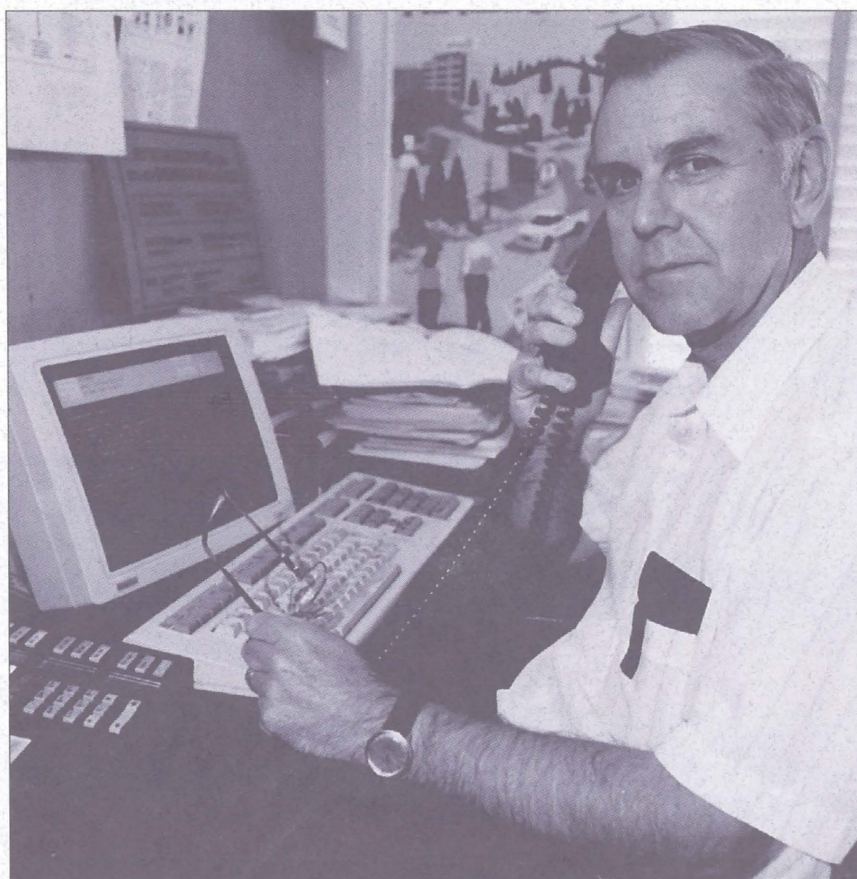


Scientists create "expert" to diagnose forest ills

Most doctors would agree that diagnosing a patient without knowing the symptoms would be a difficult task. The same holds true when it comes to diagnosing disorders of the forest. Two scientists at the Pacific Forestry Centre decided to simplify the process, and have designed a computer-assisted diagnostic program which will aid in the identification of forest insect and tree disease problems.

HFOREST is a CD ROM program which combines text and graphics to create a hypermedia environment. "[The CD ROM format] gives HFOREST more of a user-friendly interactive aspect," says Allan Van Sickle, co-creator of HFOREST and Head of the Canadian Forest Service's Forest Insect and Disease Survey (FIDS).

The system took two years to develop. During that time, over 350 colour illustrations were taken from



the FIDS slide collection, converted into digital form, and put onto photo CD's. Black and white line drawings were added to supplement the digital colour graphics.

Most of the information contained on HFOREST comes directly from the FIDS Forest Pest Leaflet Series. The leaflets include characteristic signs and symptoms of tree diseases as well as a description of the insects which feed on the

Head of the Canadian Forest Service's Forest Insect and Disease Survey (FIDS), Dr. Allan Van Sickle, explains that the new HFOREST CD illustrates the dramatic changes taking place in the publishing of scientific information.

continued on p. 2
HFOREST

FRDA to support interna

A seminar of worldwide significance will take place in Prince George September 9-15 with the help of funding from the FRDA II Trade Shows and Conferences program. The United Nations sponsored Joint FAO/ECE/ILO International Forestry Seminar on Forest Practices will bring together several hundred delegates from over 30 countries to discuss the changing face of forestry. This gathering of experts, policy makers, researchers and operational foresters will tackle the challenge of transforming sustainable forest policies into feasible and workable practices.

