

CANADIAN SILVICULTURE MAGAZINE

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cross-country check-up**

**Stumped: Armillaria
root disease**

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silviculture industry**

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ON THE COVER

Armillaria ostoyae, fungus responsible for "Armillaria root disease"

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Policies leading to less productive workforce in the woods

Dirk Brinkman

The last generation of intensive silviculture funding was called "ghost town insurance." The federal-provincial FRDAs were intended to save the single industry communities of unemployed voters with their excess infrastructures of housing, schools, hospitals and services. FRDA investments were not convertible to federal "re-election insurance" because social and environmental pressures, from at home and abroad, to reduce the annual allowable cut (AAC) could not be postponed.

The international market's recognition of BC forest products led Harcourt's NDP to establish parks, buffer streams and lakes, and wildlife and ecosystem reserves that would reduce the AAC by (yet another) 30%, according to industry. Importantly, these reductions were not postponed to future governments. But to off-set the effect of the reduced forest-land base on job loss, Harcourt formed the biggest intensive silviculture funding program yet — the Forest Renewal Corporation.

Clark's NDP not only inherited this promise, but campaigned on it to IWA members and displaced forest workers in their communities. His new government passed an act to form the Forest Worker Employment Agency, which is to facilitate the priority hiring of BC forest workers. The government also froze \$90 million of intensive silviculture, which was finally ready to fast track through the Ministry of Forests after two years of delays. These initiatives would guarantee this silviculture work to displaced forest workers, especially IWA members.

On several contracts, traditional silviculture workers have been told to go home since their jobs are needed for displaced forest workers. Frustration is growing amongst the silviculture industry's experienced, established workers and con-

tractors. For the first time in many years, several spontaneous silviculture workers' associations have been forming in BC in opposition to the government's initiatives. Premier Clark and the government cannot envision silviculture and harvest workers sharing the work in the forest.

Silviculture workers observe the new forest workers, and circulate stories about

ture. Many displaced forest workers are already skilled equipment operators, and adapting to operating single grip selection and commercial thinning equipment will be easy for them.

However, the example of Sweden and its experiences with increased mechanization and job loss should sound a warning bell for BC's government. In

Scandinavian commercial thinning, the chainsaw has been replaced by the single grip harvester and the brush saw for thinning, sanitation spacing, and cleaning. Not only are these tools safer, they are more productive. As a

result, the number of people employed in Sweden's forests fell over the past twenty years from 100,000 to 10,000. Premier Clark's vision of increasing the number of workers in BC's forests doesn't consider this scenario.

Bridging the dwindling AAC is going to take a large bite out of the limited FRBC funds. Licensees are already feeling the limits being imposed on FRBC funds. Moreover forest companies, who have put considerable effort into developing programs for watershed renewal and intensive silviculture, are having their approved programs cut. Deeper program cuts will follow as more priorities compete for limited funds. As long as the Ministry of Forests keeps scaling back and transferring programs to FRBC, there will be fewer dollars for intensive silviculture.

In the long run, the new workforce Premier Clark envisions will be less productive than the competitive silviculture industry already in place in BC today. ▲

Crews of people who are unsure they really want to do dangerous work and who have been selected based on social considerations have a higher risk of injuring the forest and themselves.

inexperienced crews damaging leave trees, introducing scarring, and destroying the values that should be enhanced. Moreover, they know from hard experience that good work in the difficult environment of silviculture requires motivation. Poorly motivated workers can cause permanent damage to the forest's productivity.

Silviculture has been shown to be some of the most strenuous work in the world. Workers traverse steep, slash-covered ground, while handling one of the most dangerous tools ever approved by the Workers' Compensation Board — the chainsaw. Crews of people who are unsure they really want to do dangerous work and who have been selected based on social considerations have a higher risk of injuring the forest and themselves.

This combination of difficulties has historically conspired to frustrate every politician's scheme to have displaced forest workers become silviculture workers. Yet there is a natural fit between some displaced harvest workers and silvicult-



Nova Scotia forest strategy "too narrow"

Recent public hearings have overwhelmingly rejected the proposed "New Forest Strategy for Nova Scotia." The government-promoted and forest industry-led Coalition of Nova Scotia Forest Interests (CNSFI) prepared the discussion paper on forest management earlier this year. The coalition then asked the independent Voluntary Planning Panel to gather public input on the strategy. The panel has released its report detailing the public's view that the strategy "was perceived by many to be authored by too exclusive a group, and was seen to be both too narrow and too lacking in detail to form the basis for any change in policy."

The Nova Scotia Woodlot Owners and Operators Association has resigned from the CNSFI because they believe that the majority of coalition members will refuse to accept the findings of the public hearings.

Scholarship to remember silviculturist

Mike Bruhm (1948-1995) was a skilled silviculturist with the Prince George Regional Office. He passed away on July 18, 1995, while working on a silviculture project in the Mackenzie district. In remembrance of Mike's dedication to the practice of silviculture, a scholarship fund has been established at the University of New Brunswick.

Mike Bruhm grew up on a Nova Scotia woodlot owned by his family, and throughout his life was an avid outdoors enthusiast. Mike studied forestry at the University of New Brunswick, and graduated in 1972—the same year he moved west and began his career with the BC Forest Service. He became a BC Registered Professional Forester in 1974. In 1981, Mike and his wife Sharon moved to Prince George where he became an acknowledged and respected expert in reforestation practices. Above all else,

Mike remained a field forester who believed in dealing with issues in the forest. Mike also volunteered countless days over the years to support events such as the Boy Scouts' "Trees for Canada" program, the Treeplanter's Picnic, and silviculture workshops. His involvement in forestry education and silviculture extension projects helped improve the quality of forestry practiced in northern BC.

The Michael J. Bruhm Memorial Scholarship Fund will ensure the continuation of Mike's contributions to silviculture, through the assistance it will provide to full-time forestry students requiring financial assistance, and who have demonstrated special interest and achievement in silviculture. The mailing address is: Michael J. Bruhm Memorial Scholarship, University of New Brunswick, PO Box 4400, Fredericton, NB E3B 5A3.

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Report says forest code's impact overblown

The Sierra Legal Defense Fund (SLDF) has released a report indicating that forest companies in BC are cutting more now than before the Forest Practices Code (FPC) was implemented. Based on MOF reports of logged volumes for the first nine months of 1996, this is one of the first comparisons between pre-code and post-code logging in BC.

Major licencees (TFLs and FLs) actually harvested more wood on Forest Practices Code-regulated Crown land in the first nine months of 1996 (39.9 million cubic metres) than the same period in 1995 (39.1 million cubic metres) — a gain of over 2%. (Although the FPC came into effect June 15, 1995, grandfathered cutting permits meant that most logging was on pre-code permits through the third quarter of 1995.) Overall volume harvested was down (from 55.6 m.c.m. to 53.2 m.c.m.). However, this was primarily due to a reduction in logging on private lands not regulated by the code, down 1.7 m.c.m. and reductions in small business program logging, down from 6.6 m.c.m. to 5.3 m.c.m.

Many large forest companies in BC have been claiming (and the media reporting) that difficulties in obtaining approvals under the FPC are causing smaller harvest volumes, lost revenues, and lost logging jobs. Although the statistics do not support this, these supposed lost volumes are being used to justify amendments to weaken the FPC.

According to Greg McDade, executive director of SLDF, "Considering the parks that were created — and supposedly 'removed' from the forest land base in Spring 1995, the remaining land base is being hammered much harder than before the code."

Sustainable forest standards endorsed

The Canadian Standards Association's (CSA) Sustainable Forest Management (SFM) Technical Committee has endorsed standards for sustainable forest management in Canada. They will be submitted to the Standards Council of Canada for approval as national standards. Some of the commitments required by the standards include recognition of environmental, economic, social, and cultural values; conservation of biological diversity; public participation that involves consultation with a local group of interested parties on an on-going basis; and an independent audit of the SFM system and performance in the field. Successful registrants will receive a certificate that can be used to inform customers that the defined forest area has met the CSA standards. Some environmentalists have dismissed the industry-defined CSA standards as a public relations exercise.

MB's fast-growing poplar plantations

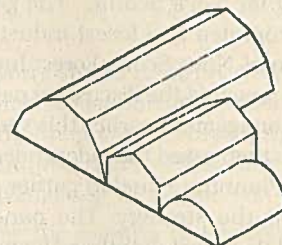
After only two years of operation, MacMillan Bloedel's (MB) Poplar Farms Division has planted more than a million poplar trees in the Pacific Northwest. MB has been growing various poplar species on a small experimental scale since 1987. The fast-growing trees are grown from cuttings and, under intensive agricultural management, can reach harvestable age in eight to twelve years, compared to about 80 years for coniferous coastal species.

MB has plantations on leased or privately-owned agricultural sites, covering about 1000 hectares in BC and the US Northwest. They are planning to plant a further 1,000 hectares per year starting in 1997. Ten years from now, the program is expected to produce about six percent of MB's present fibre consumption. The naturally bright fibre from these short-rotation poplar farms is targeted primarily at specialty papers, but poplar is also suitable for use in wood composites. ▲

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Global warming may spruce up Arctic

Musk oxen and caribou roam there today, but decades of global warming may mean an army of spruce trees is on the verge of foresting the Arctic tundra. The initial signs that spruce may be replacing tundra were seen by a University of Colorado research group, studying eight far-northern Canadian sites for nearly a quarter-century. The scientists have found cones, pollen, and 15-centimetre-high seedlings in several locales along the Arctic tree line and in the tree islands that dot the tundra. These were close to parent trees and appeared to have sprouted in the 1980s, one of the warmest decades in recent Earth history.

Spruce in colder climates typically stop sexual reproduction and revert to a slow, asexual spread through underground sprouts, called clones. As the climate heats up, the spruce revert to a faster-spreading sexual strategy, which sees them producing pollen and pine cones. In order for the trees to produce pollen and pine cones, mid-summer temperatures have to be above 10°C. When a tree becomes sexually active, it can move at the rate of 100 metres a year.

Between 5,000 and 7,000 years ago, when the Arctic was much warmer, the tree line extended 400 kilometres into what is now tundra. A potential invasion of tundra by an army of spruce is not restricted to North America. When the scientists visited the tree line near the Ob and Taz Rivers in north-central Siberia in 1995, they found a nearly identical sexual awakening there.

The Globe and Mail

Clones shield trees from ozone harm

Antioxidants, the same compounds scientists believe can prevent cancer and heart disease in humans, could play a key role in shielding quaking aspen and other tree species from the harmful effects of ground-level ozone pollution, according to a researcher at Michigan

Technological University.

Superoxide radicals generated by pollutants such as ozone are harmful. An antioxidant enzyme called superoxide dismutase is at the foundation of many biochemical processes that scavenge the harmful superoxide radicals. Both the ozone-tolerant and ozone-sensitive aspen clones usually produce the same amount of dismutase, but when they are exposed to ozone, the tolerant variety somehow moves to full throttle and churns out significantly more of the antioxidant enzyme.

A specific gene is the key to their success. The research team has located the gene and cloned it for insertion into ozone-sensitive species. Engineering aspens that can handle ozone is not a mere laboratory exercise. In time, it could have significant repercussions in the forest products industry especially in areas which have high amounts of ozone pollution, such as the California basin.

Forestry Source

Urban forests promote community, harmony

In a study supported by the National Urban Community Forestry Advisory Council, scientists at the University of Illinois have found that trees have positive effects on the residents of public housing projects.

The researchers focused on the 28-building Robert Taylor Homes apartment complex. Some buildings there are surrounded only by concrete and asphalt, while others have trees, grass, and even flowers. Using aerial photographs and on-site analysis, the researchers chose ten buildings with trees and eight buildings without trees. They then interviewed people living in those buildings about their social behaviour.

The researchers found signs of stronger communities where there are trees. In buildings with trees, people reported significantly better relations with their neighbours. In buildings without trees, people reported having fewer visitors and

knowing fewer people in the building. People living in buildings with trees reported a stronger feeling of unity and cohesion with their neighbours. They liked where they are living more and they felt safer than residents whose buildings have few trees around them.

The researchers found that outdoor spaces with trees are used significantly more often than identical spaces without trees. When people are drawn to spaces with trees, they are more likely to see and interact with their neighbours, and more likely get to know each other and become friends, according to the researchers.

Kuo and Sullivan are also finding less violence in urban public housing where there are trees. Residents from buildings with trees report using more constructive, less violent ways of dealing with conflict in their homes. The researchers deduced that places with nature and trees may provide settings in which relationships grow stronger and violence is reduced.

Forestry Source

Robots stave off timber shortage

ForBio Robotics, of Brisbane, Australia, has introduced a pioneering reforestation technique based on the robotic planting of genetically enhanced trees. This technique has been developed to help reforest the denuded lands of Asia. Research scientist Dr. Bob Teasdale expects large plantations to be established throughout the region to head off a major timber shortage.

Two leading edge technologies are the basis of this technique: the use of DNA markers to identify the most productive strains of trees and a revolutionary new robot which can propagate them at a rate of 10 million a year. This fully robotic unit can produce 10 million seedlings a year in an area of no more than 250 square meters, tended by just one technician.

Timberjack News

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Ethiopia's Red Mountain is now green

Red Mountain, an eroded hill in Ethiopia, has just been renamed Green Mountain, recognizing the successful establishment of nearly 350,000 trees in what was once exposed, red soil. The reforestation, a joint effort by the local community and Canadian Physicians for Aid and Relief (CPAR), has made the old name inappropriate. Planted over the last five years, many of the trees are now one and a half to two metres tall.

This effort has been part of CPAR's larger Plant-a-Tree in Africa Campaign, which has so far put 33 million trees in the ground of five African countries. Formed during the Ethiopian famine, CPAR initially focused on providing immediate relief and medical assistance to those in dire need. But like other organizations offering aid in African countries, CPAR began to focus on programs that would enable communities to become healthier and more self-sustaining.

Planting trees is CPAR's approach to the prevention of the root causes of drought and famine. Trees help to retain moisture in the soil and to prevent soil erosion, two factors which are critical to successful farming and healthy communities. The trees used in the campaign are grown in nurseries set up in local communities, staffed by local people who have received training through CPAR.

