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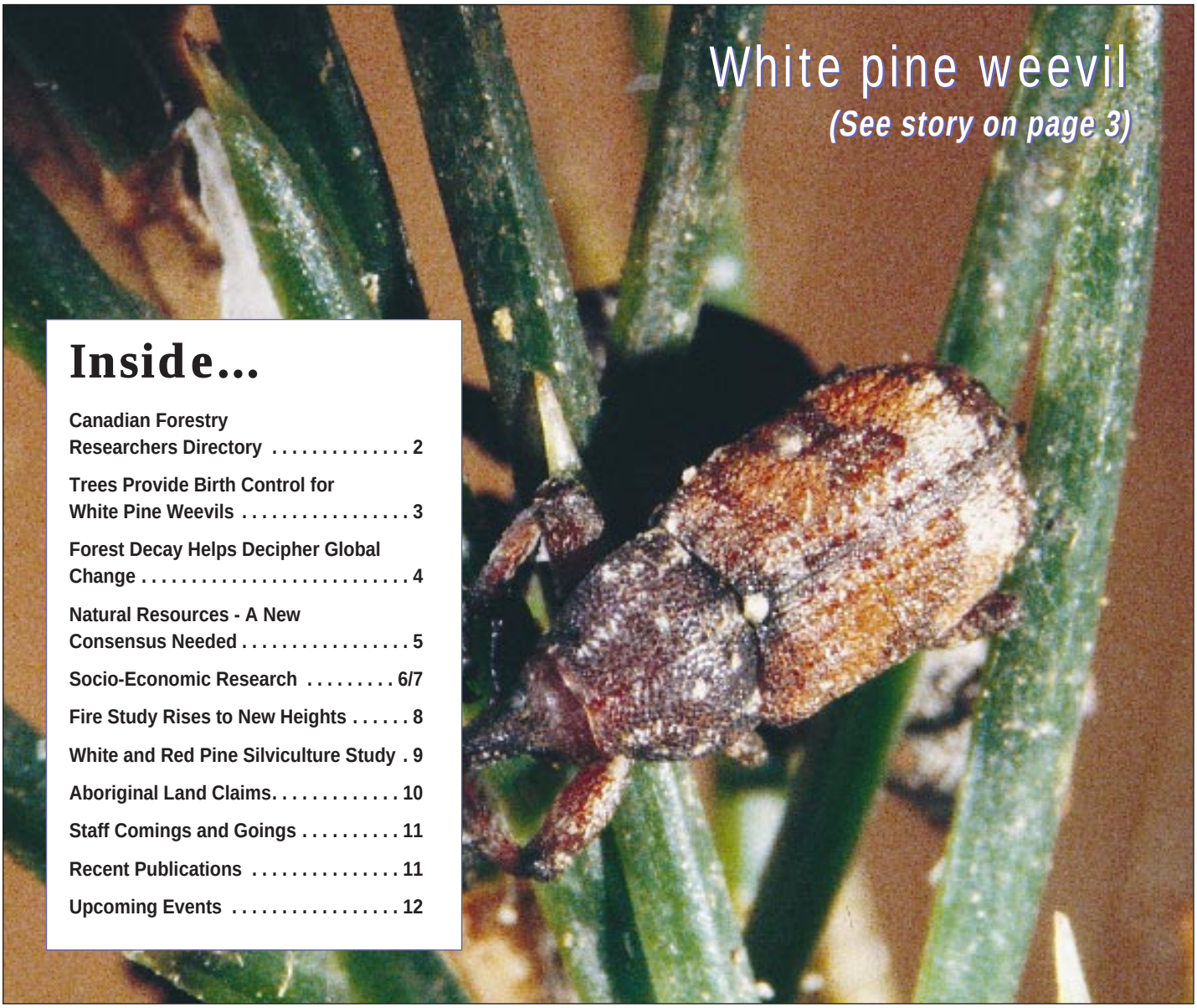

White pine weevil
(See story on page 3)

Inside...

Natural Resources Canada
Canadian Forest Service

Ressources naturelles Canada
Service canadien des forêts

Canada

Canadian Forestry Researchers Directory

"The directory provides members of the forestry community with a valuable tool for locating and contacting experts in a variety of forest research fields."

People use directories every day. If you need to find someone's phone number, you look for their name in the phone book. Need to find your doctor's new office but don't know what floor it's on? What do you do? Look it up on the building directory.

And if you're a forestry researcher in Canada, now you can register in a new research directory that will enable you to get in touch with colleagues from Victoria to St. John's.

The Canadian Forestry Researchers Directory (CFRD) is a database designed by Canadian Forest Service (CFS) scientists, under the leadership of the Effects of Forestry Practices Network, to facilitate communication among forestry researchers working in Canada. In addition to acting as a sort of meeting place for researchers, the directory can also be used by members of the general forestry community and the public as a tool for locating and contacting experts in a variety of forest research fields.

