

CANADIAN SILVICULTURE

vol.2 no.4

Fall 1994

MAGAZINE

in this issue:

**Forest tending in Eastern
Canada and Europe**

**Stabilizing silviculture
in New Brunswick**

**The future of
clearcutting
in Canada?**

plus regional
silviculture
reports from
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Canadian Silviculture Magazine
is published quarterly by CSM Inc.
It is available only by subscription.

Opinions expressed by the authors do
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Petter appoints Pedersen as BC's chief navigator

Larry Pedersen, MOF Manager of Prince Rupert Region, will replace John Cuthbert as BC's Chief Forester on Sept. 26, 1994. The Chief Forester sets the timber harvest levels for each timber supply area and tree farm license area in the province.

John Cuthbert is taking a well-deserved retirement. John was Chief Forester during some of the most tumultuous times for the forest sector.

Now that forestry ship of state has been streamlined by the Forest Practices Code and equipped with an outrigger Crown Corporation, Forest Renewal BC, Pedersen is not necessarily going to have easier sailing. Keeping the forest sector on course through the difficult phase of slicing off huge slabs of AAC while including "social considerations" will get ugly.

Captain Petter, the Minister of Forests, apparently has a legal opinion that reference to "social considerations" in the Forest Act gives him wide latitude to influence the reshaping of the AAC. It has been rumoured that John Cuthbert retired because that compromised the Chief Forester's role to one of steering the sector through the next election. John liked to say "It's an art, not a science." Perhaps he didn't want to say "It's politics, not art." (CSM)

Chaos in BC woods?

The new agreement between forest companies and the IWA includes a provision that gives union members first crack at jobs created under the government's new Forest Renewal Plan. The jobs and families of the 15,000 silviculture practitioners hang in the balance as the government, unions and forest industry play political football. To date the cultural gap between the harvesting (IWA) sector and the contract silviculture sector has never been successfully bridged. The WSCA has called for increased consultation because it has so far been excluded from the Forest Renewal Plan process. (Vancouver Sun)

Silviculture waste swells landfills

BC's Ministry of Environment (MOE) has made a commitment to reduce the volume going into its landfills by 50% by the year 2000. Two major inputs to landfill sites are tree boxes and the styrofoam containers for growing seedlings. MOE is getting on BC MOF's back about the volume of tree boxes going into landfill sites.

The re-usable boxes that have been introduced by manufacturers are not working out. Nurseries believe sending their product out in a nice clean box is an important marketing tool. (Sounds like good marketing on the part of the box supplier.) When the boxes come back muddy and wet, it is difficult to reuse them.

MOF is now working with the manufacturers to come up with designs that are recyclable—mainly to replace the heavy wax content. Proposals to put recycled styrofoam into the peat and send it back out to the forest in the seedling plugs have not been approved by Environment Canada. (CSM)

BC Forest Renewal Plan to fix streams, logging roads

The BC government announced this summer that it plans to spend \$52 million across BC this fiscal year to fix streams, restore logging roads and tend new forests as part of a financial kick start to the province's Forest Renewal Plan. This is the first announcement in province's grand plan to spend \$2 billion, over the next five years, renewing and sustaining the province's forests.

In the Nelson Forest Region, almost \$4 million will be spent in the restoring streams and roads. Another \$2.8 million is slated for pruning, spacing and inventory of existing forest stands in the region. "These projects will focus on rehabilitation of entire watershed ecosystems and on restoring fish and wildlife habitats to their former productive capabilities," said a government press release. (Nelson Daily News)

Forest code crimestoppers

Do you realize that in 1995 you could be fined mega-bucks and even jailed for violations of the BC Forest Practices Code? The free training programs for the 1995 WSCA Silviculture Conference are presently under development. You can be sure that the courses will be critical to our industry—and they could help you avoid dancing the Jailhouse Rock. The training sessions will be held Jan. 30-Feb. 1 and the conference will be Feb. 2 with a theme of Social Forestry: The New Disorder. Don't miss the ever popular bearpit session. (CSM)

Made in Canada trade deal

The deal to reduce trade barriers among provinces is less ambitious than hoped, but makes progress in key areas such as procurement. Governments will no longer be able to favour provincial suppliers in tendering for goods over \$25,000 and for services or construction projects more than \$100,000. Local suppliers can still be favoured for economic and regional development reasons, but only in exceptional circumstances. (Canadian Press)

CSM finds national unity

The Canadian silviculture industry is going against the tide that recently swept the separatist Parti Québécois to power. This national unity issue of CSM includes a bilingual Québec Report (pages 36-39) from the *Association des Entrepreneurs en Travaux Sylvicoles du Québec* (AETSQ). The AETSQ already has six years of organizational experience and we look forward to their active participation in future issues of CSM. (CSM)

Thailand unveils forest plan

Thailand has launched a reforestation campaign to plant about two million acres with over the next two years. The government will spend 4.34 billion baht (\$239 million) to target watershed areas in the drought-stricken northeast of the country. Between 1961 and 1988, the area of Thailand under forest fell to 28 percent from more than 53 percent. The government imposed a nation-wide logging ban in 1989 to preserve what forest cover still remained, but widespread illegal logging has continued. (Reuters News Agency) ♦

The future of clearcutting?

Jim Verboom and Dirk Brinkman

Note: The following is selected and edited from the CSA presentation by Jim Verboom and Dirk Brinkman to the Clearcutting Hearings held by the House of Commons Standing Committee on Natural Resources. We present it in place of an Editorial this issue. The authors noted at the hearings that they were not able to review their presentation with the CSA member associations in advance. They hope that its publication in CSM will create further dialogue about clearcutting in the silviculture community. The Standing Committee's summary report is presented on page 33.

A new generation of Canadian silviculture

We silviculture practitioners are a new generation, different from the traditional harvest forest workers of Canada's forests.

We have had very similar experiences across the country. In Nova Scotia, for example, pulp cutters who are used to the philosophy of "taking the best and wrecking the rest" have a difficult time making the psychological conversion to "leaving the best and using the rest."

The old mind set

In Nova Scotia 90% of the people that started their careers in cutting (with no concern about what happened to the site after they got the trees down and walked away) are not able to change their psychological mind-set to stand the process on its head, i.e., leave the best and take everything else. They seem to judge their self-worth and self-esteem by how big their pile of wood is at the end of the day.

This mind set is holding back contractors and foresters as well as cutters. They think it can't be done; therefore it can't.

We have to establish values based on silvicultural goals. You're not in the forest for what you take out, but for what you leave behind; and by the way, we are taking out some wood. That's the secondary part of the job.

In the West, union agreements often require that laid-off loggers be allowed to

plant trees. Less than 10% are really willing to stoop to the task—the quality and productivity are not there. In fact, forest industry internal data indicate that the laid-off loggers output is three times the cost and half the quality.

This new generation of silviculturists is keenly prepared to intervene in the forest in ways that will leave them in better shape than we found them or than they have been left by harvests of the past.

Mark a line in the sands of time

As a part of the incredible pace of change hurtling through the forest sector in Canada, the silviculture industry urges this historic committee to mark a line in the sands of time and separate us from our clearcutting past.

We define clearcutting as harvesting all standing trees without regard for ecosystem integrity, such as forest values, stream and lake buffers, wildlife snags, residuals, erosion, soil degradation, protection of the forest floor, wildlife habitat aesthetics, etc.

Cutting without consideration for continuity of the ecosystem is similar to clearing land for a municipality, a hydro-pond, a highway or a power line. In the past, the Canadian forest industry has harvested this way, and in some places, it still does.

But we can draw a line in the sands of time and leave the unacceptable practices behind us.

Ecologically sustainable harvesting

Our industry would like to see progress towards what we call Ecologically Sustainable Harvesting. Some may say it is sophistry to say that's clearcutting and this is Ecologically Sustainable Harvesting.

But many forest companies are shifting their practices. The vertical dimension of snags and residuals is present after the harvest. The look of the clearcut is not there. The silviculture practitioners are doing micro-site, mixed species, and

ecosystem-appropriate regeneration. We know we can have successful forest ecosystem renewal.

The four horses of clearcutting

We like to talk about what we call the four horses of clearcutting which created that historic look—clean and clear-shaved.

1. Mechanization to reduce labour costs.
2. The lack of an industry obligation to reforest.
3. Snags: Is the wildlife snag a hazard or a habitat?
4. Fire hazard reduction.

1. Mechanization to reduce labour costs

Larger, faster, heavier equipment has the risk of compacting the forest floor. The forest floor is the critical element for the continuity of forest ecosystem health and productivity. The top layers of the forest floor contain the microrhizae or symbiota that associate with trees and create vigorous growth. Most of the oxygen is found in the soil near the surface. The moisture, warmth and nutrients are also there. In Oregon, studies have indicated you can lose 40% of the forest productivity through compacting that surface with skidder logging.

Once we become more aware of these problems, solutions emerge: for example, using winter logging, with its protective snow cover and ground that is frozen and/or dry. We would also expect a trend toward smaller and more flexible equipment. Lighter harvesting practices will allow a more vigorous forest growth after the harvest.

The history of mechanization in the forest sector has been driven, to some degree, by the inflexibility of labour and the unwillingness of unions to give companies room to manoeuvre and adapt. It was also to get rid of the hassle of unions and labour, to simplify it so as to control risks and

manage the harvest process. Of course that means fewer jobs. The unions seem to be waking up to the need for some flexibility.

2. The lack of an industry obligation to reforest

Does clearcutting mimic natural processes? We have heard lots of discussion about this question and it seems that most people miss the fundamental difference between clearcutting and a volcano, a wildfire or an insect infestation.

Clearcutting is motivated by economic gain, by profits. The value of the forest motivates companies to clearcut these forests or otherwise harvest them. We need to ensure that the full cost of the harvest (including regenerating a similarly vigorous and diverse forest) be borne by the consumer and by the harvester.

When industry pays, the costs drop

In the past, tree planting was government funded. It was like government welfare in a silviculture slum. The industry harvested the timber, then the government was responsible for the clean-up costs.

In 1985, the BC government projected that its reforestation costs would increase by three times to do the necessary clean-up after forest industry harvesting. The government's solution was to make the industry pay for all the regeneration.

In contrast to the \$750 million the government projected paying in 1992, the industry's cost for 100% regeneration was closer to \$200 million.

During the same period, BC went from reforesting 70–80% of the areas needing reforestation to 100% reforestation. Provincial silviculture standards also increased from requiring the establishment of a surviving seedling to providing a free-growing tree 10–12 years later. Yet the costs decreased.

Ontario, on the other hand, is in the dark ages of silviculture. In Ontario, you still find a lot of "log it and leave it" because the government does not have the money for reforestation and they have not yet negotiated a program where industry takes responsibility.

3. Snags: habitat or hazard?

Historically, there are a lot of fatalities from snags and falling during the logging process. After logging, there are often still a lot of standing snags or trees that have been damaged, debarked. It is the policy of WCB to require that those trees be felled.

Silviculture takes place in a post-logging environment. The BC WCB has no record of a snag-caused injury or death of a tree planter, and anecdotal evidence from other provinces is similar. There are, however, many deaths and injuries among snag fallers who are supposedly making the site safe for us. Ironically, the fallen snags underfoot are probably more hazardous to silviculture workers.

The forest ecosystems are better off having that structural diversity. The snags provide unique habitat for many birds and insects. The silviculture industry would like to see more snags left standing. We are confident that with training, we can work safely among the snags.

continued on page 32...



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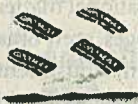
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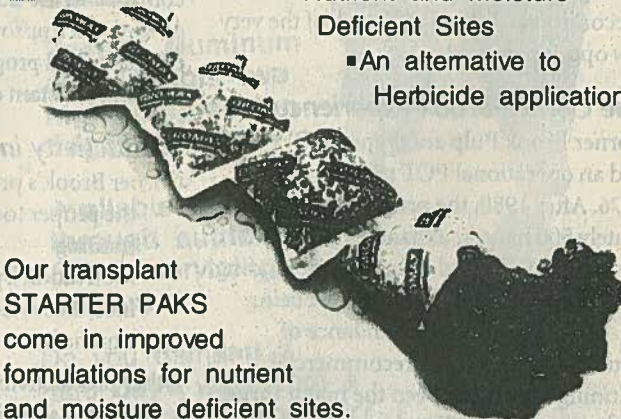


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Increasing precommercial thinning productivity in Newfoundland

Wayne Brown, Forest Management Supervisor, Corner Brook Pulp and Paper Ltd.

Precommercial thinning (PCT) or juvenile spacing has been practiced on an operational scale in Canada for nearly two decades. While experience with this treatment is quite limited in many regions of the country, those who have had early experience with well-established programs are today able to show hard evidence of very positive growth responses. The Scandinavians have been practicing PCT (and plantation spacing) for much longer than Canada and consider it absolutely essential to their forest management programs. Sweden alone spaces some 500,000 ha per year and Finland 250,000 hectares. Efforts in Canada pale by comparison. In 1990, only 3% of Canadian silviculture budgets is directed towards stand improvement, whereas the Scandinavians allocate some 40 to 50%. Wood supply analyses are now showing that many regions within Canada are facing medium-term wood supply deficits, largely as a result of age-class imbalances. Outside of purchasing the shortfall volumes from other areas, stocking control for shorter rotations through the use of methods such as precommercial thinning is one of the very few options available.

The Corner Brook experience

Corner Brook Pulp and Paper (CBPP) has had an operational PCT program since 1976. After 1980, the program of approximately 500 ha/year expanded to 2500 ha/year with FRDA and other federal funding. By 1991, some 3600 ha/year were being treated. Because of an abundance of natural regeneration, precommercial thinning has always been the major thrust of the company's silviculture program, with some 32,000 ha treated to date. The company employs 140 PCT workers from early June to late September (80 to 90 working days per year).

CBPP produces 100% newsprint and has no sawmills. The company's silviculture program objectives are directed totally towards the production of pulpwood. Only one stand entry is contemplated, a one-shot deal, reducing the density to 2000 trees/ha. Treated areas are predominantly balsam fir with average densities in excess of 50,000 stems/ha. While the dominant species in most candidate PCT areas is balsam fir, preference in crop tree selection is given to black spruce and white spruce. Treatment areas are typically 10 to 20 years old and 2 to 4 m in height, with stem diameters ranging from 2 to 8 cm.

Since 1976, there has been a constant

...Wood supply analyses are showing that many regions within Canada are facing medium-term wood supply deficits, largely as a result of age-class imbalances...

evolution of virtually all aspects of spacing ranging from biological considerations to operational matters such as saw design changes, crew organization, incentive system adjustments, training, quality control and the skill level and experience of workers. Improvements to operational efficiency and program effectiveness demand constant evaluation and change.

Productivity improvement

Corner Brook's productivity cornerstones:

- the proper tools and equipment
- training
- motivation by way of effective incentive systems
- experience

Other productivity factors are:

- worker selection (recruitment)
- operational organization
- supervision
- pay scale
- maximization of UIC benefits

Equipment: brush or power saw?

The only sound argument for the use of chainsaws in spacing is for conditions of larger diameter stands or where ground conditions, such as slopes and elevated slash conditions, prevent the use of brush saws. Steep slopes, heavy ground debris, elevated slash and windfalls limit the use of brush saws. Much of the spacing throughout various parts of Canada is being done with chainsaws under conditions very suitable to brush saws. The arguments concerning versatility, easier servicing or availability for power saws are very weak.

Brush saws are more expensive than chainsaws. The level of operator skill and training required is much higher. However, the payoff in substantially higher productivity more than compensates. In stands where the predominant tree size is from 2 to 8 cm in diameter, the safest and most efficient tool is clearly the brush saw because:

- productivity is 150% to 200% greater
- the rotating blade cuts three times faster
- it is much easier to achieve directional felling
- operator works in a vertical position reducing fatigue and accidents
- it is safer

Brush saw models

Only the Husqvarna 165RX, Stihl 360, Stihl 420 and Jonsered RS51 have thus far demonstrated a potential for use under Newfoundland stand conditions. The Husqvarna 165RX is, without question, the most popular brush saw in eastern Canada. CBPP's PCT operations, however, have been dominated by Stihl products over the years. For industrial use under stand conditions described above, any one of the above models should prove satisfactory. Experience has shown that the minimum engine displacement required is in the 50-cc class.

Brush blades

There are also many types of brush saw blades available — Maxi, Stridesburg, Sandvik XRT, Cobra, etc. CBPP very much favours the Stridesburg blade, although the Maxi is also quite good. Blades are judged on longevity, ease of filing and setting, cost and cutting ability. Whichever type of blade is used, it is extremely important that the teeth be set and kept sharp (with correct filing angles) at all times. Rules of thumb are that blades be sharpened at every second gas refill and that the teeth be set approximately three times over the life of the blade. As a related point, it should be noted that new blades need sharpening and setting before use.

Training

A well-designed training program is absolutely essential for efficient and productive PCT operations. Not only does it have a major impact on costs, quality, productivity and safety, but it also results in improved worker attitude and motivation, lower turnover and a reduction in the level of supervision required. The difference in productivity between an untrained and a trained worker is estimated to be at least 50%. This percentage reflects reduced costs along with improved work quality; it does not take long to recover training costs.