The trees on Green Mountain are to be managed sustainably. Some of the trees will be used for fuelwood or for building materials, while a healthy forest is maintained to meet the short- and long-term needs of the community. ▲

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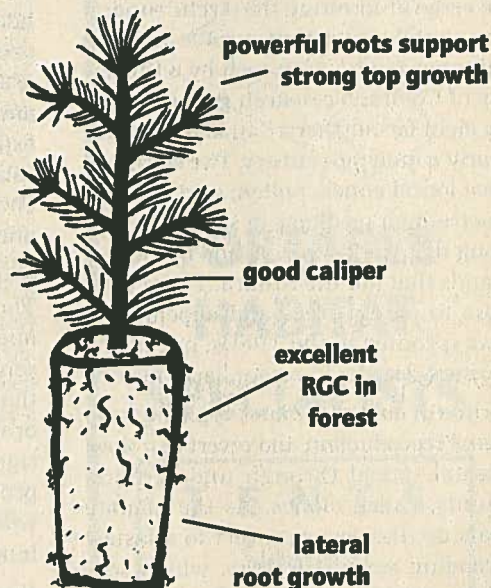
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Harvester boasts technical advances

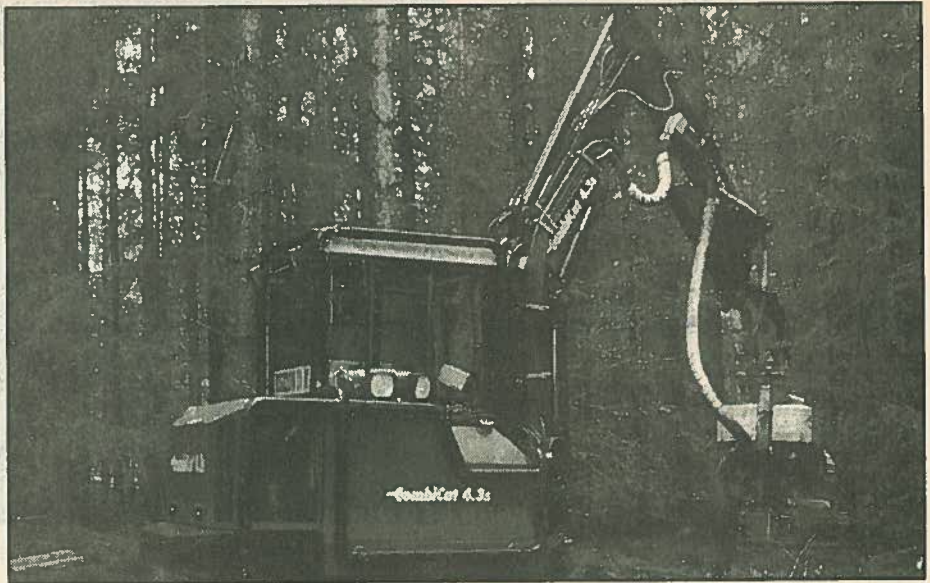
Timberjack 1270B, the new six-wheel hydrostatic harvester, is a new generation in Timberjack design similar to the 1270B forwarder. The most visible difference from its predecessor is the larger all-glass cab with visibility on all four sides. The 1270B is ideal for thinning because of its light footprint in the forest and 28-ft crane, but is also an all-round machine that can be used for final cuts.

On the technical side, 1270B includes both Timberjack Total Machine Control (an automated engine, transmission and crane performance-enhancement system); and Timberjack 3000, a diameter- and length-measuring system that provides optimized bucking solutions. The computer program uses measurements taken as the head travels up the trunk, and comes up with a bucking solution to provide the maximum number of preferred lengths.

A feature of the 3000 system is the program's ability to "learn" from each stem it optimizes. The system predicts the taper of trees in a stand after cutting only a few trees, and continues to build a database of the local tree conditions to refine its optimization decisions. According to Timberjack, this ability to learn from past decisions makes it well-suited to optimized bucking in natural stands.

Timberjack reports that the 1270B harvesters it sells in Scandinavia and the UK are all equipped with sprayers that coat the stump with Urea immediately after cutting. According to the Swedish Forest Operations Institute, experience has shown that the risk of the stump becoming infected can be reduced by treating the surface of the stump with a ureal solution immediately after it has been felled. There has not been sufficient demand in Canada to provide the stump sprayers as standard equipment here, but that may change in the future.

Contact: Timberjack at (519) 537-6271



Combi-Cat is part of a new generation of smaller, lighter harvesting equipment that minimize impact on the forest during thinning operations.

European forestry equipment

Woodland Harvesting Equipment, Ltd., distributes European forestry equipment for the small-scale forest operator. The company features the Kisa Super Kombi, a Swedish-made firewood processor that can cut and split up to two cords of wood per hour. The PTO-powered processor uses a carbon-tipped circular cutoff-saw and a hydraulic ram to cut logs up to 28 cm in diameter.

The Kisa Super Kombi's simple solid-steel design lends itself to low maintenance and high productivity. Woodland have used the machine for five years in their own packaged firewood business. As well, it is available as a trailer-mounted unit with conveyor.

Woodland also distributes the English-made Cundey TRC De-Barker, a PTO-powered continuous feed de-barking machine that can peel logs from 5 cm to 25 cm at a rate up to eight linear metres per minute.

Built on a welded steel frame with three point linkage, the Cundey TRC De-Barker's six planner-type knives run at 1500

rpm, providing a finish for fence posts and stakes. An optional pointing attachment eliminates the need for a saw bench. The Cundey TRC De-Barker is also available with a diesel drive and/or trailer mounted for light towing.

Firewood processors, splitters, the Ved-pack firewood packaging system, and the Hy-Point hydraulic post pointer are available, too.

Contact: Woodland Harvesting Equipment at (604) 478-6434

Small-scale equipment for commercial thinning

The move to commercial thinning in Canada is spurring interest in smaller-scale logging equipment like the Combi-Cat harvester. Six-feet wide and weighing in at five tons, the CombiCat is one of the smallest harvesters available in North America.

The pint-sized excavator-based harvester uses a PAN 828 single-grip harvesting head and separate swivel crane to allow the machine to easily extract and process trees in very narrow spacings. The Com-

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biCat offers low ground pressure for sensitive terrain and, because of its size, boasts low fuel costs and easy transport. The CombiCat is designed with higher-yield forestry and multi-pass harvesting in mind.

Contact: Silvana Import Trading, Inc., at (514) 939-3523

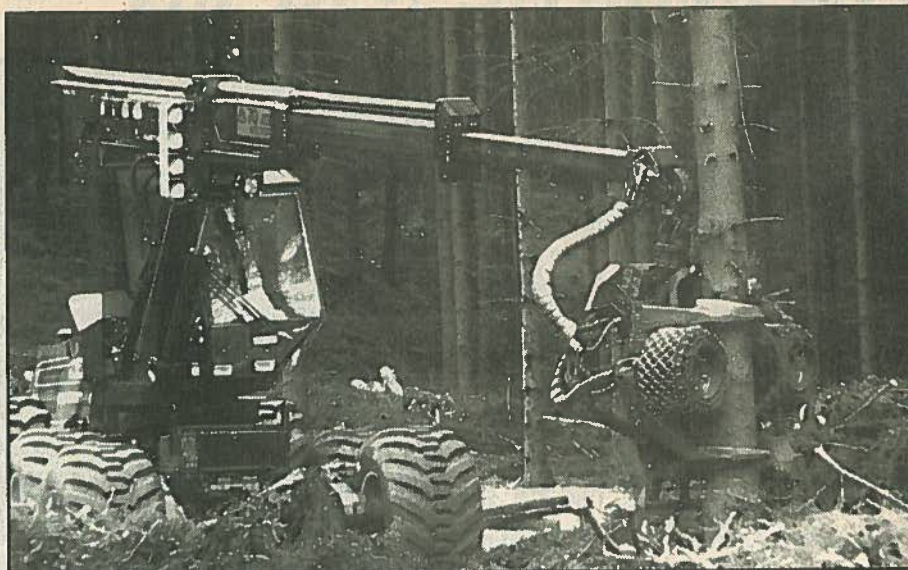
Faster, more versatile thinning head

The new Valmet 945 thinning head is part of Sisu's new 900 series of component-built heads designed to maximize the harvesting speeds while reducing downtime and servicing needs.

The Valmet 945 is a thinning head incorporating a new design, reinforced steel components and technological advances with enough muscle to make it practical for light final-felling work. Balance between weight and capacity means the 945 is effective in thinning with its crane at full reach. The Valmet 945 is perfectly matched to the 9.6 meters Sisu Cranab 998 telescopic crane, or it can be fitted to other carriers.

The opening dimensions of the 945 are larger than those of its predecessor (the 942), and a longer guide bar provides a cutting diameter of up to 55 cm. The improved design also allows the head to cope with trees that are slightly larger. The head features a new saw-box design with a conical-bottom profile, which is inherently stronger. The saw bar now retracts the instant the cut is complete, saving time and preventing damage to the chain. The head's compact size allows the operator to handle crooked stems or unusual trunks at top speeds.

An ergonomic feature of the new design is the elevated position of the electrical control unit and valve package, so servicing can be performed at eye level. Another significant refinement is the reduced number of hydraulic cylinders used to perform head functions. With the 945 these components are identical, so only one cylinder type needs to be inventoried.



Sisu's new Valmet 945 harvesting head is optimized for high-speed, efficient thinning work.

The 945 incorporates the patented cam-curve suspension system and five spring-loaded delimbing knives to completely encircle the stem. The cam curve extends the life of the feed rollers and allows the operator to maintain consistent feed rates for large diameter stems, down to a minimum of 35 mm.

Valmet's spring-loaded, length-measuring wheel forms the link between the synchronized cross-cut function and the intelligent Valmet VMM 1000 measurement system, designed to optimize the harvest from every tree.

Contact: Sisu Logging at 1-888-CTL-SISU

Skyline yarding more affordable

EnviroQuip Sales, Ltd., is offering Canadian thinning operations a simpler and less expensive skyline logging option with the URUS I UNI 300 (manufactured by Hinteregger of Austria and South Africa). The URUS Skyline Yarder has all the attributes of a typical production yarder, such as line speed and pulling power, with the added advantage of compact size. However, the URUS is much less expensive than other production yarders at \$112,000—complete with simple carriage, cables and all accessories.

EnviroQuip recently demonstrated an URUS trailer-mounted package with a 33-foot tower, 100hp Cummins diesel engine, and three-speed Allison automatic transmission. The URUS was yarding approximately 300m over one intermediate support in a second-growth thinning operation on Vancouver Island. The thinning trial was not long enough to collect meaningful piece averages, but the highest daily total was more than 300 pieces estimated at 110 cubic meters.

Contact: EnviroQuip Sales, Ltd., at 1-800-496-6656

Better access to small logs

Miller Timber Services has developed a monocable system for the economical harvest of young stands of forests under 8" DBH. The monocable system is designed to harvest stands on steep slopes that have escaped pre-commercial thinning treatment, but do not have sufficient volume for traditional commercial harvest or are on lands too steep for cut-to-length systems. Applications include pulp-grade wood chips, firewood, removal of posts and short poles, Christmas trees, and logging debris.



Miller monocable system makes it practical to collect small pieces from non-commercial thinnings.

The monocable system is best suited to collecting small pieces from thinnings. It is nearly terrain-independent, allowing

for uphill, downhill, and fully suspended yarding across drainages.

The monocable system is a relatively simple system comprised of four basic components:

Yarder: The yarder has a 13 to 18 horsepower, four-cycle gas engine. The gear train provides line speeds of 50 to 75 feet per minutes. The powered storage drum holds 3000 to 5000 feet of wire rope.

Blocks: The sheave on a zig-zag block is open on one side and equipped with "teeth" that serve to hold the monocable in the block, while allowing the hanging chokers or slings to pass around the block.

Monocable: The wire cable diameter is 1/2" in diameter, and can carry poles less than 120 pounds and not longer than 10 feet.

Chokers: Chokers are slings to attach the poles to the cable. Baling twine is recommended since plastic or nylon is a contaminant to pulp-quality chips.

The primary benefit of the monocable system is the reduction of competition in the stand. The system creates easier access for later commercial thinnings by

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opening the stand, while reducing insect habitat with little soil impact or residual damage.

Miller Timber Services, Inc., one of the largest forestry service contractors in the Pacific Northwest, has field-tested the unit for several years in western Oregon. Information about the monocable system can be obtained by visiting the Miller Timber Services Web site at <http://www.forestnet.com/miller>.

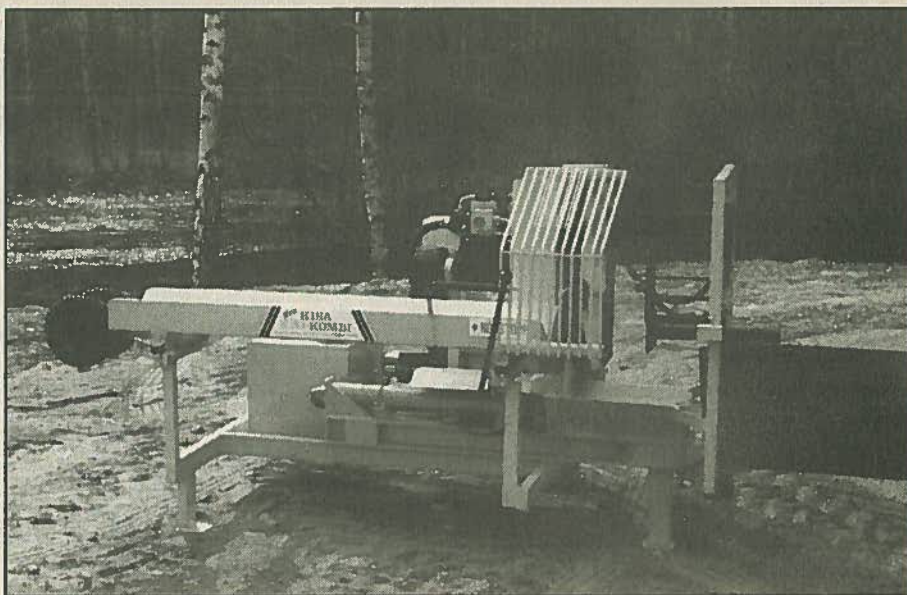
Contact: Miller Timber Services at (541) 929-2840

New, lightweight pruning tools

Celtic Distributors, Ltd., has Sandvik's latest high-performance pruning tools available. The improved Sandvik P160-75 orchard-loppers have a double radius blade and lightweight aircraft-aluminum oval handles. This means more



Chokers attach the poles to the monocable system.



The versatile Super-Combi processor can cut, split and transport firewood in one operation without manual reloading.

control, less fatigue, and fewer injuries due to a smoothly dispersed cutting force. The P160's new hook-shaped counterblade holds the branch steady during cutting, and gives the loppers an extra large cutting capacity. Sandvik's full spare-parts assortment means lower operating costs and longer life for the tool.

For a limited time, Celtic is including a free Sandvik 396-JT pruning saw with the purchase of a P160-75 orchard lopper. The 396-JT saw has fully ground, Japanese toothing for fast cutting. The saw's two-component plastic handle has a safety that locks the blade when open or folded.

Contact: Celtic Distributors at 1-800-663-4727

Protection from browse problems

Growcone is a new product designed to protect seedlings from browse problems. It is made from recycled plastic that breaks down in three to five years. The Growcone can also be used to control

brush and snow press around seedlings.

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The Growcone was designed to stand up to severe coastal conditions and is easy to use. ▲

Contact: Sinclair Silviculture at (604) 733-2401

If you have a new product that you would like listed, please send information to:

**CSM, Box 65506, Station F,
Vancouver, BC, V5N 5K7
e-mail:
silviculture@mindlink.bc.ca**

The best books of '96

Dave Curtis

The Forest Certification Handbook

Christopher Upton and Stephen Bass
St. Lucie Press, Delray Beach, FL, 1996, \$56.95

This book has a practical rather than a policy orientation, providing a thorough explanation and guide to certification. It gives advice on developing, selecting and operating a certification program that provides market security and raises standards of forest management. It covers certification in context, certification in practice, and current initiatives and views, and also includes directories of certifying organizations around the world, international views on certification, and a list of certified forests. Chris Elliot, a senior forests officer with World Wildlife Fund International, recommends the handbook as "a clear and balanced overview of the key issues relating to timber certification."