The seminar is being hosted by Natural Resources Canada and

the B.C. Ministry of Forests, with the support of the University of Northern British Columbia, the McGregor Model Forest Association and the Northern Forest Products Association. While the conference will focus on the needs of the global community, Canada will be in the spotlight both inside and outside of the seminar.

The Joint Food and Agriculture Organization (FAO), Economic Commission for Europe (ECE), and International Labour Organization (ILO) Committee on Forest Technology, Management and Training was established 40 years ago in response to the collective desire of member countries to

improve and promote "best practice" forestry. Since its creation, the Committee has helped the world adopt new and progressive techniques as our perception of "best practice" forestry has evolved. Unlike some organizations which choose to focus on the theory of resource management, the FAO/ECE/ILO Joint Committee has always concentrated on developing practical methods based on the needs of the people who work and live in the forests.

Like its mandate, the FAO/ECE/ILO membership has developed and grown over the years. The upcoming Prince George event represents the first time

HFOREST...

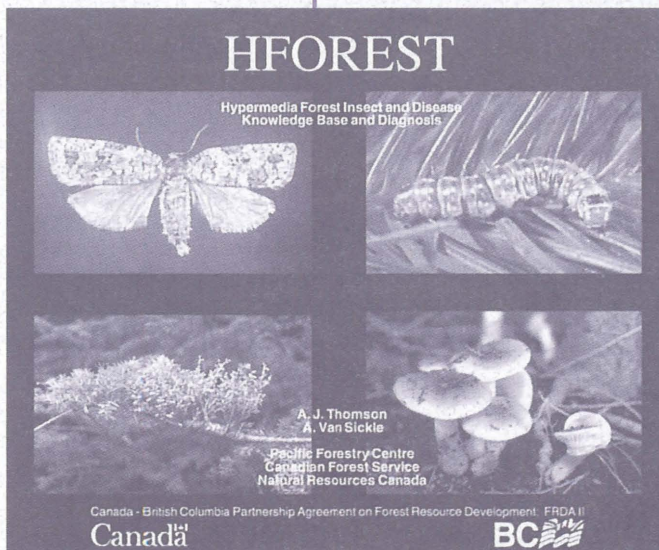
continued from p. 1

trees, and the damage they cause. This sort of information is invaluable. However, if the causal agent of a specific problem is unknown, further assistance in diagnosis is required.