What are the key differences between a training program and a good training program? A training program is what CBPP had prior to 1988. We often used forestry technicians who were also the job foremen; we had classrooms with flipcharts, chalkboards and VCRs; we had several Scandinavian training videos; we had an assortment of glossy pamphlets on every aspect of the operation; we had a woods camp setting; and we provided sufficient time. The general routine was to look at the videos, go in the field to try it out; look at the videos again, go in the field again; and so on. Of course, this was all intermixed with lectures on company policies, the workings of our incentive system, and an assortment of other topics. Those who did not quit during this process were considered trained. Today, we look back at our training program during those years and realize just how inadequate and ineffective it was.

In early 1989, CBPP, Abitibi-Price (Nfld.), and the Newfoundland Department of Forestry formed the Newfoundland and Labrador Forestry Training Association (NLFTA). The NLFTA (with the support of several government departments, including Forestry Canada) acquired the services of Nordfor Training and Consulting of Husqvarna, Sweden, to provide a "train the trainer" program for silviculture workers. Special emphasis was placed on precommercial thinning. Each agency selected a number of its best and most experienced workers to take part in the program. The results of this exercise were extremely positive. Not only did they learn the finer technical points of operating and maintaining a brush saw, but more importantly, they learned how to teach other people.

Looking back at our earlier training program, we realized that it was almost entirely off-base. We used the wrong type of people for instructors; we had no real concept of the learning process; our methodology was erratic and ineffective; our groups of trainees were far too large; we took the wrong approach with the

continued on next page...

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video routine; and we failed to realize that people are not trained after one or two weeks of instruction. The presence of a trainer is required for an entire operating season or more, though with a progressively higher student-instructor ratio.

The training program content itself includes the following material:

Rationale for PCT: Trainees are shown why we are doing precommercial thinning, including all the benefits associated with this treatment. Field trips to older, previously spaced areas are included to further demonstrate its rationale. This is considered a very important component of the training program.

PCT specifications: A detailed explanation is given on the particular specifications required of the spacing work. It includes such criteria as density, spacing, crop-tree selection (including preferred species), stumps with green branches, crop tree nicks, whip trees (those less than 1 m or 1/3 the adjacent crop tree height), and how to handle specific situations.

Quality considerations: PCT quality standards and tolerances are discussed, as well as the quality assessment plot procedure. Trainees are able to establish plots and do a complete assessment.

Saw maintenance: Trainees are instructed in all aspects of saw maintenance, including daily and weekly maintenance routines, carburetor setting, the importance of clean air filters and how to effect minor repairs.

Blade filing and setting: Although this is related to saw maintenance, it is given special emphasis because of its extreme importance. All aspects are covered including filing technique, filing angles, and setting the blade teeth.

Harness adjustment: Trainees are instructed on how to adjust their harness properly and to balance their brush saws. This aspect of the training program is of particular importance as it has a significant influence on saw handling, fatigue and ultimately, productivity. In a survey of the company's workforce, it was found that

more than 90% of workers had either improper harness adjustment, incorrect saw balancing, or both.

Work pattern and planning: Various work patterns for maximum productivity are fully discussed and demonstrated. This aspect of training is also quite important and has the potential to increase productivity significantly. It is also one of the more difficult aspects of brush saw operation to instill in new workers.

Directional felling: This aspect of the training program undoubtedly has the greatest impact on worker productivity and consequently is given emphasis. Felling techniques for larger diameter trees (10 to 20 cm) are also included.

Nutrition: The effect of proper nutrition (food and fluid types) on body energy and fatigue are discussed in relation to work

...The effect of proper nutrition (food and fluid types) on body energy and fatigue are discussed in relation to work productivity and fatigue-related accidents...

productivity and fatigue-related accidents. This is a surprisingly interesting part of the PCT training program, and is delivered in an effective, unique way.

Safety: While the brush saw is substantially safer than the chainsaw, the potential for accidents is quite high, high enough that PCT programs without training in at least the safety aspects of brush saw operation can be considered irresponsible! There is a safe way to do everything associated with a brush saw, from installing a new blade (without cutting your fingers) to the felling of trees (without causing serious 'kickback' injuries).

Safety is paramount and stressed throughout every aspect of the operation.

Today, we believe we have a state-of-the-art training program designed by specialists who know what works. Our instructors, who had 7 to 12 years brush saw experience prior to their training, now go about their business with enthusiasm and confidence in their ability to instruct other people. After 16 years of operational

experience in precommercial thinning, we have come to realize that training is indeed a specialty. Those who are contemplating a training program and those who already have one are advised to take a critical look at its contents, and more importantly, at the qualifications of the instructors.

As a related point, Nordfor also designed a training program for our manual shortwood (2.5 m) logging system. Today, CBPP has 80% of its manual shortwood loggers using the Swedish system. The productivity of these very experienced loggers has increased an average of 15% in the first year alone not because they are working 15% harder, but because they are working 15% smarter.

Incentive systems

The opportunity for increased earnings has generally proven to be a very effective motivation to influence productivity. Individual and crew competitions with appropriate awards and recognition can also be used to promote safety and job quality.

Piecework is the most common type of incentive system. A worker is paid a fixed rate for

each unit of work produced (m3 of pulpwood, planted seedling or spaced hectare). The more one does, the more one is paid. In many unionized situations, however, there is also an associated guaranteed wage, with additional earnings referred to as "bonus". In either case, it becomes necessary to establish nominal levels of productivity, i.e., the amount of work a person can be expected to do under a given set of conditions and a given period of time. CBPP requires such a minimum level of productivity to justify payment of the union guaranteed wage. Workers who cannot achieve this minimum productivity are dismissed as "unsuited" to PCT.

Productivity (hectares treated/person-day) will vary depending on stand density and other factors that affect difficulty. The minimum daily requirement (productivity) as a function of density for CBPP is shown in Figure 1. The relationship between density and productivity is not a straight line as one would expect, but rather a curved relationship—productiv-

ity accelerates with decreasing density. It is generally on the basis of these productivity curves that piecework rates are set. In essence, any given worker should have the potential to make the same earnings regardless of stand density or difficulty. It should also be noted that while density is the primary factor for establishing the "degree of difficulty," piecework rates also have to be adjusted when adverse conditions prevail, e.g., slope, tree height, terrain and surface obstacles (rocks, slash, stumps, etc.).

The lower curve shows the minimum level of productivity that is required of workers within the various density classes. Piecework rates set along this curve are equal to the guaranteed wage established in the collective agreement. Actual productivity is shown in the upper curve, which shows a 30% increase over the minimum level. This incentive level of 30% is average or typical of junior workers — those with approximately two years experience. The more senior workers average some 50–60% above the minimum requirement level.

There are several ways to construct incentive systems. However, in one way or another they have to define (1) acceptable or normal work levels, and (2) what it takes to motivate workers to go all out for maximum production. Incentive systems should be designed for maximum worker productivity at lower overall cost.

Experience

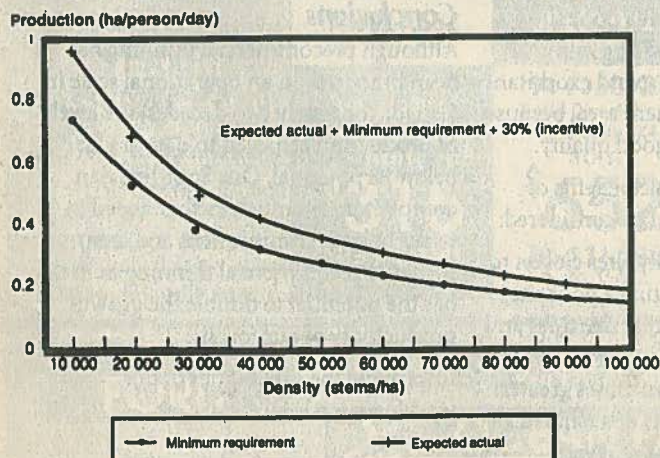
While training is extremely important, there is no real substitute for work experience. It takes a full operating season to become proficient. While it is true that individuals are different, each with their own learning curve, the productivity of most workers will increase substantially with additional operating seasons. This is evident in the comparison of bonus earnings between junior and senior workers noted above (30% versus 50–60%).

What does it take to develop a crew of experienced workers?

A stable program: First thing required is a stable precommercial thinning program — one that is continuous and within the same geographic region. In many areas of Canada, PCT tends to be haphazard projects as opposed to a committed long-term program. Experienced and productive work crews will never be developed under this sort of climate.

continued on next page...

Figure 1: Our productivity in terms of density



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AVAILABLE NOVEMBER 15th, 1994

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Unfortunately, there are many people who judge the merits of PCT on the basis of performances within these projects. They often conclude that it is too expensive (low productivity), too dangerous, turnover is too high, and a host of other negatives.

Minimizing turnover: Even with a stable PCT program, experienced workers can only be developed if turnover is minimized. Training and motivation, as discussed above, are key factors in reducing turnover. It is also important to recruit the right sort of individuals. Previous work experience can be a definite asset and also be misleading. The individual's attitude towards work in general should be assessed. References should be checked thoroughly. Workers from rural areas tend to be much more stable and productive than those from urban or higher population centres. Younger age groups without the maturity, responsibilities of families and mortgages tend to be more transient.

Students have other careers in mind and have no intention of staying with this type of work.

The importance of experience in relation to maintaining high productivity in PCT should not be underestimated. In the opinion of CBPP, it ranks every bit as high as training. As noted above, highly productive work crews require both training and time to develop their skills and proficiency.

Other productivity factors

While proper tools and equipment, training, incentive systems and experience are without question paramount to increased worker productivity, there are many other factors that also come into play. Some of these are as follows:

Operational organization: This is a somewhat all-encompassing factor that includes such things as crew size, field layout, quality control system, staff organization, saw repair facilities and spare saws to minimize downtime.

Supervision: A lot is demanded of a PCT field supervisor or foreman. He or she must be competent in the planning, layout and administration of the operation; the

maintenance and operation of brush saws, including proper work technique, safety, etc.; know the job specifications, standards, and quality control system; and most importantly, have good general supervisory skills. Good supervision is required to bring out the best in the workers.

Pay scale: Precommercial thinning is hard work and demands a high level of skill. Pay scales or piecework rates should reflect this reality. Good workers will not be attracted to nor remain in PCT if their earning potential is low or substandard.

Maximization of UIC benefits: PCT is seasonal work with a maximum operating season in Newfoundland of approximately 100 working days (June to October). While some workers are able to find off-season employment, the reality is that most are forced to draw UIC benefits until start-up of operations in the spring. This allows Corner Brook to maintain experienced crews. Since maximum UIC benefits require relatively high earnings during the

...The relationship between density and productivity is not a straight line as one would expect, but rather a curved relationship—productivity accelerates with decreasing density...

work period they are a contributing factor to increased worker productivity.

Economic considerations

Increasing PCT productivity should also be viewed in a broader context to include economic productivity (bang for the buck) and growth productivity. There is very little gain in employing highly trained and productive workers to treat a poor site where growth responses will be minimal; nor does it make sense to spend exorbitant sums on a difficult treatment area, because the site happens to be of good quality.

To maximize the economic benefits of PCT, the following should be considered:

Prioritize higher-capability sites closest to the mill: The costs of treating a poor site and a good site under similar densities and conditions are the same, yet the return on the better sites can be many times greater. Similarly, economic gain is determined at the point of delivery to the mill yard.

Maximum gain (fiber/\$) is realized in lower density classes: This is not to say that a given hectare with low tree density will respond to treatment better than a hectare with high density. The cost per hectare for PCT is very sensitive to density. The resulting fiber volume per dollar will be much higher treating hectares with lower densities. All too often, foresters prioritize the higher-density stands "because they need it more!" With a fixed number of dollars, there is more gain in the final analysis thinning from 10,000 to 2000 stems/ha than in thinning from 50,000 to 10,000 stems/ha.

Timing: To achieve maximum gains in time, volume, or growth productivity, the "timing" of stand treatment is very important. Delaying spacing beyond the point at which the crowns and root systems of crop trees are well developed in proportion to the stem results in significant volume losses. Taking the approach of prioritizing older, more stressed, backlog stands before their condition worsens will not produce maximum gains. For balsam fir, the ideal time for release treatment is generally at ages of 8 to 15 years, depending on density, when stands are approximately 2 to 3 m tall.

Favour desired species: Give preference to stands that will have the highest proportion of desirable species after treatment. It is not uncommon in Newfoundland to change the proportion of desired species (black spruce or white spruce over balsam fir) from less than 5% before treatment to in excess of 50% after treatment.

Conclusions

Although precommercial thinning has been practiced on an operational scale in Canada for nearly two decades, the levels of production achieved to date are far below its potential. Our Scandinavian competitors are much farther ahead in terms of both commitment and area treated. Precommercial thinning in itself has the potential to double the growth productivity of our forests.

Improving the capabilities of our workforce is a logical start. ♦

Balancing interests in European forest tending

Oscar Sziklai

Note: This is an edited version of an article previously published in The Forestry Chronicle (May/June 1994). For a bibliography, please contact the author through CSM.

The objective of conventional, intensive forestry practice is the sustainable production of the largest and most valuable quantity of timber during the shortest period of time, at the lowest possible cost, balancing effectively economic, environmental and social interests. To achieve this objective, the following five measures, complementary to each other are implemented: 1) establishing, 2) tending, 3) protecting, 4) managing, and 5) harvesting and utilizing the forest.

The establishment, naturally or artificially, and the harvesting usually require a short time period, while the tending, protection

and management are continuing activities during the rotation cycle of the forest.

The extensive forestry practice during the "frontier" society stage — when the natural forest resource seems so abundant as to be inexhaustible — concentrates only on harvesting and utilization. The development from extensive to intensive forestry involves implementation of additional measures, and stand tending is usually the last one implemented to complete the progression.

The long-term goal of forest tending is to improve the quality and value of the stand during the rotation cycle and to provide the optimum growing conditions by selecting the most promising trees during the cleaning and thinning operations.

In tending operation, the trees are classified into two groups: the larger

number of removable trees and the smaller number of residual trees.

The removable tree group includes:

- a) Trees with outside physical damage, e.g., wind or snow breaks, or abnormal individuals, with large number of branches, expressed spiral grain, forked, trees damaged by animals and "wolf" trees.
- b) Trees with internal insects or disease damage.
- c) Trees with acceptable quality, but which interfere with intended stand composition and variation. Also, trees which compete with the residual final harvest trees and negatively influence their development.

The residual tree group includes:

- a) The most promising individuals of the main species and they should be evenly distributed in the stand. These trees provide the pool from which the best "ingrowth" trees will be maintained to the final harvest.

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b) Auxiliary trees which help to maintain the proper stand composition and enhance growth and value of the final harvest trees.

The forest tending achieves its objectives with cleaning, thinning and pruning operations.

Cleaning

This refers to the tending operation in artificially or naturally established young stands. The first cleaning operation is carried out after crown closure is completed, the trees have reached the free growth state, and natural selection is ready to take its place. Cleaning is repeated once or twice more before the desirable stand composition and species variation are reached, and the tending of desirable individuals can commence. The average tree diameter is usually 5–10 cm.

Thinning

The most important forest tending operation is the thinning, which operates from the pole stage of the forest to the final harvest stage. The early stage of thinning concentrates on stem selection of the most desirable trees, and the later stage on volume enhancement of the final harvest trees.

Three methods are most common:

- 1) Selection: individual selection applied, using IUFRO or local tree classification systems.
- 2) Systematic: trees are removed by rows.
- 3) Combined: the above two methods.

In certain cases, thinning concentrates in upper crown classes (high thinning) or lower crown classes (low thinning), frequently called "thinning from above" and "thinning from below," respectively.

Pruning

This is recommended only on higher sites, to be carried out on the trees marked for final harvest, usually on the end of cleaning and the beginning of thinning, before the trees reach 1/3 of the final harvest diameter.

Guidelines for forest tending operation

Before thinning can be implemented, the growth characteristics, the site condition, the response to different treatment of the species and the objectives of the management need to be known.

Usually, model tables (Table 1) or graphs are developed locally for each species and site condition. The following table is for *Picea abies* on six sites in Hungary.

The forest tending operations are most numerous on the higher quality site classes (I–III), where two cleaning and five thinning are recommended. On these sites, the largest sawtimber log production is the aim, and on the lowest site class (VI), where the objective is the maximum fibre production only, tree tendings are advisable.

...The general understanding that the objective of forestry practice, namely sustained management, can only be reached when tending is done consistently and rationally...
—Dr. H.O. Szittl, Leibungdut-ETH-Zurich

Expectation from tending

Sustainable forestry practice requires, as mentioned earlier, an effective balancing of economic, environmental and social interest. On the economic side, forest

tending is an investment for the future. The volume of the forest only increases fractionally, but the value of the final harvest could be substantial. Removing undesirable dead or dying trees improves the health of the forest and reduces the expenditures required for insect, disease and fire protection costs. With cleaning and tending operations, we can influence positively (or negatively) the genetic variation of trees and obtain the desired species composition of the stand.

On social and employment aspects, silviculture operations provide 1/3 of employment in Swedish forests and give a satisfactory relationship with the forest, which is essential for silvicultural success. ♦

Acknowledgements

I should like to acknowledge Dr. Walter C. Koerner's interest and encouragement on the topic of forest tending; Professor Leibundgut's invaluable technical information during the translation of the book *Die Waldpflege*; Professor Roth for his enlightening discussions on silviculture

when I was an undergraduate student and later his assistant; and finally, my father who groomed me to love the forest.

