested by licensees and backlog areas that have not regrown are planted using the highest quality seedlings." ❖

From the gallery **by Trevor Bryden**



Reclassifying pre-'82 NSR threatens BC's silviculture standards

Dirk Brinkman, President WSCA

Note: This letter was sent to Dan Miller, Minister of Forests, July 21, 1993

The Chief Forester's June 2, 1993 decision to reclassify as stocked (SR) areas carrying reduced stocking levels has serious implications for your government.

In 1987 the MOF required the forest companies to reforest all areas logged. At that time also, the province committed to reforesting the pre-1987 NSR. Declaring pre-1987 understocked areas stocked (SR), implies a double standard and invites compromise of BC's Silviculture Standards in other areas. I trust that you were not aware of this and can rescind this decision for public review.

You responded positively to our Dec. 1992 request to be consulted by your Silviculture Branch about planned administrative changes that affect our members. We are disappointed that we first heard about this from the news media.

This decision involves more than 23,000 hectares. In addition, District Managers have already used their discretionary authority to classify many areas stocked which were only marginally stocked. Future surveys will encounter many more understocked areas which fit this category.

WSCA members can efficiently fill-plant and hand brush many of these areas to bring them up to acceptable stocking standards. Not fill planting 23,000 hectares represents approximately 8 million trees — equivalent to over two hundred full time silviculture jobs.

Putting these areas into inventory in a partially stocked condition will adversely affect future AAC calculations and contribute further to reducing permanent employment in the forest sector.

The Chief Forester's suggestion to District Managers that the benefit of planting these areas should support the costs is a moot argument. On a pure financial return model, reforestation does not pay. BC's reforestation program is based on broader principles of stewardship and sustainable development. If we accept harvesting without reforesting we threaten those principles.

In the context of the public trust in which these principles are held, it is a mistake for the Ministry to re-classify unstocked areas as stocked. If the MOF is planning to delete these areas from the target backlog program without restocking them, please acknowledge them as NSR not targeted for reforestation. Classifying these areas as stocked when they are understocked suggests that the MOF decision not to treat these areas would not have public support— and indeed, this decision does not have WSCA support.

The insensitivity of this decision to the fact that this is a public program underlines the need for a review of all of the backlog program decisions made by both the previous and present governments.The WSCA has never agreed with many of the steps used to net down the 3.7 million hectares of NSR to the currently targeted 336 thousand hectares.

Stocking standards reduced for NSR sites

John Cuthbert, Chief Forester

Note: This memo to all MOF Regional Managers and Silviculture Officers was sent on May 26, 1993

The Silviculture Program is currently pursuing a policy to eliminate most of BC's outstanding reforestation obligations by the year 2000. Of concern are those harvested or deforested by fire and pest prior to 1987, for which the province is responsible to reforest to free growing. The FRDA I initiative and the recent Forest Renewal Plan have been very effective in reducing these NSR areas.

In some areas of the province, the reforestation of the remaining Good and Medium NSR areas harvested prior to 1982 is being questioned from an economic perspective. Most of these areas contain well-spaced, free-growing trees of acceptable species but at levels marginally below the minimum stocking standards.

Increasing the stocking level to meet the standards requires site rehabilitation and planting. This may result in the loss of 12 to 25 years of growth from these sites. The alternative, to plant seedlings under the existing larger trees (four to eight metres) to achieve minimum stocking standards, may not be biologically, or technically, practical. The high costs associated with these treatments is questionable relative to the projected gains in volume. An estimated 23,000 hectares fall in this category.

Sites classified as NSR have no volume gains attributed to them by inventory models, which is often not a true reflection of their current productivity. Reclassifying sites as SR would overestimate projected volume as they are not fully stocked. Pre '82 Good and Medium NSR could, however, be legitimately reclassified as SR by applying a lower stocking standard, providing that projected inventory volumes are adjusted to account for the lower stocking. Inventory processes can now account for this.

continued on next page...

...continued from previous page

Silviculture policy regarding minimum stocking standards for pre '82 Good and Medium NSR sites will be amended as follows:

Stands are considered SR/Free Growing where the average age of well-spaced, healthy and vigorous, free-growing stems is 12 years or greater and the number of well-spaced, healthy and vigorous, free-growing stems is 60 percent or more of the existing minimums (minimums as per *Ministry of Forests Correlated Guidelines for Free Growing Stocking Standards*, 1990).

This amendment is effective immediately, but may be waived for sites already contracted for treatment. This amendment is not applicable to uneven-aged stands.