Eastern Old Growth Forests: Prospects for Rediscovery and Recovery

Edited by Mary Byrd Davis
Island Press, Covelo, CA, 1996, \$34.95

This is the first publication available devoted exclusively to old growth forests in the East. Authoritative essays from leading experts examine the ecology and the characteristics of eastern old growth, explore its history and value, and make recommendations for its preservation. This book serves a vital role by making eastern old-growth issues better known and understood.

Certification of Forest Products: Issues and Perspectives

Edited by V. M. Viana et al
Island Press, Covelo, CA, 1996, \$35.00

This book presents an overview of the mechanics, background and implications of voluntary certification programs. The essays provide thorough, current coverage of the certification process, key issues, and stakeholder perspectives. It also includes a valuable analysis of the social and political context in which certification functions.

Carl Reidel, a professor of natural resources and environmental policy at the University of Vermont and a past-president of the American Forestry Association, calls the publication "the guidebook to 21st-century forest stewardship... It tackles the bedeviling details of forest product certification without losing track of the inherent complexity of such a comprehensive approach to sustainable forestry. If the authors are right, certification will be the catalyst for a revolution in forest policy worldwide."

CONTINUED ON NEXT PAGE

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Creating a Forestry for the Twenty-first Century: The Science of Ecosystem Management

Edited by Kathryn A. Kohm and Jerry Franklin, with a foreword by Jack Ward Thomas
Island Press, Covelo, CA, 1996, \$42.00

This is an authoritative, multidisciplinary examination of the state of forestry and its relation to the emergent field of ecosystem management. It helps explain how forestry has been transformed in the last decade into a science concerned with understanding and managing complexity across broad landscapes, and providing a wide range of ecological goods and services. Professionals examine topics central to forestry's future including new understandings of ecological processes, challenges to long-held assumptions, and critical overviews of economic and political issues. This is a must-read for anyone grappling with changes in forestry.

Forestry (for ages 7-10)

Jane Drake, Ann Love, Pat Cupples
Kids Can Press, Toronto, 1996, \$14.95

This book introduces kids to the people, machines and environmental concerns of forestry, and helps them appreciate the work involved in bringing forest products to their homes. It is one of the most balanced books in this genre, explaining the complexity of the forest ecosystem, regeneration, fire control, harvesting methods, transportation, the workings of a sawmill and papermill, and the importance of wilderness. It is always hard to please everyone when it comes to explaining forestry to children, but this book comes closer than most. ▲

Top of the stack

1. Dictionary of Natural Resource Management

Julian and Katherine Dunster
UBC Press, Vancouver, 1996, \$34.95

This dictionary provides a single up-to-date, comprehensive source of definitions of natural resource management terms. It includes over 6,000 entries, many of which are illustrated and annotated.

2. The BestPossible Sawmill: Guidebook for the High-tech Journey Ahead

Eugene L. Bryan
Miller Freeman Books, San Francisco, CA, 1996, \$56.00

A working handbook for mill professionals, this book shows how to increase uptime while lowering costs to extract the maximum value from every log passing through the mill.

3. Tree Huggers: Victory, Defeat and Renewal in the Northwest Ancient Forest Campaign

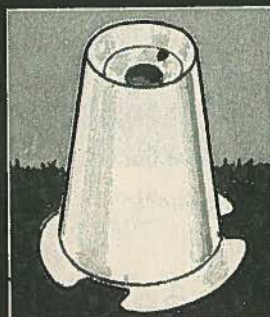
Kathie Durbin
The Mountaineers, Seattle, WA, 1996, \$32.95

An insider's view of one of the hottest environmental issues in the Northwest. Focusing on Oregon, this fast-paced account covers the wilderness wars and explores changing roles in the environmental movement.

Book picks provided by The Forest Shop, PO Box 550, Brighton, Ontario, K0K 1H0; tel (613) 475-4755; fax (613) 475-4646; mail@forestshop.com

Dave Curtis gets his "book learning" running The Forest Shop in Brighton, Ontario. He will offer more tips on worthwhile reads in upcoming issues.


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Nexus: The Model Forest Network Bulletin for Ontario

This bilingual newsletter had its debut issue last year. Its purpose is to inform decision makers and stakeholders about the important achievements of Ontario's model forests. Future issues of *Nexus* will focus on specific project results.

The Canadian government established The Model Forest Program in 1990 with a view to creating partnerships representative of all forest stakeholders from industry to native groups, from research institutions to community associations. These partnerships formulate and implement their own working vision of sustainable forest management at the local level.

This issue of *Nexus* reports on the results of the Lake Abitibi Model Forest Network Meeting held in Cochrane and Iroquois Falls, Ontario, last February. Discussions were diverse and contentious, particularly when it came to definitions: the terms "clearcutting", "community" and "wildlife management" were hotly contested. Another concern was the importance of making information and new research accessible to the public and to each other. Suggestions included specialized writers reporting on scholarly forestry work for a general audience, and increased participation on the Internet via Web site pages and discussion groups.

Available free of charge from Natural Resources Canada, Canadian Forestry Service, Great Lakes Forestry Centre, PO Box 490, Sault Ste. Marie, Ontario, P6A 5M7.

LUSTER Co-op News

This is the bimonthly newsletter of the Lakehead University Seedling Research and Extension Co-operative, which comprises forest seedling growers, forestry companies, supply companies, treeplanters and researchers, all endeavoring to produce and plant "the ultimate seedlings".

This newsletter publishes summaries of research conducted through the LUSTER Co-op: reports on meetings and workshops of interest; and offers highlights of news and research from all over Canada. *LUSTER Co-op News* also includes information on new publications, new products and upcoming events.

The last issue reported on Kerry Milner's findings on the effects of moisture regime and soil type on root growth of planter container-grown jack pine seedlings in the Thunder Bay region.

Available free of charge to members of the LUSTER Co-op, 640 Balmoral Street, Thunder Bay, Ontario, P7C 5G9, tel (807) 623-2397, fax (807) 626-4271. ▲

Canadian Silviculture Directory

The *Canadian Silviculture Directory* and *Canadian Silviculture Magazine* have a new home on the web at <mindlink.bc.ca/silviculture> (note: please do not put www at the beginning of the address). It features the latest edition of the *Directory* with complete listings of silviculture suppliers and contractors across Canada. You can also e-mail us at <silviculture@mindlink.bc.ca>.

World Conservation Monitoring Centre (WCMC)

WCMC is pleased to announce the latest release of its WWW pages at <<http://www.wcmc.org.uk>> including:

- Species Information Service: information and data on threatened animals and plants
- Forest Information Service: information and data on the state of the world's forests
- Biodiversity Profiles: biodiversity information and data for 12 countries
- Bibliographic Catalogue System: over 11,000 bibliographic references

Global forestry course at Oregon State University

OSU's Global Extension Forestry course has a home page at <<http://www.cof.orst.edu/coops/ntc/gef.htm>>. The course examines forest regeneration, administration, science, and silvicultural practices all over the world. Photographs from field trips to Thailand and Vietnam are online.

Canadian Environmental Links

The Canadian environmental journal *Alternatives* has a web site at <<http://www.fes.waterloo.ca/research/alternatives>>. You will find a large collection of links to Canadian environmental organizations, government departments, educational institutions, research centres, and more.

Canadian Forests have new home

The Canadian Forests website has moved to a new address at: <<http://www.canadian-forests.com>>. Canadian Forests is still one of the most comprehensive web sites on forestry in Canada. It provides links to the forestry-related sites of governments, industry, NGOs, associations, educational and research institutions, consultants, suppliers and services, as well as global links to other information sources on Canadian forestry. ▲

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Summer '97	June 13, 1997	site preparation, restoration
Fall '97	Sept. 5, 1997	eco-standards, safety, forest management

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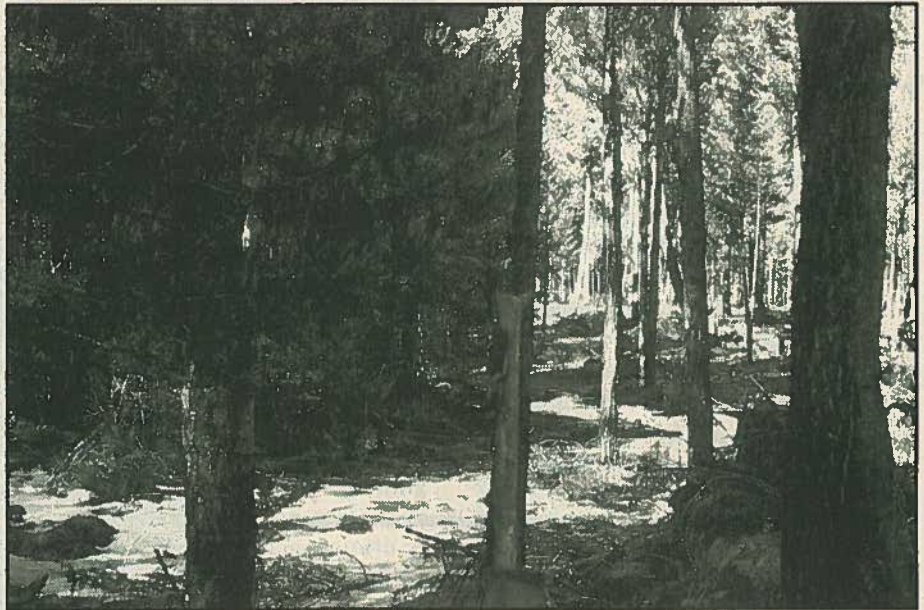
Increasing soil moisture and forest productivity through thinning

Treavor Jeanes

Balco's thinning or, as we called it, "fallers selection logging" was either carried out in conjunction with or followed by non-commercial thinning to optimize spacing and reduce competition on a site-specific basis.

There is a gardener's analogy that says, "If you don't thin your carrots, you won't reap a bountiful crop." This postulate easily applies to overstocked stands of trees. Way back when, someone determined that a hectare of land that grows, say, five cubic metres of timber per year (i.e., a mean annual increment or MAI of $5\text{m}^3/\text{ha}/\text{yr}$) will not produce any more volume with differing densities. The theory here is that you can spread the growth over 500, 1000, 5000 or any number of hectares, but the productivity will remain the same at $5\text{m}^3/\text{ha}/\text{yr}$.

This theory holds out only if photosynthetic building blocks (i.e., light, temper-



"Fallers selection logging" opens the forest canopy, reducing interception and evaporation of moisture.

The forest canopy intercepts precipitation (particularly snow), and allows much of it to evaporate into the atmosphere rather than falling to the ground to percolate into the soil horizon.

ature, moisture and nutrition) remain the same. For instance, proper fertilization (i.e., nutrition) will increase forest growth for a period of time. In other words, the periodic annual increment (PAI) will increase until the added nutrients are depleted. Therefore, site-specific silviculture that modifies the elements governing photosynthesis can manipulate growth and, in turn, site productivity.

Dry hot summers and long cold winters characterize the BC central and south-

ern interior. As a result, the growing season is constrained by temperature and moisture, and these elements are then further influenced according to aspect and elevation. Depending on their origin, forest soils are reasonably fertile, but their moisture-holding capacities vary widely according to the soil's characteristics.

Moreover, tree species can be shade tolerant, semi-tolerant or intolerant, thereby allowing the species to thrive, or not, in response to competition for light (e.g., spruce growing under the canopy of other species, or lodgepole pine thriving in full sunlight). Here, as elsewhere, the forest canopy intercepts precipitation (particularly snow), and allows much of

it to evaporate into the atmosphere rather than falling to the ground to percolate into the soil horizon.

Naturally, the degree of interception and evaporation depends on the density of the forest canopy. However, this phenomenon robs forests of precious moisture. Soil moisture deficits, which cause the photosynthetic process to shut down, are common in this area, despite other elements that are conducive to growth. Rural residents have known for years that "if you walk in the meadow during winter, you'll be up to your waist in snow; whereas when you walk under the trees, the snow won't reach your knees."

A 1985 study on the relationship between soil water regime and the growth of uneven-age interior Douglas-fir stands demonstrated both a substantial increase in soil moisture under 25 to

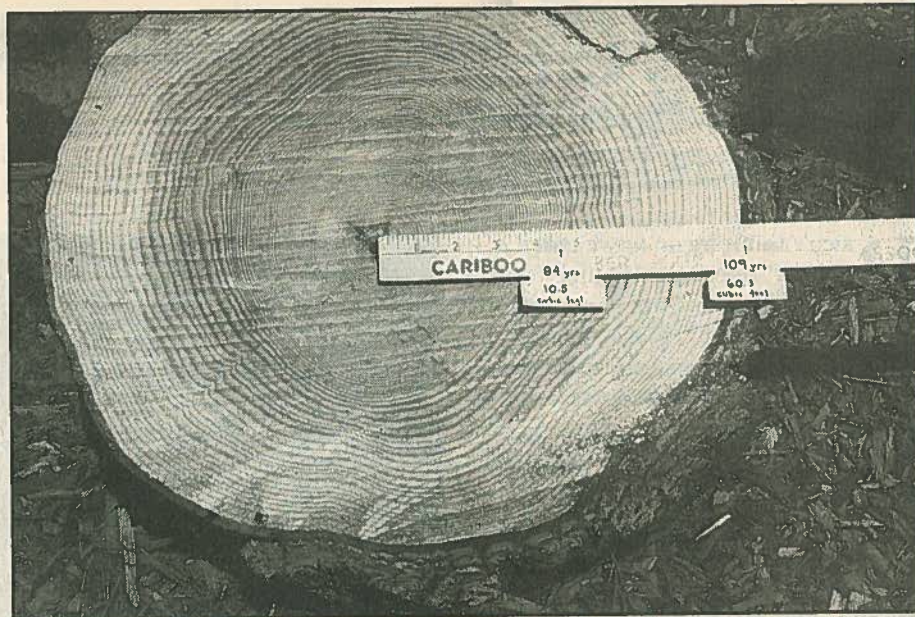
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65% canopy cover, and the availability of this moisture to the trees during the growing season, which increased growth. The study also showed that closed canopies range from one to $2m^3$ per year. Meanwhile, with period selection cuts every ten to 20 years, which maintain canopy cover at 25 to 65%, PAI was increased to four to $10m^3$ per year.

The reasons for the increase in growth as a result of Balco's "fallers selection logging" are twofold: first, we distributed the normal growth or mean annual increment (MAI) over fewer stems; and second, by harvesting, we opened 45 to 55% of the canopy, thus reducing interception and evaporation of precipitation, and increasing the available soil moisture during the growing season.

The growth response has been spectacular. However, it is important to remem-



This tree grew 10.5 cu. ft. in its first 84 years under natural conditions. After thinning, this one tree produced 49.8 cu. ft. in 25 years.

Despite our overall success, the championing of optimal spacing as a panacea for silvicultural practice must be avoided.

ber that this increase in the PAI will gradually diminish as the canopy grows each year, and intercepts more and more precipitation. Circumstances vary but, in our experience, canopy closure recurs in 20 to 25 years.

Despite our overall success, the championing of optimal spacing as a panacea for silvicultural practice must be avoided. To be successful, trees should be windfirm; tree diseases, root rots and damaging insects absent; aspect, winds, snow pack and run-off taken into account; and the effects on wildlife, domestic graying and other resources considered (e.g., increasing the soil moisture could be detrimental to some sites).