Table 1: Recommended Guidelines for *Picea abies* tending measures

Tending		The Stand					
Name	Number	Age yr.	Av. Ht. m	Basal Area m ²	Av. dbh cm	Trees No.	Distance m
I Site Class							
Cleaning	1	8	6	11	7	3100	1.8
Cleaning-pruning	2	15	9	19	11	2400	2.0
Thinning & Tree selection	1	20	12	25	13	1800	2.4
Thinning & Tree selection	2	25	15	30	16	1400	2.7
Thinning & Vol. Enhance.	1	40	22	38	24	800	3.5
Thinning & Vol. Enhance.	2	60	28	43	33	550	4.3
Thinning & Vol. Enhance.	3	80	31	47	40	400	5.0
Final Cut		120	35	52	54	250	6.3
VI Site Class							
Cleaning	1	30	8	15	9	2500	2.0
	2	40	10	19	12	1750	2.4
Thinning tree selection	1	55	14	23	16	1150	2.9
Final Cut	1	60	15	24	17	1000	3.2

Stabilizing silviculture in New Brunswick

Roland Roy, President NBISA

Note: This article is an edited version of a brief sent to New Brunswick Premier Frank McKenna, Nov. 1993, by the New Brunswick Independent Silviculture Association (NBISA).

New Brunswick's silviculture industry has gained importance over the past decade because of its impact on the province's future wood supply and its role as a source of employment. Current figures indicate that there are 47 active silviculture contractors operating in the province, constituting an annual payroll of \$5.9 million and treating an area of 27,237 hectares. While these figures may indicate an established sector, the silviculture industry is relatively young and experiences a certain amount of instability. This article profiles New Brunswick's silviculture industry and presents an overview of the current problems. The New Brunswick Independent Silviculture Association (NBISA) recognizes the problems faced by the industry and proposes a solution to stabilize and legitimize the industry to

the benefit of those organizations funding, administering, and owning New Brunswick's forest resource.

As further demands are made by the general public to sustainably manage our forest resource in an environmentally prudent manner, as well as by those purchasing New Brunswick's forest products, it will be imperative that a properly trained and accredited workforce (i.e., employers and employees) be utilized.

Background

The New Brunswick silvicultural industry is a relatively new sector of activity involving 47 silvicultural contractors who employ almost 1500 persons and generate a payroll of \$5.7 million (1992) in rural New Brunswick. These entrepreneurs are young, have

post-secondary training and exemplify the same "new spirit of self-reliance among New Brunswickers, ... by a new generation of entrepreneurs—willing and prepared to take a chance," as profiled in "Toward 2000: An Economic Development Strategy for New Brunswick." The six basic thrusts of the "Toward 2000 Strategy" are:

1. Invest in our people and their readiness for the economy of the future.
2. Actively promote entrepreneurship and small business development.
3. Strengthen our infrastructure and achieve the best possible climate in which to invest.
4. Preserve and enhance our environment and natural resources.
5. Achieve equity in regional economic development efforts.

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6. Recognize our distinctive New Brunswick identity and project it to the rest of the world.

The NBISA was formed in 1986 to deal with various issues and concerns of the silviculture contractors.

The Association has led several initiatives, notably the creation of a special Worker's Compensation "silviculture rate," resulting in a 62% drop in WCB assessment costs for silvicultural contractors.

The NBISA is currently involved in the industrial adjustment process with Provincial and Federal Governments, having the following objectives:

To recommend to the parties of the Agreement, courses of action it considers essential to the development of an effective adjustment program relating to the following areas:

- Community awareness
- Communications
- Training
- Professionalism of the industry

Silviculture industry

needs and opportunities

Our purpose is to describe this sector of activity and to demonstrate the needs and opportunities of stabilizing the silviculture industry in terms of:

1. Ensuring the quality of work performed
2. Reducing the cyclic highs and lows of this sector of activity
3. Reducing the labour turnover
4. Improving a skilled and stable work force
5. Reducing dependency on UIC and extensive training
6. Improving the long-term outlook, profitability and growth for the silvicultural businesses involved
7. Decreasing the government and para-government administration costs by the enhancement of recognized silvicultural contractors

(as well as the quality of work and services they provide) such as:

- higher quality assurance
- improved and expanded technical services, such as documenting the treatments and adherence to safety and environmental regulations
- improved communication between the profession and regulators

To achieve those results, the NBISA proposes formal professional recognition by the various funding and client groups for those contractors demonstrating competence and integrity. The recognition would result in higher standards of quality assurance and in stability for workers and contractors alike, as well as profits for the businesses.

...Formal professional recognition by the various funding and client groups for those contractors demonstrating competence and integrity would result in higher standards of quality assurance and in stability for workers and contractors alike...

Industry profile

This new sector of activity represents combined government and industry expenditures in forest management exceeding \$11.8 million (1992-93).

The recent surveys (1992-93) of silvicultural contractors, in which the response rate was close to 50%, revealed that:

- The principals of these businesses are young—average age 33
- They are formally trained—80% have post-secondary training
- They rely on this sector of activity for their livelihood
- 86% are seeking to diversify their activities
- 57% are seeking to expand in silviculture

Clearly, these entrepreneurs have the training and the drive for growth. The main impediment is the instability in the

market place created by an oversupply of semi-skilled workers and inexperienced contractors entering and leaving the marketplace on a regular basis.

Labour profile

Upon examining government data on labour requirements based on the 1992 silvicultural program and comparing them to the industry labour data, we conclude that we have a sufficient labour force to carry out the program, in a timely and efficient manner. Current estimates, excluding make-work projects and non-government organizations, situate the private sector labour force, including a 41% turnover, at 1476 persons (1048 without any turnover) using a 20-week season. By increasing the season for thinning to 30 weeks, the number of persons required drops to 690 persons or 695 persons, less than one

half of the current labour pool (including turnover).

The drive to train more silviculture workers has exacerbated the labour oversupply problem. We have examined the

training efforts during 1992-93 and over the last 5 years by the Community College. The direct input costs of training and upgrading silvicultural workers amounts to \$375,000 per year (1992-93) excluding overhead and facilities, and excluding any form of income support. Over the last 5 years, the NBCC has provided an estimated 2150 silvicultural training seats at a cost of \$2.125 million. Not all workers were new entrants and some may have received technical upgrading more than once.

During the same period, 77 unemployed persons received training at a direct input cost (excluding overhead) of \$139,766 in the Acadian peninsula and Bathurst areas alone. While government initiatives may be valuable, the impact on the already marginal operating season for silvicultural businesses is significant.

This does not mean that human resource planning is not required nor does it mean that the skill bank is complete. It does mean that there are enough skilled persons to effectively do the required work in an acceptable time frame and that substantial increases in the labour force are diluting the market at the expense of professional workers and contractors. The market is further diluted by areas treated during extensive and lengthy training as well as make-work projects.

Benefits of contractor certification

The NBISA is proposing that the two governments, through the Cooperation Agreement on Forestry, and their respective departments adopt an "Approved" contractor status for all silvicultural work to be performed. The contractor approach makes it far easier to monitor contractor competence and performance as opposed to worker performance. The contractor is ultimately responsible for the quality of the work performed. Furthermore, the responsibility to train employees rests with employers (section 9.2.c of the Occupational Health and Safety Act). Given the fact that both governments have concerns for training and entrepreneurship, and that the Canadian Forest Service of Natural Resources, Energy Canada and the Province of Nova Scotia already support such a system in Nova Scotia, it would seem reasonable to consider a similar approach in New Brunswick. The benefits to both levels of government are substantial.

The Workers Compensation Board (WCB) would benefit from reduced accidents (and risk) as a result of increased professionalism on the part of workers and contractors. WCB has already recognized this fact and has introduced a reduced (by 62%) silvicultural contractor rate class.

The Canadian Forest Service, the Marketing Boards and the Cooperation Agreement on Forest Development would see savings in reduced administration through an increased level of confidence in the "Approved" silvicultural contractor resulting in:

- reducing the level of monitoring by the two governments
- increasing the technical documentation provided by the "Approved" contractor of the work performed
- improving the communication between the contractors and governments

Environmental standards, including such issues as maintaining bio-diversity, would be dealt with by professional contractors in the field rather than by a layer of administration.

Training would be focused, in concert with professional contractors, on specific needs of a professional labour force committed to careers in this sector of activity.

Dependency on social safety nets, such as welfare and UIC, would be reduced by minimizing labour turnover and the industry's cyclic highs and lows.

In terms of regional economic development, it should be noted that these businesses are located in rural New Brunswick, and that these entrepreneurs are generally young

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and are seeking to expand their operations and diversify their activities as several already have. What they require is a reasonable business climate and some degree of market stability.

In order to achieve these benefits, stability, legitimacy and recognition have to be brought to the sector for both workers and contractors alike, based on high standards of quality and productivity. The proposed recognition would be based on:

1. Formal training and practical experience assessed over a two-year period and documented by a Registered Professional Forester (RPF).
2. Verified competency of the contractor (track record) to carry out silvicultural treatments.
3. Client satisfaction over a 12-month period, including letters of reference from clients.
4. Registration in good standing with Revenue Canada and WCB.
5. Sufficient working capital to carry out operations for 6 weeks.
6. Sufficient equipment available to the contractor.
7. An annual review of activities, by a forester, to ensure on-going compliance with the above conditions and legislation dealing with:
 - Employees' pay, vacations, UIC

- Occupational Health and Safety Act
- Environmental regulations
- Other regulations pertaining to this sector of activity
- The practice of good forestry

Recognition may be in the form of a rate differential (in Nova Scotia, it is between 20% and 30%, depending on the land tenure and size) over and above the current rates. In addition, recognition is manifested by formal lines of communication between regulating agencies and the profession. At the present time, the relationship between the contractors and the Government is non-existent or, at

...At the present time, the relationship between the contractors and the Government is non-existent or, at best, strained... rates and regulations that affect silvicultural contractors do not get their input...

best, strained, due to the role of marketing boards and Crown licensees with contractors; yet rates and regulations that affect silvicultural contractors do not get their input, such as, the setting of rates, the pro- and post-assessment procedures.

Recommended actions

The first step is to open formal lines of communication between the Association and the regulating agencies to allow input into the planning processes. These formal lines of communications already exist with WCB and Advanced Education and Labour. The objectives would be:

1. To legitimize the industry through an approved contractor system based on mutually agreed professional and performance standards.
2. To involve the silvicultural contractors in formulating various policies that impact on the industry, i.e., rate setting, environmental regulations, productivity analysis.

Conclusions

The silvicultural sector in rural New Brunswick involves businesses led by young and well-trained entrepreneurs who are platforms for further development. What they require to diversify and grow is a reasonable business climate and some degree of market stability. To legitimize the industry and to achieve stability, the profession must be recognized based on competence and integrity. The benefits

to both levels of government include:

- assurance of higher quality work
- decreased administration cost due to an enhancement the quality of services provided
- adherence to safety and environmental regulations (reduced risk)
- reducing the cyclic highs and lows of this sector of activity
- reducing the labour turnover
- improving a skilled and stable work force
- creating a formal communication link with the professional silvicultural contractors. ♦

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Ozone depletion threatens seedling

Margaret Munro

Note: Edited version of an article from The Vancouver Sun.

Seedlings in BC forests, young fish in rivers and lakes may be particularly susceptible to damage from ozone depletion.

The threat to seedlings is so serious the BC government should re-evaluate forest practices to minimize damage, said delegates to an international ozone conference.

"Seedlings and new growth are particularly vulnerable in the early spring when radiation levels are unusually strong," said Saul Arbess, the environmentalist who drafted the forestry recommendation.

The conference, which attracted about 100 scientists and environmentalists, concluded with a declaration calling for governments around the world to "prepare their citizens" for the possible effects of ozone depletion—depression of people's immune systems, increased skin-cancer rates, reduced crop yields and disruption of the fragile webs of life both in the sea and on land.

The conference delegates produced a list of more than 70 recommendations aimed at protecting the public and better assessing the harmful effects of ozone depletion.

Very little is known about the ecosystems that may be affected, said Environment Canada scientist David Lean.

"We still don't know what normal is," said Lean, who wants to see a concerted effort to understand the impact of increasing UV radiation on aquatic systems. ♦

New evidence of global warming backlash

Dirk Brinkman

Britain's Institute of Oceanographic Science has gathered evidence that average wave heights in the Atlantic have increased over the past thirty years. Close monitoring of the parameters of storm and wave frequency and intensity by the Norwegians indicates, that not only the average wave height, but also the incidence of "extreme waves" have increased over the past five years. In one period, waves averaged 5.2 meters for three months, never falling below 2 meters and occasionally peaking at 16 meters.

The implications of this go beyond the irony that global warming from petroleum carbon emissions may be increasing the costs for off-shore oil extraction. (A 10% increase in average wave stress can halve the fatigue life of a marine oil rig structure.) We need to investigate the parallel relationship between wind and forest stands. An important factor in forest stability is wind pressure and wind gust extremes.

It may be time to study the fascinating wave patterns of forest canopies. While forests lack swell—waves whose rhythm sends them beyond the winds that create them—a normal level of waving in the wind may build lignification and strength in trees and stands. ♦

Nature's toll mounts

Andrew Allentuck

Note: Edited version of an article from The Globe & Mail, May 10, 1994.

A Canadian study finds global warming partly to blame for the rising tide of disasters. Data from Canadian Reinsurance Co., a subsidiary of one of the world's largest reinsurers, show that catastrophes in 1992, a worse-than-average year, cost insurers \$27-billion US. Hurricane Andrew in the southern United States caused an estimated \$30-billion in damage, of which \$15.5-billion is thought to have been insured. Typhoon Mireille off Japan caused \$5.2-billion.

What is significant in these huge damage claim figures is not their occurrence but their pattern. The study, published in 1993, shows that 1992 claims for catastrophes were up 87 percent over 1991.

The study says it was weather and other factors that drove up average catastrophe costs by more than 900 percent.

What is behind the tightening insurance market, speculates the Canadian Reinsurance study, is in part global warming. In the past eleven years, storms have accounted for 88 percent of all natural catastrophes. If land and marine temperature increases are a cause, the upward trend of catastrophes will continue for many years. ♦

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Alternate container types trial

B. Wells and S. Zedel, Nursery Extension Services, BC Ministry of Forests

The quest for improved root form in containerized conifer seedlings has led to the evolution of a number of different container designs. The purpose of this trial, held at the Saanich test nursery, was to grow seedlings to BC Ministry of Forests specifications in a number of alternate container types, and compare the seedlings produced to controls grown in styroblock PSB313B, PSB415B and PSB410 containers.

Alternate container types:

1. First Choice Nature Root (NR) 415B— styroblock with "steps" to encourage root tips at three levels in the plug
2. Lannen Plantek 63F— a hard plastic container with vertical slits in the sidewalls, 63 cavities/block, 90mL/cavity
3. Elvinco Airbasket prototype— a hard plastic container with vertical slits in the sidewalls, dimensions similar to styroblock 313B
4. Jiffy pellet 96Plus— 96 "meshwall" pellets per tray, 90mL/pellet

Coastal Douglas fir, interior spruce and interior lodgepole pine were sown in each of the container types on the same date in February 1993, and grown as regular 1+0 spring plant stock. All seedlings were fertilized with Plant Products 12-17-29, with the recommended additions of calcium nitrate and magnesium sulfate. Containers were irrigated and fertilized according to their individual needs. The Elvinco, Jiffy and Plantek containers tended to dry out more quickly than the styroblocs, requiring about ten percent more irrigations over the course of the growing season. All Douglas fir seedlings were moved outside May 27. The spruce seedlings were moved outside on two separate dates: PSB415B, PSB410, and Lannen Plantek on June 15; PSB415B, NR415B, Elvinco, and Jiffy on June 24. Drought stress was used to induce budset and dormancy in all seedlings.

Discussion

First Choice Nature Root 415B:

Root tips were apparent at each of the steps in many of the seedlings, so the container was successful in this respect. However, in some cases, roots spiralled around the steps. This would likely become a serious problem with 2+0 stock. We did not have any trouble with plugs breaking apart at the steps as has been observed elsewhere. We did however have a problem with poor block loading — many of the plugs had large air spaces in the media at the level of the first step, resulting in a large number of culls.

...Alternate container types are part of alternate growing systems for which we do not possess associated materials and handling equipment...

Lannen Plantek 63F:

These containers produced very good seedlings with large caliper and dense roots. The air-pruning through the side-slits in the cavities resulted in many active lateral root tips along the whole length of the plug. Disadvantages were that the containers had to be hand-loaded and -sown, as block dimensions were different from styroblocs, and seedlings on exposed edges of the containers dried out.

Elvinco Airbasket prototype:

Douglas fir was not grown in this container. Pine and spruce seedlings grown were shorter than in other containers but most met minimum height specifications. Seedlings had good top:root ratios and the side-slits in the containers resulted in many lateral root tips throughout the plug. These containers are based on styroblock dimensions and thus could be handled with styroblock-based equipment. As this was a prototype, the plastic material was rather sharp and brittle; the final product will be made of high density polyethylene. As with the Plantek container, the

seedlings along the edges of the outer containers became desiccated.

Jiffy pellet 96Plus:

Seedlings had good above-ground morphological attributes and particularly large caliper. During the growing season, seedling roots grew freely through the mesh walls and into neighbouring plugs. By the time seedlings reached target specs, about half of each seedlings' root system was actually located in adjacent plugs, which required plugs to be cut apart at lifting. Many of the severed roots were large (1-3 mm) and suberized. Fine roots required for absorption were, to a large degree, located in adjacent plugs and

therefore lost. Seedlings grown in Jiffy pellets ended up with a severely truncated root system with few fine roots.

There were some other disadvantages. Plugs required hand-sowing because the plug trays do not match conventional styroblock dimensions.