Yvan Hardy, Assistant Deputy Minister with the Canadian Forest Service of Natural Resources Canada explains, "This important initiative is part of CFS's larger effort to facilitate information transfer and sharing within the broader forestry community. It will also make our research more readily available to stimulate collaborative work and partnerships outside of our own research networks."

People can access the directory website by clicking on the CFRD link on the Pacific Forestry Centre home page at www.pfc.cfs.nrcan.gc.ca. The website includes instructions for registering in the directory and conducting searches, as well as usage statistics and a link for sending comments about the directory.

Paul Addison, director of the Forest Resource Division at the Pacific Forestry Centre and manager of the Landscape Management Network, was one of the scientists involved in the conception and design of the CFRD.

"People didn't know who else was doing the same work," says Dr. Addison. "We in the CFS thought we could play the role of letting people know who's doing what. A forester working with white spruce in one part of the country, for example, can get in touch with a researcher working with white spruce in another part. Basically, the directory links researchers with common interests."

To register in the directory, researchers complete an input form, which includes information such as the researcher's name, phone number, organization, scientific discipline and forestry activity, as well as the tree species and research areas that the researcher is interested in. Researchers who need to revise or add to the information they provided when they initially registered can do so using the update button at the bottom of the form. Anyone doing research in Canadian forests is encouraged to register, says Addison.

Searches of the directory are made using the query form. Directory users can search by name, discipline, location and activity, as well as by species or research interests. Since the directory is maintained in both French and English, people seeking information on a specific species should use its scientific name instead of its common name. Query results are presented either as a list of exact fits, if any were made, or the closest matches, so entering as much information as possible on the query form will result in a more exact match.

Since the directory is intended only to facilitate initial contact, mailing addresses and FAX numbers are not included in the input form. This prevents the directory entries from being incorporated into mailing lists.

Addison adds that the directory is designed to evolve based on the needs of forestry researchers. "The design has been done really well because it's designed by scientists, for scientists," he says. "And if people want to change something, we can accommodate that. We realize that research is a dynamic process, so a database for researchers needs to be dynamic too."

Trees Provide Birth Control for White Pine Weevils

"Certain spruce trees inhibit or block reproductive maturation of the white pine weevil."

Nearly six years ago a team of three scientists at the Canadian Forest Service (Dr. Tara Sahota, Dr. John Manville and Dr. Eleanor White) discovered that certain spruce trees inhibit or block reproductive maturation of the white pine weevil. Through a combination of entomology, physiology, chemistry and molecular biology, this team of researchers in the Tree Biotechnology and Advanced Genetics Network are studying this phenomenon in hopes of preserving the livelihood of Canada's spruce and pine trees.

Recent work of CFS molecular biologist, Dr. Isabel Leal, also at the Pacific Forestry Centre, has shown that resistant trees strongly inhibit the expression of the vitellogenin gene of the weevil, thus reducing the weevil's ability to manufacture vitellogenin, a protein required for the maturation of eggs. Dr. Leal cloned this egg yolk protein gene to monitor its presence in the weevil. "We've found that in white pine weevils feeding on resistant trees the vitellogenin gene in the insect is turned on at very low levels (apparently too low to enable reproductive development) while it is much more abundant in weevils feeding on susceptible trees," she explains. "By monitoring the expression of the vitellogenin gene, we hope to have a sensitive test for detecting, isolating and identifying the resistance factor or factors in the host tree."

Dr. Isabel Leal selecting colonies containing recombinant DNA

"The recent work of Dr. Leal confirms the original findings of our team and it provides a new method for identifying resistant trees," adds Dr. Manville.

The white pine weevil attacks eastern white pine and Norway spruce in Eastern Canada and is devastating to white spruce, Engelmann spruce and Sitka spruce. "Sitka spruce trees are especially susceptible to attack," says Dr. Eleanor White. "There are places both in the BC interior and on the coast where spruce is no longer being planted because the weevil attacks and lays eggs in the bark of leaders, where larvae then mine and kill them, dwarfing the tree's height or causing the growth of multiple leaders. The result is more of a bush than a tree, greatly reducing the timber value. Understanding how resistance works, and selecting trees with the certain knowledge that they possess the given mechanism of resistance will provide weevil-resistant trees for reforestation."

The team feels they now have good evidence that feeding on resistant trees reduces the level of the weevil's juvenile hormone which in turn reduces its ability to fully deploy its vitellogenin gene and mature its eggs. "Recent laboratory and field work has given us a good understanding of how juvenile hormone links weevil's reproduction, expression of vitellogenin gene, and tree resistance to the weevil's flight behaviour," explains Sahota. "When the weevil's juvenile hormone level is low and weevil reproduction and vitellogenin gene are only partially active, as on the resistant tree, the weevil remains in a flight and search mode, and its itinerant behaviour makes it leave the resistant tree. When juvenile hormone level is high and weevil reproduction and vitellogenin gene are fully active, as on the susceptible tree, weevil flight is depressed which keeps the weevil domiciled on the susceptible tree for egg maturation and egg laying."

