



CANADIAN

SILVICULTURE

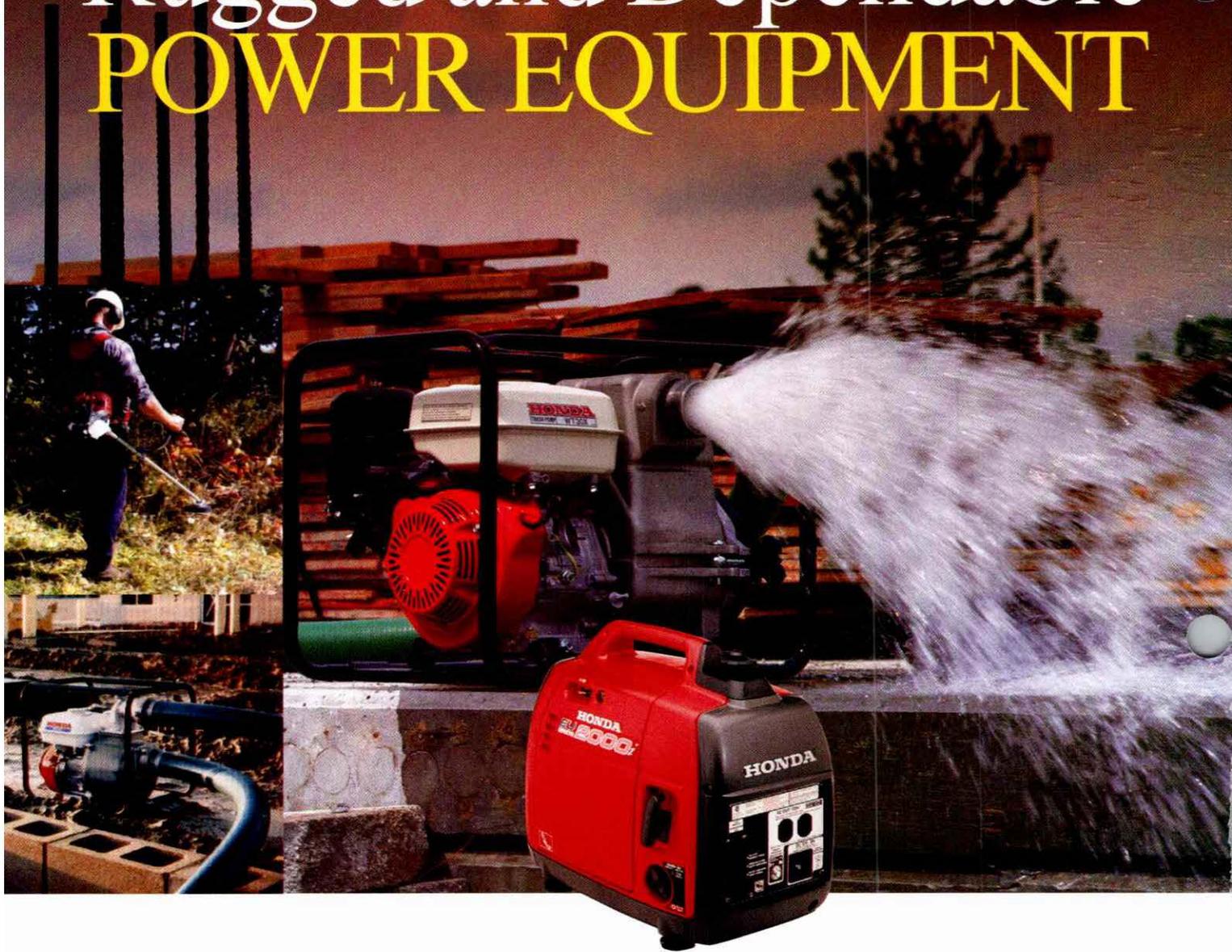
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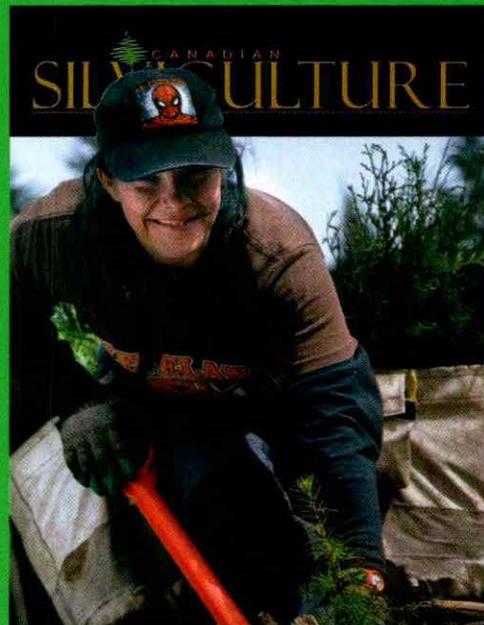
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Caty Trepanier of Hawkeye Reforestation planting at the Mission Tree Farm.

Photographer: Stephen Nyron

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Editorial

Dirk Brinkman, Editor

User Pay, the Fundamental Silviculture Funding Principle

The public vision for the management of Crown forests is a Sustainable Forest Management (SFM) vision. Though the provinces have the responsibility of forest management, SFM developed more definition through federal offices, model forests and industry initiatives than through provincial policy, (except for BC's Forest Practices Code).

The *Canadian Council of Forest Ministers* (CCFM) and the federal Ministry of Natural Resources developed these definitions in response to international and national protocols such as:

- [the Santiago Declaration](http://www.fs.fed.us/global/pub/links/santiago.html) <http://www.fs.fed.us/global/pub/links/santiago.html> (ratifying 7 national and 67 technical criteria for the conservation and sustainable management of temperate and boreal forests)
- [the Forest Accord](http://npsc.forest.ca/accord2.html) <http://npsc.forest.ca/accord2.html>
- [2000 Report of the CCFM Criteria and Indicators of Sustainable Forest Management in Canada](http://www.nrca.gc.ca/cfs/project/ppiab/ci/2000pdf/full_report_e.pdf) http://www.nrca.gc.ca/cfs/project/ppiab/ci/2000pdf/full_report_e.pdf

With the implacable US countervail adding its suffocating weight to public and international pressure to change provincial forest policy, it is time to rethink the provincial fundamentals. SFM policy requires structured forest use planning, implementation and then restoration and enhancement. The silviculture industry plays its important role in the restoration and enhancement of the public's forest values. Successful silviculture requires policy, based on user pay principles, incentive principles for resource enhancement, and government

protection of risks from natural and catastrophic disturbances for users who pay to maintain or enhance a stream of forest values.

The basic principles for funding silviculture, (except for the Reforestation Principle) were never clearly articulated. Consequently, funding relied on insufficient government programs and suffered from predictable government failures - a lack of accountability, effectiveness and efficiency. The provinces did not ask industry to pay, since the cost of silviculture was too high because of ineffective government programs.

This catch-22 has to be broken, just as it was in BC in 1987 with the Reforestation Principle. The only way the provinces can afford SFM is to have industry pay directly for maintaining and enhancing the forest. The only way industry will get the US countervail off its back while satisfying public environmental demands and meeting customer certification criteria, is to become accountable for SFM.

The silviculture funding principles for SFM were introduced in the previous issue of *Canadian Silviculture*. The direct user principles are:

1. Reforest each disturbed stand.
2. Sustain each forest area's productive capacity and biodiversity.
3. Off-set permanent forest depletion.
4. Enjoy enhanced value or be compensated.
 - 5a. Provinces reforest natural disturbances.
 - 5b. Feds reforest catastrophic disturbances.
6. Provinces restore ecosystem backlog.
7. Provinces capture carbon credit funds.

The first three of the silviculture funding principles are direct forest

aspects of "user pay." The fourth principle establishes "user pay" incentives for investment in resource enhancement. The Annual and Catastrophic Disturbance principles protect users who pay to maintain or enhance a resource against extreme fire or pest risk. The Backlog and Carbon Credit principles address the challenge of restoring the damage caused by the forest practices of past generations and of increasing the carbon absorbed by healthy provincial ecosystems.

Central to the silviculture funding principles for SFM is "user pay." This is a feature of the BC Liberal and Conservative provincial government policy approaches.

The silviculture sector, which has worked with government and industry since 1970, fully endorses "user pay." Industry clients, unlike government contract clients, both reward quality of service and cooperatively problem-solve, enabling long-term stable business relationships. Adopting "user pay" policy is the only way the silviculture portion of SFM could ever be affordable.

Implementation of the whole set of silviculture funding principles for SFM will result in:

- adequate funding for SFM
- increased volume of value
- industry profits and employment
- increased government revenues
- the highest certification
- elimination of a US perception of subsidy
- a globally competitive Canadian silviculture industry

All good silviculture practitioners should work to persuade each sector that the silviculture funding principles make all sectors' individual interests congruent with the common good.

Letters to the Editor



Some comments regarding the article, *Beneficial Forest Intervention* in the Winter 2002 issue of *Canadian Silviculture*.

Under principle #3, you note that an increase in AAC to 100 million cubic metres is "reasonable and possible". This is inconsistent with principle #2. In this principle you state:

As the value of the sustained volume cannot be allowed to degrade in terms of species mix or wood quality, future AAC volume will have to be defined as volume of valuable timber, because valuable timber is all that is harvested.

(bolding is mine)

According to Peter Pearse in his paper in November 2001, *Ready for Change*, as much as half of the volume on the Coast of BC, that is currently under cutting permits (and this is even

less than the actual AAC), will cost more to log than it is worth. The reality is that a volume-based AAC is incompatible with a value-based cut. We would log a lot less if we based each harvest unit's harvestability on its marketability, which we don't (though I agree we should, like any intelligent land owner).

Log exports might change this, somewhat, by increasing the value of the average log and therefore increasing the size of the economic forest (the forest that is economic to log). But under the existing rules, which require manufacturing in BC of most public land timber, timber prices will stay depressed (the fact that the Americans would abandon the tariff if we stopped restricting log exports would also improve the situation by

making our decrepid mills more profitable, given that they could sell into the States unfettered - loggers and silviculture workers would have more work regardless). If we only harvest "valuable timber", as suggested by principle #2 (that is, timber that is worth more than it costs to log) we will have to accept a significant reduction in AAC.

I wonder if the Liberals in BC would change their tune if they realized that an increased AAC likely means an increase in uneconomic harvesting? Their recent proposal to the Americans (BC ANNEX) states that they will not permit harvesting of uneconomic timber.

Colin Buss, RPF
Assistant Forester
TFL Forest Ltd.