Individual pellets tended to fall over and required regular straightening up. Grit did not stay on top of pellets, resulting in algae buildup and associated water management problems. Once plugs grow together, it is impossible to rogue out diseased seedlings except by cutting. Lifting is extremely labour intensive since individual seedlings have to be cut apart.

It must be noted that alternate container types are part of alternate growing systems for which we do not possess associated materials and handling equipment (though these may possibly be available).

Seedlings from each of the container types were planted in field beds at Green Timbers Nursery, in spring 1994, for further observation. ♦

Editor's note:

Despite the severe disadvantage of the cultural and technical learning curve, alternate containers have done well, and the MOF Initiative to compare some of the containers available to the silviculture industry is interesting.

A true trial to compare the root form of the various seedling containers used in Canada and Scandinavia would take advantage of the technical and cultural changes that experienced growers have evolved in the regions where these systems are extensively used.

For example, in the MOF trial the Jiffy pellets were interfilled with grit or sand, which did not permit normal air pruning; rather it resulted in extreme root inter-growth. This is not something that an experienced Jiffy grower would do.

It may be more and more important to identify alternatives since copper sulfate coating has yet to get federal Ministry of Environment approval (see article on page 23).

More seedling research needed

*Anders Lindstrom, College of Forestry,
Swedish University of Agricultural Sciences*

Note: Letter to Dirk Brinkman, Editor CSM, June 27, 1994.

I read the condensed article from my 1991 stability report (CSM Summer 94) and I think your copy editor has done a good job. The only thing I found, which is a small detail, is figure 5 on page 19 which should be labeled figure 2.

I found the article "Seedling roots and the forest floor" (CSM Fall 1993) very interesting and important. It is valuable that these questions are discussed. I agree that, so far, it is hard to find any regeneration systems that deliberately considers soil properties and soil potential, and adapts the root morphology of the seedling thereafter. Today, as you say, much resources are put into rearranging the soil so that the planting spot suits seedlings.

The Jiffy container is one container type that gives less concentration of roots in the bottom and favours lateral development. There may, though, still be some problems with spiralling roots along the bottom of the container unit or tray. I know Jiffy is working on this. There are also other systems providing good possibilities for lateral root growth, e.g., Plantsystem 80 in Sweden (roots are controlled by air and mechanical pruning) and the VAPPO system in Finland (roots are mechanically pruned). Maybe the users of these systems have not really understood their potential.

Most field experiments that I know of with the aim of testing the impact of different container types on seedling survival and growth have been done after scarification. These experiments usually show small differences in seedling performance after a few years, but there may be substantial differences in stability due to various root form at outplanting. To better understand the interaction between soil treatments, soil types and seedlings with different root morphology, I think we need to do some more experiments that also include undisturbed soils. As pointed out in your article, seedlings with root tips evenly spread along the container may have the best advantages in undisturbed soils compared to the commonly used containers of today. And who knows what future restrictions may come concerning soil scarification. ♦

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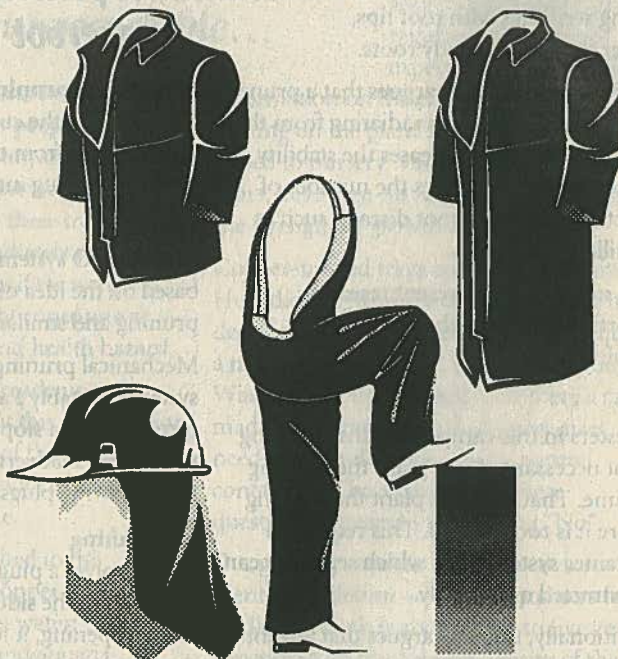
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Root pruning of container seedlings

Arne F. Aiking, BCC Sylviculture Systems

In bareroot forest nurseries, it is common practice to prune the roots once or even several times during the seedling's growing cycle. Pruning in bareroot nurseries tends to produce a more compact root system, produce more active root tips, and improve seedling growth after planting in the forest.

With the advance of containerized seedlings, foresters are now asking themselves if pruning of containerized seedlings should also become a standard practice, as it was in the bareroot nurseries. This article will give some of the background on that discussion, and highlight some pruning methods used in forest nurseries around the world today.

Is pruning necessary?

Pro

Foresters in this camp argue that active root tips are key to the quick establishment of the tree seedlings, and that transplant shock is reduced by equipping the young seedlings with root tips, rather than long woody roots.

Additionally, this side argues that a pruned root system, with roots radiating from the centre of the plug, increases the stability of the seedling and reduces the number of infection points for root disease, such as *Armillaria* root rots.

This side is able to present research reports, confirming their views quite convincingly.

Con

Foresters in this camp argue that pruning is not necessary, if you plant the seedling on time. That is, if you plant the seedling before it is root-bound. This requires a container system from which seedlings can be extracted quite easily.

Additionally, this side argues that adventitious roots form after planting, so that it really does not matter too much as to what the root system looks like at planting time.

This side is also able to present confirmations of their findings in sound research reports.

What pruning methods are available?

Copper pruning

This involves the application of a growth retardant to the plug's inside, so that roots stop growth, and form a bud when they reach the plug wall.

This method is being used around the world, and quite commonly on North America's West Coast, and Latin America, particularly on pine species which, typically, do not easily produce adventitious roots.

There are several suppliers of the required chemicals, both for styrofoam trays and for trays made of hard plastic. Typically, the chemical needs to be reapplied after one or several crops.

...Foresters are now asking themselves if pruning of container seedlings should also become a standard practice, as it was in the bareroot nurseries...

Mechanical pruning

This involves the cutting of roots that have grown either from one plug into another, or from the plug into the soil in the nursery.

The VAPPO system is a container system, based on the idea of mechanical root-pruning and similar to bareroot nurseries.

Mechanical pruning is also used in other systems (notably Paperpot and Jiffy nurseries), as a stop-gap measure, that is, if roots have inadvertently grown into neighbouring plugs.

Air pruning

This involves a plug design that includes openings in the sides so that when a root hits an opening, it forms a bud, which will then flush quickly upon contact with the soil after planting.

This idea has been used since 1980, but is recently gaining strong popularity, particularly in parts of the world with strict environmental regulations, such as the

Scandinavian countries and parts of Australasia.

Several suppliers of air-pruning trays operate worldwide and bring the mould to the country where the nursery is located, thus reducing freight charges. Some systems, such as Yates and Plant 80, require specialized filling and seedling equipment, and some, such as Jiffy, require special pre-filled containers. Others, such as Lannen and BCC, are compatible with conventional nursery systems.

Conclusions/recommendations

The first and foremost recommendation I would make is to evaluate root systems of trees which were planted in previous years. Only you can determine if there is a

problem in your region, with your climate, your species, your site preparation method, and your cultural methods in the nursery. Look around carefully, shovel in hand.

As well, I would recommend that, for species with poor adventitious root formation,

such as pine and eucalyptus, one of the three listed methods of pruning be implemented.

If pruning is not available from your nursery, I would suggest that a loose plug, with a small caliper may not be so bad and may in fact be preferable over the strong, firm plug. This would suggest that it is indeed important to plant seedlings "on time".

From personal observations, I would suggest that copper pruning and air pruning generally produce good growth after planting. Furthermore, I would suggest that mechanical pruning would not be a preferred method of pruning.

Editor's note:

The author is Marketing Director for BCC Sylviculture Systems and has visited nurseries in more than 25 countries. The BCC product line includes trays with and without copper pruning, air pruning and/or mechanical pruning, as well as forest nursery equipment.

Copper coated containers may pose danger

Mario Cormier, President of Mansonville Plastics (BC) Ltd.

Note: Edited letter to BC Minister of Forests Andrew Petter, April 27, 1994.

Mansonville Plastics (BC) Ltd. has been in business for thirty years. We manufacture Expanded Polystyrene (EPS) products, including growing containers for the silviculture industry, because of their insulation and moisture retention qualities. We do not use CFCs or HCFCs.

We are writing to inform you of a very serious environmental problem that has arisen as a result of a purchasing practice adopted by the Ministry of Forests.

Currently, over 3 million trays (*Ed. note: 17 kms of 40' semi-trailers full of trays*) are sitting in our BC nurseries of which over 70% of the trays are treated with a copper coating—all unrecyclable and leaching into our water and sewer systems.

Last August, we were invited by the Ministry of Forests to quote on the seedling container. We refused to quote because—among other things—we believe, with good reason, that copper coating is extremely hazardous to the environment and unnecessary for the ministry's purpose.

The copper coating that is being applied is costly, unregulated, unjustified and the results are unrecyclable.

Our concerns are twofold:

1. The chemicals used to coat the trays prevent them from being recycled since they could be extremely hazardous to the environment.
2. Since the Ministry of Forests now demands the copper coating, nurseries (private and government) have begun to re-coat their existing stock of trays, using unsophisticated, unregulated methods, which we believe introduces a public health hazard, as well as another source of environmental damage.

Why did the Ministry of Forests change its specifications for EPS Seedling Growing Containers to require copper coating? We know of no study, no pilot project, and no experience elsewhere with this product.

The only problem we felt that MOF was attempting to address was the tendency of roots adhering to tray walls. To our knowledge, no attempt was made to investigate other solutions to this problem.

Everyone knows that you can kill a tree with a copper nail. The Alberta company that introduced copper coating sold the Ministry of Forests on the notion that:

1. By burning the roots as they touched the tray's walls, easy extraction of the seedling from the tray would be ensured, with no breakage of roots embedded in the tray.
2. They also implied this would promote better root formation. No other implications of this practice were considered, to our knowledge, when MOF began to change its specifications to require copper coating for seedling growth containers.

...Copper coating that is being applied is costly, unregulated, unjustified and the results are unrecyclable...

We have attempted to assure ourselves that copper coating is safe for people, trees and the environment by tracing approval—for example, by a government laboratory—for the process by which these trays are coated. We would immediately retool and compete for this business if we were convinced that it does not constitute a serious environmental and health hazard.

Our investigations have made us even more apprehensive about this process. For example, when the bags of the chemical arrive in Canada, a new notice has covered the original hazard notice.

The original notice attached to the container advised that Copper Oxichloride is extremely hazardous in water: "This pesticide is toxic to fish and aquatic organisms. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or public water ... Do not apply where runoff is likely to occur." This hazard notice does not appear on the notice used for import to Canada.

Is this chemical approved for this use in Canada? In BC? An employee from an Alberta plant has photographs of this chemical draining into a local sewer. We would not drain such chemicals into the Surrey sewer system, nor permit it to drain directly onto the land, to be leached into streams or rivers. Yet this is exactly what is happening in nurseries today.

Three trays use a litre of this copper mixture. There are approximately 2 million containers in nursery inventories coated with copper. That's equivalent to 670 thousand litres of initial application. The coating wears off—into the environment. Each season, nurseries re-coat up to three times. This recoating is entirely unregulated, so we have no way of knowing what quantities of copper are used, and under what conditions, when the containers are recoated. This is a danger to wells, spawning creeks, and rivers.

Since there have been no studies on environmental impact or recycling, no approval process, and no regulation, we cannot expect to have any solid

information on the effect of copper coating on the plant's strength. We have talked to nursery workers who, after five years, have seen no noticeable difference to the strength or growth of the trees.

Copper-treated trays are more expensive. How did the Ministry of Forests make its decision to change specifications to require a more expensive tray? Was there a study? Was there a pilot project? Was there a call made for research into designs to meet needs that couldn't be met by natural containers? The answer to all these questions appears to be a strong "No".

Our greatest concern is for the environment. The lifetime of these containers for seedling growth is about three to five years, depending on the original density of the container. After that, they must be recycled, stored, or put in private landfills.

We are the only recyclers of EPS containers in Western Canada. We offer to pick

continued on next page...

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up used trays at no charge. We cannot recycle copper-coated trays.

Presently, we reuse containers directly as fill for landscaping, under gardens on parkade rooftops, or to construct barmes and other contoured public landscapes. Quite rightly, architects and engineers will not accept EPS that has any copper content because they would be liable for environmental damage, such as water systems, soil contamination and killing off of plants.

We also recycle by reforming material into other EPS products. Until we are assured that the copper concentrations are not toxic, however, we cannot recycle copper-coated trays for products such as flotation for marinas, fish farms, and floating homes, or road fill for swampy areas.

In addition, current machinery is incapable of reforming the copper-coated material without doing severe damage to the equipment. We would have to spend some time, money and effort to design equipment that could handle this material.

Where are these millions of copper-coated trays going to go when they are no longer useable for their original purpose? The nurseries do what the Forester requires, but they have no idea how they will solve the problem of disposing of the containers when they are no longer useful.

The MOF has announced a major initiative in silviculture. Concern for the environment is at last becoming an integral part of public policy. We must make sure that every aspect of forest practices undergoes scrutiny for environmental impact.

No other jurisdiction is demanding the use of copper coating for seedling containers. We urge you to investigate this problem.

The First Choice group of companies are committed to a clean environment. We support the provincial government's goal of reducing dumping and landfill by 50%.

We also support the environmental concerns of the Ministries of Forests, Fisheries and Oceans, Environment, Agriculture and Health. No one can alter what has happened in the past, but action must be taken to address the problem now. ♦

Petter responds to copper controversy

Andrew Petter, BC Minister of Forests

Note: Edited letter to Mario Cormier, President of Mansonville Plastics, Aug. 30, 1994.

Growing of seedlings in containers for reforestation in BC began with trials in the early 1970s, and steadily increased to approximately 95 percent of all seedlings now being grown in nurseries. After planting out container-grown pine seedlings, it was found that, in the juvenile stage, the planted seedling root systems did not resemble natural root systems. After literature searches and further research, it was found that pine seedlings grown in copper-coated containers and then planted out had a more natural root system.

The use of copper-coated containers has gradually increased to approximately 75 percent of all pine grown and smaller amounts for other species. Some nurseries treat regular surplus blocks with copper, but copper-treated blocks are also available commercially.

In 1994, 258 million seedlings were sown for reforestation by the forest industry and MOF. To grow the seedlings, approximately 2.5 million styroblock containers were sewn, of which 27 percent, or approximately 690,000, were copper treated. The ministry does not require the forest industry to grow seedlings in copper-coated containers, but the industry recognizes the benefits of so doing. Other provinces and countries also use copper-coated containers.

In the United States, a product called Spinout, which uses copper hydroxide as a base, has been registered for use in growing horticultural plants and forestry

seedlings. The company is seeking registration in Canada and is expected to be registered in 1994. Presently, there are many copper-based fungicides registered for use in Canada.

The water quality standard for copper is extremely strict. For example, the municipal water supplying public users, as well as one of the Ministry's nurseries, has a copper concentration of 0.17 ppm, which is higher than the Ministry of Environment, Lands and Parks' guidelines (i.e., the "regular" public water supply has higher copper, regardless of the nursery's use of copper-treated blocks). Copper levels in the drainage near this nursery's growing area are above or near the same level as the municipal and local well water, but because of settling ponds, water leaving the ministry site has a copper level of only 0.05 ppm which is well below background levels. As a result, we do not view the use of copper-treated blocks as constituting an environmental threat.

Unused copper-treated blocks are usually covered with a tarp to prevent leaching. Also, copper-treated blocks may be ground up and used in the growing medium without toxic effect. At the present time, research is being carried out on the residual effect of ground-up blocks being used in the planting medium. Copper is a normal component of a balanced fertilizer regime to produce healthy, viable seedlings. Seedlings grown in copper-coated containers have elevated levels of copper, but this has not proved to be detrimental. ♦

Editor's note: Root form debate continues

A controversial letter about copper coating to the BC Minister of Forests resulted in a lot of rumours and concerns within the BC nursery industry this summer.

We are publishing the letter and the Minister's response, in order to open a forum for this debate. Although the questions may be motivated by corporate marketing interests, the letter stimulates an important debate toward improving root form and seedling growth. By getting this discussion out into the open, these questions can be dealt with by the industry.

There are a variety of solutions to good root form available in Canada and controversy may result in new solutions. In future issues, CSM will continue to air controversies and looks forward to readers' input on these issues.

We had hoped to publish the results of Rob Scagill's root form research for the BC Ministry of Forests this issue, but the Ministry has decided that more trials are necessary before the results can be made public. In the words of Rob Scagill: "We don't want to deliver the corpse before all the nails are in the coffin." We look forward to finding out what that means.

National worker certification standards

Note: The following are edited excerpts from the final report of the 6.5 Committee.

Canadian Pulp and Paper Assoc.

The Association notes that there is good support for training programs for silviculture workers with some sort of qualifications diploma being issued to acknowledge achievement. Such programs could be organized at the provincial level.

There is a view that any "model" for a National Occupational Standard for silviculture workers should state the areas of knowledge and competence required for the specific task. This would help in the design of education and training programs. The industry does not, however, support a national certification program for forest workers.