"We are concentrating our efforts to find out what factors in the tree are causing the effect on the hormone. It could be the absence of something in susceptible trees or the presence of something in resistant trees," adds Dr. Manville. "Dr. Leal's work has added a valuable tool to our arsenal for detecting the effects of tree factors on the weevil, thus helping in the identification of the resistance factors."

"A rewarding feature of this work has been the fulfillment that we derive in stimulating each other's thinking," Sahota continues. "This is what led us to envisage a new mechanism of resistance by spruce against the white pine weevil — before we had done a single experiment. This mechanism had to account for the previous published volume of work on the subject, and for good scientific reasons, it had to be fundamentally different

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Forest Decay Helps Decipher Global Change

"CIDET is the first long-term study of its kind in Canada."

At the recent conference on global climate change in Kyoto, Japan, it was decided that industrialized countries should cut greenhouse gas emissions by 5.2 percent by about 2012. While governments, industries and individuals attempt to reduce gas emissions, scientists still have many questions about the effects of rising temperatures on the world's forest carbon budgets.

Global warming has been linked to drought, rising sea levels and extreme weather conditions, yet few studies have looked at how rising temperatures act on dead twigs, leaves or other organic debris on the forest floor. As forest litter decomposes, carbon is released into the atmosphere, altering carbon dioxide (CO_2) levels. The Canadian Intersite Decomposition Experiment (CIDET), initiated in 1992 by the Canadian Forest Service (CFS), monitors potential changes in CO_2 releases from decaying organic matter.

Ecophysiology technician retrieving CIDET litter bags from experimental site.

"The most easily decomposed material breaks down within three years," says Dr. Tony Trofymow, a CFS research scientist with the Ecosystem Processes and Climate Change Networks. "A long-term study such as CIDET allows the CFS to look at the effects of temperature and moisture on the more resistant fractions of organic matter. Understanding what the more resistant fractions are made of is important to understanding how they decay."

A team of 20 scientists across the country are participating in the experiment in which 11,000 bags of foliar litter comprised of Douglas-fir, beech, aspen, black spruce, tamarack, bracken fern, fescue, western redcedar, jack pine and white birch were prepared and placed in 21 forest sites representative of Canada's diverse ecoclimatic regions. Sets of bags will be collected annually for ten years from four plots at each of the 21 sites.

Dr. Trofymow noted that for short-term decay rates, three variables – mean annual temperature, mean annual precipitation and the ratio of Klason lignin (a resistant organic matter fraction) to nitrogen – could explain 73 percent of the variance of percent mass that was remaining after three years, for all sites and material types. Given the known links between temperature, moisture and decomposition, rates of decay (based on calculations from three global circulation models for climate change) would increase by four to seven percent of current rates.

"We also found the substrate quality to be as important a factor as climate in explaining short-term decay rates," says Trofymow.

Using nuclear magnetic resonance (NMR) spectroscopy (see Information Forestry August 1997), Dr. Caroline Preston, a CFS scientist at the Pacific Forestry Centre, characterizes carbon-based components and their transformations in foliar litter.

"We discovered that Klason lignin is actually comprised of three or four different classes of chemical compounds," explains Preston. "It includes lignin, as well as condensed tannins and waxy compounds. Amounts of these components differ from litter type to litter type. For instance, grasses contain Klason lignin that is made up of about 60 percent true lignin, whereas spruce needles contain only 30 to 40 percent true lignin, with a much higher fraction of waxy compounds and tannins."

CIDET now plans to examine four year's worth of data to calculate appropriate decay curves, and will publish the NMR analysis survey of the 37 litter types examined for different chemical fractions. Comparable to experiments undertaken in the United States and Europe, CIDET is the first long-term study of its kind in Canada. Bringing together CFS researchers, universities and provincial ministries committed to investigating climate change, this study will enable Canada's policy makers to understand the important role forest ecosystems play in affecting global change.

Dr. Trofymow can be reached at: **ttrofymow @pfc.forestry.ca**

Natural Resources - A New Consensus Needed

"The key to sustaining biodiversity has to be our management of the matrix."

If people want to protect biological diversity in forests, they need to abandon outdated beliefs and strive for integrative solutions, forest ecologist Jerry Franklin told foresters, scientists and members of the public who assembled at in Victoria to hear him speak.

"We have a problem in the natural resources arena and that's how to develop a new consensus - a social consensus - on how we want to have our forests managed," said Franklin.