Inventory Branch has indicated that they will apply the appropriate reduced volume projections for areas that are carrying reduced stocking levels. The methodology for deriving the reduced standards, and the process for their implementation will be provided. Reduction factors will be reviewed periodically.

MOF staff must exercise sound judgment when applying these new standards, as there may be instances where the benefits of rehabilitating marginally stocked sites to target stocking standards outweigh the costs. The new standards are intended to provide an alternative to rehabilitation for sites where the benefits of treatment are questionable.

Backlog Rule for Pre-1982 Sites

"Pre-1982 backlog sites greater than or equal to 12 years of age, with well-spaced, healthy, acceptable, free-growing stems greater than or equal to 60 percent of the Minimum Stocking Standard, can be considered satisfactorily restocked (SR). A volume adjustment will be applied against these sites through to rotation, as they are brought back into the productive land base."

Assumptions Used

1. All stems to be considered in this decision must be healthy, acceptable, well-spaced, free-growing crop trees.
2. This exercise will apply to Pre-1982 sites only.
3. This exercise will not circumvent a manager's decision to treat backlog marginally-NSR areas based on their management plans.
4. All stands that have an NSR label are not contributing to the volume of the TSA.
5. The application of this backlog rule will account for the effects of calling a site (that falls in this category) SR through a volume adjustment that will be applied to that site throughout its rotation. ❖

A licensee view of WCB Regulation Review Subcommittee on Silviculture

Joan Thomas, Chief Forester,
Finlay Forest Industries Ltd.

The premier issue of the *Canadian Silviculture Magazine* reported on the Regulation Review Subcommittee on Silviculture. The report from this Committee is intended to be the basis for silviculture camp regulations that will go to public hearing late this year or early in 1994.

As the licensee employer representative on this committee, I thought it appropriate to summarize a few of my thoughts on this report.

These proposed regulations are designed to provide a level playing field for all silviculture contractors and ensure a basic standard of healthy, safe living conditions for all workers. Many issues were debated at length in this committee, with the employer representatives strongly supporting the maintenance of mobile, temporary camps. Given the nature of silviculture work, especially the tree planting season, temporary camps are essential.

When reviewing these proposed regulations, the reader should keep in mind that many exemptions have been identified for crews with six or less people. This is intended to maintain the flexibility required for activities such as surveying and cruising crews.

The proposed regulation is designed to make contractors responsible for their camps and the well being of their workers. However, in order to keep a level playing field, the Workers' Compensation Board must have the resources to enforce these standards and licensees must be prepared to comply with the Notice of Project (NOP) requirements.

I believe that if all parties involved in the silviculture industry support this proposed regulation and it is enforced, the well being of the workers will improve and the silviculture industry in BC will mature to a more stable workforce.

Silviculture Sub-committee report released

The final report of Silviculture Subcommittee on **Temporary Workplace Silviculture Camp Regulations** (which were summarized in the last issue of *CSM*) is now available from:
WCB , Box 5350, Vancouver, BC, V6B 9L5.
The proposed regulations have not yet been enacted by the Board of Governors, but action is expected soon. ❖

WSCANEWSLETTER REPORTS

First Nations concerned about FRDA cancellation

First Nations Forest Council calls for re-evaluation of federal role in forestry on Indian lands

Chief John Smith,
Chair BC First Nations Forest Council

Note: This letter was sent to Prime Minister Campbell on June 28, 1993. In the last issue of CSM we printed an incomplete version of this letter so we are reprinting it in full this issue.

The BC First Nations Forestry Council (FNFC) is concerned that your government has announced that BC's FRDA II funding will not be renewed.

FNFC's mandate is to increase aboriginal participation across the forest sector. FRDA I and FRDA II have played an important role by funding:

- direct involvement of First Nations in forest management planning
- silviculture work on reserve lands,
- forest stand enhancement projects which employ native silviculture practitioners,
- training of First Nations people in silviculture.

Cancelling PEI's FRDA Agreement signals the start of a process that will, in the end, undermine an important component of the funding for First Nations involvement in forestry in BC. As First Nations people are increasingly involved in renewing and enhancing the forests, sustained funding becomes more important— particularly in BC where one third of Canada's aboriginal people live.

The rationale given in the April 1993, Federal budget for the non-renewal of FRDA's is that forestry is essentially a provincial responsibility. This may be true in many respects, but Indian reserve lands are without a doubt, a Federal responsibility. The FNFC wishes to point out that although FRDAs have been the sole source for forestry funding of Indian reserve lands, it has been inadequate to meet the fiduciary obligations of the Federal Government for these lands. Aboriginal forestry organizations have held this view for some time, and it has been re-emphasized in the Auditor General's report this past November.