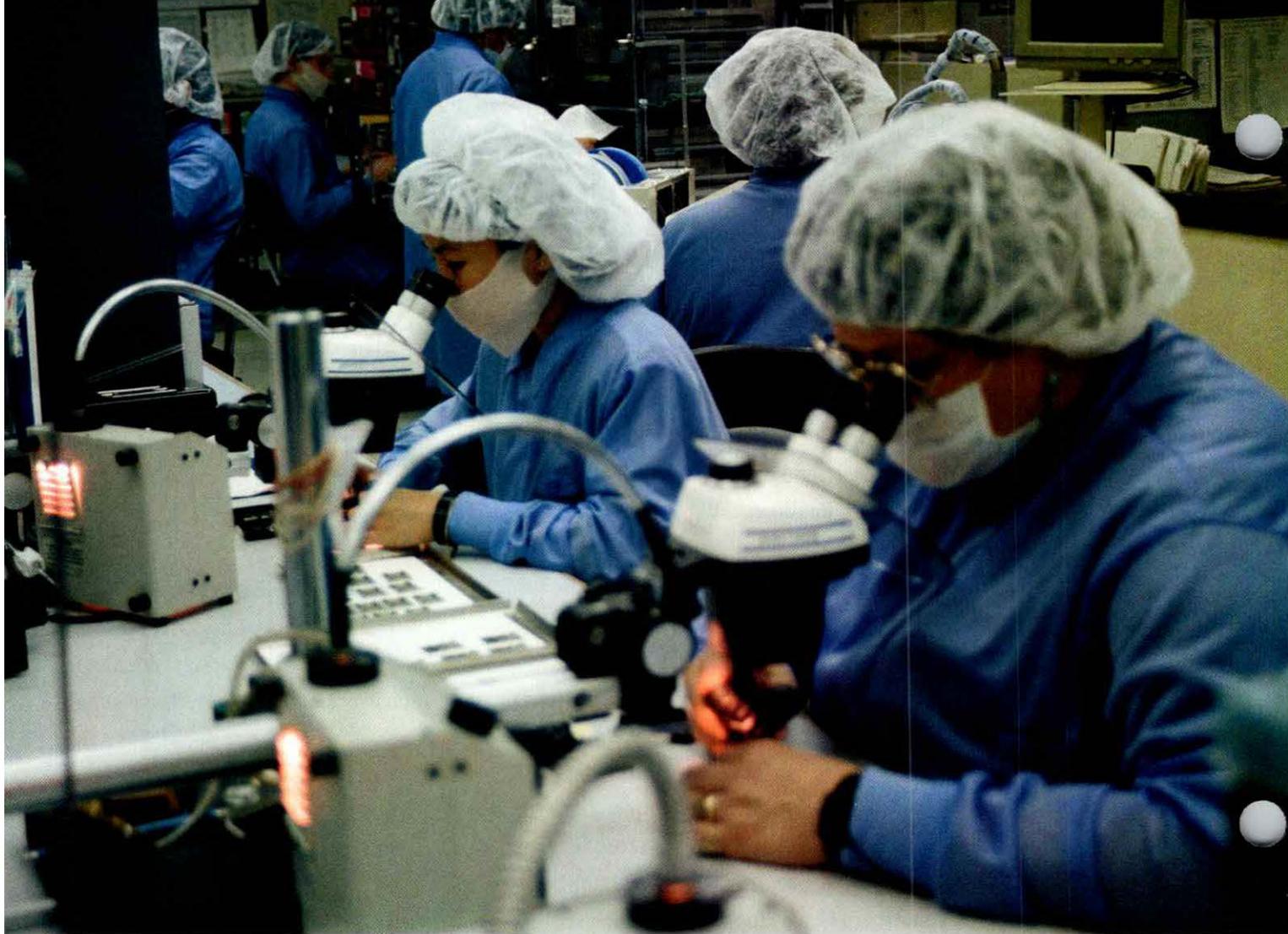


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ALL MAKES LEASING



by Lauchlan C

TREE IMPROVEMENT

Simply stated, tree improvement or tree breeding seeks to improve both the quality and quantity of wood produced from artificially regenerated plantations while ensuring that other genetic traits are not compromised.

For many working in silviculture, tree improvement, incorporating terms such as clones, trans-genic, full- and half-sibs, progeny and phenotypic can be somewhat intimidating. Those working in tree improvement are often viewed as researchers and academics who rarely know about the real world of operational plantation establishment – the things that really matter: pay-plots, planting quality, frozen stock and site accessibility.

In BC, present legislation requires the use of appropriate improved seed whenever it is available. Departure from the law is permissible through application to the District manager for a variance. However, a valid reason is essential.

Despite the law, there are a number of formidable challenges facing those currently working in tree improvement to convince all seed users and the general populace that this is good legislation.

The major challenges are convincing:

- the public and users that improved seed is more genetically diverse than “natural” seed.
- the public that improved seed is not a genetically modified organism(GMO).

- seed-users that improved seed will yield better wood, quicker.
- seed-users that improved seed will, over the short-term, reduce the cost of plantation establishment.

HISTORY

The task of improving the natural forest for commercial purposes began by searching for mature trees with desirable properties. Initially, the major desirable properties were size and form because plantations of fast growing trees with good form would yield more merchantable wood, quicker. Today selections also consider disease, pest resistance, wood quality, etc.

Once identified, replicates of these trees in the form of grafted branches or cuttings were placed in seed orchards, reproductive material collected and offspring (progeny) produced. However, it was not known whether the desirable properties of the original trees selected were hereditary (genetic) or simply due to favourable historical events and a good microsite (phenotypic). Only the genetic properties can be passed to the progeny.

To determine this, the progeny were planted on a wide variety of sites and observed for rapid growth and good form. Those trees that did not produce seed with the desirable properties were removed from the orchards over time and replaced.

Tree breeding in BC is a co-operative effort between industry and provincial government. Presently, the Forest Genetics Council (FGC) manages the forest gene resource in BC and oversees all strategic and operational planning.

The FGC represents all stakeholders in tree improvement i.e. forest industry, MOF, seed producers, seed users, universities and researchers.

Seed orchards are established on the Coast and in the Interior of the province and the goal is to ensure that 60% of the seedlings planted in 2007 are from improved seed and that this "improvement" is double the value assigned in 2000.

Over the years since the tree improvement program was initiated, progeny tests have been established province-wide with various species to test the offspring from the orchards. Other test sites were established to demonstrate the superior volume increment of the improved seedlings relative to local provenances. Information gathered from these sites is now used to build computer models that "grow" the plantations and predict final yields based on early growth performance.

GENETIC DIVERSITY

The genetic variability within improved seedlots is far greater than that for local provenances. This is because local seed has developed over time with contributions of cones and pollen from a relatively confined area - effectively the distance that pollen can be blown. Whereas each of the seedlots released by the seed orchards must comprise a minimum of ten unrelated parents contributing an equal volume of seed to the seedlot. To ensure this magnitude of contribution, a minimum of twenty-five parents, originating from a wide area are normally used to produce an improved seedlot.

IMPROVED SEED AND GMO'S

Strictly speaking a GMO, or in the case of improved tree seed, a GMT (genetically modified tree) is one in which the genetic material has been tampered with to produce a tree that would not occur naturally.

Improved seed in BC is not a product of genetic tampering. The seedlings and trees produced by tree breeding are found within natural, wild stands. The object of the BC tree-breeding program is to produce more of these larger, disease- and insect-resistant individuals quicker than would occur naturally.

WOOD QUALITY

The specific gravity (SG) of wood is closely correlated to both strength and pulp yields. Therefore, the SG of wood samples from improved trees is another factor now considered during the selection process. Fast growing trees that produce wood with SG's lower than average are rejected. The Weyerhaeuser Company in the USA has a large database correlating improved seedlings with wood properties and wood properties with specific planting sites.

Due to the young age of improved plantations in BC, wood quality testing is still in its infancy here. However, countries such as New Zealand, Australia, South Africa, Chile and Brazil have relied on wood from fast-growing, improved seedlings for at least one full rotation.

Issues surrounding the use and problems associated with the

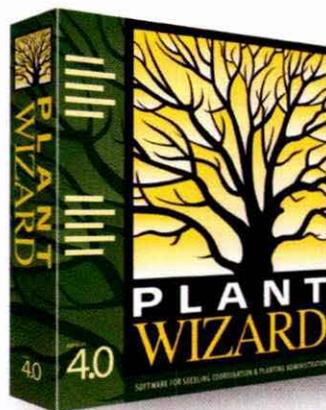
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yield and quality of fast grown wood have long been recognised in these countries and the results of their research and practical applications may be appropriate for many BC products.

DO WE HAVE "IMPROVED" PLANTATIONS?

Perhaps we need the proverbial "leap of faith" here. Tree improvement in BC was initiated with Douglas-fir more than forty years ago. Since then the program has expanded to embrace just about every commercially important species growing in the province, yet we



still cannot answer the following questions:

·Do we have improved plantations?

·Will improved plantations reduce the time to "greenup"? Greenup is achieved on a previously logged block when it is considered adequately stocked and the tallest one hundred trees per hectare attain a pre-

determined minimum height. Greenup is required before adjacent blocks can be considered for harvest.

·Will improved plantations reduce the time to "free to grow" (FTG)? A plantation is considered FTG when it is satisfactorily stocked with sufficient healthy trees of a pre-determined average height with little risk of future brush competition. On Crown land, all future responsibility for plantation management passes from the licensee to the Crown once declared FTG.

Trials, showing increases in height and volume are certainly evident, but the use of planting stock larger than normal, excessive fill-planting and the brushing and general maintenance within such trials are not normally carried out on commercial plantations. Such practices may influence the positive results indicated by trials. Empirical, commercial evidence of the program's success is difficult to find.

A valid comparison within present operational plantations has proven futile to date. On sites where improved and local seedlings were planted, there are usually no records of the specific areas where the two types of seedlings were planted.

The oldest, improved, commercial plantations, established with Douglas-fir about ten years ago, were genetically only marginally better than those established from local seed-sources. These potential genetic improvements are masked by the myriad of factors that influence seedling growth - nursery cultural practices, stock handling, planting quality, post-planting environmental influences, plantation maintenance, etc., etc.

In the future such comparisons may become easier as the genetic worth (GW) of some of the stock presently being produced from seed orchards is approximately five to eight times better than the earliest material. GW is a numerical percentage value assigned to seedlots by tree-breeders to indicate the

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projected increase in volume above the local provenances.

Reports that improved plantations do not fare well appear confined to transition and/or high elevation plantations. Transition refers to those sites influenced by both Coastal and Interior climates. There are indications that the local transitional provenances may be more an Interior variety of Douglas fir than hardy Coastal.

Adjusting the present transfer guidelines to recognise this may alleviate the problem. More trials on high elevation sites need to be done to substantiate the present transfer guidelines pertaining to such sites. In the interim local seedsources could perhaps be used.