Franklin's lecture was part of a workshop on the differences between old-growth and second-growth forests. The workshop, "Structure, Processes and Diversity in Successional Forests of Coastal British Columbia," organized by the Canadian Forest Service (CFS) and the British Columbia Ministry of Forests, took place February 17-19. Presentations focused on experiments conducted as part of the CFS coastal forest chronosequence research project on Vancouver Island, as well as on other research in successional forests of coastal B.C. and the northwestern United States.

Jerry Franklin

Franklin, a professor at the University of Washington and one of the best-known forest researchers in the northwestern U.S., has spent 20 years examining the differences between old-growth and second-growth forests. He pulled no punches during his lecture, chastising environmentalists and the forest industry alike for clinging to cherished beliefs, or "icons", that are no longer valid or useful.

"Naturalness is the great icon of the environmentalists," said Franklin. "A corollary to that is that you use natural systems, such as reserves, as your primary way of dealing with issues like conserving biological diversity, even though it's got to be increasingly clear that we cannot protect most of that biodiversity by relying primarily on reserves.

"On the other side of the fence we've got another icon. You can represent it by clearcutting, but it's much more than just clearcutting. It's representative of a whole class of belief that current intensive forest practices are based upon natural models. They're not.

"It seems like neither the utilitarian nor the environmentalist is really looking into the future and engaging themselves in the changes that have to be made." Franklin stressed that cooperation is essential to protecting biodiversity on a meaningful scale.

"The key to sustaining biodiversity has to be our management of the matrix - the unreserved lands which provide suitable habitat for a broad array of species," he explained. "The interesting thing is that the hard-core people fighting this battle aren't really looking for an integrative solution to it. The hard-core utilitarians and the hard-core deep ecologists are not looking for a win-win solution."

Franklin also took part in the panel discussion that concluded the workshop. He and the other four panelists - Carl Winget, director general of the CFS Pacific Forestry Centre, Hamish Kimmins of the University of British Columbia, Larry Pedersen of the B.C. Ministry of Forests, and Jim Walker of the B.C. Ministry of Environment, Land and Parks - fielded questions such as:

- Are old-growth forests a renewable resource?
- How much old-growth forest is enough?
- How much do we need to keep, and for what?
- How useful is the study of successional forests to answering questions of forest management?
- Should more studies of this type be encouraged?

Panelists were also asked to give an example of a research project whose results changed management practice and to explain the factors that allowed the research results to be so easily incorporated into practice.

Research findings presented at the workshop will increase knowledge of the differences between old-growth and second-growth forests and which attributes do and do not recover with succession. And for those discouraged with the rate at which new information is applied to forest management practices, Jerry Franklin urged them to remember how far forest science has come.

"Thirty years ago, we were still arguing about whether old-growth forests were really

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Socio-Economic

"The forestry industry must adapt to new realities if it is to maintain or improve performance."

Canada is blessed with an enormous natural resource endowment. This endowment is a key component of the national economic and psychic well-being. Natural Resources Canada provides the scientific information to support the decision-making required to ensure the sustainability of this contribution. The expectations on the resource endowment have changed over time and will continue to change. Sound information on the ecological, social and economic aspects of forestry are an integral part of making good decisions to complement these changes.

BC is the dominant forest region within Canada and has emerged as a significant player in international forest product markets. Forestry is an integral part of the BC economy. For example, in 1996, forest products accounted for more than 60 percent of the value of BC's exports and the forest industry was the source of about 100,000 jobs.

However, the global marketplace is increasingly competitive and the forest industry must adapt to new realities if it is to maintain or improve performance, says Bill Wilson, Director of the Canadian Forest Service (CFS) Industry, Trade and Economics Program (ITEP).

"Our ability to compete in forest products is a big component of our ability to maintain the standard of living we enjoy," says Dr. Wilson. "That means the ability to underwrite schools, hospitals, roads, the whole works. So it's critical for BC forestry to have good information in terms of the various factors of production. What's happening in international markets, where technology is going, what other jurisdictions are doing to position themselves, where different institutions are going in terms of forest certification; all kinds of things are related to competitiveness."

Answering these kinds of questions is the mandate of the ITEP, at the Pacific Forestry Centre. It is part of the CFS's national Socio-Economic Research Network, which conducts socio-economic research to support Canada's efforts to lead in global sustainable development.

"What we're primarily doing is trying to identify and assess issues that we think are going to be relevant to the future positioning of the forest sector," explains Wilson.

Wilson and ITEP forest economists Sen Wang and Gregg Delcourt undertake research that supports the sustainable and competitive positioning of the Canadian forest industry in response to regional and global forces. These forces include changes in the quality, quantity and prices of the available timber supply, the decline in the relative terms of trade for commodity-grade products, emerging sources of competing supply, evolving trade arrangements and increasing interest in alternative forest resource use.