Thinning to optimize the number of stems per hectare may increase growth rates of many immature, thrifty mature, stagnant and all-aged stands for a period

of time. The volume of thinnings harvested to realize this increased productivity should be sold by the contractor to pay for the costs involved.

Presently, these

stands contribute an MAI to the annual allowable cut (AAC), but upon completion of the thinning, the PAI will be greater than the MAI. Therefore, the committed AAC would not be jeopardized.

Acceptance of such a concept has the potential to employ large numbers of able-bodied people in physically challenging and rewarding work with minimal cost to government. The resulting social and economic benefits would be enormous.

I urge you to carry these benefits through to their impact on yield, including the harvest and use of deciduous species. The increased volume could be used to pay for silviculture work so that we stop ruining our young people, and so they can sleep at night because they are tired, eat because they are hungry — and feel good. ▲

Now retired, Treavor Jeanes was the chief forester for Balco, which was bought by Tolko. During his long tenure with Balco, he developed "fallers selection logging," which he demonstrated can shift "low" sites to "high" sites.



Unthinned stand (at right) has dense canopy that can limit moisture and nutrient availability.



Commercial thinning offers benefits, poses problems

Phil Keenan

In 1995, Avenor performed slightly less than 15 hectares of commercial thinning in mid-rotation (35 years) mixwood stands. In 1996, Avenor pursued this activity further by developing two contractors, who have thinned 400 hectares.



The Rocan modified tractor-harvester is able to operate in the narrow thinning corridors of dense stands.

Avenor believes there are major benefits to commercial thinning on the right stands. This silvicultural technique will derive at least 20% more volume per hectare at the final harvest, plus the volume of thinning. Additionally, Avenor expects superior quality products as a result of commercial thinning. Another benefit will be the cheaper harvest cost at the final harvest. This activity is labour intensive, ensures higher employment, and rounds out our silvicultural contractors to full-year contractors. The largest problem with commercially thinning mid-rotation stands is the cost of the products delivered to the mill. In our case, the trees are 25 trees/m³ versus our harvesting operation which averages 4 trees/m³. Due to the size of the trees to be thinned and the time it takes to train an

operator, this wood delivered to our mill has a negative stumpage. For example, the chip value at the mill is \$50/m³ and the total cost of producing and delivering the chips derived from thinning are \$100/m³. Negative stumpage is \$50/m³ in this case.

The next largest problem is operator training. In New Brunswick, the colleges train single-grip operators because there are more jobs in commercial thinning on the east coast than in Ontario. A company that wants to get into commercial thinning must develop a training course for their operators.

Another considerable problem is that thinning is an intervention in the forest. Trappers and camp owners, having no experience in these operations, are sceptical. During the first year of thinning, treated areas look visually unappealing. But by the second growing season, these stands look completely normal, though more "park-like" in appearance.

There is a lack of good science on the benefits of commercial thinning in the Canadian boreal forest. Generally, when foresters get together to discuss the operational or theoretical benefits of commercial thinning, we do not have the good science to lead the way. But over time, the science of thinning should improve. ▲

Phil Keenan is with Avenor Incorporated, Woodlands Northwest, of Ontario.

Cutting a narrow swath

Thunderbay's Haveman Brothers Forestry Services has been thinning for Avenor using the Rocan 9030, a Canadian-built modified-tractor harvester designed for narrow thinning corridors in natural stands. The company was able to thin the stand density from 4000 to 1000 stems per hectare with very little impact on the remaining forest.

Brushco Custom Brushcutters, also of Thunderbay, has adapted a Timberjack skidder to Avenor's specifications for mechanized brushcutting. Brushco had to move the rubber tires inward as far as they could go. A self-contained engine was mounted on the rear frame for the hydraulic pump, which powers the 7.5-foot-wide brushcutter head.

The custom machine cuts narrow strips through the dense conifer forest where aerial seeding has produced densities up to 15,000 stems per hectare. This new-wave thinning machine has allowed Avenor to achieve a density of 2000 stems per hectare.

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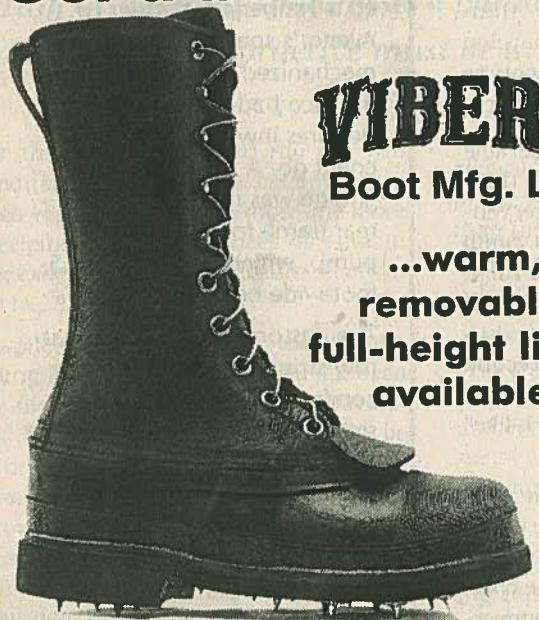
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COMMERCIAL THINNING

Skyline thins BC slopes in Lower Mainland

The Fraser Timber Supply Area (TSA) in southwestern BC is the heart of the province's richest forestland. Logging has been escalating here since the 1900s, and the region is now dominated by 20- to 50-year-old second-growth forests, a dense, impenetrable mass of trees that will not reach maturity for another 50 years. These tightly packed steep stands are inhospitable to both current logging methods and to many forms of wildlife, including the spotted owl.

The remaining mature timber is on poor ground, meaning more forest land must be harvested just to maintain the same volume of timber. In 1995, the annual allowable cut was reduced from 1.76 million cubic metres to 1.55 million. Logging has to be cut even more to reach a sustainable harvest.

Canadian Forest Products's Harrison Lake Division is using an old-fangled skyline rig to commercially thin the Lower Mainland's second-growth forests. They see it as an alternative to losing fibre because of harvest reductions for new parks, owl habitat and restrictions under the Forest Practices Code. BC's chief forester Larry Pedersen said there is the potential for commercial thinning to add to the timber supply, but because nobody has done it, he can't say by how much.

Of the 270,000 hectares of timberlands in the Fraser TSA, about 170,000 are second growth. Thirty thousand hectares are in the same age-class as the stand Canfor is now logging (60 to 70 years old).

Half the trees are thinned from the second-growth stands, providing saw logs and pulp logs for Canfor. The sturdiest and largest are left behind to reach maturity, perhaps even growing faster, now that sunlight can reach them.

Getting the logs out without damaging the leave trees and forest habitat is a prime concern. The 600-metre-long skyline is suspended high above the forest. A movable carriage trailing six choker-cables runs along the skyline.

At the roadside is a Washington 78SL swing yarder, supplied and rebuilt for the job by Trican Machinery of New Westminster. The yarder winds in the carriage and its load of logs. At the back end, the skyline is rooted to a spar tree, topped and rigged by a young logging crew, trained by an old-time logger in Washington state, who uses the system to thin second-growth there. The logs are fully suspended, allowing clean yarding through the standing timber.

This commercial thinning operation yields between 250 and 400 logs per day. A Kobelco log loader, also customized by Trican, loads trucks at the road.

This operation provides several environmental benefits. The skyline operation is relatively low-impact on the forest and its soil. Opening up the stand through thinning is a way to create old-growth-like habitat for the northern spotted owl and other forest creatures who shun the uniform height and thick canopy of regenerated forests. ▲

Nova Scotia lukewarm on commercial thinning

Jim Verboom

The most critical component in making a commercial thinning operation work is a market for the product produced. By their very nature, properly executed thinnings produce wood of a smaller average than if the same site were harvested. As well, the wood quality is often lower since the best trees are left to grow.

Private landowners continue to have difficulty finding buyers for wood coming from intensively managed stands.

Under these circumstances, steady support from fibre users is critical in developing this silvicultural treatment. Woodland departments that have made that required commitment are reaping the benefits of increased AAC, improved environmental results, and better publicity.

Few forest types in Canada respond better to commercial thinning than the Acadian forest of Nova Scotia, New Brunswick and Prince Edward Island. With the wide range of softwood and hardwood species to work with, silviculture workers have a very interesting job.

Unfortunately, in Nova Scotia this treatment continues to be under-utilized because private landowners continue to have difficulty finding buyers for wood coming from intensively managed stands. This problem has lead to the transfer of silviculture funding away from commercial thinning to planting and precommercial thinning. ▲

Business Proposals Wanted:

Big River Forest Nursery

The Province of Saskatchewan invites proposals for the operation or purchase of its Big River Forest Nursery. The 250-acre nursery (90 arable; 65 irrigated) has produced bare root conifer seedlings for industrial reforestation programs. **The nursery, buildings, equipment and other assets – including an excellent available work force – present an opportunity for experienced growers wishing to assume the operation or convert it for other purposes.** The location is ideal for producing hardier plants for markets in northern climates.

For more information, contact Tony Baumgartner, Manager of Administration, Forestry Branch, Saskatchewan Environment and Resource Management:

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Experimentation de l'éclaircie commerciale en forêt publique

Pierre Dubois

La Conférence des coopératives forestières du Québec (CCFQ) propose une expérimentation des coupes d'éclaircie commerciale en forêt publique. Le projet a d'ailleurs été annoncé par Guy Chevette, ministre des Ressources naturelles du Québec. Lors du sommet sur l'économie et l'emploi tenu à Montréal à la fin d'octobre.

L'éclaircie commerciale est un traitement sylvicole qui convient à la forêt résineuse équienne (une forêt composée d'arbres du même âge) et vise à en récolter une portion tout en maintenant une forêt résiduelle de qualité. Le projet de trois ans de la CCFQ prévoit pratiquer quelque 4000 hectares d'éclaircies commerciales à la grandeur de la forêt publique québécoise. C'est certainement une goutte d'eau dans l'océan si l'on considère que le Québec compte au-delà de 500,000 km² de forêts productives accessibles. Mais il fallait tout simplement commencer. Actuellement, l'éclaircie commerciale se pratique surtout dans les forêts privées québécoises en particulier dans les plantations qui doivent être éclaircies vers l'âge de 30 ans.

Pour expérimenter ce traitement sylvicole en forêt publique, le principal problème est de trouver des forêts aptes à bien réagir aux travaux. La forêt ne doit pas

être trop jeune. De façon à être commerciale, l'éclaircie doit produire un volume de bois transformable par l'industrie. Une forêt mature ne convient pas non plus à l'éclaircie mais plutôt à une coupe finale de régénération.

Jacques Gauvin, directeur général de la CCFQ, explique que le ministère des Ressources naturelles montre une certaine ouverture à revoir ses normes d'application de l'éclaircie commerciale, dans le but d'améliorer les connaissances actuelles sur les tenants et aboutissants de tels travaux. Les représentants des coopératives participeront à un comité provincial qui encadrera l'expérimentation. L'Institut canadien de génie forestier (FERIC) assurera le suivi technique tandis que la formation de la main-d'oeuvre sera prise en charge par la Société québécoise de développement de la main-d'oeuvre (SQDM).

L'éclaircie commerciale permet de produire du bois maintenant tout en laissant sur pied une forêt qui produira autant de bois une fois arrivée à maturité. Les industriels y trouvent leur intérêt en augmentant le volume de bois récoltable à court terme dans le cadre de leur Contrat d'aménagement et d'approvisionnement forestiers (CAAF). Le ministère des Ressources naturelles (MRN) croit

que ce projet de trois ans va générer un chiffre d'affaires de \$74 millions en forêt et \$129 millions en scieries. Quant à lui, le ministère investira \$600,000 en recherche. Le ministre Chevette a exhorté les industriels forestiers à faire une place privilégiée aux coopératives forestières pour exécuter les éclaircies commerciales. Les preneurs forestiers privés et les groupements forestiers, qui réalisent des travaux en forêt publique, pourront également se voir confier les travaux.

La Conférence des coopératives forestières du Québec compte 32 coopératives dans les quatre coins du Québec. Selon Jacques Gauvin, un très grand nombre de coopératives seront intéressées à réaliser ces travaux. "Certaines coopératives ont déjà commencé les contacts avec l'industrie," précise-t-il. Il y a là tout un défi à relever pour les entreprises de la foresterie québécoise spécialisées dans les travaux sylvicoles. La machinerie de coupe, de débardage et les techniques de travail sont à mettre au point. ▲

Summary

Guy Chevette, Minister of Natural Resources, recently announced that the

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Single-grip operator training in Quebec

Quebec technical training schools in Dolbeau, Forestville, Causapscal and Mont.-Laurier started a program over a year ago to train logging machine operators. More than 100 students per year have been enrolled in the training program since 1994, and some schools now have more than 300 students on waiting lists.

Students are enrolled in either a 360- or 840-hour course, both of which include approximately half classroom instruction time and half field instruction time—operating single-grip harvesters,

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Conference of Quebec Forest Cooperatives (CQFC) proposes to experiment with commercial thinning on public forest land. Commercial thinning is suitable for even-aged conifer forests, and is designed to harvest a portion of the forest while maintaining an intact stand. The CQFC plans to begin commercial thinning on 4,000 hectares of public forest, an area totalling less than one percent of Quebec's accessible forested land. Commercial thinning is currently practiced mainly on private forest land in Quebec. The Ministry of Natural Resources hopes this project will generate \$74 million in forestry activities and \$129 million in sawmill activity. The Ministry will invest \$600,000 for research.

forwarders and cut-to-length machines. Students completing the longer course receive a diploma from the Quebec Ministry of Education.

The local Timberjack dealer, Equipement Fédéral Québec Ltée., has provided both equipment and expertise for the Professional Forestry Training Centres. After the three- to four-week course provided by Equipement Fédéral

personnel, the school instructors continue the program which prepares equipment operators for work in the forest.

Yvon Beaulieu of Equipement Fédéral says the combination of technical and field training creates the skilled operators. "It gives (the student) a complete machine knowledge." "When you know how and why a machine is designed," says Beaulieu, "it's easier to operate. You know its limits."

After an 18-month wait, because of high demand, Bruno Dion was accepted as a



Students spend half their course time in field instruction—operating single grip harvesters like this Timberjack machine.

student in the program. He has high praise for the schools, the instructors and for the course. "It has definitely made me a better forest worker," he says. "There is no better way to learn." Dion says that in the 84-hour course, students are instructed in all aspects of the harvesting machines, including lots of operating time in the woods.

Beaulieu says the fact that students are being hired by logging contractors before fully completing the course is a testament to its success. ▲

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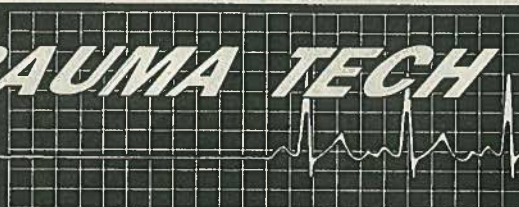
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Fungal root disease starts at the stump

Mike Cruickshank and Duncan Morrison

Mention "*Armillaria* root disease" in BC's southern interior and you will probably find a diverse range of opinions about this parasite's impact on the forest. There are many reasons for this range. One is that most of the biology of this disease lies below ground and is difficult to study. As well, the disease is not associated with the huge mortality flushes that occur with other pests, such as bark beetles. Instead, damage occurs over an extended period and is less noticeable. Moreover, stands do not look "dead" even though the stand composition and structure may have been altered, and still appear "green". Additionally, disease expression and impact are strongly affected by ecosystem type, and comparisons between ecosystems can be misleading. Finally, still other opinions exist because of personal beliefs about how the forest should be managed.