FUTURE

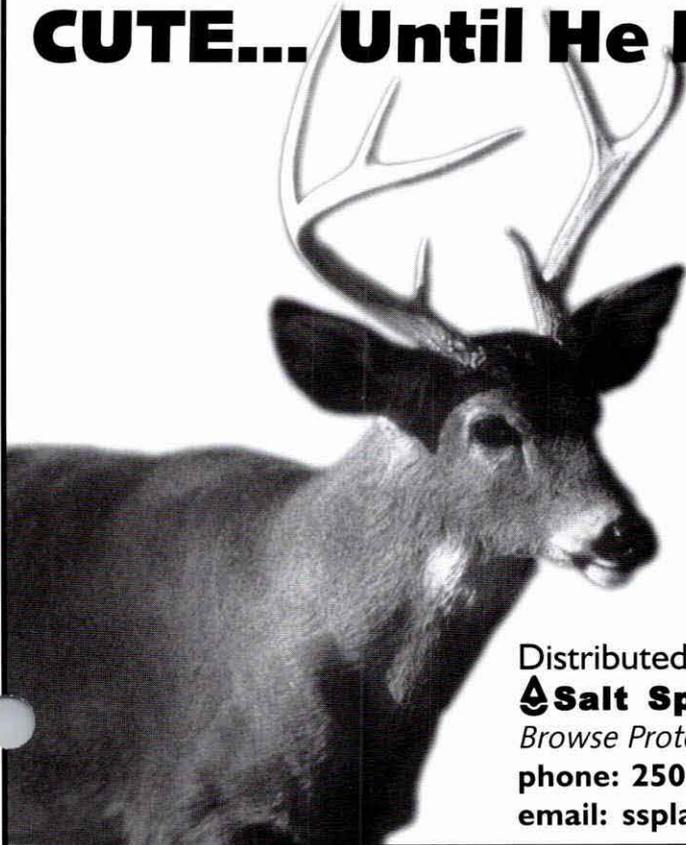
The FGC recently established an extension arm to encourage the exchange of information between seed-producers and users. This is accomplished through workshops, publications, magazine articles, reports and field tours. Users should take the time to become familiar with tree improvement issues and the potential benefits emanating from the use of improved seed. On the other

hand, the FGC needs to address the concerns and constructive criticism levelled by users, and whenever justified, reconsider such plans and strategies.

The annual allowable cut (AAC) in BC is steadily declining. Each year various timber inventories are reviewed and in most cases timber harvests reduced. The reasons for this are too numerous to outline here, but the effects on the forest industry are debilitating. This so-called "fall-down" effect can be offset to a degree by rapid regeneration of harvested areas, full stocking within such areas, stocking control and use of rapidly growing species and seedlings. Use of seedlings grown from improved seed has the potential to contribute substantially to the reduction of these downfalls.

Lauchlan M. Glen, RPF has a MSc in Forest Management from the University of Stellenbosch in South Africa where he majored in silviculture and biometrics. He has worked in silviculture in BC for many years and presently operates Glenviron Consulting, located in the hamlet of Mission. He has been solving plantation establishment and management problems in Canada for thirty-five years and still loves the challenge. Lauchlan can be reached at T 604-826-4721, F 604-826-4011 or E glenviron@shaw.ca

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Forest Industry Profitability

Although 2001 was not a great year for the forest industry, the industry still yielded a \$200 million profit in 2001, according to the report released by PricewaterhouseCoopers' at the Global Forest Industry Conference. The BC industry had total sales of \$18 billion last year, down slightly from \$19.3 billion in 2000. Return on capital employed (ROCE) fell to 3.0 per cent after coming in at a relatively high 11.4 per cent in 2000. Low prices last year for both lumber and pulp were major contributing factors, notes Craig Campbell, one of the leaders in PricewaterhouseCoopers' Global Forest and Paper Practice. He adds, however, that various BC-specific considerations further impacted industry performance.

"BC's biggest challenge last year was the substantial duties that were imposed on lumber shipments to the U.S. as a result of the softwood lumber dispute," says Campbell. The duties apply to Eastern Canadian forest companies as well, but Campbell notes that those producers are typically less heavily focused on lumber than BC companies, and more diversified into pulp and paper.

The other major factor impacting the performance of the BC industry, Campbell notes, is the cumulative effect of various market and structural challenges facing coastal producers. Demand remained weak during 2001 in the Japanese market, which has been a mainstay for coastal forest companies. High operating costs, manufacturing over-capacity and low levels of capital upgrading on the coast also constitute an increasing drag on the overall performance of the BC industry and the provincial economy.

"Looking across the global industry landscape, however, we do see some individual companies that are bucking the trend towards lower returns," Campbell says. "Our research indicates that the extent to which a company is customer-focused is a key distinguishing factor. Those companies that are more closely integrated with their customers are typically the ones that are posting relatively strong performance, even in this challenging environment."

Regional & Global Industry Comparisons – Large Public Companies				
	British Columbia *	Eastern Canada *	United States *	Global Top 100
2000 Net Earnings	\$538 million	\$1.1 billion	\$7.1 billion	\$23.2 billion
2001 Net Earnings	\$228 million	\$569 million	\$1.3 billion	\$11.0 billion
2000 Return on Capital Employed	8.3%	7.9%	7.6%	6.5%
2001 Return on Capital Employed	3.6%	4.4%	2.9%	3.8%

* Based on performance of a sample of the largest public forest and paper companies in each jurisdiction.

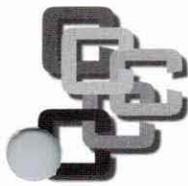
Forest Industry Performance, 2001 Preliminary

Results

The British Columbia Forest Industry **			
	Net Earnings	Total Sales	Return on Capital Employed
2000	\$1.5 billion	\$19.3 billion	11.4%
2001	\$200 million	\$18.0 billion	3.0%
Percentage Change	-87%	-7%	-74%

** Based on performance of all forest and paper operations in B.C.

Excerpted from a presentation by Craig Campbell, one of the leaders in the PricewaterhouseCoopers Global Forest and Paper Practice, to the 15th Annual Global Forest Industry Conference; Vancouver, British Columbia, March 13, 2002.



THE 5 C'S OF SUCCESS

The theme of the annual forest industry conference, sponsored by PricewaterhouseCoopers, was C's. Focusing on the Customer, Communication, Collaboration, Commitment and Consolidation will make your company successful.

Customer

The emphasis must be on the Customer and examples were given of companies that put the customer first and were rewarded with improved performance. Companies with a Customer Focus had the highest rate of return on capital employed of 8.2% as opposed to companies that focused on minimizing cost that only had a rate of 5.8%.

Chuck Leavell, musician and forester, gave the advice to "constantly listen to the voice of your customer and work on turning ordinary relationships into extraordinary relationships." He has used this advice to be a success with his tree farm and when he tours with the Rolling Stones.

Communication

The path to success starts with Communication. Companies must look for ways to continually improve communication with

all customers throughout the supply chain. Awareness must be built with all key stakeholders and even influencers in the decision-making process.

Collaboration

It's no longer a 'them vs. us' mentality in business. You must work as a team and be a partner with your customer. The supply chain should be integrated as well.

Commitment

In order to revitalize and rebuild the forestry industry, companies must develop long-term customer relationships and even go to the point of being willing to share profits with their customers.

Consolidation

In the absence of large growth in the industry, you will see more mergers so that companies and customers can benefit from the economies of scale of a larger operation.



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The Challenge of Measuring Biodiversity Protection

BC's world class biodiversity is incredibly complex, and may include a greater diversity of ecosystems than in any other jurisdiction in the developed world. The BC government's agenda is economic recovery through increased natural resource exploitation and reduced government costs, including research and inventory. What are the valid measures that indicate the incredibly complex array of BC biodiversity is being maintained and protected to the degree demanded by the public?

This biodiversity note summarizes some of the challenges facing BC provincially, and the local forest resource users to whom many of these management responsibilities may be downloaded.

The last ten years have taught us a number of lessons:

1. Measuring and maintaining biodiversity includes more than monitoring the trends and health of select separate populations. It involves determining and measuring those factors and processes that will keep an ecosystem functioning as a whole.
2. Ecosystem studies, measurement, protection and restoration require long-term financial support. Changing political priorities have kept funding programs as short as one or two years with the exception of some private companies.
3. There are few text book "off the shelf" techniques for measurement or restoration that can be applied across the board. Most species and their ecosystems require an experimental approach using adaptive management techniques.
4. The rate of critical learning about measuring and maintaining species and their habitat is currently much slower than the rate of exploitation impacting and overtaking them.
5. The role of connectivity between species and across

ecosystems is poorly understood and the potential to measure, maintain or restore this connectivity decreases drastically as resource development proceeds.

6. While seemingly defensible and reasonable at the time, the approach of the past ten years of defining a "general level of biodiversity or habitat protection" and trusting that most organisms would fall within this protection is proving to be a questionable approach. This was the premise used in developing the Forest Practices Code and guidelines for other industries. Certainly the fact that now over 550+ species are listed currently as "at risk" indicates that this approach may not be working.

7. Biodiversity is not an absolute and its definition is increasingly intruded upon by "social choices" in what the natural landscape of British Columbia will look like in the future. If society is content with the survival of those species which adapt well to development and disturbance - black bears, elk, whitetail deer, Canada geese, raccoons and a host of others - the measurement and protection of biodiversity becomes less problematic. If, on the other hand, society wants to preserve species such as the major predators now gone from the rest of North America, then the protection of biodiversity becomes increasingly complex and costly.

8. The introduction of exotic species compounds all of these problems even further.

9. There is no overall game plan or strategy for biodiversity protection that effectively focuses our limited resources and effort. During the past decades, BC has practised what could be termed "random acts of conservation" and it is clear that this approach will not sustain BC's unique biodiversity for future generations.

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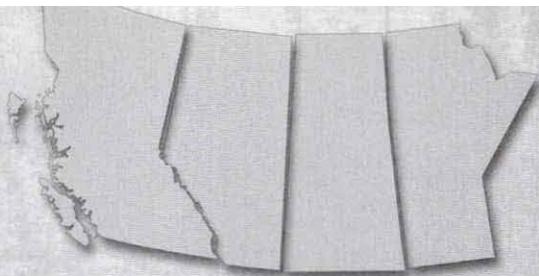
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Western Silvicultural Contractors' Association



by John Betts, Executive Director WSCA

The WSCA is pleased to announce that all association members will now receive a complimentary copy of Canadian Silviculture Magazine with their membership.

Trying to sort out British Columbia forest policy these days is like looking through a kaleidoscope. All the parts are there, but we are a long ways from figuring out what the picture actually looks like. In a recent talk, Deputy Chief Forester Ken Baker, perhaps needlessly, reminded everyone that the ministry of forests was downsizing. He then told the audience, many of whom were ministry staff already pink-slipped or taking buy-out packages, that Government has a lot less resources to do the job. Almost none as a matter of fact.

One resource for 2002/03 the Forest Investment Vote will provide \$146-million of which \$84-million will support land-based activities to be delivered by forest tenure holders. The balance, \$62-million, will be spent at the provincial level including: research (\$20m); tree improvement (\$6m); Crown land-use planning (\$3m); small woodlands (\$1m); provincial standards development, data management, permitting (\$12m); value added promotion (\$8m); and international marketing (\$12m).

Baker recognized the central conundrum of the scheme; what he called the uncertain melding of "private sector motives with public sector dollars." He admitted there were potential problems with the design of the mechanism, one that gives licensees wide latitude to spend public dollars locally as well as considerable influence over the original setting of program priorities and eligibility criteria. Licensees could be in a potential conflict of interest in some of the original strategic planning, which will be directed by a select committee of deputy ministers, licensees and ministry staff.