Research conducted through the ITEP focuses on three areas: 1) researching global market trends and opportunities, and the structure, significance, performance and competitiveness of the forest sector; 2) providing information on secondary and tertiary market development and; 3) developing information about and methods to examine the economic and social benefits resulting from forest resource management activities, including forest policy related to land use, timber supply and silvicultural practices.

"We've done an awful lot of work on value-added or secondary manufacturing, which is certainly a high priority within most forest jurisdictions now, since it's seen as a way to try to increase employment from timber harvesting," says Wilson. "We've partnered with others to complete research looking at manufacturing competitiveness, employment levels associated with different value-added products, value-added product and market opportunities and constraints. We've also looked at related technology issues."

ITEP forest economists have also researched topics such as forest sector employment, the impact of biodiversity objectives on the cost and supply of timber, the competitiveness of the coastal forest industry, silvicultural contracting markets, B.C. pulp markets and the impact of policy changes resulting from B.C.'s approach to sustainable forestry.

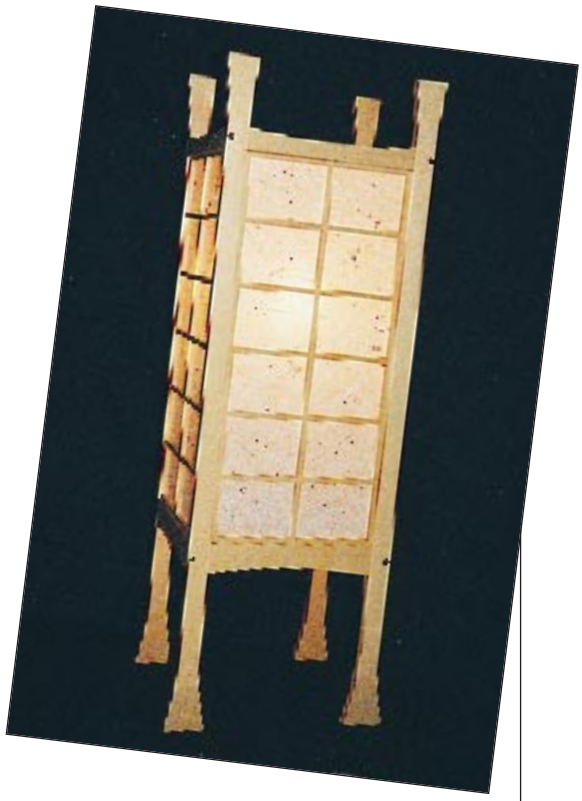
Wilson emphasizes that the research conducted under the ITEP is practical and, in some cases, unique. "The work completed in cooperation with the Forest Engineering

Research

Research Institute of Canada (FERIC), looking at the cost of pursuing biodiversity has been very helpful in development of the Forest Practices Code, there's no doubt about that," he says. "As far as I know, it's the only piece of publicly available research related to estimating those types of impacts. It was and still is being used to look at that issue."

The product and market investigations have also produced dividends for BC companies. The work on Chile, partnered with an association of BC manufacturing companies, has led to considerable export activity in harvesting and handling equipment to this emerging source of plantation timber. The research examining western red cedar market opportunities in Europe has been used by BC companies to greatly improve the export of high-value cedar products. This type of research, designed and delivered in cooperation with industry, serves to reduce the risk inherent to and supporting the efforts of BC companies to pursue export markets.

ITEP has recently released research reports on engineered wood products. These are the high-tech products which are making major in-roads into forest product markets – products like glulam, laminated veneer lumber, wooden I-beams, medium density fibreboard (or MDF), and oriented strand lumber. These products which can offer both production and user advantages are an attractive opportunity to an evolving manufacturing sector.



The ITEP produces working papers, with summaries, to ensure ready transfer of the research. Many of these working papers are downloadable from the ITEP website at http://www.pfc.cfs.nrcan.gc.ca/socioeconomic/industry.htm.

Dr. Wilson can be reached at **bwilson@nrcan.gc.ca**

(above and left)
Value-added products –
furniture made of BC yellow cedar

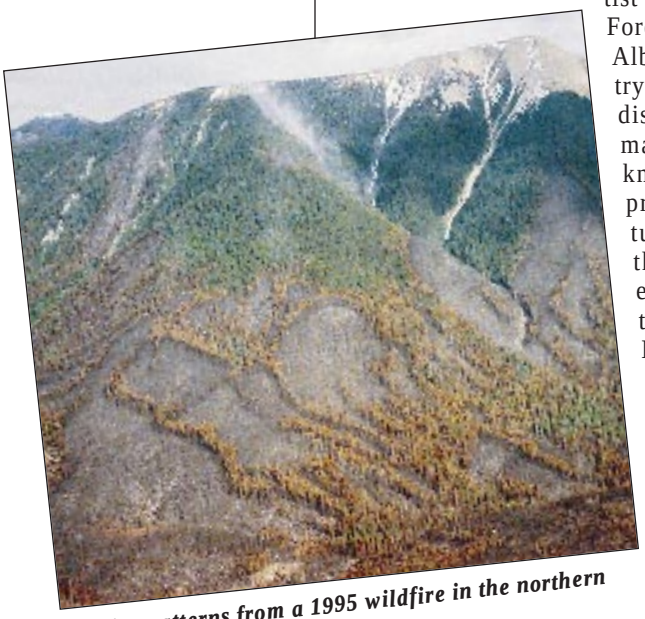
Fire Study Rises to New Heights

"Today, foresters view fire as an essential instrument of forest regeneration."