FNFC unanimously requests that the federal role in forestry be re-evaluated in the light of our concerns and that continuing funding be assured for First Nations people. I would urge you to utilize the FNFC and other Aboriginal forestry organizations to assist your government in designing and implementing appropriate new programs

First Nations/FRDA issue passed to Minister

Conrad Chénier, Correspondence Manager

Note: This letter was received on August 25, 1993

On behalf of Barbara Sparrow, this will acknowledge receipt of a copy of your letter dated June 28, 1993, addressed to Prime Minister Campbell, regarding funding of BC's FRDA II.

Since the matter falls under the jurisdiction of Minister Sparrow, your correspondence has been forwarded to her office.

Please be assured that your correspondence will be brought to the Minister's attention at the earliest opportunity.

Indian Lands program phased-out with FRDAs?

Harry Bombay, Executive Director National Aboriginal Forestry Association

Note: From the NAFA Newsletter, Summer 1993.

It was announced in the April 26, 1993 federal budget that the present federal-provincial agreements on economic development in forestry will not be renewed when they expire. In some provinces, these agreements will terminate within two years. Funding for existing Indian lands programming under the FRDAs totals approximately $28 million. The Indian lands component of these agreements is the only source of funding directed at regenerating reserve lands.

The federal government rationalizes the non-renewal of the FRDAs by stating that forestry is a provincial government responsibility. Obviously, the government was not thinking of its constitutional responsibility for Indian lands when it made this budget statement. The Minister of Indian Affairs has a fiduciary responsibility to manage Indian lands for the use and benefit of Indian Bands.

To fulfil its fiduciary obligation to Indian lands in terms of correcting past mismanagement practices, the federal government should be considering significant increases in Indian lands programming. According to the National Aboriginal Forestry Association, the FRDAs are not meeting the needs of First -Nation communities. To replace FRDAs, NAFA has been lobbying for a comprehensive Indian forest lands program that would allow development of First Nation controlled delivery mechanisms. This approach would facilitate capacity-building and place greater control in the hands of First Nation communities.

At the present time, it is unclear whether the federal government will terminate the Indian lands programming when the FRDAs expire, establish another federal government controlled delivery process, or develop a comprehensive Indian lands program in consultation with First Nations. ❖

CORE Update

Dennis Graham, WSCA Director

As I reported in the last issue of CSM, the WSCA needs to develop an active policy with respect to land use issues and the CORE process. It is sensible for us to work with the other small, independent operators in the forest (such as the truck loggers and woodlot licensees) to develop a joint policy. The following is a draft of some of the issues and goals that we smaller operators may have in common. I would appreciate suggestions from the membership in trying to craft a WSCA position.

Forestry Independents Goals

Forest lands managed sustainably

The regional land-use plan is developed within a global context.

The land-base and particularly the forests is managed for the public net benefit.

Potential costs and benefits of any objective, policy or activity on the environment is taken into account in the development of land-use plans and management strategies.

Comparable or increased levels of employment opportunities are maintained in forest management and production and resource extraction.

Maintain or increase public revenues generated through the utilization of and employment in the forests.

Land-use and resources allocation decisions are made with the empowerment of the regional public facilitated through a fair, equitable, well informed and balanced shared decision making process.

A balance of land uses that maintains the integrity of the environment and a sustainable forest industry.

A healthy, viable and largely self reliant regional economy that is based on a variety of production, service and manufacturing operations in which the maximum value is added locally to the goods produced and resources extracted.

Ensuring local needs for forest products are met before supplying an export market.

Increase in value-added manufacturing operations.

Acknowledge changing social values by enabling meaningful input into the local economy by forest product producers through tenures that reflect the capital investment and/or labour required.

Encourage a diversity of types and sizes of forest product management, extraction and manufacturing operations.

Provide options for people to pursue a choice of lifestyles which result in individual pride and identity and enhance social and economic well being.

Ensure a diversity of employment and lifestyle opportunities which promote self reliance.

Recognize the potential for natural calamities such as fire, pests, disease, global warming, acid rain and other forms of pollution, or the adverse affects of human activities that negatively impact the working forest.

Provide educational opportunities to increase the knowledge of forest contractors in order to enable them to carry out practices that fulfill changing guidelines.