"However, the Legislature will review at the next [year's] vote whether the money has been spent wisely." But foresters may not find the notion of an annual review either comforting or practical.

Defining the vote's funding priorities, Baker was clear about the (lack of) priority attached to backlog reforestation formerly funded by FRBC. "Government is getting out of backlog reforestation. We don't have the money anymore." He said government would instead concentrate on existing maintenance of established stands including surveys, spacing, fertilizing, pruning etc. He said that if licensees chose to spend money on the backlog they could apply for funding. However, he emphasized the need for a balanced approach that recognized

other forest values and restoration obligations. "I imagine the Minister of Water, Air and Land Protection will be watching these spending levels. I view this as the start of privatization of forest management in the province," said Baker.

Forestry funding

A set of principles and policy proposals regarding forestry funding have been drafted by the WSCA Policy Committee. These proposals for developing a results-based code were submitted to Minister Dejong, Minister Hagen and the FP Board. A presentation has also been requested before the Government Caucus Committee on Natural Resources.

The WSCA proposal assumes there is a shift towards 'privatization' of forest management and recommends a basic 'user pay' approach that would see resource users charged with the obligation to maintain the value of the forest. In practice this would extend timber harvesters' obligations beyond the arbitrary free to grow status the current regulations require. Other resource users would be obligated to do the same. A draft of the WSCA scheme is on the WSCA web site to be shared with members and for comment.

Other issues such as carbon credits are being explored by the WSCA in concert with some forward-thinking industry players as a possible source for funding some forestry activities.

Illegal Bonus Payments

I continue to hear complaints from workers and contractors alleging some silvicultural firms are still violating the BC Employment Standards Act Regulations by using what appear to be illegal bonus payment systems for piece-work completed by their employees. One common breach is contractors paying only minimum wage, or some similarly low rate, in lieu of the worker's full piece work earnings or part of the work season with the balance, sometimes described as a bonus, paid later at the contractor's convenience. The second typical contravention is the so-called bonus offered for staying until the end of the contract or season. Typically workers are told they will receive one piece work rate for lasting for the period of time the employer specifies and a lower rate if they quit before that. Both these practices contravene the Act. Whether they are called bonuses or not does not distract from their illegality since they both involve penalizing or illegally withholding workers' earnings.

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The law is quite clear and unequivocal about workers being paid regularly and in full every two weeks for wages earned in a pay period. Section 17 of the Act states that wages are required to be paid at least semi-monthly and within eight days of the end of the pay period. The employer must pay the employee all wages earned in a pay period.

A simple way to understand the definition of wages, found in Section 1 of the Act, is to use the following test. If any component of a worker's earnings, including the so called bonuses, are determined by hours of work, productivity, or efficiency then they are defined as wages and cannot be held back from workers. In the case of the two-tiered payment system for lasting the season or a project it is obvious the bonus amounts are tied to productivity and hours of work. Therefore they are wages and have to be paid accordingly. Likewise holding back piece-work earnings beyond minimum wage or some other level would fail the bonus test for the same reasons. Not understanding this distinction or deliberately smudging the books on this payroll issue will get employers in trouble.

A true bonus occurs when an employer acting at their discretion

pays an employee money unrelated to the amount of work performed, the efficiency it was performed with, or the time it took to do it. This money can be paid any time.

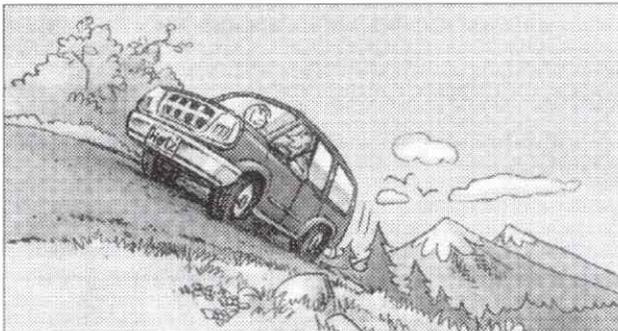
It is an unassailable right of Canadian workers and a fundamental obligation of their employers that employees be paid regularly and in full without wage off-sets or penalties. Furthermore, the Act specifies that employers cannot use employees' earnings to cover business costs. Contractors who, in effect, borrow money from their employees by withholding their earnings have an unfair, competitive advantage over contractors who meet their payroll through their line of credit.

The Act provides penalties for employers who breach this and other requirements. On the first offence (where a determination is issued) it is zero dollars. The second contravention could result in a penalty of \$150 for each employee affected by the contravention. Subsequent penalties would be \$250 and then \$500 per employee.

However, the Act is being overhauled and a new penalty system may be in place under the new Act by this fall. There are no specific proposals available publically at this point. But government has indicated repeatedly that as part of its philosophy of professional reliability and self-regulation for business, industry violators will be subject to severe fines.

As well forest companies that hire firms who operate out of compliance with the Act may be found guilty of contractual negligence if they do not enforce clauses in their contract that bind the contractor to the laws of the land. Contractor clients have a role too in the professional self-regulation of the silvicultural industry.

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WCB Core Review & Safety Regulations

Some themes have emerged during the course of the ongoing WCB core reviews, particularly the principle of performance-based standards. This idea is notable for two reasons: its widespread use throughout Liberal strategic policy thinking; and the absence of any specific definition of what it means in practice. Anticipating the performance-based trend WCB began exploring some options internally leading to discussion around the application of Section 33 First Aid regulations. A WCB review of these regs has been in the works under the aegis of the last government. A draft set of recommendations was produced but now is buried in the new Liberal agenda. The WSCA had contributed a number of proposals to this lapsed process.

Based on the WSCA's reporting from the WCB Employers' Forum, an industry group formed to liaise directly with the WCB executive. Draft developments around substituting Section 33 regs for a performance-based approach may be available by spring. The gist of this would move WCB away from a prescriptive approach to First Aid. Practically, this means contractors would

not be told how many bandaids to count in their kits. At the same time businesses and industry groups would be trusted to do their own risk and hazard assessments. From that they would develop appropriate practice levels.

This would obviously reduce regulation and it would very likely eliminate some redundant and inappropriate rules. But it clearly increases industry's obligation to manage its affairs on its own, which in the long run could actually mean more work. Although inconvenient, having your hand held by government and told precisely what to do, may in practice be simpler than going through the risk analysis to arrive at the optimum number of band aids required. Regardless, government has made it clear it is getting out of the hand-holding business of prescriptive interference in the affairs of business

In this context the role of industry health and safety associations has more direct relevance to groups like silvicultural contractors. Rather than each business hiring a consultant to design a performance-based set of practices and standards for their First Aid and safety operations, a large umbrella group like the WSCA could do the same for its members at a fraction of the cost. The WSCA is moving in this direction in discussions with other industry safety groups and consultants.

WSCA Executive Director's Office, RR#3 S36 C9, Nelson BC V1L 5P6 TIF 250-229-4380 E hotpulp@netidea.com

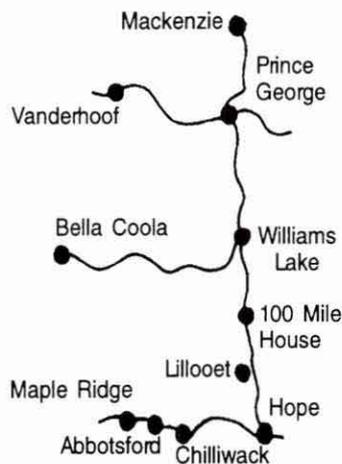
WSCA Conference Report

The Western Silvicultural Contractors' Association held its 21st annual conference in Victoria in February. The Mountain Pine Beetle epidemic was the first topic of the conference. As was detailed in the winter 2002 issue of *Canadian Silviculture*, this problem is a major focus in the interior of BC. One of the solutions presented to reduce subsequent attacks was to harvest stands of mature, lodgepole pine at 80 years old. Another way to bring back a more natural age distribution of trees is through the use of prescribed burning.

Since the conference was held in Victoria, it was easy to attract politicians. Mike de Jong, Minister of Forests outlined the Forest Investment Vote. He stated that the objective was to invest in growing the AAC and the resources, return the funding to communities and remove layers of bureaucracy. The community would create a sustainable forest management plan and develop priorities that tie in with the government's standards. The new systems will be results-based vs. prescriptive. A white paper will be tabled in April and the industry was encouraged to review that document and provide comments to the Ministry so that adjustments could be made before the legislation is drafted and then presented in the fall, for an April 2003 implementation.



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Graham Bruce, the Minister of Skills, Development & Labour described that they will be developing a specific silviculture framework of employment standards to develop the deal that's best for the industry. He also reinforced the importance of the overhaul of WCB to reduce the number of regulations. They would like the industry to be regulated by peer pressure.

The new Ministry of Sustainable Resource Management, with Stan Hagen at the helm, will be taking down the pillars between the resource ministries and creating a land-use plan involving all key interest groups.

Joyce Murray, the Minister of Water, Land & Air Protection reiterated the government's plan to set standards and guidelines and let companies follow them. The Ministry's focus will then be on enforcement and compliance with the standards. Her first priority is human health, then biodiversity and wildlife habitat and finally recreation.

The benefit of incremental silviculture, specifically spacing, was highlighted in a presentation by the Forest Practices Branch. There is substantial evidence that spacing will increase the value of the stand by making way for higher value timber and by enlarging the piece size which impacts

harvesting costs. Pruning and spacing will also result in more valuable clear lumber or veneer. They showed proof that silviculture treatments provide a great return on investment.

The threat of wildfire was presented by Bruce Blackwell and Robert Gray. Since fires have been suppressed recently, there has been a large accumulation of fuel over the last 100 years that needs to be dealt with. By eliminating fire, we have also helped to create forest health problems such as disease and bugs. (Canadian Silviculture will be featuring an article on Wildfire in our summer issue.)

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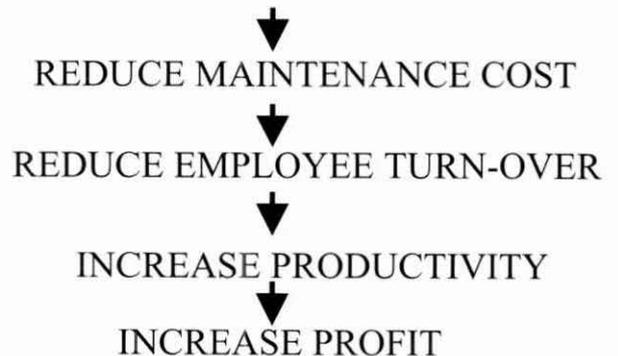
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Par Nathalie Boies, Adj. administrative AETSQ

Les 14 et 15 février dernier, l'Association des entrepreneurs en travaux sylvicoles du Québec tenait son 2^e congrès annuel provincial. La région du Saguenay-Lac-St-Jean était l'hôte de cet événement annuel.

« La certification environnementale – l'heure des choix » ; le thème de la 2^e édition a incité plus de 200 personnes à participer à cet événement. Les objectifs visés pour cette année : recruter des nouveaux membres, faire connaître d'avantage notre association et lancer notre revue annuelle « Forêt Entreprendre » qui a servi de programme officiel. Mission accomplie !