Canadian Silviculture Association

The CSA hold the view that both silviculture labour and employers would perhaps be motivated towards certification if it:

1. did not threaten the existing industry
2. facilitated higher wages, more jobs, longer seasons, and healthier/safer working conditions, and
3. reduced stereotyping prejudice against the mobile silviculture worker.

The CSA indicated it would be against certification if it were used "to provide pseudo-credibility" to "make-work" programs. The Association feels this would threaten existing jobs in the forestry industry by introducing a flood of "special" population groups into the industry.

However, the CSA is not against Aboriginals or other social groups being trained to participate in the industry, providing that quality and performance standards were not compromised. ♦

CSA participation critical

**Norma Burlington,
Canadian Forest Service**

*Note: Edited letter to Dirk Brinkman,
President CSA, Sept. 1, 1994.*

The CSA's very active, substantive participation was critical to the success of the 6.5 Committee. We all came away with a much better appreciation and knowledge of silviculture in Canada. It was clear that we all have a vested interest in having a highly trained, skilled and knowledgeable workforce dedicated to the practice of silviculture.

I believe the work of the 6.5 Committee is a useful start to establishing national occupational skill standards in Canada for silviculture and forest workers which will encourage labour mobility, health and safety, and the image of a highly skilled and trained workforce, contributing fully to sustainable development. ♦

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6.5 report released

Alan R. Graham, Chair, 6.5 committee

Note: Letter to Dirk Brinkman, President, CSA, September 9, 1994.

One of the commitments of the Canadian Council of Forest Ministers (CCFM) under the National Forest Strategy was action item 6.5 which states, "by 1994, the CCFM, in cooperation with appropriate government agencies, labour and industry, will assess the feasibility of a certification system for silviculture and forest workers to increase the mobility, safety and skills of the workforce."

In September 1993, the CCFM established a representative industry, labour and government committee to carry out this assessment. It is with pleasure that I am now able to provide you with their attached report and recommendations.

The research carried out by the 6.5 Committee resulted in the development of two publications which are annexed to the report. The first is the *Compendium of Existing Training and Certification programs for Silviculture and Forest Workers in Canada* which provides the first inventory and description of institutional training and certification programs available in Canada to silviculture and forest workers. The second is the *Green Binder: Educational and Training Aids for Silviculture and Forest Workers in Canada* which is a listing of all training aids, e.g., manuals, publications, modules, and videos available in Canada through the various programs.

The 6.5 Committee is to be congratulated on the thoroughness of their research and assessment. With delivery of their report, I believe the commitment has been fully met.

The 6.5 Committee asked me to convey its appreciation to CCFM Ministers for their support and to Alberta for hosting the Committee's meeting in May 1994.

I am sure you will find the report and its annexes very useful. I believe this report assists us all in promoting our goal of having a highly trained and skilled forestry workforce which is able to contribute fully to sustainable forest management. ♦

Human resources study update

Jim Verboom, VP, CSA

The Canadian Silviculture Association is now in the midst of Phase I of an Industrial Adjustment Services (IAS) study for the silviculture industry's human resource issues. We wish to thank Norma Burlington and Lorenzo Rugo of the Canadian Forestry Service, Ottawa, for their behind-the-scenes help in getting us started.

The committee for this phase of the process consists of:

Gary Arnold – First Nations contractor, Kitwanga, BC
Gloria Hiltz – worker, Cumberland, BC
Dirk Brinkman – CSA, New Westminster, BC
Peter Gommerud – contractor, Edmonton, AB
Grant Brodeur – contractor, Toronto, ON
Peggy Smith – National Aboriginal Forestry Assoc., Ottawa
Rene Ouelette – contractor, Chicoutimi, PQ
Gilles Riverin – worker, Chicoutimi, PQ
Bruce MacLeod – worker, Trenton, NS
Jim Verboom – CSA, Musquodoboit, NS
Wayne Brown – Corner Brook Pulp and Paper, NF
Jim Farrell – Canadian Forestry Service, Sault Ste. Marie, ON
Joakim Hermelin – forester, Fredericton, NB

We have contracted the services of Gaston Damecour of Fredericton, NB, to chair the meetings and do some background work.

The committee met by conference call on May 10, 1994; in person in Hinton, AB, on June 24-5; and again by phone on August 29. In between meetings, numerous reports and pieces of information have been circulated.

The first step of the process was to identify what issues are effecting our industry's human resources. These issues were then long-listed and prioritized by frequency and weight.

The issues identified to date are as follows:

1. Training and the effectiveness thereof
2. Recognition of contractors and workers by administrators
3. Public profile of workers and contractors
4. Funding sources for work, i.e., FRDAs soon to expire
5. Funding flow (both cash flow and how funds are used)
6. Value versus price in awarding contracts
7. Aboriginal inclusion
8. Labour abuse
9. Labour displacement (NAFTA and UIC)
10. Internal issues of unity in the industry

The final step of Phase I of the IAS is to identify achievable goals that will effect improvements in one or more of the above issues. These goals will be prioritized by their effect and achievability during an eighteen-month time-period.

Observations on the IAS project

Jim Verboom, VP, CSA

The national Industrial Adjustment Services (IAS) study that is currently underway in our industry is one of the best chances we will ever have of drawing our industry together at the national level.

It seems that no matter what problem is brought up by a committee member, someone else has part of a solution. We have a large, diverse country and industry with much to learn from each other.

A couple of examples are: Atlantic Canada seems to have broken much ground in the certification of workers and contractors. They have also been learning to do partial and modified harvests for 14+ years as well as pre-commercial thinning.

BC has much to show us about achieving more stable funding for the silviculture industry. Also, they have much to show others about site-specific treeplanting.

I hope that, by the end of Phase II of the IAS, the committee will have been able to both draw our industry closer together and effect some changes that will raise our profile and influence.

With these changes, we should be better able to carry out the stewardship our forests' needs. Canada cannot continue to draw from its forest resource while putting so little back in. While some will say we are self-serving in wanting to see our industry expand, all will agree that both our resource and our economy would benefit from increased reforestation and tending.

Every member of the Volunteer Committee Steering Phase I of IAS is there because they wish to leave Canada's forest resource in better shape than they found it. Several of the members were chosen to be on the committee because of their experience at representing their part of the silviculture industry. Most of their experience was gained when they were willing to volunteer more time than their peers. They deserve and need the support and input of the rest of our industry if their work is to be of benefit to us all.

Much of what is learned in this process will be appearing in further issues of this magazine. Stay tuned.

In addition, the Phase I Committee will be approaching Human Resources Canada for additional funding to carry Phase II of this ISA. This additional funding would allow the steering committee to carry out those projects outlined by Phase I.

This final step of Phase I is expected to be concluded primarily during a meeting on Nov. 12, 1994, in Toronto. Up to that date, all committee members would appreciate discussing both the issues and possible solutions with any of their peers.

For further information on the project, contact any of the committee members or the CSA office, c/o Jim Verboom, PO Box 102, Musquodoboit, NS B0N 1X0, ph: 902-384-2206, fax: 902-384-2979. ♦

Clearcutting not the problem

House of Commons Standing Committee on Natural Resources

Note: This is an edited version of the final report summary on the clearcutting hearings held by the Committee.

It is clear that many Canadians still have a poor perception of this country's forest policies and practices. There are some who argue that Canada's forest sector is in a state of decline and should die a natural death. There can be nothing further from the truth. The forest, apart from generating many important environmental and social benefits for Canadians, provides the raw material for this country's leading industry. Not only is Canada adding to its forest resource on an annual basis, the nation's prosperity would be noticeably diminished without the important employment, regional development and foreign exchange revenues which a sustainable forest sector can provide.

It is also claimed that the forest industry remains unrestricted in its activities, and that, being only driven by economic considerations, is completely uninterested in achieving sustainable forestry. Yet the reality is quite different. Provincial governments, owners of the bulk of the forest resource, tightly regulate forest activity. Governments have increasingly put in place new forest management requirements to ensure the long-term sustainability of the forest.

The Committee has concluded that one literally has "to draw a line in the sand" to separate past practices from current and future developments. When this is done, one quickly recognizes that Canada is becoming a model forest nation.

This report concludes that clearcutting is entirely appropriate from an ecological perspective for most forest types in Canada. Moreover, clearcutting is a safe and economically-sound harvesting method that is widely and successfully used throughout the world.

The fact that clearcutting often represents ecologically sound forestry does not imply that it should be used universally nor does it suggest that methods of clearcutting need not change. Indeed, the report identifies instances where the practice of

clearcutting would be inappropriate.

The Committee has observed a definite trend towards smaller clearcuts and improved design. It concludes, however, that additional research needs to be undertaken to determine the effects of various harvesting approaches on such aspects of the forest as biodiversity, soil, water and wildfire habitat. Based on this research, the practice of clearcutting needs to be further refined to more closely mimic natural forest disturbances, and to minimize associated ecological impacts.

Clearcutting is simply a tool to be used within the broader context of a complete silvicultural system, which includes both the harvesting and regeneration aspects. It should not be singled out as the only issue to examine for evaluating Canada's performance in the management of its huge forest base. The report concludes that the challenge for Canada is to sustain both the timber- and non-timber values of our forests over long periods of time.

A final perception is that Canada lags the world in terms of forest management. In fact, this country is a world leader in developing forest management policies at the provincial and territorial levels, in formulating a National Forest Strategy for achieving sustainable forestry, in preparing a set of indicators and criteria for the sustainable development of its forests, and in attempting to achieve certification at the world level for its wood products. Canada is also leading the global negotiations of an international forestry convention.

Canada is a world superpower in forestry. It is one of the few countries that still has the opportunity to obtain significant economic and social benefits from its vast forest resource while, at the same time, maintaining the forests' natural state. How it does so represents a considerable challenge. Over the years, forest management has rapidly evolved from sustained yield to a clear commitment for achieving sustainable forestry. However, such an objective cannot be achieved only through a legislative and regulatory approach. What is required is a common approach

which will reflect what kind of forest we, as a society, want to have at present, and to pass along to future generations.

Such a vision has already begun to emerge from the 1992 National Forest Strategy and from the Forest Accord signed by an array of forest stakeholders as a commitment to its implementation. However, achieving sustainable forestry means that Canadians must work together in order to define the concept of sustainable development as it should apply to the management of our forests.

With the full support and cooperation of governments and other stakeholders, our forest industry must rapidly progress towards the completion of national and international certification programs for its forest products. These initiatives are viewed by this Committee as necessary and appropriate tools for the implementation of sustainable forestry in Canada. Such implementation also requires an appropriate planning framework which will allow for comprehensive management of forest ecosystems and landscapes.

Although the jurisdiction over forest management rests with the provinces, the Committee sees an active role for the federal government. In order to improve harvesting and forest management practices and to attain sustainable forestry, the R&D strategy of the Canadian Forest Service (CFS) needs to be reviewed and reoriented. The Committee has also concluded that Forest Resource Development Agreements (FRDA) should be renewed for another term, but that they should be linked to binding objectives of sustainable forestry. Forestry on aboriginal lands and private woodlots needs to be facilitated and improved.

Finally, the importance of forestry and Canada's record in the management of its forests need to be urgently recognized and promoted both nationally and internationally. Concurrently, an effective educational program and a revamped communications strategy should be launched locally and abroad. In becoming a model forest nation and being recognized as such, Canada will be in a position to continue to lead the world in its quest for the design and adoption of an international convention on forests. ♦

...continued from page 7

The forest industry has shifted

Many of the forest products of today are not coming from the practices of the past. The forest industry has shifted. We believe it is possible to achieve sustainable forest management within our present framework of practices.

The foresters administering the harvest in BC are caught in a powerful vice of the impending Forest Practices Code and their professional oath to serve the public and the forest resource before their employers. Technically, they can go to jail for not practicing sustainable forestry as its definition is emerging in the Forest Practices Code.

We are not planting genetically similar monocultures

One thing that motivated our presentation is the claims by environmentalists that, after clearcutting, the forest industry is creating monocultures that are genetically similar.

Indeed, in the late 70s and early 80s we did plant some monoculture fir plantations in BC. We recently toured such a stand we planted in 1979. Today, they are 40-plus feet tall stands of mixed species because a lot of natural regeneration has joined in. They have been spaced to prioritize mixed species, and they are starting to form some understory vegetation characteristics of a closed canopy.

Since the 1987 BC Silviculture Regulation (making the harvester responsible for reforestation), many companies have planted only mixed species. Today, some of our crews are planting ten different species from 52 seedlots on a single project. Each opening is subzoned by ecosystem and by component parts such as streams, side hills, south facing or north facing—each of which receive different mixes of two to four species. In addition, the planted trees are designed to complement ones that will come back naturally.

The job of our highly experienced crews is to read the site—the characteristics of the

soil and other aspects from the indicator plants—and determine whether they should be planting a cedar, fir, or hemlock. Each stand is mixed differently so we certainly don't create a monoculture.

We feel the character of forests being produced by these methods is very appropriate to the ecosystem and provides for strong ecosystem continuity.

Careful logging = Lower logging and regeneration costs

Another innovative solution is what Ontario calls Careful Logging Around Germinants (CLAG). The forest may not even look logged at first glance, though you can see the disturbances on closer inspection. There is a lot of structure left—patches and copses of healthy trees.

In 1985, a typical site was prepared with shear-blading, at \$400 per hectare, then planted with 2,500-2,800 trees per hectare. This would be followed up with two or three herbicide treatments to suppress the competition.

With CLAG, site preparation is not necessary. We can fill plant the careful logging, perhaps 700 trees per hectare, working around the naturals. We use seedlings from a new kind of container system that has better lateral root egress and grows more vigorously, so that herbicide treatment is not necessary.

Consequently, these areas are fully regenerating for half of the 1985 treatment cost.

One company originally thought that careful logging would cost them 30% more because they were taking less volume per hectare. The logging contractors had to better plan the extraction and take out the timber more carefully, and they no longer had a pick-up-stick mess afterward. In fact, the company's overall costs came down 20%. We need to build on these types of successful examples.

Selection needs strictly regulation

Environmentalists often extol selective cutting. But selection has to be rigorously regulated to prevent it from becoming high-grading or "Take the best and leave

the rest." Currently, the Nova Scotia government is unable to effectively administer the complex process of selective cutting the many species in the Acadian forests. The solution is to regulate the end result, not the process.

The result of the historical selective cutting practices in northern Nova Scotia is to create forests dominated by balsam fir and white spruce. These are worth only about half of what a forest stand in the typical climax Acadian regime was worth 200 years ago.

Partial cutting can be done right

Intensive silviculture methods—such as selective cutting, shelterwoods and marginal thinnings—don't need to cost more. Education and information is the key. For example, on a typical Nova Scotia regeneration release cut, you may have an overstory of hardwood and an understory of beautiful red spruce and balsam fir, about 20 feet tall. The machinery operator may just drive right over the young red spruce in order to remove the hardwood. You just have to explain why we are doing this, what results we want. Sometimes that's all it takes.

The last continent with an intact forest ecosystem

If you look at a satellite photograph of the earth rendered at night, areas of development and settlement are lit up. Canada is one of the few regions of the world that's still dark—this country retains its original ecosystems. Our forest products are competing with the rest of the world, but largely with plantation forest products. As probably the last generation with a continent of relatively intact ecosystems as a harvest base, we have a global responsibility to develop a model for harvesting the forests that's unique to our circumstance.

The CSA vision is to create islands of intensive forestry—where we're maximizing growth and value—and islands of ecosystem reserves—where the biodiversity is preserved—within an extensively managed landscape that includes mixed practices. ♦

NRTEE brings groups together

Note: From NRTEE press release.

Prime Minister Chretien has affirmed his government's commitment to sustainable development by the proclamation of Bill C-72, officially creating the National Round Table on the Environment and the Economy (NRTEE) as an independent federal agency.

The Round Table was created in 1988 as an advisory body to the Prime Minister on sustainable development issues. Now its mandate has been broadened to "play the role of catalyst in identifying, explaining and promoting, in all sectors of Canadian society and in all regions of Canada, the principles and practices of sustainable development."

The National Round Table brings together diverse interest groups to tackle sustainable development issues together. Its members and its appointees to task forces come from business, the labour movement, public interest groups, universities, aboriginal peoples, the environmental movement, government, the media and professional groups.

Although it acts as a catalyst on its own, the Round Table's preferred course of action is to seek partnerships with other groups and individuals in multi-stakeholder initiatives. There are now over 150 round tables on the environment and the economy in Canada. They have taken root in all provinces and territories, as well as at local and municipal levels. While diverse in their structure and function, they share the goal of promoting the principles and practices of sustainable development across sectors through consensus decision-making.

Current initiatives and programs of the National Round Table include:

Projet de Société: Planning for a Sustainable Future— The NRTEE chairs a national multi-stakeholder assembly which is developing a national sustainable development strategy for Canada, to fulfill the commitments made at the Earth Summit (UNCED) in 1992. ♦

Panel to evaluate Forest Strategy

Note: From National Forest Strategy Coalition news release.

The Chair of the National Forest Strategy Coalition (NFSC) Jean Claude Mercier met today with the independent panel that will evaluate progress in implementing the National Forest Strategy. It will be composed of Gordon Baskerville, Faculty of Forestry, UBC; Alexander T. Davidson, well-known naturalist and past-president of the Royal Canadian Geographical Society; Daniel Lamarre, past-president of the 1993 National Forest Capital of Canada (Matapedia Valley, PQ); Hollis Murray, Assistant Director General, Forestry Department at the Food and Agriculture Organization in Rome; and Timothy Reid, president of the Canadian Chamber of Commerce.