Think of it as a character study of an often unruly, yet essential player in forest ecosystems. The player is called fire, and examining its role and character makes perfect sense for Canadian Forest Service (CFS) fire research officer Brad Hawkes who recently looked at fire disturbances in northeastern B.C.

In the past, fire suppression was seen as a standard method for dealing with forest fires. Today, foresters view fire as an essential instrument of forest regeneration, contributing to a greater diversity of flora and fauna. "Fire plays a natural role and we're trying to better understand this role to help improve forest management," says Dr. Hawkes who works in the Fire Management Network at the Pacific Forestry Centre. To lessen human impact on forest ecosystems, more importance has been placed on creating managed forests that closely resemble natural forests. To that end, the challenge facing CFS researchers today is how to sustain a viable forest industry while upholding objectives for healthy, natural forests. To answer this question it becomes necessary to look at how forest ecosystems have been affected by fire within a particular landscape.

"This wholistic approach to understanding the natural ecosystem makes good sense," says Dr. Mike Flannigan, CFS research scientist at the Northern Forestry Centre in Alberta. "However, to try to emulate natural disturbances forest managers must have knowledge of the present and past disturbance regimes for the region of interest." In collaboration with the McGregor Model Forest Association, Dr. Chris Opio and Wendy Vasbinder from the University of Northern B.C., Craig Delong from the Ministry of Forests, Prince George Forest Region, Hawkes and others focused on analyzing fire patterns in portions of the Sub-Boreal Spruce (SBS) and Engelmann Spruce-Subalpine Fir (ESSF) biogeoclimatic zones in a wet, mountainous region. Much like a climatologist examines long-term trends of humidity, rain and wind, fire researchers study patterns of fire activity, or fire regimes, within a particular area.



Fire patterns from a 1995 wildfire in the northern Rockies

"A fire regime consists of ranges and sizes of fires, the patterns they form on the landscape, how frequently they occur, and what type of fire they are," Hawkes explains. As part of a McGregor Model Forest ecological processes project that examines the effects of climate, insects, diseases, soils, hydrology, and geomorphology on the forest landscape, Hawkes and his collaborators studied fire activity on 1.3 million hectares of mountainous landscape.

His study showed that the fire cycle in these areas was much longer than initially expected. Also, there were very large fire patches in the northern portion as compared to the southern portion of the study area. Dr. Mike Weber, a CFS research scientist working in the area of fire ecology says, "Studying what fire regimes we've had in the past serves as a guide to the future in terms of the protection of forests. It also allows us to predict age class distribution for the future and to identify possible scenarios that may predict effects caused by global warming."

Wendy Vasbinder led the work that has classified age and patch characteristics of the study area and is now conducting the second phase which will analyze a data base of age classes to determine how fire is influenced by slope, aspect and elevation. "What we're trying to determine is if these steep dissected valleys that are in the mountains play a role in where fires are occurring," says Hawkes. Though fire is just one part of the natural process of disturbances along with wind, insects and disease, it is definitely a major player in the life of a forest. Adds Hawkes, "We have to examine the role of fire in order to better manage our forest landscapes."

The final report of phase 1 is available at the McGregor Model Forest Web site: http://quarles.unbc.edu/mcgregor.

Dr. Hawkes can be reached at **bhawkes@nrcan.gc.ca.**

White Pine and Red Pine Silvicultural Study

"It is a combination of research and operational activities conducted as a partnership..."

While many of us may be familiar with studies into red and white varieties of *wine*, forestry experts are studying red and white varieties of *pine*.

Located in the Boreal Shield ecozone in central Ontario, the Petawawa Research Forest is the site for the White Pine and Red Pine Silvicultural Study. Part of the Forest Ecosystem Research Network of Sites (FERNS), the study is concerned with developing silvicultural practices to sustain white and red pine forests. It is a combination of research and operational activities conducted as a partnership between the Canadian Forest Service, the Ontario Ministry of Natural Resources, the University of Toronto, Laval University, and the Algonquin Forest Authority.