Au dîner conférence, la présence des Ministres François Gendron et Jacques Côté a permis d'annoncer une augmentation des crédits sylvicoles de 7.8% qui seront octroyés pour les entrepreneurs qui exécutent des travaux nécessitant l'établissement de camps forestiers. (Ceux-ci doivent respecter les normes de la C.S.S.T. et obtenir les autorisations requises).

De plus, une vingtaine de participants au régime de qualification en débroussaillage ont obtenu un diplôme par Monsieur Yvon Fleury d'Emploi-Québec et Monsieur Christian André du CSMOAF. (Comité sectoriel de la main-d'œuvre en aménagement forestier). Ce nouvel outil permet de mettre à contribution les débroussailliers expérimentés dans un processus structuré d'apprentissage en milieu de travail afin de développer les compétences professionnelles des travailleurs. Le régime de qualification, développé avec la participation du CSMOAF et de travailleurs du secteur, est maintenant disponible pour la majorité des régions

où se concentrent les activités d'aménagement forestier.

Par ailleurs, les conférenciers ont captivé l'auditoire en présentant divers sujets reliés aux travaux sylvicoles. Le salon des exposants regroupant plus d'une vingtaine de kiosques du monde forestier s'est démarqué par la diversité des produits présentés.

Cet événement annuel d'envergure provinciale exige des ressources importantes, merci à nos commanditaires. Je profite de l'occasion pour remercier tous les gens qui ont travaillé à ce 2^e colloque pour que ce dernier soit un succès. À l'an prochain !

Translated Report

by Nathalie Boies,
Administrative Assistant AETSQ

SECOND AETSQ CONFERENCE, CHICOUTIMI 2002

On February 14 and 15, 2002, the AETSQ (Association des entrepreneurs en travaux sylvicoles du Québec) held its second annual provincial conference in Chicoutimi. The Saguenay-Lac St Jean region hosted this year's meeting.

"Environmental Certification: A Time for Decision", the theme of this second congress, drew more than 200 participants to the event. This year's goals: recruiting new members, making our Association better known, and launching our annual publication, *Forêt Entreprendre*, which served as the official program, were fully realized. Mission accomplished!

At the conference dinner, the presence of Ministers François Gendron and Jacques Côté facilitated the

announcement of an increase of 7.8% in forestry credits, which will be awarded to contractors who carry out projects requiring the setting up of forestry camps. (These operators must adhere to CSST standards and obtain the necessary authorizations.)

In addition, some twenty enrollees in the program of qualification for brush workers received their diplomas from Mr. Yvon Fleury of Employment Quebec and Mr. Christian André of the CSMOAF (Comité sectoriel de la main-d'œuvre en aménagement forestier). This new facility allows us to make use of skilled brush clearers in an orderly process of "hands-on" apprenticeship to improve the professional skills of workers. The qualification program, developed with the participation of the CSMOF and of workers in the sector, is now available in most of the regions where forestry management activities are concentrated.

At other times, the conference speakers delighted the audience with their presentation of a variety of topics related to forestry activities. The exhibits hall, which included more than a score of forestry booths, attracted attention by the diversity of products presented.

This annual province-wide meeting involves a major financial investment, for which we thank our sponsors. I take this opportunity to thank all those who worked to ensure the success of our second conference. See you next year!

Prince Edward Island



Forest Improvement Association

by Wanson Hemphill, Manager

Spring is coming to PEI along with a lot of new changes and challenges. The biggest challenge and opportunity will be the development and progress towards more sustainable forests under a new Model Forest presence.

The current 12 Model Forests in Canada are in every province except PEI. From the beginnings in the early 1990s, Model Forests have succeeded in bringing many forest stakeholders together to talk and act on sustainable forestry concepts, issues and ideas. In other Model Forests, there are defined land areas, but in PEI it is proposed to not have a designated area. Rather, a Model Forest would be about people, ideas, issues and projects where all forest land and owners would be eligible for benefits. The first Model Forest stakeholder representative meeting is

set for March 27 where Nova Forest Alliance will present information on their experience.

FIA will also be considering a proposal by the Canadian Federation of Woodlot Owners to develop a low-cost certification system for Canada that is suitable for our many small private forests. This Pan-Canadian system would be based on the successful American Tree Farm model but customized to meet the needs of forest owners and the market place as well as be compatible with existing certification systems.

The increased interest in harvesting of ground hemlock (*Taxus canadensis*) on PEI for use in treating cancers has received a lot of attention of late. Several new companies have expressed interest in both harvesting, drying and processing this valuable shrub which is present in many hardwood/softwood stand types on PEI. PEI is fortunate to not have the increased competition from either deer or moose, or any other browsers, resulting in some old and large ground hemlock growth. Sustainable harvesting guidelines have been developed and a Workshop is being planned for April 27 to bring all the players and forest owners together.

Softwood markets have rebounded and demand is strong although the loads are much smaller due to the early weight restrictions on secondary highways.

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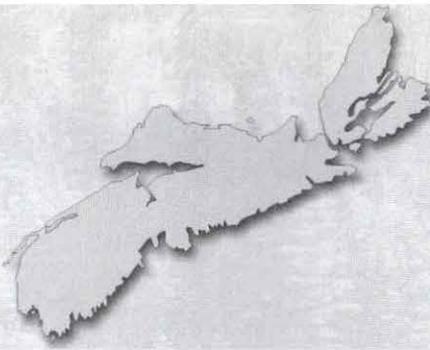


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Nova Scotia



Silviculture Contractors Association

by Ed Davidson

Finally, a little bit of good news for the beleaguered private-lands silviculture industry here in Nova Scotia. A recent letter from the Forestry Safety Society indicates our Workmen's Compensation rate for 2002 is \$9.69 per hundred. That's the lowest it's been in 6 years. This is welcome news for our sector since only a couple of years ago our rate was either the highest or second highest in the country and we were warned it would be heading even higher unless something happened to start turning things around. What happened was the Forestry Safety Society of Nova Scotia. This is a non-profit organization run by the private sector (forest industry to be more exact) and funded by a 3% levy on WCB premiums. The FSSNS offers a wide range of safety training geared specifically for our industry and delivers that training in both a flexible and user-friendly manner. The program is paying dividends and our employers can hopefully look forward to further reductions of their WCB expense in the future.

At the same time, however, we have noticed a slight increase in the number of accidents in 2001 over 2000 and a more noticeable increase in related medical expenses. In trying to understand this development, there is a school of thought that the Schedule of Silviculture Credit Values may be having an unintended and unrealized influence. The Schedule of Credit Values is part of the new system being used in the province wherein silviculture is funded by a "user-pay" approach as opposed to using only

scarce tax dollars from Halifax. For better or worse, we are breaking new ground...as with anything new there are growing pains and, to keep it short, the credit values have caused widespread, downward pressure on silviculture rates. The concern is, in a province that consistently has one of the poorest economies in the country, our silviculture workers now have to cover much more ground to earn the same amount of money as before. Obviously these types of things will be of interest to both the private and public sector during the evolution of this initiative.

The Atlantic Provinces Economic Council is currently working on a study for the Forestry Human Resource Sector Council here in Nova Scotia to examine a profile of the forest industry labour force.

The report is not yet in the public domain but early indicators seem to suggest we have an aging workforce and those at the entry level do not see forestry, especially silviculture, as an attractive career path. Coupled with results of our latest census which show a continuing migration of people from rural areas to the more densely populated ones, there may well be reason for some future concern about the availability of front-line workers for those treatments which are labour intensive.

But, above and beyond all of these things, the days are getting longer, the weather is beginning to warm up, and as they say, "as long as your feet are touching the floor in the morning, it's a good start".

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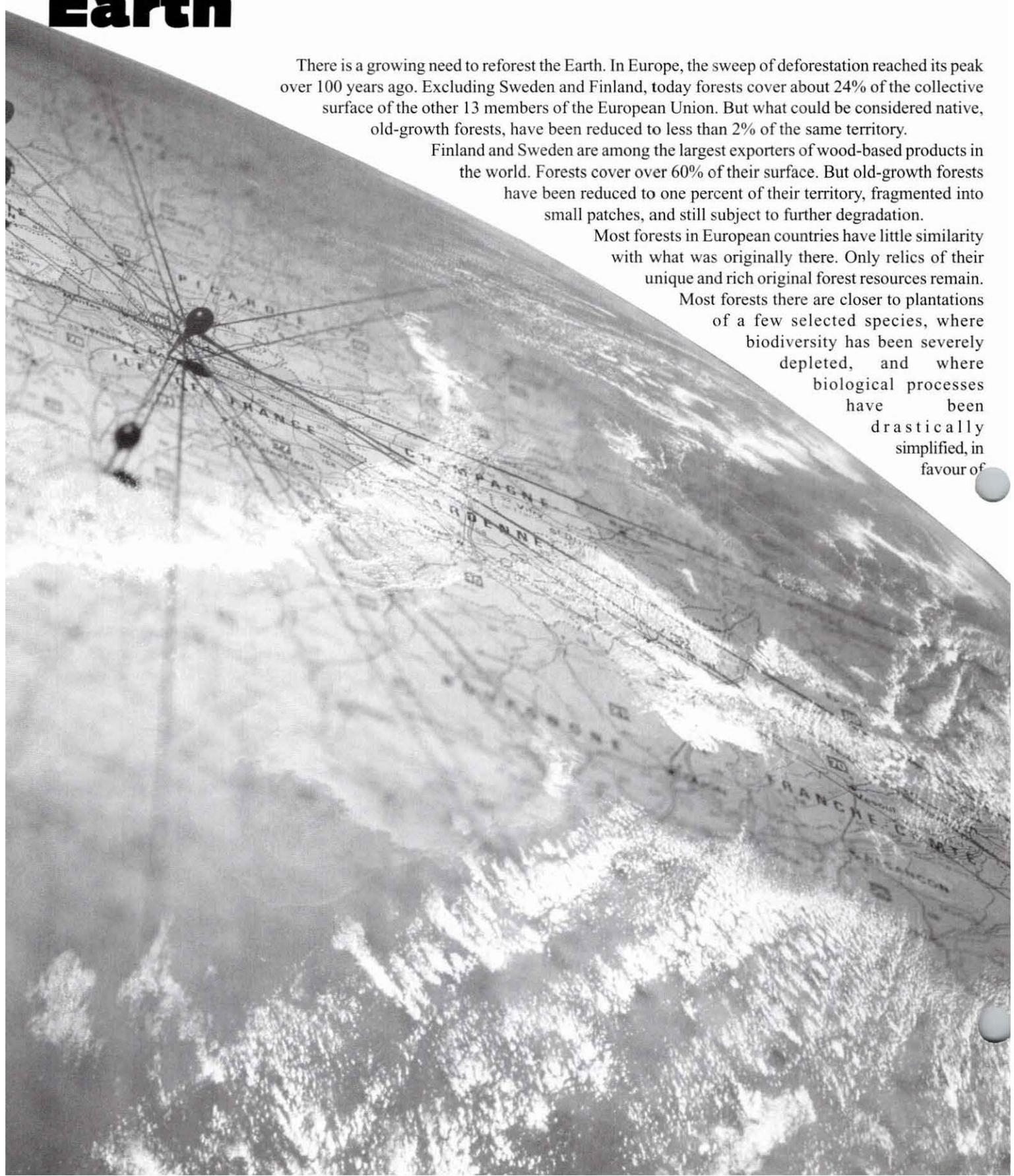
by Julio Cesar Centeno, PhD

There is a growing need to reforest the Earth. In Europe, the sweep of deforestation reached its peak over 100 years ago. Excluding Sweden and Finland, today forests cover about 24% of the collective surface of the other 13 members of the European Union. But what could be considered native, old-growth forests, have been reduced to less than 2% of the same territory.