This disease presents a long-term decision-making problem for managers because it may take decades for the consequences of an action to be seen. An understanding of the biology and epidemiology of the disease would help clarify the issue.

Table 1. The susceptibility of host species to *Armillaria ostoyae* in BC.

SUSCEPTIBILITY	HOST SPECIES
Susceptible	<i>Abies</i> series Douglas fir
Moderately susceptible	lodgepole pine Spruce species western hemlock western red cedar
Tolerant	western larch ponderosa pine
Resistant	aspen birch poplar



Armillaria ostoyae, the fungus responsible for "Armillaria root disease," is widespread in southern BC.

Successful management of the disease will occur when the amount of fungal food base (stumps) is carefully managed to a level that the ecosystem can support.

The disease and its hosts

The fungus responsible for the disease, *Armillaria ostoyae*, is widespread in southern BC and has a wide host range. The disease is most damaging in the southern interior ecosystems, while coastal forests over the age of 20 are not at risk. Vigorous trees in coastal forests tend to outgrow the fungus even though they are infected. None of the tree species are immune. However, the ability to cope with infection differs according to tree species (Table 1). Below the age of 20 years, all trees are more or less susceptible, except the deciduous species. Deciduous species can become susceptible at a later date, especially when they

become over-topped by conifers.

Armillaria species are excellent stump colonizers, and few fungi can match their ability. These species are maintained in appar-

ently healthy stands because they are in balance with the natural vegetation. One of the primary factors affecting disease is the amount of food base (stumps) the fungus occupies. The creation of stumps in these stands increases the food base available to *Armillaria* species, and tips the balance in favour of the fungus for a while. Successful management of the disease will occur when the amount of fungal food base (stumps) is carefully managed to a level that the ecosystem can support.

Stump colonization

The fungus exists in lesions on the roots of trees before they are cut. In the south-

ern interior, up to 40% of the trees in spacing-aged stands and 80% in mature stands have root lesions. Following stump creation, *Armillaria* spreads from the lesion and colonizes the stump in about two years. The fungus colonizes the nutrient-rich outer phloem and cambial tissues first, and then spreads into the heartwood.

The initial positioning on the root and rapid growth rate put the fungus in a good position to exploit the stump. Possession of the stump is critical for the fungus because it cannot live in the soil in absence of the food base. After colonizing the stump, the fungus moves onto the crop trees at root contacts and by rhizomorphs (i.e., root-like structures produced by the fungus). The greatest damage is done through root contacts between the crop tree and the stumps.



Armillaria spreads through root contact between infected stumps and crop trees.

Brushing and weeding create small root systems that may become food base for the fungus.

Timing and size of stumps in the stand

The timing of stump creation, and the number and location of stumps within a stand affect the development of the disease. Management methods that increase the time for root contacts to occur between susceptible crop trees and the colonized stump, reduce the number of susceptible trees exposed to the stump, or reduce the size of the stumps to affect the level of the disease. Also, creation of stumps at regular intervals keeps the fungus in a vigorous state.

Of course, any stand with a high level of mortality prior to management activities can be expected to have high mortality in the residual stand, regardless of the management system used, unless the stumps are removed. Given the size and

location of stumps, and the timing of stump creation relative to the crop trees, we can make some predictions about the effects of stand tending and harvest practices on disease.

Brushing and weeding

Brushing and weeding create small root systems that may become food base for the fungus. Removing the woody shrubs and deciduous species also allows greater root-to-root contact between conifers because the roots no longer act as a physical barrier. Brushing and weeding should only be done where necessary to get sufficient regeneration established, and then only in a small area around the tree.

Precommercial thinning

The stumps created by precommercial thinning are smaller than those left by other operations, but the large number of stumps scattered throughout the stand often results in unacceptable post-spacing mortality. Thinning in stands

that show a moderate to high number of diseased trees and that contain a large proportion of susceptible species should not be done. If both a precommercial and a commercial thinning are planned in one rotation, then the effects on the fungal food base are compounded.

Commercial thinning

In commercially thinned stands, the stumps are in root contact with the remaining crop trees. The fungus moves across the root contacts when its energy level is at maximum. Transfer of the fungus from the stump to tree occurs in the second or third year. The stumps are also created uniformly across the site, maximizing the contact between stumps and crop trees. In this way, disease is favoured in space and in time.

Commercial thinning, where the largest trees are removed in favour of a smaller diameter class, is most likely to favour the disease. This system leaves the largest stumps in contact with the smallest trees. Commercial thinning stands where the smallest trees are cut will likely have less disease because the stumps

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Birds-eye view of Armillaria mortality in a Douglas-fir stand.

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are smaller in relation to the surrounding trees.

Group selection

Other types of harvest such as group selection are expected to have less mortality. In this system, all the trees are removed in one area leaving only trees at the edge in contact with the stumps. This minimizes exposure of the trees to the fungus in comparison to other partial cuts. Trees regenerating within the cut area, now have some time before their roots touch the stump (similar to a clearcut).

Clearcuts

Clearcuts are least favourable to disease development because the root contacts between the stumps and new stand take up to 15 years to fully develop. In this period, the fungus has decayed some of the stump, especially the outer tissues where the transfer to new roots occurs, and its energy is lower.

Stump management

At present, stump removal is the only tested method for reducing the fungal

Many trees may only have small root lesions and show no visible symptoms above ground, but, when cut, become food for the fungus.

food base. Pushover logging removes the whole tree (including roots) in harvesting operations, and pop-up spacing removes the root system with the tree in spacing operations. Stump removal on commercial thinning operations is much more difficult. Stump removal is expensive, and not possible in all cases due to site limitations. Every attempt should be made not to increase the fungal food base over time, so that drastic measures at a later date are not required. To keep the vigour of fungus low on a site, the number and size of stumps should be kept to a minimum. Where partial-cutting systems are required, stands could be cut to a diameter limit basis where the smallest trees are removed and the largest left.

Resistance

Resistant species (Table 1) can be used on sites where stumps cannot be removed. During precommercial thinning, some of the less susceptible conifers and deciduous species can be favoured and root contacts between susceptible conifers reduced. In clearcuts, planting resistant species near infected stumps and keeping the susceptible species away from stumps should also reduce the impact of disease. Planting alternate rows of susceptible and resistant species reduces root contact between the susceptible conifers and slows the disease's spread. Only broadleaf species show resistance to the fungus at an early age. Remember that even resistant species can be infected and once cut, their stumps can become a food base for the fungus.

Detecting the fungus

Detection and recognition of the disease

in young stands is essential for management purposes. However, above-ground symptoms do not always equate with the below-ground distribution of the fungus: disease symptoms are also affected by stand age and species composition, and by the vigour of the fungus. Many trees may only have small root lesions and show no visible symptoms above ground, but, when cut, become food for the fungus. In such cases, a flush of mortality can occur. Stands less than ten years usually show few symptoms of disease because few crop trees have contacted the infected stumps. Most stand-tending decisions are made at an early age when symptoms may not be fully expressed, and therefore, the risk from disease can be underestimated.

Also, some tree species show much clearer and earlier symptoms of disease. Douglas fir is quite susceptible to *Armillaria* root disease, and is a good indicator of below-ground levels of the fungus.

Lodgepole pine is also quite susceptible, but does not show symptoms until the disease is advanced. The mix of tree species should be kept in mind when considering surveys based on above-ground symptoms. The threshold levels for treatment options will be set by the particular forest region, and the regional pathologist should be consulted.

Some indication of the disease's activity level can be gained by looking at the dead trees. If surveys show mostly newly killed red (dead less than two years) and few grey (dead more than five years) trees, then the disease symptoms are likely just beginning to become visible and the amount of disease is likely to increase. In stands that show mostly grey dead trees, the disease has probably balanced somewhat with the surrounding vegetation. The fungus is still present in the stand, but the trees have contained the lesions. Any new stumps created will increase the energy of the fungus, and additional flush of mortality will follow unless the stumps are removed.

Forest management decisions are dictated by a number of inputs such as ecology, economics, and social values. However, some consideration should be given to the stumps left by these activities and the disease-causing fungal species that colonize them. ▲

Mike Cruickshank and Duncan Morrison are with the Canadian Forest Service's Pacific Forestry Centre in Victoria, BC.

Further reading

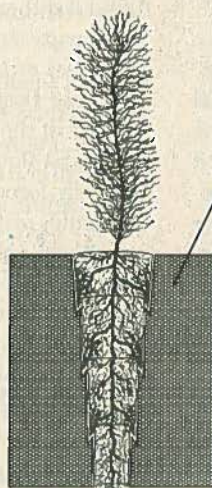
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Unanswered questions in sustainable forestry PR

George T. Marek, RPF

A few days ago the first copy of *Nexus*, a publication by the Canadian Forest Service (CFS) on the Model Forest Program, arrived at my new home in Armstrong, BC.

"Educate", "inform", and "demonstrate" seem to be the catchwords of CFS's panel of experts. Surely, these words and the concepts they convey are aimed mainly at the general public, who are largely "uneducated" in forestry matters and have been led to believe for many years now that everything is okay in our forest lands.

The question I wish to ask is, What are the criteria or benchmarks for judging the implementation of CFS programs and proper scientific forest management? I was unable to find an answer to this question, just the expression of different points of view. The statement of objectives to "accelerate", "apply", and "test" do not qualify, and even contradict statements and practices. The basic questions directed to forestry professionals, and through to the public who contribute to the management of Model Forests and forests in general, are as follows: What kind of forest are you talking about? What kind of forest do you want? Are you talking about a forest that will resemble the one harvested or that was planted? Or are you talking about a naturally regenerated second-growth forest?

The concept of forest sustainability is not new. More than a hundred years ago the foresters in Europe were not only experimenting with, but using harvesting and silvicultural systems that adhered strictly to ecological principles, thus perpetuating the original forest eco-types and associations. However, regardless of impressive results, the demand for increased production in combination with impressive success in agricultural

technology unfortunately put an end to this endeavour, though it is now being revitalized.

I find it difficult to accept the statement in *Nexus* that "natural successional processes are poorly understood." While it is true that, as yet, the boreal forest biology at the lower level of organisms at the forest floor has not been researched properly, foresters should be aware of the dynamics of fire-driven ecosystems. The mensurational data of our "virgin" forests have been studied *ad nauseam* and should provide a benchmark and guidance for sustainability. Of course the very unstable ecosystems of second-growth and artificial plantations are another story.

Forest fragmentation is mentioned in the CFS report without any suggestion that it may have different interpretation and consequences in various forest regions of Canada, e.g., the temperate forest zone, coastal forests in BC, and the boreal forest. The impact of fragmentation may be heavy on some, minimal on others. While some forests are capable of renewing themselves constantly, others are not. Development and optimization of all kinds of forest uses is only possible if the forest itself is in optimal structural and functional condition.

In conclusion, it seems to me that we forestry professionals have come full circle. An example from personal experience: In the mid-fifties I started a vigorous, self-financed campaign in northwestern Ontario to protect young and advanced growth of spruces. My efforts were attacked by both government and industry. Why? Because they both thought that I was propagating and protecting an inferior, genetically poor forest. What food for thought. ▲

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*PEI Silviculture
Contractors Association*

Dirk Brinkman,
*Western Silviculture
Contractors Association*

This article is based on a letter to Stephen W.J. Dominy, Model Forest Coordinator for the Canadian Forest Service.

George T. Marek is an Ontario forestry consultant.

RESUME ON NEXT PAGE



A new NS forest strategy process is needed

Jim Verboom

As detailed in the following articles, recent public hearings have overwhelmingly rejected the proposed "New Forest Strategy" promoted by the NS government and forest interests coalition.

The next question is, what do people want? I would suggest the following:

1) Meaningful input into an open process to establish a new forest strategy for Nova Scotia.

2) A strategy that shows progress in responsibly managing our resource, using it in a sustainable way for all stakeholders. The current proposal is just a rewrite of the status quo that the authors hope the public will accept as "new".

3) A recognition that the forest resource has many legitimate stakeholders besides the forest fibre users and a few landowners.

4) Prices for wood that are closer to the prevailing prices in northeastern North America.

5) Seriousness about the process from industry. If the resource owners and users can't make meaningful changes soon, public pressure will result in drastic measures like the referendum to ban clearcuts in Maine.

There will be no growth or changes in the Nova Scotia silviculture industry until the current political struggle is settled.

Fortunately, the NS government has kept the silviculture industry on private lands alive during the past two years, by providing funding of about \$6 million per year. This funding has kept things going while we wait for a new strategy. ▲

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Woodlot owners quit forestry coalition

Brian Rau

The Nova Scotia Woodlot Owners and Operators Association has become the second group to resign from the government-promoted Coalition of Nova Scotia Forest Interests.

"To continue to participate in the coalition would be a betrayal of the trust of our association's membership and all Nova Scotians," according to association president Wade Prest.

The 3,500-member Nova Scotia Landowners and Forest Fibre Producers Association, based in Port Hawkesbury, was first to formally withdraw from the coalition, which was made up of 14 forestry companies and organizations, including pulp and paper mills, sawmills, and forestry cooperatives.

The coalition prepared a discussion paper on forest management earlier this year. The response to the strategy, based on public meetings across the province in October, recommended it be rejected.

Prest said his 1,600-member association had no choice but to quit the coalition. The majority of coalition members refuse to accept the findings of the public hearings, contained in a report by an independent Voluntary Planning Panel headed by John Sears of Antigonish.

"It's very sad that industry refuses to acknowledge the reality that the public doesn't support the strategy as it is," Prest said.

Natural Resources Minister Eleanor Norrie won't comment on the report, which she received November 18, until later this month.

Prest fears the remaining coalition members will try to water down the forest strategy even more before it is presented to the minister, who will ultimately reject or accept it. ▲

This article appeared in The Chronicle Herald on December 7, 1996.

CONTINUED FROM PREVIOUS PAGE

Résumé

Nexus est la nouvelle publication du service canadien des forêts sur le réseau des forêts modèles. La publication, comme le programme lui-même, manque des définitions claires des forêts modèles et des forêts en général, surtout avec référence au entretien des forêts durables. De plus, la déclaration en Nexus que les processus de succession naturelles ne sont pas bien compris, s'applique seulement aux organismes simples de la biologie des forêts boréales. Autrement dit, les forestiers devraient être sensibles aux processus écologiques qui sont dirigés par le feu. Finalement, la discussion sur la fragmentation des forêts manque sensibilité aux différences régionales.

Voluntary planning panel reports frustrations

John Sears

The Voluntary Planning Panel (VPP) was appointed at the request of the Nova Scotia Coalition of Forest Interests to hold public counsel on the discussion paper "A New Forest Strategy for Nova Scotia." The role of the VPP was to serve as an objective party to facilitate public input.

The VPP's report attempts to summarize the input received from the public meetings and written submissions. I would direct your attention particularly to the section of the report setting out the observations made by the panel, which I chaired.

As was observed by several participants at our meetings, the discussion paper is a good starting point for another round of forest strategy development, and it makes reference to the vast majority of the topics with which such a strategy must deal.