Aerial view of the Meridian Road Silvicultural Area

"The forests in this region were first harvested in the 1800s for large good quality white pine stems that were exported to Europe," explains Steve D'Eon, manager of the Petawawa Research Forest. "White pine remains a very valuable species but is a challenge to regenerate. Red pine also yields very high stumpage but because the species depends on fire for natural regeneration, human fire suppression has made large natural red pine stands rare. The White Pine and Red Pine Silvicultural Study allows scientists to research several treatments to assist in the development of stand management guidelines in this area."

"Since 1918 when the Petawawa Research Forest was established, research has focused on growth and yield, regeneration, genetics, forest fire behaviour, and plantation management," adds Dr. Darwin Burgess, a Canadian Forest Service research silviculturalist in the Effects of Forestry Practices Network who is investigating the effects of partial cutting, site preparation and underplanting on eastern white pine ecosystems. "Recent work is concerned with understanding environmental influences of forestry practices and development of sustainable forest management systems for white and red pine forests."

Research projects within the White Pine and Red Pine Silvicultural Study are organized under four categories:

1. Whole Tree Harvesting
Whole Tree Harvesting in Pine Mixedwoods – Biomass and nutrient removal were assessed in relation to conventional and whole-tree harvests. Nutrient amounts within seven major tree species including red and white pines as well as hardwoods, white spruce and balsam fir were determined.

2. Plantation Establishment and Early Performance
Cartier Lake Regeneration Area - Several silvicultural treatments were evaluated (including soil surface modifications, fertilization, and herbicide application) for their effects on survival and growth of planted white pine and white spruce trees. Changes in foliar nutrient, protein, starch and triglyceride levels were also assessed.

3. Partial Cutting and Natural Regeneration
Meridian Road Silvicultural Area - This study involves developing and assessing silvicultural practices that integrate commercial thinning and site preparation techniques in natural white and red pine stands for regeneration of white pine in an environmentally acceptable and sustainable way. The impacts of thinning and regeneration practices on key soil processes, biodiversity, noncrop vegetation, and major insects and diseases are also being examined.

Moosegrove Natural Regeneration Area - This research will examine silvicultural treatments and environmental influences controlling the natural regeneration of red pine.

4. White Pine Release
Cartier Lake Silvicultural Area - The objective of this research is to develop long-term white pine uniform shelterwood management systems while maintaining visual quality and protection from the white pine weevil. Set up

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Aboriginal Land Claims - The Potential Impact on Wood Supply

"The land claims process is an opportunity for indiginous and non-indiginous people to work together on sustainable development of our forests."

"Let's face it," wrote Chief Justice Antonio Lamer in a court ruling December 11, 1997 involving aboriginal land claims, "we are all here to stay." Combine that thought with the aboriginal concept that we are all — earth and human — connected, and the importance of the land claims issue in Canada becomes clear. The land and all its people will be affected directly or indirectly by land claims and it is only through careful evaluation of the land, its resources and its people that the issue can be resolved.

Over the last hundred years, treaties have been signed in most areas of Canada. But in BC, very few have been signed so the federal and provincial governments are working together with First Nations on comprehensive land negotiations to complete this overdue task. As detailed in the April 1997 issue of Information Forestry, the Canadian Forest Service provides forestry advice to federal treaty negotiation teams involved with land claims. Because forestry is a major economic activity in BC and many First Nations have a strong interest in forestry, there is concern about the potential impact that the land claim process will have on wood supply. It's a concern that Canadian Forest Service policy advisor Chris Lee takes seriously.

"It is difficult to determine what the impact will be, how extensive the land claims settlements will be, and what types of management regimes First Nations will seek to establish," he says. "But if we look at examples of recent treaty agreements, it is reasonable to conclude that treaties will benefit all resource users by removing the uncertainty to land use and thereby promote economic development for all users."

A summary report, *The Social and Economic Impacts of Aboriginal Land Claims Settlements*, states that "There was particular concern [by business communities in the areas affected by land claims] that the indigenous groups would oppose future resource development and thereby stall economic development. In the post-settlement era, non-indigenous business leaders capitalized on new opportunities (often joint ventures with aboriginal companies), and discovered a common interest in sustainable, mutually-beneficial economic development."

Just how much forest land is being negotiated in the land claims process? "In BC, 43 million hectares are considered productive forest land and about half of this area (23 million hectares) is described as commercial forest," Lee explains. "Each year, about 240,000 hectares of commercial forest is harvested producing an average volume over the last several years of 69 million cubic metres per year. As a maximum, First Nations could become the owners of five percent of provincial Crown land and five percent of the commercial forest (1.15 million hectares) and would therefore control five percent of the allowable average cut (3.45 million cubic metres per year)."

These arrangements will vary from treaty to treaty and depend on how the final details are negotiated. Regardless of the specific deatials of each treaty, they will all provide the opportunity for indigenous and non-indigenous peoples to work together on the sustainable development of our forests.