Finland and Sweden are among the largest exporters of wood-based products in the world. Forests cover over 60% of their surface. But old-growth forests have been reduced to one percent of their territory, fragmented into small patches, and still subject to further degradation.

Most forests in European countries have little similarity with what was originally there. Only relics of their unique and rich original forest resources remain.

Most forests there are closer to plantations of a few selected species, where biodiversity has been severely depleted, and where biological processes have been drastically simplified, in favour of



short term economic returns.

In North America, the depletion of old-growth forests has become a major issue. In the USA forests cover about 30% of the land. But, excluding Alaska, old-growth native forests have been reduced to less than 5% of the national surface. And they are under dramatic pressures, which have polarized extensive sectors of the society.

Malaysia, Indonesia and Brazil, among other tropical countries, are often branded as the "environmental villains" of the world, mainly due to their reported levels of destruction of natural forests. But despite the levels of deforestation registered in these countries, over 60% of their territory is still covered by natural, tropical forests, among the most precious of all forests left on Earth.

The natural forest cover of the United Kingdom, on the other hand, extends over only one percent of the national surface, and fragmented to such an extent that only small remnants of old-growth forests remain. The total forest surface of the United Kingdom is only 10 percent of the country, mostly plantations of very few species. A similar situation is registered in Denmark, the Netherlands, Ireland and other European countries.

Most industrial nations have attempted to reverse the loss of their original forest cover through the establishment of plantations. Large areas have been reforested to protect watersheds, to bring degraded lands back into production, to expand recreational areas, or for the production of industrial timber. Industrial forestry has become a dominant feature in the economies of some countries, such as Finland, Sweden and Canada.

Japan, with over 65% of its surface covered mainly by plantations, has been able to recreate forests almost anywhere they could be sustained.

Nevertheless, new threats to forests have emerged, and new reasons to plant trees have been found. Air pollution and acid rain have become major threats to large extensions of forests in Europe and North America.

As much as a third of all forests in Europe has been reported either dead or dying, due mainly to the combined effect of air pollution, acid rain and ozone contamination. Acid rain is also causing extensive damage to forests in the United States. This can hardly be considered appropriate forest management, or more acceptable than deforestation in the tropics.

The tropics

In the tropics, the need to plant trees is particularly acute. Over the last 20 years, deforestation reached an average rate of 27 hectares a minute, 14 million hectares per year, bringing significant social, environmental and economic damage, and an irreversible depletion of the most valuable genetic resources on Earth. Nevertheless, despite the enormous magnitude of these figures, only about 16% of all natural tropical forests were lost during this period.

It may take between 10 and 20 years to bring tropical deforestation to manageable levels. Were it to be phased out in 15 years, there would be a need to reforest some 1.5 million square kilometers simply to balance the loss of forest surface, an area six times the size of the United Kingdom.

Degraded lands in the tropics extend over more than 5 million square kilometers, an area nearly twice the size of the European Union (15 countries). They continue to expand, leaving bare landscapes, and seriously affecting the security of millions of people. To reclaim only *one half* of that land would imply planting an area almost seven times the size of Japan.

The consumption of *fuel wood* in the tropics exceeded 1.6 billion cubic meters in the year 2000, an amount nearly 50% larger than the consumption of industrial timber by all industrial countries combined.

Firewood accounts for 20 percent of total energy consumption in the tropics today. A significant proportion could be supplied by plantations, meeting the needs of local people, while alleviating pressure on natural forests.

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Imports of wood products reaching the tropics, mainly in the form of pulp and paper made from long-fiber woods, already exceed 12 billion dollars a year, and may reach 18 billion a year by the end of this decade. Much of this imported material could be locally produced from plantation grown wood, allowing for the retention of badly needed financial resources in tropical countries. This could take place on relatively poor soils and degraded land, creating forests where there were none before.

In the tropics, many species of interest to the pulp and paper industry can grow at rates several times greater than in temperate regions. While in Europe an 80-year rotation period may be necessary, in Latin America it could be 15 years or less. Land is more plentiful, labor costs are lower, and there is a far more urgent need to generate employment, exports and wealth.

The greenhouse effect

Concerns with the greenhouse effect generate additional pressure to reforest new areas all over the world. All plantations, whether for industrial uses, the production of firewood, the protection of selected areas, or as part of agroforestry initiatives, contribute to counter the greenhouse effect, either by serving as carbon sinks, or by alleviating pressure on native forests, helping to preserve them as carbon deposits.

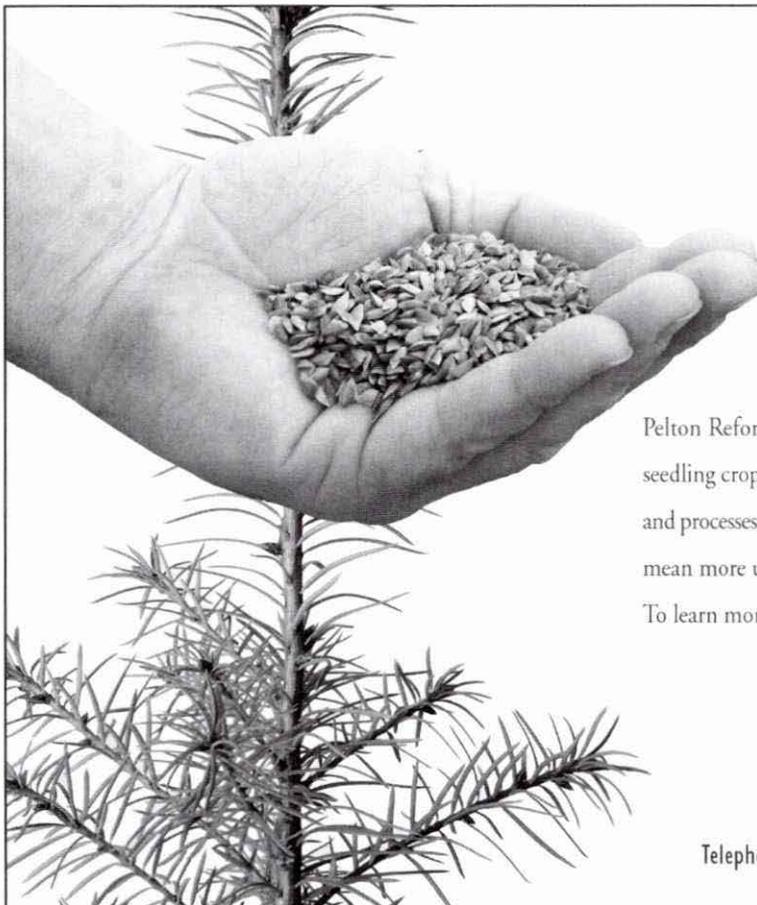
However, plantations should not be conceived with the primary purpose of countering the emission of carbon to the atmosphere. Particularly not plantations located in the tropics to counter the emissions of carbon in industrial nations. This is equivalent to the dumping of toxic waste. Proposals of this nature have frequently ignored the needs and expectations of communities in the tropics, and are largely politically motivated.

Neither should plantations be conceived as a justification to continue pumping heat trapping gasses into the atmosphere. Their carbon sink potential is limited, and can only be conceived as part of a transient mechanism to move towards worldwide energy consumption models based on renewable resources, while contributing to the establishment of sustainable development models in the tropics.

Problems with plantations

Most of the problems registered by plantations in the tropics have been related to social or environmental issues. Social conflicts have been mainly due to land claims by local communities, or to the lack of sensitivity to the needs and preferences of surrounding populations.

Environmental conflicts have been mainly related to poor matching of species to the conditions of the soils, to the depletion of the water table, or to the



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susceptibility of monocultures to fire, pests and diseases.

Most of these conflicts can be avoided. They have often been due to inadequate planning or defective management. Tree plantations are in many ways like agricultural crops, except with larger cycles, and less intensive management systems.

The development of plantations in the tropics has become a subject of controversy, mainly due to the perception that plantations necessarily mean large extensions of industrial monocultures, the displacement of local populations, the destruction of natural forests, or the use of agricultural land best suited for the production of food.

Although the development of industrial plantations is a necessary part of sustainable models of development for the forestry sector and the timber industry, they are a relatively minor component of the total surface which needs to be reforested to protect water supplies, to reclaim degraded lands, to expand agroforestry practices, or to produce renewable energy. In most of these cases, plantations should rely on the use of a mixture of native species, on marginal or abandoned lands. They must also be based on the most appropriate species for the environmental and social conditions of the area to be affected, and for the objectives pursued.

For plantations to be an appropriate form of land use, they must be in harmony with the environmental and social priorities of the affected areas. Plantations cannot substitute for the full spectrum of goods and services derived from natural tropical forests, particularly with respect to biological diversity. Nevertheless, they can provide goods and services to complement those of natural forests.

International cooperation

Conditions seem thus right for a major international effort to green the Earth. To avoid unwanted effects, clear principles and guidelines are necessary, making the best possible use of available

knowledge and expertise.

Tropical countries are among the poorest countries on Earth. They must also manage the most complex, delicate and valuable forests remaining in the planet. The economic and technological resources available to them are particularly limited. They must also endure a dramatic social and economic situation, plus deeply adverse terms of trade and financial relationships with industrial countries.

Under such conditions, the possibility of reaching sustainable models of developments becomes a distant reality. There is a clear need for industrial countries to sincerely and effectively assist tropical countries in their quest for sustainable forest management and development.

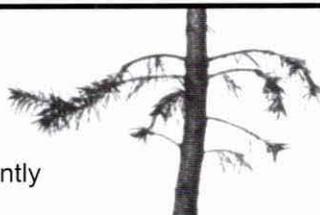
Plantations are expected to play an increasingly important role in maintaining a protective and productive forest cover over the Earth. Unless a large scale tree plantation program is developed in the near future, particularly in the tropics, pressure will continue to build on natural forest, our genetic heritage will continue to disappear, degraded lands will continue to expand, water resources will continue to diminish, and the ranks of environmental refugees will continue to grow. This can only lead to social and ecological upheavals we can still prevent.