The panel's mandate stems from a commitment made by the Canadian Council of Forest Ministers, as well as by all NFSC members, to carry out an independent evaluation at the mid-term and at the end of the five-year Strategy. This panel of experts will operate at arm's length from the NFSC and will publish its mid-term evaluation report in the Fall of 1994.

"The use of an independent, blue ribbon panel to evaluate the Strategy is a new concept and we are charting new ground," commented NFSC Chair Jean Claude Mercier. "The challenge is an interesting one and I am pleased by the enthusiastic response we have received from all participants to carry out this evaluation."

The National Forest Strategy, entitled "Sustainable Forest: A Canadian Commitment," was developed in 1991/92 and was endorsed by a wide array of organizations having an interest in the future of Canada's forests. Consensus to the goal of sustainable forests nationwide was confirmed by the signing of Canada's Forest Accord in March 1992 by a variety of government, industry and non-government organizations. In the Fall of 1992, the Canadian Council of Forest Ministers approved the creation of the 29-member National Forest Strategy Coalition which was tasked to oversee the implementation of the Strategy. ♦



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Students rise to challenge of Envirothon

Jim Verboom, Nova Scotia Forestry Association

Envirothon is a problem-solving, natural-resource competition for high school students to increase their awareness of their impact on the environment.

Teams of students are challenged to hone their critical thinking skills, and work as a team to answer questions and conduct hands-on investigations of environmental issues in five categories: Soils, Aquatics, Forestry, Wildlife, plus a fifth current environmental issue, such as Acid Rain or Land Use Management.

The philosophy of the Envirothon is that it stimulates, reinforces and enhances students' interest in the environment. It is a unique approach to teaching environmental education.

Program goals include: increasing students' knowledge of quality integrated resource management; promoting awareness and stewardship of the environment; developing team building; improving communication skills, critical thinking, and decision-making skills.

The Envirothon program began in Pennsylvania in 1979 as an outdoor

hands-on competition. Slowly, the program grew until 1988, when the first US national competition, involving three states, was held. By 1991, seventeen states, the province of Nova Scotia, and Australia were competing. Nova Scotia competed as a formal team for the first time in 1993.

In Nova Scotia, the Envirothon program is implemented by the Nova Scotia Forestry Association (NSFA). Nova Scotia is currently the only province in Canada that is sponsoring the Envirothon program.

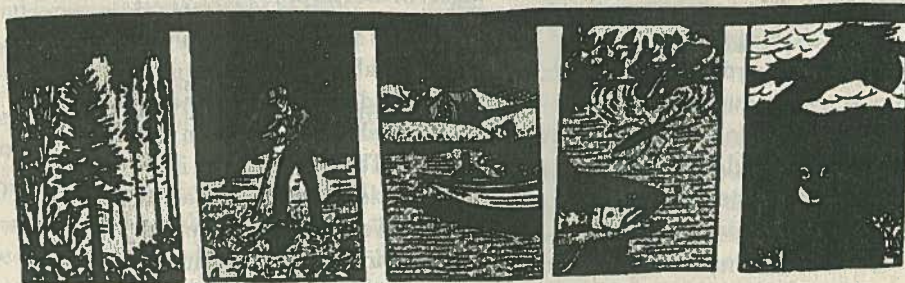
The NSFA became involved because of our desire to provide quality educational programming to all youth in Nova Scotia. Envirothon is an excellent educational medium to help students become environmentally conscious and to be capable of making rational, educated decisions based on factual information and analysis.

The NSFA has just completed its second annual Provincial Envirothon competition in April. Eight teams from across the province took part in this challenging event. We were fortunate to have teams from Prince Edward Island and Newfoundland to observe. The 1994 winning team was from the Cobequid Educational Centre in Truro. This team will represent Nova Scotia (Canada) in North Carolina at the US National to be held in August 1994.

Our goal is to see this program expand to other provinces across Canada, and in the future, to hold a Canadian national Envirothon competition.

For more information on this program, contact the Nova Scotia Forestry Association at PO Box 1113, Truro, NS B2N 5G9 or call (902) 893-4653. ♦

NOVA SCOTIA ENVIROTHON



Nova Scotia Silviculture Contractors Association

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

Bug-free shirt a hit with woodlot owners

Note: First published in Forest Times, Aug. 1994.

A new shirt, hand-made in Mabou, NS is catching on with woodlot owners. Made of fine mesh, it has elastics at the wrists and waists, and a zippered hood.

Dorothy Frank developed the shirt for her husband last fall for use in his woodlot behind their beef farm. As orders became overwhelming, she hired her daughter and

another woman. They produce ten shirts a day on average. Her only government assistance was for equipment and it came through the Department of Economic Development's Women Entrepreneurs Program.

The shirts come in small, medium and large for \$42, plus \$3.50 for shipping and handling. Extra-large sizes are available for \$49.

...continued from previous page

"The shirts are perfect for porters and other people moving around or using a chainsaw because they get bitten the most," says Frank. "Our feedback tells us that they're great for deer- and black-fly."

The 100 percent polyester shirts are not flammable, although sparks and cigarettes may leave holes. Unless the sun is glaring directly on the mesh, the visibility is good, but the shirts are not recommended for people doing fine work.

To order a shirt, write to:

Dorsew Enterprises, RR#2, Mabou, NS, B0E 1X0 ♦

Tobeatic wilderness isn't a done deal... yet

George Chisholm, Past President, NSSCA

The Tobeatic Wilderness Area (TWA) has been identified as the largest wilderness area in the Maritimes. Over half of the area is bogs and barrens, with scattered stands of mature forest, particularly along the Kejimikujik National Park boundary.

Considerable progress has been made to ensure preservation of Nova Scotia's natural geographic sites including the TWA. The Parks and Protected Areas Plan (PPAP) has identified 31 sites worthy of legislated protection from consumptive use ranging from 200 Ha. to 100,000 Ha. in size.

The PPAP (or Plan) is strictly in a consultive stage now with public meetings slated for Sept.-Oct. 1994 to gather comments for the Plan and to help identify boundaries. A summary of public comments during Nov.-Dec. 1994 will precede a report completed in the winter. Plan finalization and approval will occur sometime in 1995.

Once the Plan has been adopted by government, management plans will be prepared for individual areas on a priority basis. Presently 2.9 percent of the province is protected under some form of legislation, of which 2.4 percent is national parks. The adoption of the Plan would add five percent, to bring the total to about eight percent of the province, or 447,000 Ha.

The Tobeatic has become the number-one candidate area at 99,008 Ha., and has increasing public interest. The TWA became an issue when the provincial government awarded a 10-million board feet timber contract to a local mill without public consultation. The TWA has now become part of the PPAP and is now under a moratorium from any cutting or mining until this planning process is completed. To date, 95 percent of the timber commitment has been found outside the protected area.

A copy of the Plan (PPAP) may be obtained from the NS Department of Natural Resources. ♦

Editor's note:

George lives near the Tobeatic and has been working for its preservation as a part of the NSSCA overall forest management strategy for NS. (See the Summer 1993 issue of CSM.)

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Pourquoi faut-il une association d'entrepreneurs sylvicoles?

Jean-Louis Boivin, Ing. F.

Cette question est soulevée par plusieurs presque à chaque année. Le but de cette association demeure avant tout de faire valoir les droits des entrepreneurs privés auprès des organismes clients tels que Rexfor, le MFO, l'AIFQ et l'AMBSQ.

En effet, un regroupement d'entreprises cumulant des dizaines de millions d'arbres reboisés annuellement, des milliers d'hectares éclaircis, et beaucoup d'autres travaux, ainsi que des milliers d'emplois, a assurément plus de poids que l'action individuelle et morcelée de chacun de ses membres (v. Tableau I).

De plus, les principaux compétiteurs des entrepreneurs sont eux-mêmes regroupés pour faire valoir leurs droits. Dans un monde où, malheureusement, ceux qui crient le plus fort sont davantage écoutés, il apparaît indispensable sinon de se faire entendre avec plus d'éclat, du moins de tenir sa place dans le groupe.

D'autre part, un entrepreneur vivant un problème particulier peut bénéficier du

soutien d'une association qui saura défendre ses membres face à des injustices ou en cas de litiges.

L'association est également régie par un code d'éthique strict qui implique chaque membre et dicte les objectifs et les principes de base à respecter. Il serait éventuellement souhaitable qu'un comité de l'éthique, formé de membres élus annuellement, évalue toute plainte portée contre un de ses membres par un client ou même par un employé. Après avoir entendu les arguments du membre visé, les représentants du comité auraient à évaluer s'il y a eu dérogation au code d'éthique et à décider des mesures à prendre. Cette procédure assurerait une qualité de services à notre clientèle et une saine compétition entre les membres.

Les activités de l'association devraient faire preuve d'une grande visibilité et, en ce sens, la publication trimestrielle d'un journal facilitera la réalisation de cet objectif.

L'Association des Entrepreneurs en Travaux Sylvicoles du Québec (AETSQ)

existe depuis bientôt six ans. Pour qu'elle puisse continuer à se développer, ou tout simplement pour survivre, les entrepreneurs devront y adhérer et, dans la mesure de leurs disponibilités et de leurs compétences, y participer activement. Ceci, dans l'intérêt de tous.

AETSQ

650, chemin Sainte-Foy, no. 1

Québec, Québec G1S 2J6

(418) 527-9448

English summary

Private entrepreneurs in silviculture need an association to help defend their interests, to give them a stronger voice in the industry and to ensure good customer and business relations through its code of ethics. ♦

Un prix juste pour le débroussaillage

René Ouellette, Reboitech

Le taux à l'hectare accordé aux débroussailliers n'est pas suffisant, étant donné que le travailleur doit fournir sa débroussailluse et assurer les bris, l'essence, l'huile et les limes. Le prix à l'hectare devrait prendre en considération plusieurs facteurs sur les parterres de coupe, soit la classe de densité, le pourcentage de la pente, le pourcentage de déchets accumulés au sol, et la grosseur et hauteur moyenne des tiges. Les compagnies ne transmettent pas assez d'informations sur le secteur de coupe pour que la rémunération du travailleur soit faite en fonction de toutes ces données, soit selon le terrain octroyé au travailleur.

Au lieu d'un prix moyen pour l'ensemble du contrat, le prix accordé aux entrepreneurs pourrait varier d'un secteur à l'autre afin de bien rémunérer les débroussailliers dans les secteurs très difficiles d'exécution. Tout cela, en conformité avec les valeurs des traitements sylvicoles admissibles en paiement des droits de coupe.

English summary

Under the present practice, brushing is poorly paid; contracts should take into account the difficulty of work in each area, rather than assigning a blanket per-hectare price. ♦

Association des Entrepreneurs en Travaux Sylvicoles du Québec

650, chemin Sainte-Foy, #1
Québec, Québec
G1S 2J6
(418) 527-9448

René Ouellet,
President

Table 1: Nombre de plants reboisés par année (millions)

Année	Forêt Publique	Forêt Privée	Total
1989	165	68	233
1990	159	68	227
1991	149	52	201
1992	145	50	195
1993*	-	-	195
1994*	-	-	170
1995*	-	-	145
1996*	-	-	140
1997*	-	-	140

N.B. Pour les années 1989-92, une quantité de l'ordre de 8-10 millions de plants doit être ajoutée en forêt privée pour plantations effectuées dans le cadre du plan de l'Est et par les grands propriétaires privés.

*Pour les années 1993 à 1997, les chiffres correspondent aux prévisions de livraison de plants. Ainsi, ce ne sont pas nécessairement les quantités qui seront mises en terre.

Inauguration du Centre de formation professionnelle en foresterie

C'est le 24 avril dernier que le ministre de l'Éducation, Jacques Chagnon, et le ministre délégué aux Transports et responsable de la Voirie, Gaston Blackburn, procédaient à l'inauguration officielle du Centre de formation professionnelle en foresterie de la Commission scolaire de Dolbeau. On se rappellera que pour réaliser ce projet, un montant de 2,8 millions de dollars avait été accordé à l'automne 1992, par le ministre de l'Éducation du Québec de l'époque, Michel Pagé.

Toutes les personnes présentes ont d'abord eu loisir de visiter les lieux et ensuite on a procédé à l'inauguration officielle. Pour l'occasion, M. Vincent Villeneuve, coordonnateur de la formation professionnelle, agissait comme maître de cérémonie. Différentes personnalités se sont adressées à quelque 200 personnes présentes.

Le ministre Chagnon a mentionné l'importance de la formation dans un contexte de forte compétitivité et a souligné la nécessité pour les entreprises d'avoir une main-d'œuvre qualifiée à la fine pointe des nouvelles technologies. "Le Centre est un outil qui vous permettra d'être au premier rang de la formation en foresterie ... En formation professionnelle, l'heure n'est plus au discours mais à l'action ... Le Centre ne constitue pas un point d'arrivée mais un point de départ," disait-il.

Quant à Gaston Blackburn, qui est député de Roberval, celui-ci a mentionné à quel point, en raison de la qualité de la présentation du projet de la part des promoteurs, il avait apprécié participer à sa réalisation.

Le président du groupe-conseil en foresterie, Jean-Sylvain Lebel, a décrit les objectifs de son groupe, c'est-à-dire, de faciliter les échanges entre les entreprises reliées au secteur de la foresterie et les

intervenants directement impliqués dans la formation des travailleurs. Le groupe a pour mandat de fournir des avis à la direction concernant la gestion et le développement des activités du Centre.

Le directeur général, M. André Perron, et la présidente de la Commission scolaire de Dolbeau, Mme Mariette Genest-Allard, ont clôturé les cérémonies officielles. M. Perron a rappelé que la naissance de ce Centre était le résultat du travail acharné de plusieurs personnes et organismes du milieu qui ont su faire valoir la pertinence d'une institution où l'on pourrait former des professionnels de la forêt. Elle a ensuite procédé aux remerciements d'usage, sans oublier le travail accompli par le personnel de la Commission scolaire ainsi que celui du député de Roberval dans la concrétisation du projet.

Le Centre peut accueillir une centaine d'étudiants dans ses nouveaux locaux, où l'on dispense les programmes de formation suivants: aménagement de la forêt, récolte de la matière ligneuse, voirie forestière, conduite de machinerie lourde forestière, abattage et traitements mécanisés, classement des bois débités.

En complément à ces programmes de formation initiale, le Service aux entreprises vise à répondre aux besoins des travailleurs voulant se perfectionner ou s'actualiser. Le Service aux entreprises offre une formation souple et adaptée dans les différentes fonctions de travail relatives à l'opération de machinerie forestière, la mécanique et la gestion.

Plus particulièrement, il offre la possibilité de recourir à des ressources capables d'intervenir dans le secteur de la voirie forestière: abatteuses conventionnelles ou à tête multifonctionnelle, transporteurs, débardeurs, ébrancheuses, tronçonneuses, et chargeuses.

D'autres besoins peuvent être comblés dans les domaines suivants: notions de base en aménagement forestier, gestion de contrats, gestion de personnel, supervision, leadership, motivation, gestion d'entretien de la machinerie forestière, législation et réglementation forestières et environnementales, gestion du temps, gestion d'équipe de travail, etc.

Quant à l'aspect mécanique, certaines interventions ont été accomplies en soudure de base, notions d'hydraulique, mécanique, électricité, électronique, diesel, entretien préventif et identification de problèmes aussi bien qu'en santé et sécurité au travail.

Au Centre de formation professionnelle en foresterie, toutes les mesures sont prises pour remplir la mission que s'est fixée la Commission scolaire de Dolbeau, c'est-à-dire, former une relève compétente pour le 21^e siècle et participer au développement de la main-d'œuvre existante dans la fierté et la valorisation du travailleur forestier.

Pour plus d'informations, vous pouvez communiquer avec une des personnes suivantes:

Alain Tremblay 276-2032

Berthier Guay 276-2032

Louis Routhier 276-8654

Sylvie Girard 276-8654

English summary

Québec Education Minister Jacques Chagnon and Transport Minister Gaston Blackburn were on hand for the official inauguration of the Dolbeau school board's new Centre for Professional Training in Forestry. The centre, which can train as many as 100 students, offers a wide range of courses, including forest management, transportation, and operation of heavy machinery. For workers already employed in the field, the Centre's Business Services program offers a flexible approach to upgrading. ♦

Les Plants de Forte Dimension: une solution à l'élimination des phytocides?

Alain Thibeault, Division de l'assistance technique, Forêt privée, Région Saguenay/Lac-St-Jean

La protection de l'environnement devient une préoccupation majeure dans la société d'aujourd'hui. De plus en plus, le client exige une certification verte avant d'acheter un produit afin de s'assurer du respect de l'environnement dans la production de celui-ci.

Suivant cette nouvelle façon de penser, le Ministère des ressources naturelles du Québec a adopté dernièrement une stratégie de protection des forêts. L'un des points de cette stratégie vise l'élimination de l'utilisation des phytocides d'ici l'an 2001.

Pour ce faire, plusieurs méthodes d'entretien des plantations seront mises en application. A titre d'exemple, mentionnons:

la méthode biologique:

- pâturage
- culture de base (plantes tapissantes)
- alléopathie

la méthode biomécanique:

- paillage (carton, plastique, etc.)

...De plus en plus, le client exige une certification verte avant d'acheter un produit afin de s'assurer du respect de l'environnement dans la production de celui-ci...

la méthode manuelle terrestre:

- éradication
- désherbage
- annellation
- coupe

méthode mécanique:

- débroussaillage
- tonte

De concert avec ces techniques, une production de 50 000 000 de plants de forte dimension (PFD) est visée pour le Québec. Une bonne partie de cette production devra être reboisée en forêt privée sur des sites à compétition sévère.