Chris Lee can be reached at **clee@nrcan.gc.ca**

Treaties provide an opportunity for all peoples to work on the sustainability of our forests.

Staff Comings and Goings

Murray Strome

Murray Strome has retired from the Canadian Forest Service as Director, Forest Systems Division and Network Manager of the Landscape Management Network. Murray had come to the Pacific Forestry Centre from the Petawawa National Forestry Institute where he was Director of the Forest Management Program. He was also responsible for the Green Plan Decision Support Systems (DSS) initiative, and was one of the founders of the Canada Centre for Remote Sensing, where he designed and implemented the world's first LANDSAT receiving and processing facility outside the United States.

Welcome to **Dr. Gary Hogan**, Director, Forest Biology Program at the Pacific Forestry Centre, where he is responsible for science and technology staff who work in a variety of CFS Networks. He is also the Network Manager of the Effects of Forestry Practices Network which has over 50 staff located at the five Canadian Forest Service establishments across the country. Gary joined the Canadian Forest Service in 1977 at the Northern Forest Research Centre as a research scientist and project leader, and comes to us from the Great Lakes Forestry Centre where he was Acting Director, Forest Ecology.

Gary Hogan

Mark Gillis joins the Pacific Forestry Centre as Manager, National Forest Inventory. He manages the development, analysis and reporting of Canada's National Forest Inventory and ensures effective multi-media communication of the inventory statistics. He comes to us from the BC Ministry of Forests where he was coordinator of the Vegetation Resources Inventory. Prior to that he worked at the Petawawa National Forestry Institute with the Forest Inventory and digital remote sensing projects.

Mark Gillis

Recent Publications

Recent publications, 1997 (our most recent catalog of publications)
Information Report BC-X-376. 10 p. (1997).

Chronosequences for research into the effects of converting coastal British Columbia old-growth forests to managed forests: an establishment report.
Trofymow, J.; Porter, G.; Blackwell, B.; Arksey, R.; Marshall, V.; Pollard, D.
Information Report BC-X-374. 137 p. (1998).

Coarse woody debris in chronosequences of forests on southern Vancouver Island.
Wells, R.W.; Trofymow, J.A.
Information Report BC-X-375. 35 p. (1997).

Impacts of blading and burning site preparation on soil properties and site productivity in the sub-boreal spruce zone of central British Columbia.
Bulmer, C; Schmidt, M.; Preston, C.; Kishchuk, B.
Information Report BC-X-377. 44 p. (1998).

A comparison of four treatments for weeding Engelmann spruce plantations in the Interior Cedar Hemlock Zone of British Columbia: ten years after treatment.
Whitehead, R.; Harper, G.J.
Information Report BC-X-379. 21 p. (1998).

Canada's forest inventory 1991: the 1994 version - technical supplement.
Gray, S.L.; Power, K.
Information Report BC-X-363. 73 p. (1997).

Seedling growth on disturbed soils in alternative silvicultural systems of coastal British Columbia's montane forests.
Senyk, J.
Technology Transfer Note No. 5. Pacific Forestry Centre. (1997).

Web diagnostic tool for common tree diseases of British Columbia.
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Weevils – continued from page 3

from any previous mechanism of resistance, not only for the white pine weevil but for any insect. It is gratifying to be able to say that we now have scientific evidence for all the main components of this mechanism and we have had no changes to make to our mechanism as first proposed from a theoretical basis."

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New consensus – continued from page 5

different and if they were why it mattered anyway. We don't have those kinds of arguments anymore."

Copies of the workshop's program with abstracts, containing extended abstracts of all oral presentations and posters as well as a list of workshop participants, are available free-of-charge from the Pacific Forestry Centre.

White and red pine – continued from page 9

in 1971, the study is evaluating the effects of removing an aspen/white birch overstorey on white pine growth and quality.

Dacre Shelterwood Study – The research at this site will determine the optimal red pine/white pine overstorey removal level that provides adequate seedling growth with minimal white pine weevil damage. It will also determine the level of logging damage to both the residual stand and established regeneration resulting from overstorey removal.

Being part of the FERNS network (detailed in Information Forestry, August 1996) ensures that research developed through the White Pine and Red Pine Silvicultural study will be preserved and available to researchers and forest managers across the country.

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Upcoming Events

North American Forest Biology (NAFB) & Western Forest Genetics Association (WFGA) Joint Meeting & Workshop - Frontiers of Forest Biology
June 21-26, 1998
University of Victoria, B.C.

This workshop will address two subject areas: 1) striking a balance between forest utilization and conservation; and 2) expanding the frontiers of forest biology to meet the challenge of managing the forest resource for diverse values. It will provide forest scientists with a unique opportunity for interdisciplinary discussions of forest biology frontiers including genetics, silviculture, plant physiology, ecology, and conservation.

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