Julio Cesar Centeno is a forestry specialist from Venezuela. He was one of the key negotiators of the International Tropical Timber Agreement (UNCTAD), serving as spokesman for tropical countries. Has served as forestry advisor to the Secretariat of the United Nations Conference for Environment and Development [UNCED 92], Director of the Latin American Forestry Institute, professor of the Graduate School of Forestry at the University of the Andes, Venezuela, and member of the Board of Directors of the Forest Stewardship Council. Official delegate of Venezuela at multiple international negotiations on forests. Invested by Prince Bernhard of The Netherlands with the Golden Ark Award for his work in the forestry sector. Former member of the Governing Board of SGS-Forestry in Oxford, United Kingdom, and vice-chairman of the TROPENBOS Foundation in The Netherlands.

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Forests require decades to grow but issues affecting the sector can evolve much more quickly. It is therefore critical for the Canadian forest sector to always plan well ahead so that decisions made today will help position it favourably for years to come.

Such an opportunity is presenting itself. A Canadian Council of Forest Ministers (CCFM) initiative, called Forest 2020, is currently being developed and the entire Canadian forest sector, as well as other interested Canadians, are invited to help shape it.

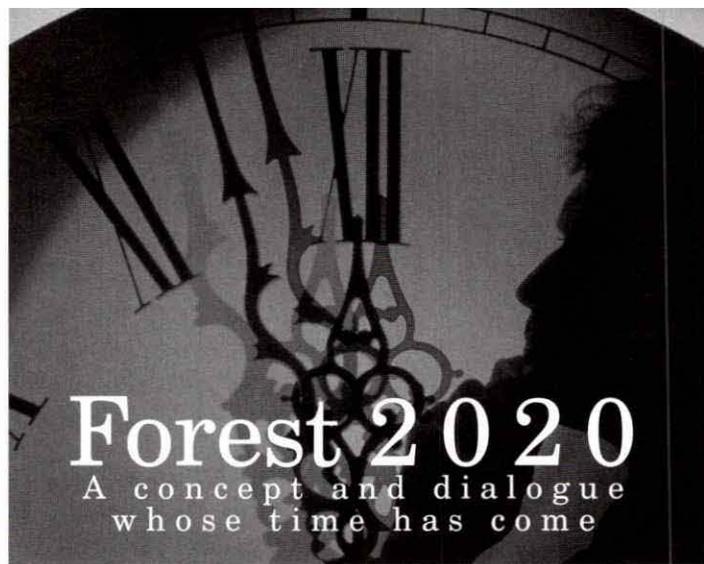
A Flexible and Innovative Approach

How will Canada respond to domestic and international pressures to further stabilize resource communities, as well as ensure the sector's economic prosperity and the conservation of forest ecosystems?

These were the issues facing the CCFM in 1999 as it began defining a framework to discuss how Canada's forest sector might evolve over the next two decades. The CCFM mandated a Task Force to elaborate a common vision for forestry in the year 2020 and to provide Ministers with information on how best to address these challenges over the next decades.

Their proposed innovative approach, called Forest 2020, aims to increase the conservation value of forests and community benefits from all forest resources while ensuring the continued growth of the forest industry, and all forestry jurisdictions in Canada have agreed to work together to develop it. The implementation of Forest 2020 would be flexible and likely vary from jurisdiction to jurisdiction. Ministers committed to initiate a dialogue to involve Canadians and key stakeholders in this process of change.

The initial dialogue on Forest 2020 took place in 2001. Discussions between a core group of CCFM Ministers, international experts, and leaders of forest products companies and the conservation community were held in April. In addition, the conservation and aboriginal communities held their own workshops, and discussions were held with leaders of resource communities and other key organisations in the Canadian forest sector to explore the Forest 2020 concept. In general, there was genuine interest in going forward to better define this initiative through an open and transparent process, including continued dialogue.



Based on this initial dialogue, CCFM Ministers endorsed principles to guide the development of Forest 2020 at their September 2001 meeting, such as:

- balancing con-servation and production objectives at the jurisdictional level that reflect general economic, environmental, cultural and social objectives;

- involving the general public and all concerned parties in an open and transparent manner in both the development and the implementation of Forest 2020;

- continuing or initiating basic and applied research efforts to take full advantage of the benefits arising from Forest 2020.

From those principles a Vision Statement was developed.

Forest 2020 - Vision Statement

Through Forest 2020, the Canadian Council of Forest Ministers will further enhance the long-term sustainability of our forests by promoting greater social and economic prosperity as well as improved conservation of our forest heritage, by supporting:

- 1) increased wood fibre production through the establishment of plantations of fast growing high-yield tree species, and intensified silviculture in previously harvested, or second growth, forest areas;

- 2) a level of forest ecosystem conservation that is scientifically and socially acceptable; and

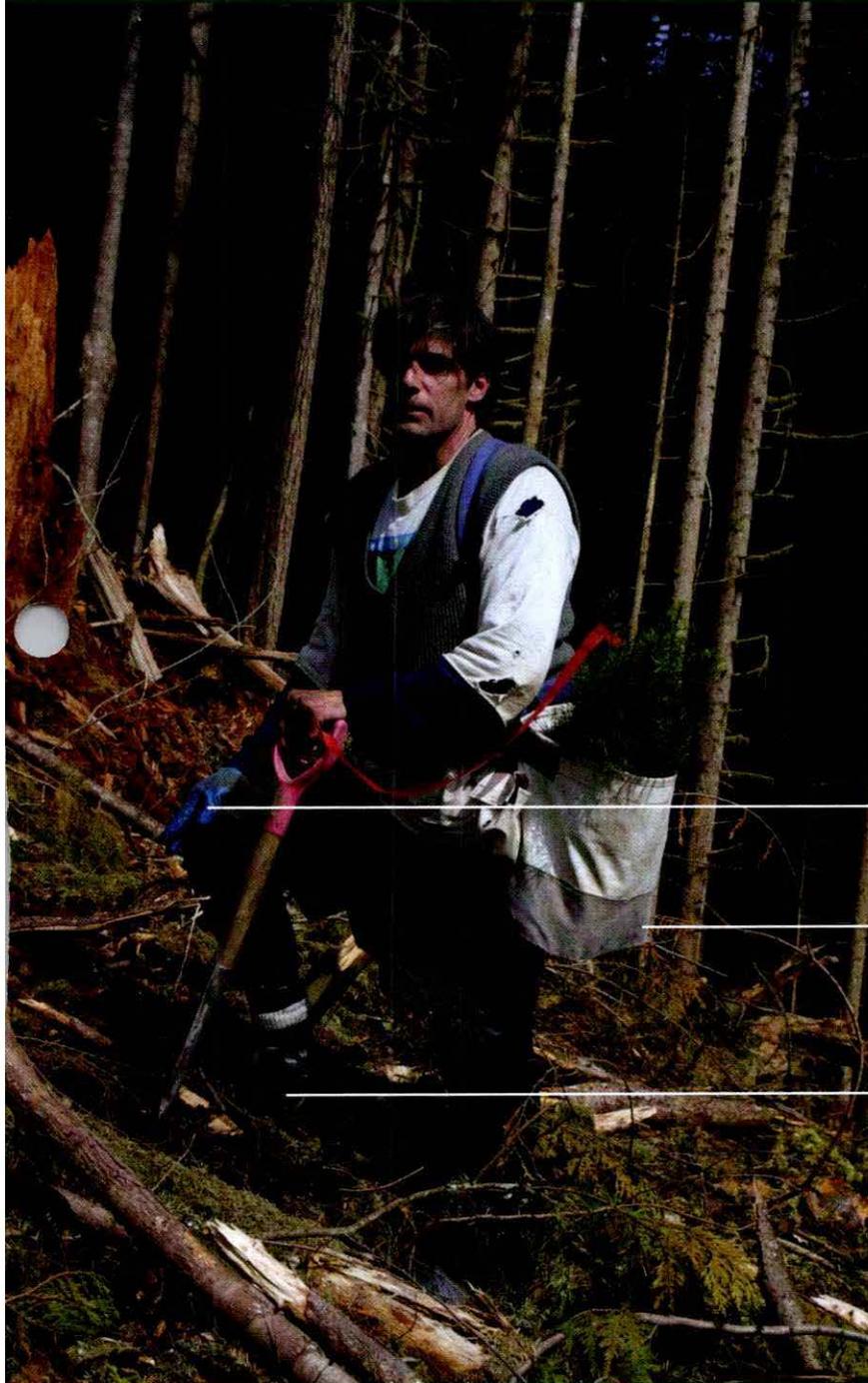
- 3) greater community stability and self-sufficiency grounded in the wise use of all forest resources.

Second Round of Dialogue

The concept of a varied and flexible approach involving fast growing high-yield plantations is garnering more and more attention across Canada. Discussions are slated to continue during 2002, and will be important in defining conditions and practical approaches to realizing the Forest 2020 vision. The cornerstone of this second round of dialogue will be a Think Tank with Canadian and international experts to review potential Forest 2020 implementation scenarios. You can also help define this approach for Canada to further wood and fibre production, forest conservation and community well being. We encourage you to seize this opportunity by continuing to gather the latest information on Forest 2020, and to send your comments on the initiative through the Forest 2020 website, at www.ccfm.org/forest2020.

Wilderness Gear

what you need out there



In order to be healthy and happy, after a season of working in the forest, it is critical that you are properly attired and have all the gear necessary to ensure that you're enjoying your work. Here's a look at some of the gear that you should be sporting this season.