There is no broad-based support for the coalition's proposed strategy. It was perceived by many to be authored by too exclusive a group, and was seen to be both too narrow and too lacking in detail to form the basis for any change in policy.

Despite our best efforts, I am not comfortable that our report adequately communicates the frustration that one both

heard and sensed at the meetings. This frustration has many causes, but I was particularly impressed by the fact that the 700-plus people who appeared have been through this all before had seen changes recommended and supported, yet little seemed to change. The sum and substance of it all suggests to us that it would be inappropriate to proceed to revise legislation, or to create or revise regulations on the basis of the discussion paper.

What is seen to be essential to the development of an adequate forest strategy is already available to the Minister and the Department of Natural Resources, and to the coalition, in the recommendations of the Royal Commission of 1984, the Primary Forest Products Marketing Act of 1986, and the Nova Scotia Forest Accord of 1994. Yet that material and much more appears to have been ignored or used without attribution in the preparation of the discussion paper.

More studies are not what is needed. Rather, what appears to be required is a small but representative group, a new and much more inclusive coalition, appointed by the minister in consultation with the stakeholders identified in our report.

This new group would be charged with the task of pulling together (and updating where appropriate) what is readily available, including documentation gathered from this consultation process, and preparing a proposed forest strategy to be circulated to interested parties in advance of public hearings by that same group.

Following such hearings the group would evaluate the public comment, revise the proposed strategy as necessary, and make the revised draft available for written comment, with a resulting final revision used as a basis for revisions or new legislation and regulations.

The process suggested above has considerable urgency, and to delay the process of completing the development and implementing a fair and balanced forest strategy for Nova Scotia would be socially and economically irresponsible. ▲

John Sears is Chair of the Voluntary Planning Panel. He wrote this report dated November 18, 1996. A copy of the full report may be obtained from the Voluntary Planning Panel, 600-1690 Hollis Street, Halifax, NS, B3J 3J9.

NOVA SCOTIA REPORTS
CONTINUED ON PAGE 48



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Property tax incentives for sustainable forestry

Wanson Hemphill

Simple and fair property tax incentives can be an effective method of encouraging sustainable forest management as demonstrated in BC, Quebec, Nova Scotia and Ontario. Woodlot owner groups on PEI are trying to convince the new provincial government of the merits of such a system.

By helping to prepare and follow a forest management plan, woodland property owners would be eligible for a property tax rebate. Management plan preparation would include owner's objectives, silvicultural treatments, and access improvements. Management plans could be prepared by educated owners, forest technicians, woodlot owner groups, forest consultants or other trained personnel.

A tax incentive program, along with private investment, federal job creation and provincial forestry incentives, could lead to a high level of forest improvement activity, employment, and investment in our future forests.

Ontario is reinstating its Managed Forest Tax Rebate Program to help private landowners deal with some of the inequities of the property tax system, and to assist landowners to manage their properties for long-term environmental benefits. Ontario landowners who qualify will receive 75% of property taxes paid on the managed forest portion of their property starting in 1996.

Guidelines must be carefully developed to provide fairness and prevent abuse. Care must be taken when implementing regulations so that persons are not encouraged to convert, speculate or manipulate the system for personal gain. Tax assessments must be based on fairness, needs, land uses and values.

The expectation is that tax rebates will greatly increase the demand for management plans and forest improvements, thereby increasing forest employment

activity and opportunities. Planning to reduce a flood of applications for forest management plans and to ensure an adequate supply of trained planners and skilled forest workers must be part of the tax proposal preparations.

This initiative could even lead to tax incentive programs for farmers who follow Environmental Farm Plans (EFPs). Carrots (incentives) work better than sticks (penalties), and financial carrots work best of all. ▲

P.E.I. Forest Improvement Association

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Ian Dennison, *President*

Wanson Hemphill,
General Manager

PEI proposes forest code of practice

Wanson Hemphill

It started with the need to protect PEI's immature trees, thinnings and plantations. Now, over numerous meetings, the proposed forest code of practice has evolved to include definitions of immature stand types, silviculture terms, harvesting restrictions and exemptions, environmental and wildlife requirements, and contractor certification.

One rationale for showing pro-active stakeholder responsibility has been the recent external pressures witnessed in Maine and New Brunswick due to environmental, societal and wood supply pressures.

During the consultation process, PEI looked at other codes, but kept in mind the uniqueness of our province, and our desire for something simple, effective and efficient.

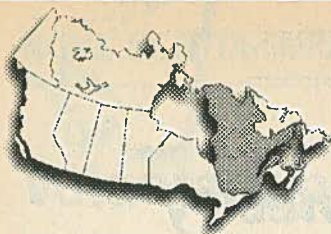
To achieve greater industry acceptance, it was proposed that penalties for the first year be foregone. There was considerable discussion at contractor meetings whether voluntary participation would

be successful. Many contractors felt there have to be either incentives or penalties or regulations to motivate industry to accept changes.

Many more discussions will be necessary to put something in place that will serve to protect our future forests and environment. ▲

Résumé

L'Isle du Prince Edouard est en train de développer un code de pratique forestier. Ce processus à inclure un examen de les codes en autres provinces et régions avec considération à la nature singulière de l'Isle du Prince Edouard et à la desire d'avoir un code simple. Une responsabilité dynamique de ceux intéressés doit être encouragée pour éviter les problèmes temoignés en Maine et à la Nouvelle Brunswick. Une façon d'accomplir cela sera d'offrir un rabais d'impôt foncier comme encouragement pour les propriétaires de régions boisées qui preparent et suivent un plan d'administration forestière.



L'avenir de l'éclaircie commerciale à Québec

René Ouellette

Une forte majorité d'entreprises forestières a vu ses activités d'éclaircie précommerciale et de récolte croître au cours des cinq dernières années. Pendant ce temps, les activités de reboisement ont décliné.

Pour combler la diminution des travaux de reboisement, les entrepreneurs devront faire des travaux d'éclaircie commerciale. Les entrepreneurs spécialisés en aménagement forestier n'auront pas la possibilité de se mécaniser. Ils préféreraient que les travaux se fassent manuellement par des abatteurs, principalement en raison du coût élevé d'une mécanisation (soit de 400 000 à 420 000 \$/machine). Les opérateurs pour l'abattage directionnel se font rares et la moyenne d'âge est de plus de 50 ans. Par contre nous pouvons y remédier en formant des jeunes.

L'avenir nous apportera une mécanisation grandissante pour ce genre de travaux, car la technologie dans ce domaine est assez avancée pour le permettre. En effet, les grandes entreprises forestières priorisent, de beaucoup, la mécanisation. Quand on aura une abatteuse multifonctionnelle très bien adaptée aux conditions de travail d'éclaircie commerciale, elle s'accapatera une très grande part des travaux. Alors, les emplois manuels destinés aux petites entreprises vont décroître. Pour combattre cette mécanisation, il faudra de plus en plus compter sur des travailleurs très bien formés, ayant des méthodes d'abattage directionnel acquises. De cette façon, nous pourrions peut-être obtenir un coût du mètre cube inférieur à celui de l'abattage mécanisé. ▲

René Ouellette est le président de Reboitech.

Association des Entrepreneurs en Travaux Sylvicoles du Québec

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René Ouellette,
Président

Summary

For most forest companies, precommercial thinning activities have grown and reforestation has declined over the past five years. Companies should compensate for losses in reforestation work by continuing to expand precommercial thinning activities.

Many workers would prefer that felling operations continue to be done manually due to the high cost of mechanization. However, trained manual fellers are few and their average age is over 50. In order to prevent job loss resulting from increased mechanization, workers must be well organized and focus on gaining experience in direct felling operations.

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OMNR cutbacks go too deep

Gordon L. Stone

On behalf of the Central Ontario Section of the Canadian Institute of Forestry/Central Ontario Section (CIF), I want to express our dismay at the direction the Conservative govern-

The issues are complex and the implications far-reaching. Therefore, I can only touch on a few of the most troubling aspects of the government's current policy/changes, as our members view them:

When our forest resource begins to falter because of mismanagement and under-management, the province will have to deal with a very severe economic and social crisis.

ment is taking in the management of Ontario's renewable natural resources, especially with respect to the radical changes in the Ministry of Natural Resources (OMNR). The CIF represents natural resource professionals across the north-central region of the province. Our members include people who work for federal and provincial agencies, educational institutions, the forest industry, as well as private consultants and others interested in forests.

Exodus of forestry professionals

Many of the ministry's most experienced forestry professionals have left and are continuing to leave their communities (resulting in

important local negative economic impacts), the province, and Canada because of the lack of opportunities. This will result in a loss of organizational memory through the loss of technical expertise and institutional know-how.

Natural resource management requires long-term investment and foresight. We believe the province's natural resource base will suffer because of the drain in people. The recent acceleration in cutbacks will aggravate the problem.

Ontario Silviculture Contractors Association

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Grant Brodeur, President

John Lawrence, Director

Wealth creation, not severe budget cutting to deal with deficits

The forests of Ontario are the source of a large proportion of our wealth. With farsighted and modern management, these resources could play an even greater role in creating real economic growth, in dealing with unemployment, welfare, and the deficit. Wealth creation, not a one-sided emphasis on cutbacks, will solve the deficit. When our forest

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A DIFFERENT LINE OF PLANTING TOOLS

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resource begins to falter because of mismanagement and under-management, the province will have to deal with a very severe economic and social crisis. Forests do not grow overnight! An example of the potential return on investment by protecting natural resources was recently provided by a study of a jack pine budworm infestation. It was estimated that a 20% loss in a 25,000 ha jack pine forest would result in a total economic loss of \$716 million. The cost of preventing the infestation was only \$1 million.

The government cutbacks to the OMNR will likely severely limit its stated mission: "Sustainable development depends on the continuing availability of natural resources." The economic health of the forest industry is directly linked to the biological productivity of our forests. Only through research into new technologies and long-term investment in quality management practices can the future of our forest industry be viable.

The forest resource of our province is far too valuable and important for future generations to be squandered because of narrow ideologies.

OMNR business plan ignores private land and public education

Why does the OMNR seem to be ignoring the untapped potential of our province's private lands? Most of these lands are located in the south, close to manufacturing plants. The lack of a comprehensive private land forestry program is costing the province millions in lost revenues (raw materials, jobs, tax revenues, economic base).

We believe that a knowledgeable public is the cornerstone of a healthy forest sector. Without public understanding, concern for forests will decline. Forests will more likely be misused, poorly managed, and undervalued by an uneducated public.

Cutbacks in research

We believe that Ontario must invest now in forest research to ensure the sustainable development of our forests outlined in the [government's] business plans. As an example, no organization can absorb the massive cuts that have been forced on the Ontario Forest Research Institute without having its ability to function seriously impaired. We understand that OFRI's budget has been reduced by 72% and its staff by 68%. How can this indiscriminate cutting leave OFRI with the ability to function effectively and carry out good research?

Without an effective research body, how can the OMNR fulfill its stated goal "to contribute to the environmental, social and economic well-being of Ontario through the sustainable development of natural resources?" Where is the foresight? What is the future?

Private industry to take over management responsibilities

We understand that industry is being asked to take over activities, such as the collection of new research data, conducting silvicultural operational research, the identification of needs and priorities, forest monitoring, inventory and data collection, wood measurement, revenue collection, compliance, and others.

The forest resource of our province is far too valuable and important for future generations to be squandered because of narrow ideologies. The OMNR's business plan makes many references to building partnerships and having accountability to the taxpayer. As a neutral body, the Canadian Institute of Forestry speaks on behalf of the natural resource base of the province. We feel that our renewable resources are being placed in jeopardy by the changes your government is undertaking. In that regard, we wish to work with the OMNR in the implementation of its business plan in such areas as policy development, stan-

dards, and guidelines; and in the development of an economical land-use planning process and of specific plans.

Far from "Doing Better With Less," we feel that these policy changes may lead to "Doing Less with Less." We risk losing credibility and our leadership by those countries who look to Canada for leadership in practising sustainable forestry. Is the government aware that provinces such as Quebec are making great strides in advancing forestry? Ontario appears to be far behind Quebec in many areas of forestry, and the current changes do not address the problem.

The people of this province deserve better, for present and future generations. ▲

Gordon L. Stone is director of the Canadian Institute of Forestry's Central Ontario Section. This article is an edited version of an open letter he wrote to Ontario premier Mike Harris. The letter appeared originally in the Forestry Chronicle.

Résumé

L'institut forestière du Canada proteste contre les changements politiques et réduits budgétaires au ministère des Ressources naturelles par le gouvernement de l'Ontario. Les réduits au ministère vont encombrer le pouvoir de la province en effectuer les pratiques durables forestiers, mettant en danger les forêts pour les générations du présent et de l'avenir.

A la suite des actions du gouvernement provinciale, plusieurs de forestiers professionnels quittent la province. En plus, la recherche en cours au sujet des pratiques durables forestiers sera réduit fortement suivant une réduction de 72% à l'institut de recherche forestier de l'Ontario. Le gouvernement de l'Ontario compte sur l'industrie privée pour conduire ce recherche en plus des autres activités. Pourtant, l'institut soutient qu'un groupe neutre avec la vision long-terme soit nécessaire pour accomplir ce travaux.



WSCA proposes changes to bill that threatens silviculture workers

Joyce Murray

The intent of Bill 12 is to give first priority hiring, on Forest Renewal BC funded projects, to eligible BC forest workers who have experienced or are facing work reductions. The FRBC board must establish a forest worker agency to match eligible workers with jobs on FRBC-funded projects and to facilitate priority hiring for these workers.



Bill 12 threatens to replace a young workforce that includes 30% women with one that is almost exclusively male.

The WSCA has several concerns. First, the Bill 12 agency will accelerate the recent displacement of the regular silviculture work force, which has been experiencing declining job opportunities due to FRBC's "partnership" policy. This agency will subsidize the priority hiring of untrained harvest and mill workers to carry out work for which there are ample trained and suitable silviculture workers available.

Second, Bill 12's impact on silviculture contractors will be amplified because FRBC is considering an agency structure that will insulate "partner groups" from the legislated requirement for priority hiring of displaced workers.

Third, FRBC is considering creating a Bill 12 agency that functions as a govern-

ment employer, and assists licensees in taking over the role of silviculture employer for this FRBC work. These "work process options" will prevent silviculture contracting businesses from having access to a large part of their historic market.

Finally, FRBC negates the existence and the legitimacy of the historic silviculture

work force by considering a placement option in which contractors are required to draw their work force from the displaced worker list. This will mean loss of employment for the contractor's own trained employees.

Since 1974 silvicultural contractors have been the primary silviculture service providers in BC's forests. The

majority of silviculture contractors are experienced and professional suppliers. The silviculture contracting work force is sometimes characterized as transient, out of province, and not contributing to BC's community stability. But past surveys of the silviculture work force show that 86% of planters and essentially 100% of enhanced silviculture workers live in and spend their pay cheques in BC communities (Canadian Forestry Service Information Report). This work force is one which provides employment opportunities for women (30%), and for youth and students (40%), which are claimed to be priorities for the current government.

The 1995/6 volume of basic silviculture work (primarily tree planting) appears to

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have declined compared with 1994/5. Seedling nursery managers report still lower seeding levels for the 1996/7 planting year. Given the continuing reductions in the province's annual allowable cut levels, the market for basic silviculture services can be expected to continue to shrink.