Pour la région du Saguenay/Lac-St-Jean, l'objectif de reboisement en PFD se situera autour de 3 000 000 de plants par année, qui seront presque entièrement destinés aux terrains privés via le programme du Ministère des ressources naturelles de mise en valeur des forêts privées.

Il faut dire que le contexte biophysique de la forêt privée de la région se prête très bien à l'utilisation des PFD puisque 98 pour cent des plantations sont situées dans des friches. Plus particulièrement, deux types de friches composent la région:

La friche herbacée (30 pour cent): ancien site agricole non cultivé depuis quelques années et peu ou pas envahi par les broussailles;

La friche embroussaillée (70 pour cent): ancien site agricole qui contient un pourcentage de couverture de broussailles supérieur à 50 pour cent.

L'objectif des PFD dans ce type de terrain est essentiellement le suivant:

Friche herbacée: Produire un plant en diamètre/hauteur supérieur permettant la résistance du plant à l'effet d'écrasement par le foin durant la période hivernale.

Friche embroussaillée: Produire un plant en diamètre/hauteur supérieur permettant de retarder la période d'entretien et ainsi d'intervenir mécaniquement.

Le Défi

Le défi à relever pour le M.R.N. et les conseillers forestiers oeuvrant en forêt privée est important pour chacun des intervenants aux différents stades de l'opération:



Les pépinières: Produire un plant de qualité répondant aux critères de diamètre/hauteur fixés autant pour les plants en récipients que ceux en racines nues.

Les conseillers forestiers: S'adapter rapidement au nouveau type de plants en fonction du transport, de l'entreposage, de la manutention, des nouveaux outils de reboisement et des besoins de formation auprès des reboiseurs.

Les reboiseurs: S'adapter à la manutention et au reboisement des nouveaux types plants. S'habituer à un rendement journalier moindre mais à un taux plus élevé. Se familiariser aux nouveaux outils utilisés.

Le Ministère de ressources naturelles:

- Développer l'expertise afin de trouver le meilleur produit à utiliser dans le futur;
- Assurer le transfert technologique et le support technique aux différents intervenants;
- Suivre l'évolution et la performance des PFD afin de s'assurer de la réalisation des objectifs visés.

Conclusion

Pour la forêt privée du Saguenay/Lac-St-Jean, l'arrosage au moyen des phytocides a représenté environ 2 000 hectares en 1993. Le virage PFD étant amorcé de façon opérationnelle depuis trois ans, nous devrions, à partir de l'année 1995, commencer à ressentir les effets de ce virage, soit la diminution des phytocides et en préparation de terrain et en entretien des plantations.

Toutefois, même si l'avenir des PFD semble très prometteur, il ne faut pas oublier que beaucoup de questions devront être résolues afin d'optimiser cette nouvelle technique:

- Les plants résisteront-ils à l'écrasement par le foin ou devons-nous effectuer malgré tout un désherbage à l'automne?
- La dimension des plants nous permettra-t-elle d'effectuer un seul entretien mécanique ou plusieurs seront-ils obligatoires pour obtenir une bonne croissance des plants?

Finalement, n'oublions pas l'augmentation des coûts reliés à cette nouvelle technique pour la production des plants, l'entreposage, le transport, la manutention sur le terrain, et le reboisement.

Ce sera donc le résultat obtenu après la plantation qui justifiera l'utilisation des PFD comme palliatif à l'utilisation des phytocides en forêt privée.

English summary

Following its pledge to eliminate the use of herbicides by the year 2001, Quebec's Ministry of Natural Resources will adopt a number of alternative strategies. As part of this effort, Quebec is aiming to plant 50 million large saplings, mostly for the reforestation of private land. This project will require major adjustments by the nurseries, tree planters, and the ministry itself as it tries to identify the best tools and techniques with which to tackle this new approach to reforestation. ♦

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Ontario warned to plant more trees

Note: Taken from articles in The Globe and Mail and the North Bay Nugget, Aug. 18, 1994.

Ontario isn't planting enough trees to sustain a steady supply of timber, a forestry analyst warned a provincial government committee touring Northern Ontario this week.

John Lawrence, Ontario manager for Brinkman and Associates Reforestation, said he is so discouraged by the slow pace of treeplanting that he has considered replacing the seedlings in his nursery with tomatoes.

"We were planting around 165 million trees in Ontario a few years ago, but that has been knocked back to 130 million," he said.

Lawrence said that Sweden plants about 600 million trees a year and British Columbia about 250 million, though both jurisdictions harvest about the same amount as Ontario. His firm hired 200 tree planters this spring, half the number they had two years ago.

The all-party government committee is in the middle of a six-city tour for hearings on Bill 171, the Crown Forest Sustainability Act, designed to replace the 40-year-old Crown Timber Act.

Bill 171 would put the onus on forestry companies to make the woodlands sustainable. It proposes higher fines for forestry companies that don't comply with regulations and suggests that two trust funds worth \$95-million be created to pay for reforestation.

Critics have said the bill is vague and contains too many fuzzy statements about sustainability.

Who is managing Ontario's forests?

Lawrence asked members of the Standing Committee on General Government, "Who really knows what's happening (in Ontario forests)?"

Then he answered his question. "No one really knows."

He said the Ontario government, more specifically the Ministry of Natural Resources, seems content to watch Northern Ontario's valuable spruce and jack pine forests be replaced with less-valuable hardwoods, such as poplar.

"We've seen quite a change in the last few years," he said. "There was increased concern, some vision, but now there has been an incredible turnaround."

"Now, it doesn't seem to matter. Everything is fine, everything is green."

"Forests go down, forests come back. They're just happy to see some green."

He said in the interview that the government's rationale on poplar came after the economic crunch.

His view was echoed by David Ransay (Lib - Timiskaming), who said that when it came to management of forest resources, "other jurisdictions have left us in the dust."

"They don't know what's in our forests. What do we want, everything in poplar? I'm in favour of planting more of the high-valued species such as pine and spruce."

Mike Brophy, chair of the Mattawa and Area Forestry Committee stated, "We wonder about the true provincial position concerning the timber industry. How are we doing? I've traveled in other jurisdictions (New Zealand), and driving through planted forests, wondered with awe—how great the foresight to have planted these trees so long ago."

"Where are we in today's inventory or crop count? This is important because nowhere, to my knowledge, is there a measuring base or benchmark against which one can make a future judgment about the success of this bill."

"Given the significance this industry has in the province, why is there not a clear, forward-looking master plan to enhance the industry. For example, where are the goals in terms of time, money and requirements?" ♦

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Grant Brodeur,
President

Report says Ontario managing forests well, critics disagree

Darcy Henton

Note: Taken from the Toronto Star and the North Bay Nugget.

A \$20 million six-year critique of Ontario's forest management practices has concluded Ontario's forests are not being over-cut or mismanaged.

The 560 page report—the longest and most costly study in the province's history—concludes the Ministry of Natural Resources (MNR) is managing a sustainable forest, but that it should be more accountable to the public and establish citizen advisory committees for each timber management area.

The long-awaited document stresses that the days of "cut and run" forestry are over and that forest managers must recognize that forests are more than crops of revenue-producing timber. The recommendations are binding on the MNR, unless set aside by cabinet.

The recommendations arose from 411 days of hearings in northern communities and limit the size of clearcuts to 260 hectares, endorse herbicide and insecticide spraying, and

order the province to spend more on treeplanting and tending, and order the government to develop a conservation plan for old-growth forests in the Temagami region of Ontario.

The two-member panel of Anne Koven and Eli Martel also orders the protection of red and white pine old-growth forests and two creatures—the pine marten and pileated woodpecker—which inhabit them.

The document licenses the MNR to continue managing Ontario's forests, which are five times the size of New Brunswick, and support a \$10 billion industry that employs 64,000 people.

But the massive report, while lauded by Natural Resources Minister Howard Hampton and industry officials, fell short of expectations of environmentalists, forest users and academics.

Critics, while disappointed that the report did not go further in ensuring that other forest uses will be given their due, concede the process forced the reclusive ministry into being more open and accountable.

Outfitters, anglers and hunters' associations described the report as a step in the right direction, but maintained the province has a long way to go before it achieves forest management rather than timber management.

Terry Quinerry, of the Ontario Federation of Anglers and Hunters, said the board made it clear that the forests are no longer the sole preserve of the timber extraction companies, but it did not go far enough to force the MNR to set targets for other uses like recreation and wildlife habitats. "Our forests in Ontario are better today than yesterday, but the fact of the matter is we've still fallen short," he said.

Tim Gray, a Forests for Tomorrow spokesperson, said the report reflects the "status quo from the 1970s."

"We're very glad that they declared a moratorium on the cutting of red and white pine until at least May of next year," said Dan McDermott of Earthroots.

"But there are other forest ecosystems in this province that are in the old-growth state (and) this report ... makes no specific recommendations." ♦

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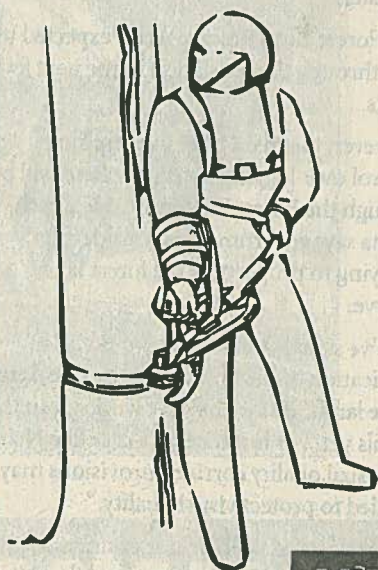
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New forest practices code may apply on private land

John Betts

Note: Reprinted from the Nelson Daily News.

Environment Minister Moe Sihota says government legislation is in the works that may spare some of Nelson's scenery threatened by private land logging. But he also says it may take six months before any of the proposed legislative relief is enacted.

Sihota says there are two pieces of legislation that will have an effect on private land logging.

"We've brought in the Forest Land Reserve Act," said the Minister in an interview from Vancouver.

"The people in the Kootenays have been asking for several years to have forest land placed in a forest reserve like we have agriculture land in the agriculture land reserve."

This legislation will primarily protect private forest land near communities from being turned into housing developments or exploited for some non-forest value.

To remove land from the forest reserve would require a process similar to taking land out of agricultural land reserve, said the Minister.

The Forest Land Reserve Act is expected to pass through the legislation in the next few weeks.

However, the main lever in exercising control over logging on private land will be through the Forest Practices Code which Sihota says government is considering applying to property in the forest land reserve.

"We've signaled that there would be an application of the Forest Practices Code to those lands. But we haven't worked out the details yet. For instance, in a case like Nelson, the visual quality corridor provisions may be applied to protect visual quality."

Those "details" will include considering what forest land is defined as, how small a private parcel will be considered and which agency says what land is forest land.

Sihota says it will be at least six months before the Forest Practices Code is enacted.

Public's concept of "land rights" must change

Lolly Kaiser

Note: Reprinted from the Nelson Daily News.

Gone is the era when a landowner's domain is a "kingdom", immune from outside considerations, says MLA Corky Evans.

Private property is protected against subsurface damage such as that from buried PCBs, he says, and asks if it's not time to "make the leap to surface rights."

He refers to the recent "surface" abuses of private land logging near Granite Road in Nelson and to another incident in Thrums involving a gravel pit operating in a residential area. In both cases, the regional district is powerless to step in.

"We need a change in the regulations within the Forest Practices Code governing private land, but more than that, we need a change in the point of view of the public that they have an obligation for stewardship, that what happens on private land impacts neighbours," he said.

He suggested, in the absence of provincial regulations for private land logging, each region be allowed to go their own way in protecting their viewscapes and watersheds through the offices of the regional districts.

As parliamentary secretary to the Forest Minister, he has asked Andrew Petter to look into the legality of allowing regional districts to regulate their private land on a region-by-region basis.

Evans pointed out that the Kootenays have become the epicentre of the push for more control, "because of the amount of steep land in the Kootenays compared to other regions and the impact logging can have on water sources."

"Essentially, we're trying to compress into one decade in BC what most other European countries took 200 years to realize," he says in reference to the ongoing legislation which is attempting to balance conservation against population growth. ♦

Ministry warns landowners

Note: Reprinted from the Nelson Daily News.

The Ministry of Environment is warning landowners to consult with them before they start logging their land.

"It is of critical importance that persons contemplating logging on their land contact us before they begin," said regional water manager John Dyck in a *BC Environment* bulletin.

"A lot of time, effort, frustration and money can be saved if people will get a proper assessment of potential effects of the logging they plan to do before they start felling timber."

Although logging private land is legal, the effect of such actions on streams, habitat and domestic water systems must be carefully accounted for, says the bulletin.

Citing a rising number of investigations concerning logging on private land and the possibility of landowners suffering charges and convictions, conservation officer Steve Wasylik says proper planning can avoid violations under the Water Act.

"Proper planning combined with consultations with the water management branch only makes sense," says Wasylik. "People are seeing the profits they can make by logging some of their land and they proceed hastily without examining potential impacts."

"Violations of some sections of the Water Act provide for fines up to \$200,000." Wasylik promises his office will investigate every complaint in an effort to reduce the number of violations. ♦

Petter wants end to destructive logging practices on private land

Note: From MOF press release, Sept. 15, 1994.

Beaumont Timber Company has agreed to Forests Minister Petter's conditions for future logging on its privately managed lands north of Revelstoke.

Petter had previously demanded that the company provide evidence of their intention to adopt appropriate methods for logging steep slopes and to allow Forest Service Staff access to ascertain changes necessary to prevent further site degradation.

Staff from the Revelstoke Forest District will now evaluate the company's operations and ensure that future harvesting and road building practices are appropriate for the terrain, soil types and other key resource values.

The government still intends to consult with land owners on how the forest practices code will apply to privately managed forest land. "It's precisely this type of situation that underscores the need to apply the Code to these lands," Petter said.

"It should be clear that this government will not tolerate destructive logging practices, on either Crown or private land. Those days are over." ♦



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Regulation on private lands

Andrew Petter, BC Minister of Forests

Note: Letter to Dirk Brinkman, Past President WSCA, Jan. 13, 1994.

The Ministry of Forests tracks the volume of timber harvested on private land, but has very limited authority to regulate forest practices on private lands outside of tree farm or woodlot licenses. The Forest Act requires that timber harvested from private land be scaled and that the scaling information be submitted to the Ministry. Through this requirement, the Ministry is able to track the volume of timber harvested from private lands. However, at present, the Ministry's authority to regulate forest practices on private lands that are not within a tree farm license or woodlot license is restricted to ensuring that fire and insect hazards are removed.

Government policy with respect to harvesting on private land has focused on the use of tax incentives to encourage good reforestation practices. Forest land owners may have their land classified as "managed forest land" under the Assessment Act, and have their land taxed at a lower property tax rate. In return, they must commit to good reforestation and forest protection practices, in accordance with a forest management plan approved by a registered professional forester and a government land assessor.

Approximately 95% of private land classified "forest land" by the BC Assessment Authority is "managed forest land." On the remaining areas of private land, government's authority to regulate forest practices is extremely limited.

I share the concerns of WSCA members regarding the consequences of irresponsible logging on private land and recognize that the issue needs to be addressed.

The Forest Practices Code, which is currently being developed by the Ministry of Forests, may help to address some of your members' concerns. Initially, the code will focus on Crown lands and private lands within tree farm licenses and woodlot licenses. The government is seeking input from the public on which other types of private lands the code should apply to and the forest practices standards that should apply to those lands.

I also want to point out that the regulations of private forest land is a complex issue which involves a range of public and private interests. There may be no quick and easily implemented solutions to all public concerns about the management of private forest land. ♦

Forest resource trainers of BC

The purposes of this new association are to:

- Establish forest resource training as a distinct profession.
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- Establish qualification standards for members.
- Advance the business interests of the forest resource training sector.
- Encourage recognition of forest resource training as a social environmental and economic investment.
- Create opportunities to enhance and develop the training skills of members.
- Foster the exchange of training ideas and resources.
- Establish and maintain the linkages with regional provincial, national and international organizations to foster improvement in forest resource training.

The inaugural meeting to determine feasibility, interests and terms of reference was held last spring. The first annual general meeting will be held in Vancouver this winter, probably in conjunction with the WSCA conference. For more information contact association president Don Whiteside at 732-8675. ♦

WCB to prosecute workplace deaths

Valerie Casselton

Note: Reprinted from The Vancouver Sun, Sept. 1994.

A small Interior logging company and its two principal officers appeared in Penticton provincial court to face ten charges related to the death in March of logger Andy Turner, and to the contravention of industrial health and safety regulations pursuant to the Workers Compensation Act. Trial has been set for May 3, 1995.

WCB investigators have been trained by Justice Institute officials to ensure that post-accident investigation and evidence-gathering techniques would stand up in court.

The board is putting all of its 200 investigators through the training as part of its new policy of aggressive prosecution.

Since the early 1980s, logging fatalities declined from 25 or 30 a year to nine in 1992. But in 1993, there were 20 logging deaths and there have been 20 so far in 1994. ♦

Treeplanting death in Northern BC

Dirk Brinkman, Director WSCA

This spring, Folklore had the transmission and hydraulic power to the brakes fail on a Rollagon as it was climbing a slope with 25 planters in the open back. While trying to control its backward rolling the vehicle jack-knifed and subsequently flipped. Nineteen planters jumped clear but six were trapped. The planters who had jumped clear managed to roll the vehicle off the six planters trapped under it. One planter died and five were hospitalized.