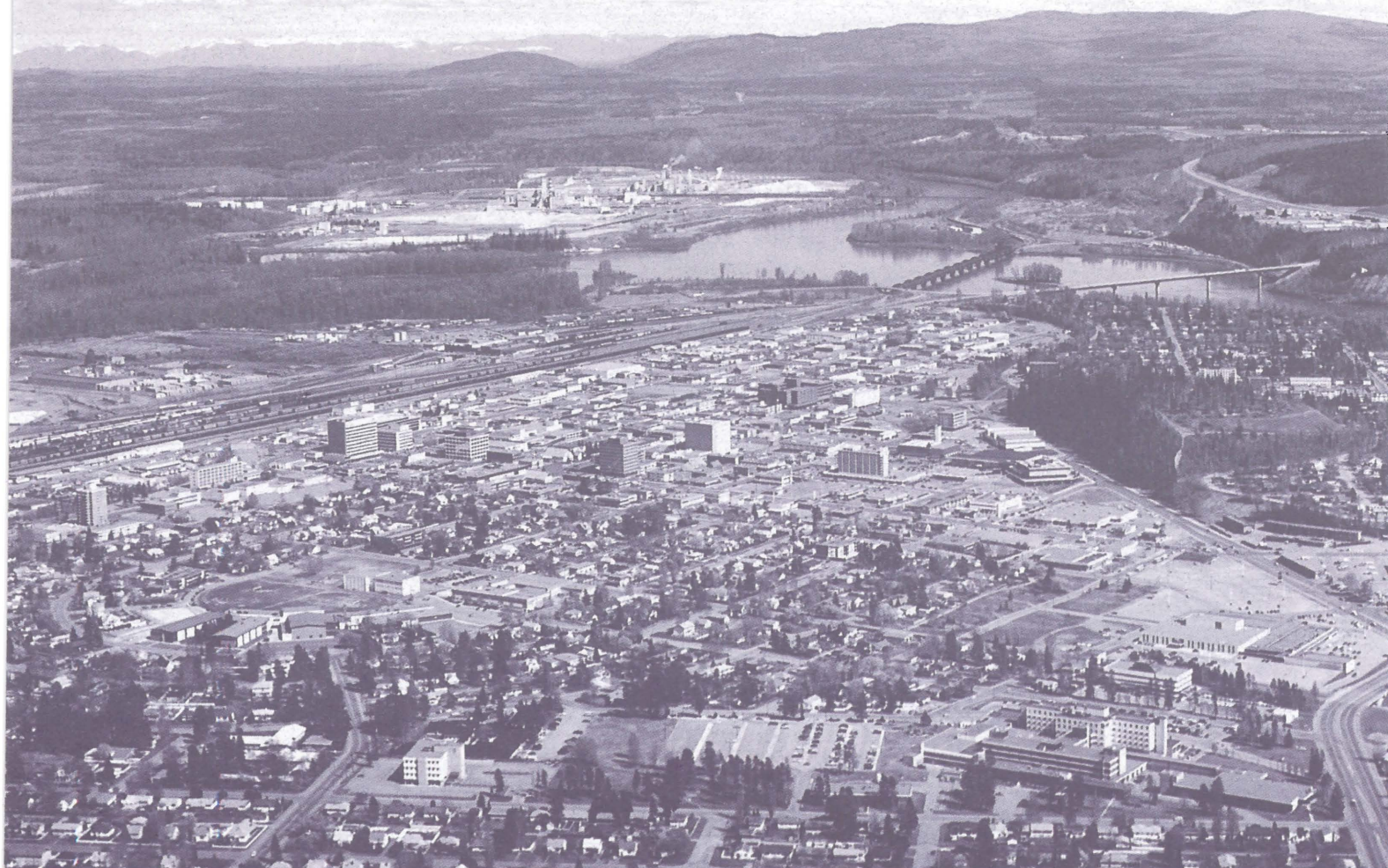
"If you don't know what the problem is, then the leaflets are of limited use," says Dr. Alan Thomson, a scientist in the Advanced Forest Technologies Program and Van Sickle's partner in the creation of HFOREST. This is where the program steps in. "[HFOREST] captures the knowledge and expertise of a wide range of people," continues Thomson. "It's like having an expert at your fingertips."

The program uses expert system guides to direct users through the Forest Pest Leaflet Series and provides supplementary diagnostic information through the use of hypertext links which allow different screens to appear on the computer. This creates a cross-referencing system where materials from different pest leaflets can be viewed simultaneously. Thomson said the program is designed to provide a diagnosis on the basis of limited information.

Funded through the FRDA II Extension and Technology Transfer Program, HFOREST is an impressive example of the technological advances being made in forestry publications. The program's combined text, graphics and line drawings are the equivalent of a 500-page textbook. "The next couple of years we're going to see some dramatic changes," says Van Sickle, referring to future projects similar in scope to HFOREST. Thomson adds that "[Electronic publishing] is not only economically feasible, but highly efficient."



onal conference



From September 9-15, Prince George will play host to hundreds of visitors from around the world as part of the United Nations sponsored Joint FAO/ECE/ILO International Forestry Seminar on Forest Practices.

that the Joint Committee has held its seminar outside of Europe. Organizers expect over 450 delegates to participate — their countries of origin spanning North and South America, Europe, Africa and Asia.