continued on pg. 26

W I L D E R N

Spacer



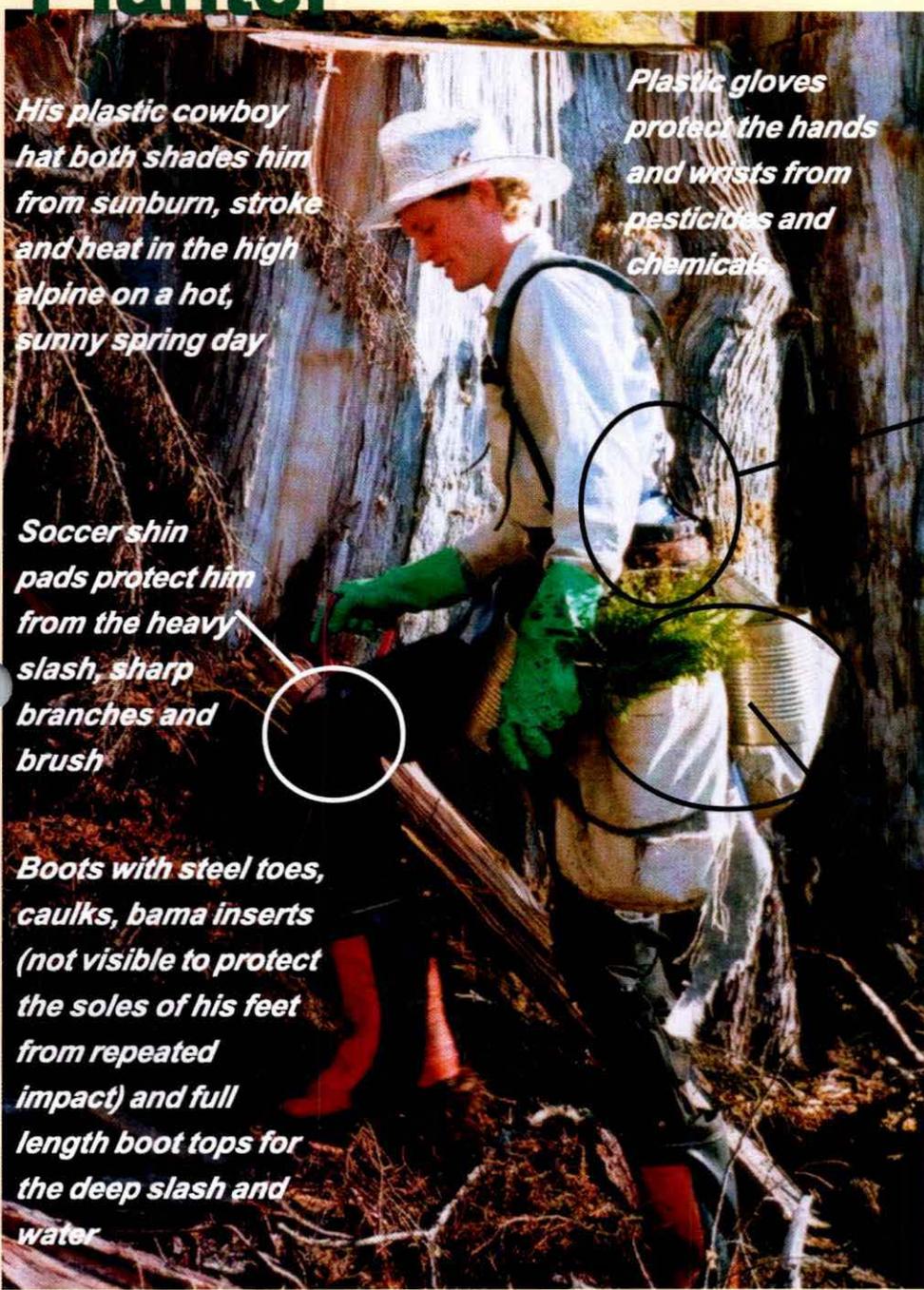
The brushcutter comes with an ergonomic harness

The hardhat is a standard forestry unit with retractable visor and earmuffs. Some workers choose to use only eye and ear protection (mandatory) rather than a full hardhat, which is hot and somewhat constrictive.

The boots are caulk boots, the standard for most silviculture workers

No specialized leg protection is mandated for brush saw spacers in Alberta. In BC, he would be obliged to wear faller's pants, which would offer no significant protection but would limit movement and increase heat fatigue

Planter



His plastic cowboy hat both shades him from sunburn, stroke and heat in the high alpine on a hot, sunny spring day

Plastic gloves protect the hands and wrists from pesticides and chemicals

Soccer shin pads protect him from the heavy slash, sharp branches and brush

Boots with steel toes, caulks, bama inserts (not visible to protect the soles of his feet from repeated impact) and full length boot tops for the deep slash and water

Shoulder straps are properly adjusted to distribute the seedling load in his bags between his hips and shoulders. He has a double padded tree bag belt.

He has a four bag set, preparing him for any stock type or size and allowing for ease of selection when planting a four species mix. Silvacool inserts protect the seedlings from desiccation from wind and sun during long runs.

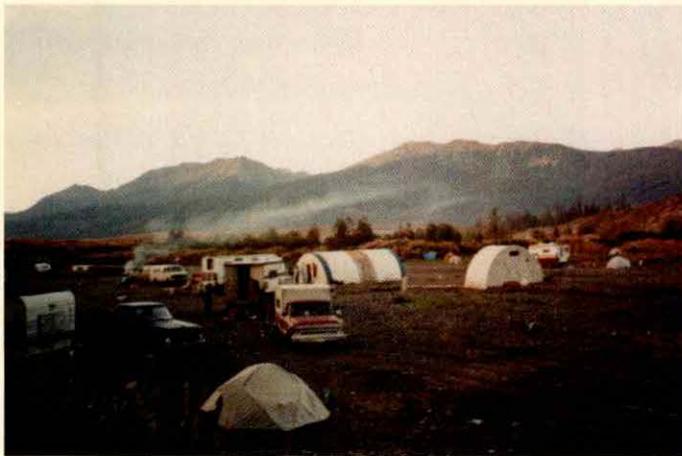
The tin can wired to his tree belt provides him with ready access to his fertilizer bags and keeps the fertilizers separated from his trees

It is evident that he started his day right with a shower and clean clothes. His gear has been specifically selected for the planting site on which he is working

Wilderness Camp Gear

While the technology of wilderness bush working and living has evolved the equivalent of several centuries in the last three decades, the innovations are not always evident to the casual observer. Camps have to be both very portable and highly adaptive to the irregular terrain close to the work site.

From the kitchen, dining, eating to washing complex, personal camps range in complex patterns usually reflecting unplanned development and often looking more like instant refugee camps than organized operations. However, they are functionally ultra-efficient.



The Dining Room

The dining room is almost always a modular tent structure, because portability and multi-functionality for twenty to one hundred person crews requires the considerable space only possible with light tent materials. The dining room is critical in a camp. Since treeplanters burn 6000 calories a day, poor food will translate into a reduced calorie intake and reduced production.

The Kitchen

The professional stove, fridges, freezers, counters, and food mixing equipment is usually trailer, school-bus or truck mounted to reduce transportation damage.

The Showers

Hot and cold running water is introduced through European demand propane water heaters set up with either pre-fab or also vehicle mounted shower systems.

The Drying Space

Essential for the high volume of wet gear, the drying space is designed to drive off large quantities of moisture before morning, usually with wood stoves, but increasingly, using other forms of heat and forced air.

First Aid

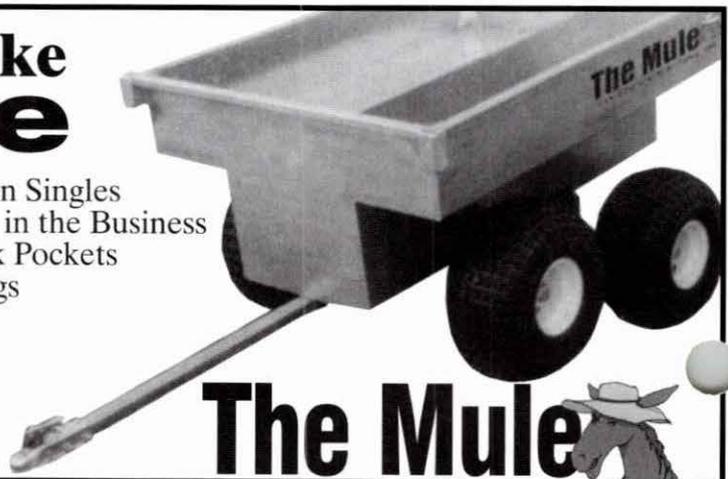
Specified treatment areas, facilities and gear are set up in portable tents, trailers or ambulances to meet first aid requirements.



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In early 1996, the forestry and forest products sectors of Canada were only starting to establish a presence on the Internet. Many companies did not have their websites yet and the provincial and federal governments were only exploring its potential. Trying to find anything about forestry was quite frustrating. Internet search engines would typically bring back long lists of websites, none of which was really related to forestry in this country. After many wasted hours surfing the Internet, we decided to develop **CANADIAN FORESTS** as an Internet gateway to make it easier to find information.

Today, **CANADIAN FORESTS** is the most comprehensive website of its kind in the country, providing quick access to the forestry-related Internet sites in Canada. The information is organized alphabetically into 9 easily browsed directories:

- **federal government** - CFS, Industry Canada, CIDA, Environment Canada
- **provincial governments** - Ministries responsible for forests
- **forest industries** - major wood and

paper product companies

• **value-added industries** - secondary wood manufacturing companies

• **service and supply companies** - companies which service and supply forestry equipment

• **associations and NGOs**- professional, environmental, labour, manufacturers organizations

• **consultants** - firms that provide forestry and environmental consulting services

• **education and research** - university and technical level institutions, short term training

• **information and resources** - national and global information sources

Free Links

We provide free listings to any Canadian institution, company, or organization involved in the forest or the forest industries. The listing provides a short description of the organization and the option of including its logo.

Career Opportunities

One of our most popular features is our forestry career and employment opportunities webpage. Employers can

post new staff openings and get targeted, national exposure at a fraction of the cost of advertising in local newspapers. Each week an email newsletter is sent out to notify our more than 3500 subscribers of the new opportunities available. This free subscription service is available at: <http://www.canadian-forests.com/job.html>

Other webpages include forestry news and business opportunities. For more information, contact Elizabeth Ruiz or John Roper by telephone at 604-299-9643 or by email at info@canadian-forests.com

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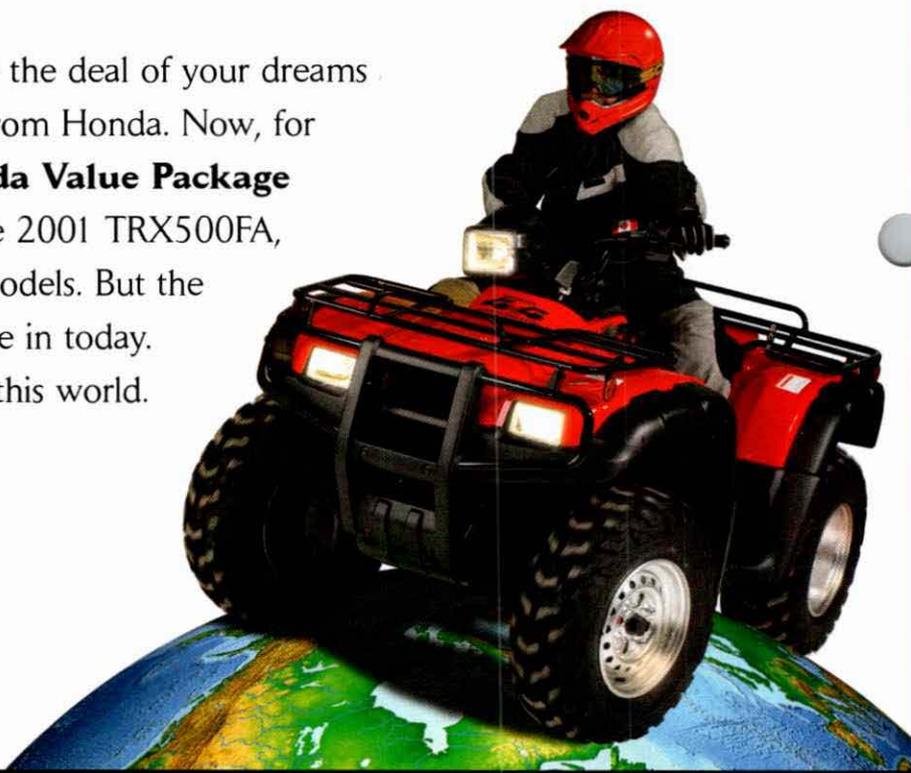
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