At the very least, the WSCA hopes this tragedy will result in worker ATV transportation regulations being implemented for the silviculture industry. ♦

Virus-carrying mice

Paul Rehsler, RPF, Silviculture Contracts Specialist, Silviculture Branch

Note: Letter to Bill Williams, WSCA President, July 14, 1994.

On June 30, 1994, the Ministry of Forests was contacted by Dr. Alison Bell, an epidemiologist from the Ministry of Health. She was concerned about the potential of small mammal biologists contracting Hantavirus Pulmonary Syndrome (HPS) from work on rodents. At the moment, one biologist in Williams Lake is potentially ill with the virus.

Only two cases of the virus have been known in BC, one fatal. This virus attacks mainly healthy adults. The first symptoms are "flu-like" with possibilities of fever, sore muscles, headaches, vomiting and shortness of breath. As the disease continues, the lungs will fill up with fluid, making breathing difficult.

The virus is known to spread via rodents, in particular, deer mice. The virus is contracted by breathing in the urine, saliva or droppings, or possibly, by eating food polluted by the infected rodents. The extent of the rodents infected by the virus in BC is unknown.

Although WSCA members may not be involved in small mammal research work, mice are commonly found in or near silviculture contractors' camps. Therefore, please make your members aware of the symptoms of HPS and the precautions necessary to avoid direct contact with the virus.

Hantavirus pulmonary syndrome (HPS) – What is it?

HPS is a severe illness that is caused by a virus. This rare disease was first described in the southwestern United States in 1993. It is believed that the virus has been present for a long time, but was only just recently recognized. The first time HPS was found in Canada was very recently, in the middle of 1994, when two cases were reported in BC. However, the disease is considered to be extremely rare — as of June 1994, only 76 people have ever been reported to have HPS in all of North America.

The virus is normally found only in rodents, especially deer mice, but does not seem to spread from one person to another.

People who live in areas where the virus is present, and who come in close contact with rodent burrows, or are exposed to the saliva, urine or droppings of rodents are at some risk of catching the virus, although the chances of this happening are extremely low.

When hiking or camping try not to disturb rodent burrows. Don't use cabins where there are mouse or rat droppings lying around. Keep your food in rodent-proof containers. Don't sleep on the bare ground. Use only bottled or disinfected water.

Treatment

Most patients need to go to the hospital and get intensive care. Some patients may be given anti-viral drugs. ♦



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Treeplanters left out of new forest plan

John Betts

Note: Article reprinted from the Nelson Daily News.

The province's 4000 tree planters were left out of the process that created government's recent Forest Renewal Plan, and they've been disparaged as second-class citizens in the BC forest workforce, according to the national president of a silviculture contractors' organization.

"We're outraged at being marginalized by not being involved in the Forest Sector Strategy, and furthermore, we're insulted by remarks by the IWA that talk so disparagingly about 'transient tree planters,'" said Dirk Brinkman of the Canadian Silviculture Association.

Brinkman says environmental groups, mayors, forest industry reps and the IWA all met to devise the forest sector strategy but his industry, even though promised input, was never consulted.

But what really irks Brinkman, a former West Kootenay treeplanting contractor now based in Vancouver, are recent remarks by the IWA in the wake of the Forest Renewal Plan announcement. Their comments, he says, imply silviculture work

has suffered from an itinerant workforce in the past and currently offers wages unfit for laid-off loggers.

"To talk about union scale rates, our company is paying well above \$20 per hour. Anybody who has any amount of experience is making far more than the IWA wage scale."

Most of the silviculture workers in the province are non-union and work primarily on a piecework basis. Brinkman says they are steady professional workers who have to move around to catch the treeplanting season which follows the snow melt, as it works eastward from the coast and upward into the mountains throughout the province each year.

Over ten percent of the province's treeplanters come from the Nelson area.

Many of them are at work on the coast now near communities that face possible logging layoffs. Just whether those treeplanting jobs are secure or will be given over to laid-off loggers worries Brinkman.

"If, in the future, under the Forest Renewal Plan, there is a community-based silviculture crew in an area and they're supposed to be working steadily, then when it comes

to the work our transient crews have traditionally done, there will be pressure to have the community crew do the work."

The forest renewal plan promises 6000 new jobs annually, aimed at absorbing laid-off loggers. But to Brinkman, it could just mean one group displacing another.

"I'm worried there are going to be 6000 new people taking twice as long to do our old work."

Brinkman doesn't believe the average IWA logger wants to do silviculture work. He also says the union logging workforce and the silviculture workforce have little in common. "The IWA have had three organizing drives in our industry and all of them have failed."

He insists the government is going to need the existing silviculture industry if the Forest Renewal Plan is going to work.

"We've lobbied for fifteen years for intensive silviculture, and when they come to finally putting this huge program together, they leave us out.

"This plan is going to make BC the leading forest sector in the world or it's going to be a disaster. They need us to deliver it." ♦

Incredulous lack of WSCA representation on FRBC board of directors

Claude P. Boisvert, President, EARTH-NET Communications

Note: Letter to the editor, Vancouver Sun, Aug. 4, 1994.

The makeup of the board of directors of Forest Renewal BC (FRBC) mentioned in Vaughn Palmer's column ("Board the first plank in forest agency," Aug. 4, 1994) is strikingly devoid of representation from, arguably, the silviculture industry's most important player, namely the Western Silviculture Contractors' Association.

Silviculture expenditures in the province are approximately \$250 million annually, and FRBC will add an additional \$200+ million annually to this total, according to FRBC board chair Roger Stanyer.

It seems incredulous that the silviculture contractors are without representation while the current makeup of the Board includes representatives of the IWA and the Truck Loggers' Association - heretofore marginal or non-existent players in the silviculture industry.

There are approximately 12,000 people who work in the silviculture industry in British Columbia and most are employed by silviculture contractors. WSCA member contractors carry out the vast majority of all silviculture work prescribed by either the Ministry of Forests or industry in the province.

WSCA President Bill Williams has, in the past, expressed his disappointment that the WSCA was excluded from the supposed consultative process that was used to develop the FRBC initiative.

In an April 15, 1994, letter to Premier Harcourt, WSCA Director Chris Akehurst wrote, "NO representatives from the existing silvicultural community were party to any discussions in formulating the FRBC plan ... My question to you is how do we fit into the Forest Renewal Plan? Please confirm that the jobs of the existing silviculture work force have NOT been sacrificed on the altar of IWA job losses."

Perhaps Vaughn Palmer might press the Premier to explain this rather odd state of affairs in his government's appointments to the Forest Renewal board of directors. ♦

...continued from previous page

FRBC board announced

Office of the BC Premier

Note: Press release dated July 19, 1994.

The provincial cabinet has appointed an interim board of directors for Forest Renewal BC (FRBC).

FRBC is the partnership agency with representatives from a wide range of forest interests which will direct investments under the Forest Renewal Plan announced on April 14, 1994.

In the first five years, FRBC will invest \$2 billion from increased stumpage and royalty rates to renew the health and productivity of BC's forests, restore and protect the forest environment, create more jobs and value from each tree cut, improve forest worker training and strengthen forest communities.

At the announcement, Premier Harcourt said the interim board was intentionally small since its primary task over the next six months is to get FRBC up and running. The board represents a broad geographic and sectoral cross-section of the province.

The interim chair will be Roger Stanyer who will also act as chief executive officer. Board representatives include:

Desmond Getz - Northwood Pulp and Timber, Prince George

Don McMullen - Chief Forester, Timber West

Ralph Torney - Truck Loggers Association

Dave Haggard - IWA Canada

Ann Hillyer - West Coast Environmental Law Association

Joanne Kineshanko - Mayor, Township of Lumby

Garry Merkel - First Nations Forestry Council

Doug McArthur - Deputy Minister to the Premier, Cabinet Secretary

Gerry Armstrong - Deputy Minister, Ministry of Forests

As well, Forests Minister Andrew Petter and Environment, Lands and Parks Minister Moe Sihota will be interim directors of the new agency. "The presence of these two ministers on the board underlines this government's commitment to the Forest Renewal Plan," said Harcourt.

The composition of the FRBC board will be reviewed before the end of January 1995, and the permanent board will be established.

"Through FRBC, British Columbians will soon see many benefits to the forest environment, to forest workers and to their communities. Some preliminary intensive silviculture and watershed restoration work is already under way. Appointing this interim board to get the process up and running is an important step towards achieving the long-term benefits which will keep the forest sector economy strong for generations to come," Harcourt concluded. ♦

Note: Forest Renewal BC's address is:

#501 - 3960 Quadra Street,

Victoria, BC V8X 4A3

Ph: 387-2500 Fax: 387-3334.

WSCA recommends FRBC directors

Dirk Brinkman, Past President, WSCA

Note: Letter to Andrew Petter, BC Minister of Forests, June 15, 1994.

This letter is further to our discussions relative to our industry's role in Forest Renewal BC.

The WSCA recognizes that Forest Renewal BC is an important step in working towards a sustainable forest sector and our Board of Directors have discussed how we may best provide direction and support to Forest Renewal BC.

The WSCA recommends the following representatives of the silviculture industry to these positions within the proposed structure of Forest Renewal BC:

Forest Renewal BC Board of Directors: Dirk Brinkman
(Second: Bill Williams).

Silviculture Committee: Bill Williams
(Second: Dirk Brinkman).

Forest Sector Skills Council: Silviculture Training—Chuck Emery, Silviculture Contractor—Tony Harrison (Second: Dennis Graham), Labour/Crew Boss—still being reviewed.

These elected representatives of the silviculture industry are being recommended for their commitment to sustainable forest ecosystems, and to the economy and people of BC. In addition to having the support of the silviculture contractors to act as their representatives, they are committed to consultation with the silviculture industry and informing the industry.

Naturally, one WSCA concern is that the FRBC initiative not fetter the existing silviculture industry by ensuring that its policy initiatives are truly incremental. The Association's many years of involvement in provincial and federal silviculture policy initiatives, plus its years of experience providing silviculture services to MOF and the forest sector, will provide valuable direction to FRBC.

A second concern is that FRBC's program delivery is efficient, high quality and professional. BC is a world leader in silviculture thanks to the entrepreneurial innovation and services of our members. We know we have a lot to contribute in designing and fine tuning a regionalized implementation plan.

A third is to ensure worker health and safety throughout all operations. Intensive silviculture is the most dangerous aspect of silviculture and our industry's experience will be vital in preventing the carnage of some of the past intensive silviculture initiatives.

Also, the extensive presence of our members and their workers in communities throughout BC will ensure that the social and community goals of FRBC will be met.

The recommendation that the WSCA provide names for the Skills Committee silviculture 'worker' representative is made because labour in our industry is not, at this time, organized. For that reason, we propose to select a crew boss or supervisor, who has worked his/her way up in the kind of intensive silviculture work which Forest Renewal BC will be doing. Someone whose perspective on issues is that of the worker in the bush, because they have spent many years there, is still working there and is committed to worker issues. We will forward this name(s) as soon as possible. ♦

WSCA offers its expertise

Bill Williams and Dirk Brinkman

*Note: Edited letter to BC Minister of Forests
Andrew Petter, May 18, 1994.*

We believe the Forest Renewal Plan has the potential to be the best in the world. British Columbia has been the world's most important forest product producer. With the implementation of the plan and the Forest Practices Code, it will regain this position once again.

The success of the Forest Renewal Plan depends on all stakeholders working together with the common aim of rejuvenating our forest resources, thereby keeping our economy strong. Our members' knowledge, experience, and resources to deliver British Columbia's present silviculture programs is immense. It seems to us a waste to ignore this valuable pool of energetic people that have the ability to bring success to this Forest Renewal Plan.

It is our desire to be an integral part of the Forest Renewal Plan. We can bring insight, knowledge, and experience to the Board of Directors of the Crown Corporation and to the committees. We trust you will recommend the appointment of representatives from the WSCA to the Board of Directors and to one or more of the committees.

The WSCA members and their employees know you will not brush aside our out-stretched helping hand. Please keep us informed on the development of the Forest Renewal Plan.

FRBC board composition

Andrew Petter, Forests Minister

Note: Edited letter to Bill Williams and Dirk Brinkman, WSCA, Aug. 17, 1994.

Thank you for your letter of May 18, 1994, following our meeting April 25, 1994, reiterating your recommendation that a representative from the WSCA be appointed to the board of directors and to one or more of the committees.

On July 19, 1994, Premier Mike Harcourt announced the appointment of an interim board of directors for Forest Renewal BC. The primary task of this board is to get Forest Renewal BC up and functioning. The composition of the board will be reviewed before the end of January 1995, when a permanent board will be established. I have instructed officials in the Ministry of Forests to hold your letter on file for consideration by Forest Renewal BC, once they are in a position to establish the committees. ♦

WSCA REPORT

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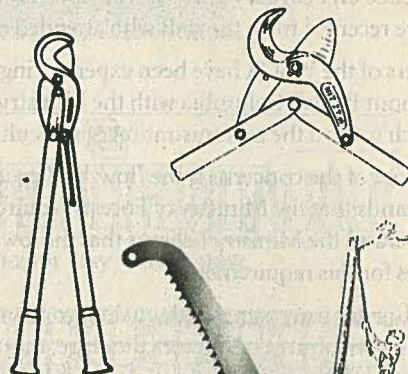
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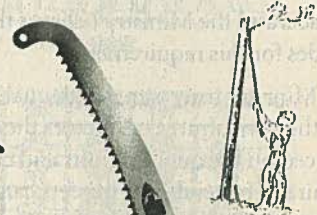
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Audit "low-bid" cost effectiveness

Bill Williams, President, WSCA

Note: Letter to Henry Benskin, Director of Silviculture Branch, March 2, 1994.

We wish to thank you and your staff for attending the WSCA Conference on February 3, 1994. We sincerely appreciate the input we received from the staff who attended our conference.

Members of the WSCA have been experiencing some frustration throughout British Columbia with the Ministry of Forest's approach toward the administration of silviculture contracts.

At the core of the concerns is the "low-bid" process. The WSCA understands that the Ministry of Forests requires cost-effective contracts and the Ministry believes that the low bid process provides for this requirement.

If the Ministry truly wants high quality work and performance from the silviculture contractors they hire, more emphasis must be placed on the qualifications and credibility of the contractors they hire. The tendering process cannot be solely based on the acceptance of the lowest tender. The "Request for Proposal" (RFP) is a process that can produce the desired results if awarded correctly.

The Ministry of Forests staff must realize that there are baseline costs that are incurred by a contractor to provide the services to get the job done right and to meet government legislated requirements.

It appears to our members that the Ministry of Forests has been, in some cases, avoiding real value project costs by accepting some bids that are below the minimum cost tolerance required to complete the job to the standards required. In some instances, quality standards and contract clauses have been altered to avoid cancellation of contracts. We believe contracts P93N07001 and P93N07007 are examples of this situation.

The WSCA recommends that the Silviculture Branch consider auditing the above contracts awarded in the Kootenay Lake District in 1993. In addition, a review of Ministry of Forests contract administration procedures is required to ensure there is consistent application of all policies and procedures.

The WSCA will be more than willing to provide further information or assistance on this matter. ♦

Low bid response

Henry J. Benskin, Director, Silviculture Branch

Note: Letter to Bill Williams, President, WSCA, April 25, 1994.

Thank you for your letter of March 2, 1994, outlining the WSCA's concern regarding the Ministry of Forests' approach towards the administration of silviculture contracts. We regret that members of the association are frustrated with certain aspects of the ministry's contract administration policies, in particular the low-bid process.

When making award recommendations, Ministry Officers check the experience, past performance, resources and other commitments of the eligible low bidder. Therefore, all tendered contracts are not necessarily awarded to the lowest bidder, rather to the lowest *qualified* bidder. As you are aware, the Silviculture Branch is developing a computerized system that will improve the inter-District transfer of contractor performance information.

You mention using Request for Proposal (RFP) as an alternative to the Invitation to Tender (ITT) solicitation method. An ITT is appropriate where the nature of the works or services is such that definite methodologies, performance standards or specifications exist and industry practices are well established. This covers most silviculture activities. A RFP would be the appropriate method of solicitation when contracting multi-phase projects with both specified and unspecified components, or other non-routine activities.

With regards to your comments concerning contracts P93N07001 and P93N07007, I have sent a copy of your letter to Al Bradley, District Manager, Kootenay Lake Forest District, asking him to respond to your allegations.

The ministry does not set a minimum cost tolerance. However, during the planning stage a ministry cost estimate is established. Where the lowest bid appears to be unreasonably low, the bidder is contacted and given the opportunity to withdraw the bid. The ministry will normally allow the award, provided the bidder is otherwise eligible, and there are no other reasons for limiting the number of contracts awarded to that contractor. I agree that quality standards and contract clauses should not be altered to avoid cancellation of contracts. If, however, there are no biological impacts, standards may be relaxed; this may or may not impact the cost of performing the required work.

Thank you for advising me of your concerns and for inviting Silviculture Branch staff to your 1994 WSCA conference. ♦

Forest Practices Code training program in the works

A broad cross-section of the forest industry has joined forces to develop a training program to ensure that forest companies, contractors and employees are properly trained on all aspects of the new Forest Practices Code (FPC). The group brings together representatives from major licensees, the contracting community, labour, First Nations, silvicultural contractors and other direct interest groups within the province's forest sector, including the WSCA, as represented by its President, Bill Williams. ♦