The portion of FRBC's intensive silviculture program to which contractors have access (the projects not being carried out by "partners") does not create new jobs since it is not incremental to, but rather replaces a portion of past funding for land-based work. The fall-down in work available to intensive contractors suggests that FRBC programs have to date financed far less work than previous FRDA, MOP, MELP and forest licensee budgets for similar forestry and stand tending activities. FRBC's backlog plant-

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Replacing the skilled with the inexperienced

Current cabinet policies and agreements with organized labour are forcing FRBC to appropriate silviculture work from the businesses and skilled workers who have traditionally done this work, and to disperse it to individuals lacking silvicultural training (i.e., members of the unionized timber harvesting and milling labour pool).

FRBC is displacing the historic silviculture work force, which has an estimated 30% female participation and an approximately 37% youth and student employment rate, with an almost exclusively male work force from a completely different sector of the forest industry.

Our industry's conversion is occurring hastily due to Bill 12 and its rushed development of a new agency to ensure priority placement of eligible "displaced workers" (and workers with fewer months work) on all FRBC land-based jobs. Former loggers, equipment operators and mill workers will be handed silviculture jobs that previously were held by women and young people. The agency's draft eligibility criteria and registration process will disqualify most displaced silviculture workers, who ironically have been displaced by FRBC's own program delivery priorities.

FRBC's projection of forest worker displacement from mechanization, global forest-industry pressures, and forest policy changes totals 3,000 to 5,000 workers over four years. From a total direct employment of 110,000, this represents 2.7% to 4.5% of the forestry work force, not a huge adjustment rate. But "placed" on silviculture projects, this could represent 30% to 50% of the silviculture work force, a huge adjustment indeed for an industry experiencing a decline in demand.

Concern for the well being of displaced individuals and their families is very legitimate. However, there are several other FRBC programs to assist displaced workers (for example, up to \$27,000 per person for income bridging, training, and self-employment support). Displacing silviculture workers in order to accommodate displaced forest workers is not the answer.

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ing program will replace a part of the Ministry of Forests' incomplete program to eliminate the backlog by the year 2000.

The decline in volume of enhanced forestry work accessible to established silviculture businesses has been exacerbated by FRBC's job creation priorities and delivery problems. Moreover, workers attached to the silviculture contracting industry have been displaced. The Office of the Forest Jobs Commissioner is currently conducting a survey to determine the extent of this displacement to date. An estimated 60 stand-tending businesses (employing an estimated 500 silviculture workers) are out of business or at risk of bankruptcy due to the decline in their business since the creation of FRBC.

The government has passed Bill 12, legislation that leads contractors and their workers to fear for the survival of the professional silviculture industry.

Bill 12 agency options

Against this background of crisis for the silviculture industry, the government has passed Bill 12, legislation that leads contractors and their workers to fear for the survival of the professional silviculture industry. FRBC staff have been asked to propose an agency structure and function that will facilitate priority hiring for eligible displaced forest workers.

FRBC is examining three options for implementing the Bill 12 agency. In the first option, the new government agency is the employer. It hires eligible workers, forms crews throughout the province, and manages worker training and the delivery of silviculture and other land-based projects funded by FRBC.

A primary difficulty with this option is the burgeoning government bureaucracy and expense that will be incurred if government becomes the silviculture employer.

In the second option, forest industry firms are the employer. The agency registers eligible workers, places them on forest industry silviculture crews, and manages the training of new silviculture workers while the licensees employ the crews and manage the delivery of land-based projects.

The main problem with this option is that it burdens the forest industry with another set of management duties at a time when firms are struggling to cope with the administrative and management loads of other government-imposed forest industry initiatives and regulations.

In the final option, silviculture firms are the employer. The agency registers eligible workers, who are then placed on contracts tendered for delivery by silviculture contracting firms.

The primary obstacle here is that the declining demand coupled with a largely low-bid tendering process has resulted in low prices and a lack of stability and continuity in the flow of contract employment. Contractors may have difficulty in estimating and pricing labour costs, earnings could be very low, and displaced workers would be placed frequently on short-term jobs, and then need to re-register.

FRBC is considering recommending that a menu of all three options be made available. To implement policy and administrative requirements of three separate work processes could triple the complexity and the expense.

Change the tendering policy

Worker employment should be handled by silviculture firms. WSCA recommends that the matching of registered displaced workers with FRBC work opportunities can be accomplished easily and simply without creating an employer bureaucracy, or worsening the (silviculture) work force displacement problem. WSCA suggests the following changes:

- Delegate to forest licensees the responsibility of tendering all FRBC land-based work. Authorize them to negotiate with experienced silviculture suppliers on a select award or proposal basis for all projects not being implemented by "partners".
- Require suppliers and "partners" (except native peoples) to first employ workers from the displaced worker registry, for all crew positions not filled by the regular work force of the supplier or "partner".

Another change to tendering policy would see silviculture suppliers selected according to value not lowest price. The primary impediment to successfully placing displaced workers directly on contracts (the third option) is the current MOF contract tendering method: open tender low-bid auction for contracts over a certain size threshold. Low-bid auctions treat forest renewal work as a commodity good for which price is the only determinant of value. This approach fragments and weakens the contracting industry, and results in lower work quality and poor employment conditions.

Since 1987, forest licensees bear the full expense of basic silviculture services themselves. Because they must replace failed plantations at their own cost, forest industry firms are determined to work with suppliers providing the best value for money. Consequently, they rarely use open tender low-bid auctions. The industry forester either invites a selected group of proven contractors to bid on the project, or s/he negotiates with a preferred contractor. This suggests that a tendering process that selects suppliers based on value rather than price alone would also be the lowest net cost approach for achieving FRBC's land-based goals. The WSCA maintains that this change in the tendering process will improve the continuity of work for land-

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Premier promises work to IWA

The following are excerpts from Premier Glen Clark's FRBC speech at the IWA's tenth constitution convention, November 5, 1996.

"First, we need to improve the way FRBC works. Too many of the jobs from Forest Renewal are going to low-wage contractors from outside the province. Displaced forestry workers, union members, are not getting priority treatment from the corporation as they move forward... Forest Renewal can play a significant role in generating jobs, not just the way they have done in the last year or so, but jobs which pay decent wages and allow people to stay and work in their community at IWA rates, with the full protection of the union...

"The first legislation we brought in as a new government in July was an amendment to the Forest Renewal Act which guarantees, by law, that the first priority for funds from Forest Renewal will be displaced forest workers. And that commitment, I made to you in legislation, and it's one that now, in the next few weeks and months, we are going to deliver on in a significant way for you and your members.

"We're working right now, through the Forest Sector Strategy Committee, but particularly through the board of Forest Renewal BC, [and] through the agencies of government to set up the mechanisms to do precisely that. To give priority to ensure that the work is there, to ensure that the money that is in Forest Renewal is not left in the bank or given up to bureaucratic decisions, but actually delivers on the ground. And I commit to you today that ... by the new year, we are going to make a significant breakthrough to ensure that Forest Renewal starts delivering on its promises and its promise to you, your communities and your members, to make sure they get first priority."

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IMPLEMENTATION SUGGESTION	KEY SUCCESS FACTOR
The licensee packages an array of land-based projects and tenders them as a single contract	Longer, continuous work-year is possible
Contract is designed to be multi-year	Employment stability
Two or three selected qualified suppliers invited to tender	Ensures some competition
Contract awarded based on written proposal	Ensures supplier capability
Supplier is encouraged to open a local office in the community	Strengthens local economy
Displaced workers have first priority for all jobs incremental to the capacity of the supplier's experienced silviculture work force	Places registrants without displacing silviculture work force
Displaced workers are paid a defined standard hourly rate plus productivity bonus.	Allays concerns about sub-standard pay rates
Contractor supplies training and on-the-job modelling of quality and productivity by experienced workers	Best chance for displaced forest workers to succeed in silviculture work

based employers and will eliminate many of the difficulties foreseen in the third agency option.

FRBC is committed to streamlining project delivery and reducing the contract administration workload for over-extended ministry staff. The WSCA proposal that forest industry firms become responsible for tendering land-based work will help serve these objectives. From the forest licensees' perspective, the proposal implies more responsibility for tending and restoring forest lands, more autonomy in how to handle it, and far less adjustment than would result if the licensees were designated the primary silviculture employer, as in the second option.

Further suggestions

With input from ministries, licensees and experienced contractors, a proposal "boilerplate" can easily be created, flexible enough to adapt to different situations but ensuring consistency in tendering criteria. For example, a proposal that allots price a 40% weight, and other factors 60%, might require the bidder to address the following subjects:

- provision of performance security and insurance coverage;
- prior experience in this kind of work, similar scale of project;
- equipment and operational approach proposed;

- management and supervisory staff experience;
- safety and accommodation facilities to be provided;
- training qualifications and methodology;
- work plan demonstrating work continuity for the crew; and
- references indicating quality of service and of employment conditions.

Benefits to this proposal

The FRBC board is responsible for making decisions that consider various stakeholder's interests. When compared to the implementation options being considered by FRBC, the WSCA proposal of placing workers directly onto individual multi-year, multi-activity projects goes the longest way toward satisfying all stakeholder interests. These stakeholder interests are summarized below:

- Displaced workers want to access FRBC-funded jobs;
- Organized labour wants to ensure good wages and working conditions for forest workers;
- Native peoples want continued access to FRBC-funded work;
- Forest industry firms want quality silviculture services at an affordable price, and the maximum value added to the forest resource from the super-stumpage taxes being paid;

- FRBC wants to fund land-based projects that help stabilize communities through local employment;

- Experienced silviculture workers want to continue working;

- Established silviculture contractors want access to silviculture work;

- Community leaders want the work done by businesses based in their communities;

- Government wants silviculture delivered with a minimum of government staffing and bureaucracy in this time of Crown corporation rationalizations and government employee layoffs;

- Taxpaying citizens want a strong, globally competitive, forest renewal industry cluster.

In reality, the WSCA implementation proposal goes beyond making FRBC land-based work available to displaced workers. By integrating these workers

into established and experienced silviculture crews, they will have access to training and employment in basic silviculture work activities. ▲

This article is an edited version of a proposal presented to Don Cochrane, BC's Forest Jobs Commissioner, on December 2, 1996.

Résumé

Projet de loi 12 donne priorité pour l'embauchement sur les projets fondées par le programme pour renouvellement forestière de la Colombie Britannique aux forestiers qui ont de l'expérience ou qui font face aux réduits de travaux forestales. Un projet du programme de renouvellement forestière est vise a créer une agence pour assortir les ouvriers admissible aux projets de reboisement fondées par le programme. Le WSCA s'inquiète que la projet de loi 12 risque (1) déplacement des silviculturistes traditionnels qui ont déjà expérimentés un

declin d'emplois possibles; (2) subventionnement de l'embauchement des ouvriers qui manquent l'entraînement quand les ouvriers qualifiés sont disponible; et (3) mettre en danger l'industrie responsable pour les contrats sylvicole.

Le programme de renouvellement forestière est en train de considérer trois options pour mettre en effet l'agence, mais le WSCA les considère tous problématique. Le WSCA propose autres possibilités, incluant la suggestion que l'entrepreneur sylvicole soit responsable pour l'embauchement et l'emploi des ouvriers, et que l'embauchement soit priorisé aux travailleurs venant de l'agence pour tout positions sur les équipes qui ne sont pas remplis par le main-d'oeuvre régulier de l'entrepreneur. Cela évitera la création d'une bureaucratie d'employeurs et du déplacement du main-d'oeuvre sylvicole actuel.



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Four billion trees later

Ingmar Lee

According to Ministry of Forests statistics, the four billionth seedling in BC will be planted sometime in the coming year. No doubt, we are to expect some kind of ceremony to celebrate this event. Certainly, there will be some government folks and some ministry and industry officials in attendance, all patting themselves on the back for this tremendous achievement. Perhaps the forests minister himself will be seen, splashed all over the media, in his suit and tie, planting this tree. Unfortunately, however, some of the major players in this accomplishment may be completely missing from the picture.

These people, the treeplanters, and more broadly, the silviculture workers of BC could be forgotten amidst the hoopla as they always have been. This huge workforce, which has been quietly labouring in the woods for more than 25 years, has yet to be seen as the integral part of the working forest that it is. Aside from the four billion trees in the ground, over the past ten years alone, these workers have brushed and weeded more than 500,000 hectares, and have spaced and pruned another 300,000 hectares. It may come as a surprise to some people in government that all this work was not done by IWA members, nor by students in between their studies, but rather, for the most part, by highly skilled and professional silviculture workers.

Since the early '70s when the first large-scale silvicultural ventures were undertaken in BC, this workforce has been treated with derision. To industry, the arrival of silviculture workers in the woods was seen as an expensive annoyance, eating away at the profit margin and getting in the way of loggers. Gradually over the years, perhaps because of our stubborn perseverance in often appalling working conditions, or perhaps because of the magnificent new forests springing up out of cut-blocks, we are becoming grudgingly tolerated in the woods.

Monuments across BC acknowledge the logging industry's contribution to this province's economy, without giving even the slightest recognition to the tremendous contribution of treeplanters and silviculturists. The City of Prince George, where silviculture workers contribute millions of dollars to the local economy

Just how integral the silviculture worker is to the cycle of continuous and sustainable forestry is becoming increasingly clearer.

each year, threw these people out of town in 1996, when the unusually late recession of the snow-pack delayed the planting schedule.

The fruits of this hard labour are beginning to become increasingly visible as more and more plantations are spaced and pruned. However, the silviculture worker's lot is seriously deteriorating. In 1980, when I first began planting trees, a typical experienced treeplanter expected to earn at least \$200 per day. Now in 1996, a typical experienced treeplanter expects to earn about \$180 per day. Often, the reality is that he or she earns considerably less.

For spacers and pruners, these rates are often even less than that. Subtracted from these wages are camp costs amounting to as much as \$25 per day, not to mention the sizable expenses for equipment and travel between contracts. The extremely short duration of silviculture contracts means the workforce is shunted all over the province during the season. On many days, the worker donates free labour setting up and taking down camp. There is no travelling allowance in between contracts, and there is no pay at all for the often considerable driving time to and from worksites.

Additionally, silviculture workers sometimes have to pay union dues to the IWA for being allowed to work in IWA territory. For this latter expense, workers receive no benefits whatsoever, other than the right to work at tasks in which the big woodworkers union would normally have no interest. Besides receiving

no medical, dental or life insurance benefits, these workers are also denied compensation for injuries sustained by continuous, repetitive work that cannot be attributed to an incident occurring at a certain place and

time. The list of grievances suffered by these workers goes on and on, and extends into other areas beyond rate of pay, such as accommodation, safety, long-term disability, and even educational upgrading.

Lately, a new threat has begun to loom over the horizon: the IWA, in a new manifestation as "displaced forest workers," seems poised to move into our traditional field with heavy funding from FRBC. The creation of a new employment agency will register these "displaced forest workers" (a term theoretically encompassing all people who derive their income from working in the woods). Some people fear that silviculture workers will find themselves at the bottom of the seniority list, and that gradually, all aspects of work in the forest industry will fall under IWA control. The loggers' union seems to have the notion that silviculture workers will be delighted to join up and have the chance to work their way up through the ranks to one day become loggers. The only thing more ridiculous than this idea, is the spectacle of a logging truck driver decked out in treeplanting bags.