Establishment of a silviculture trust fund for the intensive silviculture systems to offset reductions to the AAC lost through withdrawals from the working forest land base.

Operational Alternatives

General provincial guidelines will be developed and applied to ensure sustainability.

Managers have access to the best technical and scientific information.

Reallocate the AAC under a variety of management regimes and tenures.

Create an open and competitive log market supplied by at least 50 percent of the AAC.

Provide financial incentives and assist with a market research capacity to encourage a viable and sustainable independent value-added industry.

Undertake steps to mitigate the affects of natural calamities and negative human impacts and restore and rehabilitate those areas already affected.

Rehabilitate harvested areas to a healthy and productive forest ecosystem comparable to its pre-harvest state.

Reforest with appropriate species mix as per Correlated Stocking Guidelines for BC Ecosystems.

Complete vegetation regime for ecosystem regarding establishment and management of other species, e.g. yew, mushrooms, medicinal herbs, etc.

Forest soil productivity be revived through erosion control, soil rehabilitation, freeing up of compaction after harvesting.

Hydrological regime restored through riparian repair and surface control of run off.

Compile a data base that includes soils, slope, drainage, erosion mass wasting hazard, biogeoclimatic ecosystem associations including timber and other forest products and value inventories and land use and impacts history to identify the most suitable harvesting systems and silviculture methods in order to minimize adverse impacts on the environment. ❖

BC21 the wrong program for increasing aboriginal participation in silviculture

Dirk Brinkman, President WSCA

Note: This letter was sent to Chief John Smith, Chairman, First Nations Forestry Council, August 4, 1993

I was unable to attend the July 6, 1993 meeting of the First Nations Forestry Council (FNFC). The minutes for that meeting propose shifting the FNFC mandate from "increasing aboriginal participation without displacing existing workers" to "while providing due consideration for other stakeholders."

The silviculture contracting industry's view of this aspect of the mandate of the First Nations Forestry Council's requires clarification considering current government policy, namely BC 21.

The silviculture contracting industry welcomes aboriginal involvement on the same terms as those facing the current players. The industry understands that increased aboriginal involvement will involve displacement of some of the existing dedicated non-aboriginal, traditional workforce.

This brings up a current "hot" issue, BC21. The WSCA has come out strongly against the BC 21 program, for a number of reasons.

A provincial program to implement aboriginal involvement should be based on the following criteria:

1] scheduled as a gradual transition

2] professional in terms of quality/cost

3] using extra (to silviculture) funding for training and entry support

Gradual transition

As long as the displacement of the existing workforce by First Nations people is gradual, it will offset the annual attrition that occurs in our industry, minimizing the pain of putting the current practitioners out of work (some of the existing industry are aboriginals). "Gradual" will also ensure that the entry of new First Nations people is successful.

Accelerating the Forestry Worker Training Program funding from $12 million to $56 million is not gradual.

The provincial silviculture budget was cut by over $20 million before the BC 21 program replaced it. As a consequence, a large percentage of the intensive silviculture work force has been put out of work in favour of a make-work program, primarily for workers on social assistance and also for aboriginal workers. Intensive silviculture contractors are out of work because their scheduled contracts were canceled. By springing the BC21 program on the districts, the only place these new funds could be flushed is through the planned contract program. Thus, the only option was to cancel the planned contracts.

Professional quality & cost

In the silviculture Industry professional quality standards are rigorously applied on contracts, with no pay for poor quality and penalties for less than 93% quality. BC 21 programs are based on hourly work patterns with neither quality nor production deadlines. Internal estimates assume one quarter to one eighth efficiency. These work patterns or standards do not prepare workers for the competitive free market of our industry.

Working for 20 weeks on an hourly basis to qualify for UIC is precisely the wrong kind of training to groom an entrepreneurial "go-for-it" attitude needed to succeed in silviculture. BC 21 only has the marginally redeeming value of training people to appreciate UIC — which is better than welfare — and which many people in the seasonal silviculture industry depend on in the winter.

Workers in the BC 21 program will not transfer successfully to the silviculture industry. Silviculture as practiced by this program is too cost inefficient to be affordable to B.C. taxpayers

Training & entry funding

To fund BC 21, first the silviculture program was cut and then the funds reappeared through BC 21. BC 21 funding should have come from the Education and Social Services Ministries and not from the silviculture budget.

The most important factor for successful training is the pre-selection process. There is no value in training those who are not actually interested in working in a field silviculture career. That is why it is important that training and entry funding be available to assist for on the job training in contract circumstances which have normal quality standards and deadlines. Only after a person has decided that silviculture work is right for them will investing in training have value for the province, industry, aboriginal community or that individual.