Just how integral the silviculture worker is to the cycle of continuous and sustain-

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able forestry is becoming increasingly clearer. In this province, the value of forest land and the fibre that it grows increases exponentially with each successive silvicultural treatment. As each plantation gets put to bed by the pruner (after the planter, the vexarer, the weeder, the brusher, the surveyor and the spacer have done their work), this province gains an asset of as yet unforeseen dimensions. The value of these plantations, when they mature in another 50 or 60 years, will far outstrip the profits generated during the first pass. You only have to look around the world to see which countries' timber industries will be supplying the planet's forest products in the 21st century.

It is time to remedy the problems experienced in this much neglected sector of the forest industry. A person who has what it takes to be a professional silviculture worker should be able to enjoy a successful lifelong career, and be able to establish a home in the vicinity of his or her workplace. Stability has to be created so that people can make long-term commitments that will benefit those communities located by the woods. We should be able to work in harmony at our different tasks, alongside the timber extraction sector without straying into each other's livelihoods.

The desperation that would drive loggers to planting trees and to moving into other silviculture work is the sorry legacy of the continuous, unsustainable over-cutting of our forests. The result will be an expensive mess, only comparable to a bunch of treeplanters let loose with a grapple yarder. Certainly, four billion trees in the ground is an achievement. But getting the maximum value out of these plantations for all of our futures requires the acceptance, acknowledgment and fair compensation of BC's silviculture workers for the enormous contributions they have made, and will continue to make into the future. ▲

RESUME ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

Résumé

En 1997, la Colombie Britannique aura plantée sa quatrième billion d'arbres. Pendant ce temps, les planteurs continuent d'être négligés pour leur contribution intégrale à l'économie provinciale. Les planteurs ont besoin non seulement d'acceptation et de reconnaissance, mais aussi de compensation équitable pour les coûts de voyage et d'équipement, et pour le travail requis pour établir et démonter le camp.

Les silviculturistes paient souvent les frais de syndicat pour travailler sur le territoire de l'association internationale des menuisiers (IWA). Ces frais incluent pas les avantages médicaux, dentaires ni l'assurance-vie. L'obligation du programme de renouvellement forestier de la Colombie Britannique de créer des emplois sylvicoles pour les forestiers déplacés de l'association internationale des menuisiers signifie l'injustice la plus récente vers les planteurs et silviculturistes.

Bill 12 will displace local crews

Patrick Smith

For the last few years, my silviculture contracting company has performed the majority of silviculture work in the Duncan Forest District. My firm has worked in other areas of the province, too, when work was scarce in our home area. Our company has trained many workers over the years at tasks such as spacing, pruning, brush-

in order complete work that is up to Ministry of Forests standards. A worker cannot learn the job in a short period of time. It takes many years to become proficient with the saw, learn how to space and make the right decisions when in the field, and not seriously injure oneself. Spacing is one of the most difficult skills to learn, and is also very dangerous.

Silviculture work is one of the hardest jobs imaginable due to the intensive physical work required, the extreme weather conditions you must endure, and the production and quality you must maintain at all times.

ing, weeding, trail building and creek cleaning — all at our company's expense. We can give FRBC information about this silviculture training. At present, this information does not seem to be playing a role in decisions being made about our industry.

In silviculture work, expertise is needed

Indeed, silviculture work is one of the hardest jobs imaginable due to the intensive physical work required, the extreme weather conditions you must endure, and the production and quality you must maintain at all times. There is a very select group of people in the

population who can handle all aspects of this work.

At my company, we are very concerned with Bill 12, the changes it is proposing, and the impact it is going to have on our workers', as well as our own, livelihoods. We employ local workers, most of whom are from Lake Cowichan and the

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Our employees make wages that are on par or above union rate on most of our projects. We want our workers to do well as this makes our company stronger. In fact, we would welcome a fair wage policy in the industry. As long as every employer is required to follow the same

are not using skilled workers on these projects. We doubt very much that there will be a rush of displaced forest workers who will want to do these kinds of jobs.

Besides, there is already a trained work force that is severely under-employed. Despite all the funding over the years for silviculture, there is still not enough work to keep most workers busy six months of the year.

Government invests tax dollars to train most silviculture workers through various

programs, and now, is talking about displacing these skilled workers in favour of displaced, untrained IWA workers. There is something seriously

wrong with a government displacing a skilled workforce with an unskilled one. The government is proposing training displaced forest workers for an industry that does not need any more workers.

However, there is a way we can work together, and not destroy a healthy industry that is benefiting the province. That way can only happen if there is a willingness on the part of government, the IWA, and the licensees to work with the established silviculture contractors, who have been doing the work to date successfully. We would like to see a cooperative approach rather than the combative one that seems to be developing.

We do not want to see our employees or silviculture contractors lose their liveli-

hoods due to a political decision. The majority of us live in small communities, provide local employment, and take pride in our work. We have invested time, energy and money into this industry. We have bought equipment, trained our employees, and created successful companies.

Most importantly, we possess the knowledge that cannot be learned in any classroom. It takes years of working in different areas and varying conditions to build up the knowledge that can be passed onto others. Workers need to apprentice over several years to gain the ability to make the decisions that will best serve the needs of the growing forest. ▲

Patrick Smith is president of Kwassin Lake Contracting, Lake Cowichan, BC. This article is an edited version of a letter he sent to the FRBC Forest Worker Agency, December 3, 1996.

Résumé

Le projet de loi 12 vise à donner des emplois de reboisement aux forestiers déplacés. Cela va certainement mettre en danger les moyens d'existence des entrepreneurs et d'ouvriers sylvicoles actuels. Le gouvernement doit consulter au lieu d'ignorer les compagnies sylvicoles qui ont plusieurs d'années d'expérience sur les matières sylvicoles et aussi sur l'entraînement des ouvriers sylvicoles. Le gouvernement, l'association internationale des menuisiers, et l'industrie sylvicole devront coopérer pour trouver des solutions.

The majority of us live in small communities, provide local employment, and take pride in our work.

guidelines, we think it would help our industry. What we do not want to give up, is the piece-work concept of the work. We know only too well, how production and quality plummet when workers have a guaranteed rate without a production incentive.

Silviculture work is being treated like a job that anyone can do, that you need very little training, and that it is easy to do. However, most jobs are located in isolated conditions where you must bring in all of the equipment and camp facilities. The expenses before you get to the work site can be significant, and this is why production is so important, as is the type of person you hire. The expenses on these projects will be astronomical if you

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Make some noise in Victoria at the 1997 WSCA Conference

John Betts

After twenty-seven years of silviculture contracting in BC, we've earned our place in the forest — almost four billion trees planted, 500,000 ha of Crown land brushed and weeded, 300,000 ha spaced, 1.3 million ha site-prepared, and 6.6 million ha surveyed.

That's a lot of work — planting four billion trees by hand is the ergonomic equivalent of lifting the weight of the Great Pyramid of Giza eight times. Why do so many politicians and policy makers not know who's been doing this work? And worse, some politicians have been saying silviculture contractors and their crews are transients who don't contribute to BC communities.

It's time the silviculture industry introduced itself to the movers and shakers in Victoria. Let's hope it's not too late.

Today, government is pursuing plans that could shut out contractors from bidding on FRBC land-based work. Dozens of firms face extinction as a result, and hundreds of experienced silviculture workers' jobs are at risk.

Contractors are losing out to more organized groups who have learned to press their case in Victoria. There is no better time than now to raise the voice of the silviculture contracting industry. If we don't, we will lose out to the loudest noisemakers. The WSCA Annual Conference, February 6 to 7, is a good place to start.

As a full-time lobby group, the WSCA is born yesterday, but we've been up all night. We have allies and support in Victoria. At the conference, you will hear how the WSCA has begun to influence forest policy in the province. You will hear reports on our ongoing efforts to identify the silviculture industry.

We have invited labour lawyers, lobbyists and academics to tell us how to effectively represent ourselves to government. At the same time, you will have a chance to ask politicians some pointed questions about government's latest treatment of the silviculture contracting industry.

Half the battle is education. Once administrators and politicians come to understand how our industry works, it's a lot easier for them to see our point of view. That's why we've invited the key players in Victoria to come and meet us at this conference. And that's why it's so important we get contractors to turn out.

Plan on being there—you might even have a good time. See you February 6 and 7 at the Laurel Point Inn, Victoria.

WSCA Coordinator John Betts will be moderating conference proceedings. For more information on the conference, call (604) 736-8660. ▲

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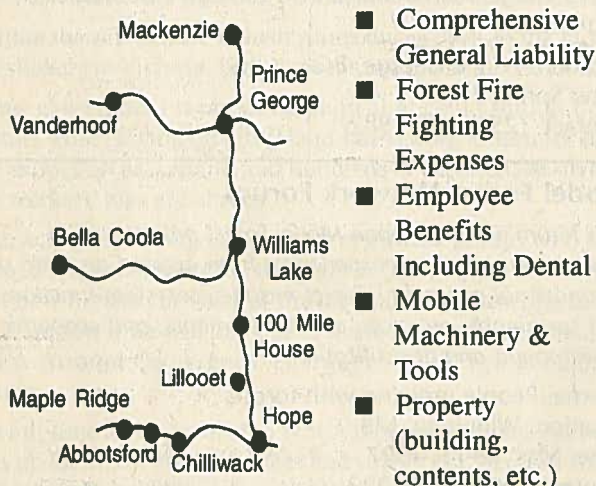
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NOVA SCOTIA REPORTS

NOVA SCOTIA REPORTS CONTINUED FROM PAGE 32

Maritime meeting proves effective

On November 15, 1996, the first of two round-table meetings dealing with private woodlot cutting in the Maritimes was held near Halifax. Close to 40 people were invited to represent a wide range of forestry stakeholder groups from New Brunswick, Prince Edward Island and Nova Scotia.

Using a novel and very effective approach, the facilitator took the group through a session during which people were asked to list their response to five critical questions:

1. What are the problems facing private woodlot management?
2. What are the long-term implications of these problems?
3. What are the causes of these problems?
4. What information is needed to fix these problems?
5. What actions are needed to fix these problems?

The open and free-flowing debate was refreshing, in contrast to the guarded "protect my turf" type of discussions that commonly occur in forums.

Staff is currently compiling the results into a draft that will be circulated to the participants by January. A follow-up meeting in February will attempt to confirm the findings and identify possible solutions to the issues raised.

The result of the process will be a "state of the debate" report that clearly outlines the issues facing our industry and their possible solutions. It will also detail where stakeholders are—and are not—in agreement.

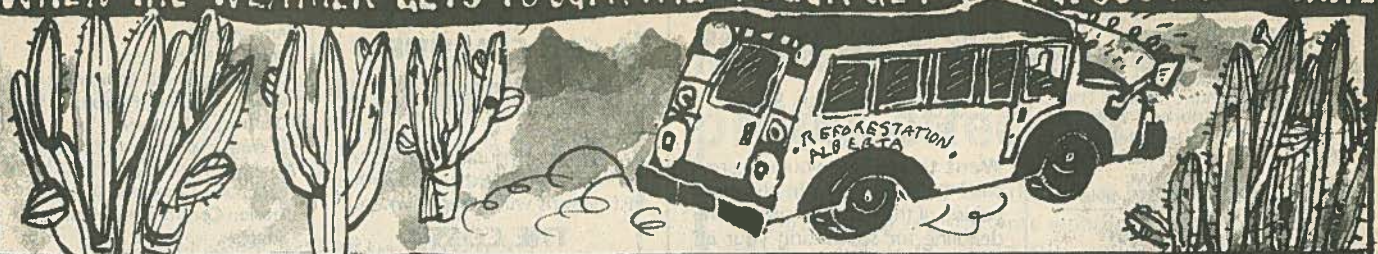
This project is sponsored by the National Round Table on the Economy and the Environment, in cooperation with the Provincial Round Tables in the three Maritimes provinces. ▲

Résumé

Des séances publiques ont rejetées le papier de discussion "Nouvelle stratégie de forêts" soumis par le gouvernement de la Nouvelle Ecosse. Deux associations liées à l'industrie forestière ont résignées du gouvernement promu coalition des interets forestiers de la Nouvelle Ecosse. Un comité objectif de volontaires à produit un rapport sur l'information fournie par le public dans le papier de discussion rejeté. Ce comité rapport que le manque de support générale pour la stratégie forestière est cause par frustration avec le processus ferme qui implique un groupe trop exclusif. Le comité offre des suggestions pour faire la preparation d'une nouvelle stratégie un processus plus représentatif et inclusif.

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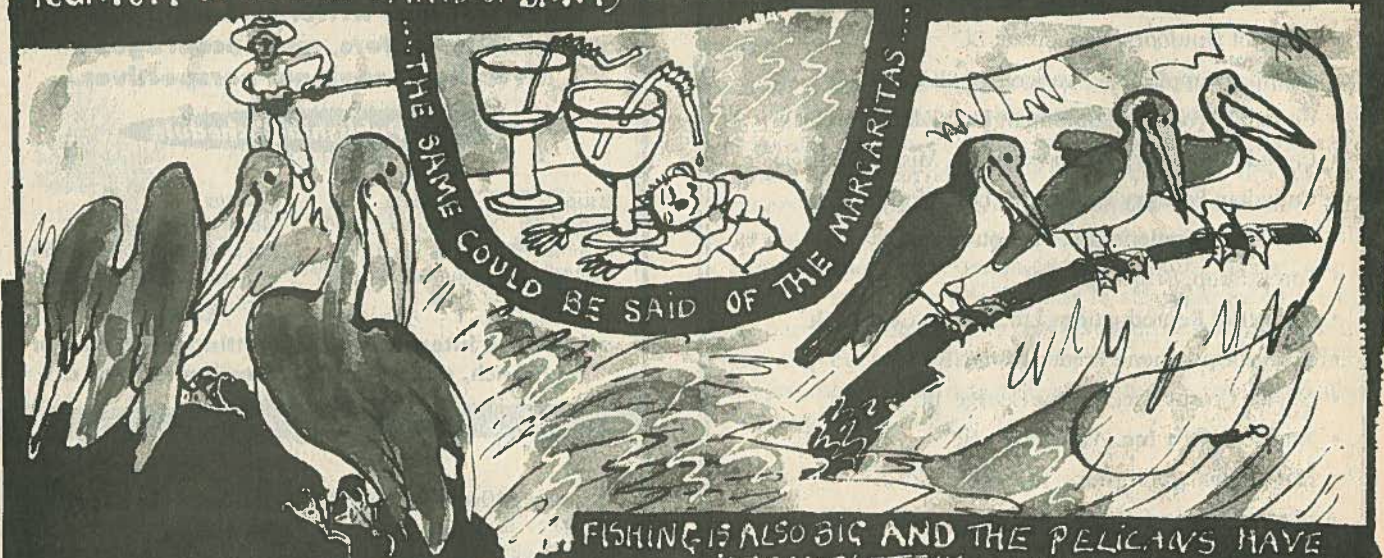
WHEN THE WEATHER GETS TOUGH, THE TOUGH GET GOING SOUTH... TO BAJA



THE NATIVES ARE FRIENDLY... WITH SOME EXCEPTIONS



TOURISM IS BIG IN PARTS OF BAJA, SOME TIMES TOO BIG



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