Because the BC 21 program does not preselect for committed people, but priorizes those on social assistance, it is wasting limited training money and expertise.

The BC 21 program fits none of our key criteria for a sound training/entry program.

In summary, I am concerned that changing the mandate of the FNFC as recommended by those attending on July 6, 1993, may read as support for BC 21.

I would like BC 21 discussed at our next meeting

BC21 displacing the silviculture industry

Dirk Brinkman, President WSCA

Note: This letter was sent to Dan Miller, Minister of Forests, July 16, 1993

Now that we find that many WSCA members are without their traditional silviculture work, I am repeating my request for your government to respond to WSCA concerns about the BC21 program.

The BC21 program has reallocated silviculture funding from direct delivery to job creation. The main beneficiaries are equipment suppliers, since the number of workers and brush saws per hectare is much higher for BC21 projects.

We do not believe that this program will benefit most of the workers going through it. They would have been better off joining the experienced silviculture workforce (who are now unemployed) and getting into the regular silviculture season as a professional. Our members all have training programs incorporated into their operations.

Why not have a portion of BC21 funding delivered directly through the existing contractors and their workforce. Surely our efficiency and quality of work make us the best instrument for BC21's investments to improve our forest capital.

BC21 takes away from silviculture project budgets

Dirk Brinkman, President WSCA

Note: This letter was sent to Glen Clarke, Finance Minister, June 10, 1993. As we go to press there has been no reply

This is a request to restore the 1992 budget for silviculture projects so BC's forests can be sustained by dedicated silviculturalists in the industry. The WSCA does not support the strategy of diverting silviculture funds for other social objectives.

4% reduction in budget for resource management

From organizing your budget into three catagories (see below), I note that government overhead is increasing while funding for Resource Management has been cut. Increasing services to people is only possible if the primary engines of our economy are well maintained. Canada's primary resources have made this the best place in the world to live.

($ millions)	1991/2	1992/3	
Government	$1,335.0	$1,526.2	+14.3%
Public Services	$15,138.4	$15,935.6	+5.3%
Resource Mgmt	$1,597.5	$1,532.2	-4%

7.6% reduction in budget for silviculture field projects

This trend becomes more severe when looking closely at the Provincial Silviculture budget for the maintenance and repair of the forest resource.

The silviculture budget for field projects has been directly cut by $12.5 million or 7.6% (when this is adjusted for inflation, the real cut is over 10%).

Silviculture	1991/2	1992/3 ($ millions)
Salaries	$40.1	$43.9 +9.5%
Projects	$164.2	$151.7 -7.6%
TOTAL	$204.3	$195.6 -4.2%

The Forest Resource Enhancement Program (announced by the Social Credit government at our 1991 AGM) planned to increase the incremental silviculture budget by $70 million to avoid reductions in AAC and an expected 100,000 in job losses. The NDP government committed to this program (at our 1992 AGM) but then cut the 1992 budget by $8 million. The 1993 budget represents a major disappointment to the silviculture industry and the public concerned with managing our forest resource.

$4 million allocated to BC 21

We now understand that the work available to WSCA members and their experienced silviculture practitioners was further reduced by the BC 21 announcement, which allocates $4 million of the budget for silviculture projects to the FWDP (in addition to the $12.9 million contribution from the Ministry of Social Services).

The MOF estimates that the total $16.9 million FWDP will accomplish what silviculture industry crews could do for $4 million, meaning the BC 21 program is 1/4 as cost effective as the industry. Considering that the FWDP wages are 50% of industry rates, productivity is expected to be 1/8. Historically, it has been as difficult to attain good quality silviculture on make-work programs as it is to attain good production.

The people who have historically participated in make-work programs rarely exhibit the dedication and motivation required for a career in the silviculture industry. BC 21 and FWDP will simply delay their inevitable response to economic restructuring in their communities. If they really wanted a silviculture career, they would already have made that choice.

This federal/provincial employment shell game is a time honoured tradition, however, replacing the silviculture project budget with BC 21 will have the result of putting our workers on UIC so that people on social assistance can go to work. This is counter-productive in both social and forest management terms.

$4 million allocated to aboriginal crews

Silviculture Branch is also allocating approximately $4 million of the budget for silviculture projects exclusively to aboriginal peoples through direct award contracts. While the WSCA supports the goal of training aboriginal silviculture contractors and practitioners, funding for this should not be carved out of the core silviculture program.

An aboriginal direct award program represents a practical direction for goals historically funded through Advance Education & Job training, Indian Affairs, CEIC and Social Services. Channeling funding from these agencies to meet BC's forest management goals makes good economic, environmental and social sense.

Experienced silviculture practitioners displaced

Before these programs were reallocated through BC21, the value of silviculture projects available to our members has been reduced by a total of $20.5 million . This deepens unemployment for career silviculture workers.

The current work force of experienced silviculture practitioners are uniquely dedicated despite adverse working conditions and highly seasonal biological 'windows' when the work can be done. Federal UIC already makes a justified contribution to keeping the dedicated silviculture worker available for this seasonal industry.

Silviculture training for aboriginal and socially disadvantaged workers only makes sense if there are more career silviculture jobs available. Due to reductions in area harvested, plus reductions in the provincial silviculture program, experienced and dedicated silviculture workers are already in oversupply. (Annual unemployment for the forestry services sector in Canada is 38%.)

Replacing silviculture projects for experienced forestry practitioners with make-work projects for the socially disadvantaged undermines MOF's duty to care for public forest resources that made this province the best place in the world to live.

There is lots of work to be done in the forest. The WSCA does not object to make work programs in the forests, as long as the health of our forests and the futures of silviculture professionals are not sacrificed to fund them. ❖

WSCA MEMBERSHIP LIST

Coastal Region

Brinkman & Assoc. Reforestation Ltd.
Coast Range Contracting Ltd.
* Deverell Contracting
Hillside Building Group Inc.
* Island Green Forestry Services Ltd.
Loki Reforestation Ltd.
Mountain Reforestation Ltd.
* MU Services Ltd.
Oliver & Giltrap Reforestation Ltd.
Sheep Vegetation Management Ltd.
Sinclair Silviculture Ltd.
TIBE Enterprises Ltd.
West Coast Browsing
Whiskeyjack Reforestation Ltd.
Zanzibar Holdings

Northern Region

Apex Reforestation
Backwoods Contracting Ltd.
Bell Heather Contracting Ltd.
Bruin Reforestation Ltd.
Bug Busters Pest Management Inc.
Folklore Contracting
George Hart Ltd.
Hytest Timber Services Ltd.
I & I Construction Ltd.
Integrated Silviculture Services Ltd.
J.R. Humphreys Contracting Ltd.
Kuwani Consulting Ltd.
* Lid's Reforestation Ltd.
Lloyd Reforestation Ltd.
Mountain View Silviculture Ltd.
Mudslide Contracting Ltd.
National Silviculture Inc.
Nechako Reforestation Services Ltd.
Next Generation Reforestation Ltd.
Roots Reforestation Ltd.
* SBS Forestry Inc.
Seneca Enterprises Ltd.
Silvarado Silviculture Ltd.
* Silvaram Holdings Ltd.
Singletree Ventures Ltd.
Summit Reforestation Ltd.
Tawa Enterprises Ltd.
* Triple 8 Enterprises Ltd.
Tsuga Forestry Contractors Ltd.
* Twig Contracting Ltd.
* Unique Silviculture Ltd.
VinLaw Resources Ltd.
* Waterside Ventures Ltd.

Southern Region

Appletree Industries
Arland Reforestation Services Ltd.
Caliburn Forestry Ltd.
Crow Point Enterprises Ltd.
* Dark Star Forestry Ltd.
Dryad Silviculture Ltd.
Firewest Forest Management Inc.
Forsite Consultants Ltd.
* Golden Raven Cooperative
* Grandy Reforestation Service
Greenpeaks Holdings Ltd.
Intertribal Forestry Assoc. of B.C.
Jansma Reforestation Ltd.
Kel-Dam Silviculture Ltd.
MacLennan Contracting
* Nu Growth Industries Ltd.
Quastuco Silviculture
Rainbow Resources Ltd.
* RS Lott Contracting
Sanders & Company Contracting Ltd.
Sequoia Resources Ltd.
Southern Okanagan Silviculture
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Stihl Ltd.
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* Indicates membership dues are outstanding or partially outstanding - please call Victoria Lihou at the WSCA office, 736-8660

WSCA Membership Form 1993

Name _____
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Postal Code _____
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Please send to:

WSCA
#310 - 1070 West Broadway
Vancouver, B.C. V6H 1E7
Telephone: (604) 736-8660

Membership (includes subscription)
- over $500,000 gross $500 _____
- under $500,000 gross $250 _____

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