Field tours are scheduled for the seminar, allowing delegates to explore central British Columbia's forest ecosystems and landscapes. The tours will give participants the opportunity to learn more about Canadian

forestry accomplishments and local forest management issues and practices. Optional tours of B.C.'s coastal ecosystems, northern boreal forests and Rocky Mountains will also be offered after the seminar.

Delegates will take part in one of five working groups to discuss specific issues connected to the global challenge of developing sustainable forest policies and practices. The recommendations and resolutions of the working

groups will then be combined and presented at the end of the seminar. It is expected that these recommendations and discussions will assist countries in achieving sustainable forest management practices.

For additional details, please contact: FAO/ECE/ILO International Forestry Seminar, in Prince George, at (604)-563-8833 or fax (604)-563-3697. Contact: Trudy Swaan.

Bridge River and Lillooet Band



Bridge River Chief Saul Terry (kneeling) and Bradley Jack (right) with band members at ceremonial tree planting celebrating the planting of 180,000 trees on Bridge River lands

For years, the Bridge River and Lillooet Bands have been setting an example in First Nations forestry. Through their participation in the First Nations Woodlands Program, sponsored by the Canada-B.C. Partnership Agreement on Forest Resource Development (FRDA II), the bands have received funding and forestry advice so they could plan and practice sound management of all of the resources on their forest lands.

Under the First Nations Woodlands Program, a band or tribal council prepares and submits a forest management plan, including an inventory of its forest resources and an operating plan for harvesting/ silvicultural activities. A program officer is made available to advise bands on terms of reference, tendering procedures and funding applications. Funding for specific silvicultural projects identified in the operating plan is approved on a project by project basis. The band or tribal council must contribute at least 10 percent of cash or in-kind payments to the cost of each project.

While the program requires organization, time and effort, the Lillooet and Bridge River Bands have remained focused and on track with their management.

Ted Sales, RPF, forest consultant for the two bands, attributes their success to hard work and continuity.

"The same people have been involved since the beginning," said Sales. "They've updated their goals, kept up with their planned projects and then some, and used their management plans as a reference tool."

Before their management plans were even in place, both bands took part in a joint forestry training program that taught members about spacing, planting and basic surveying techniques.

"We've been involved since FRDA I started in 1986," said Bradley Jack, Bridge River Band manager.

set forestry example

Dave Haley of the Canadian Forest Service makes a presentation to Chief Yvonne Scotchman of the Lillooet Band



"Although we struggled with the guidelines in the beginning, we worked through it, created our management plan, and have been involved with FRDA ever since."

The Bridge River Band began implementing its management plan by spacing the trees on the reserve. They continued with activities such as surveying, pruning and site preparation for planting. With FRDA II, they laid out a five-year plan that included a multi-year contribution agreement for certain projects, such as planting and purchasing seedlings.

So far, all of the work has been done by band members except for mechanical site preparation work and consulting.

The Lillooet Indian Band began creating its management plan in June, 1989. With the help of a consultant, they prepared a Forest Inventory and Management Plan, including five-year and 20-year development plans. The band submitted its Silviculture Project proposal for funding in 1991, and since then has been busy with site preparation, juvenile spacing and

planting. As well, the band has arranged for the growth and purchase of seedlings from a nursery.

For the Lillooet and Bridge River Bands, the benefits of taking part in the First Nations Woodlands Program have outweighed the time and effort required to make their management plans work. As well as providing employment and training on the reserves, their forest woodlands support wildlife and fisheries, while enhancing the environmental and aesthetic values of the land.

"We've enjoyed a good relationship," said Sales. "It has been a rewarding experience, in part because the bands ask questions and seek advice on how to form plans to meet their goals and needs."

Doreen Whitney, Lillooet Band manager, and Bradley Jack agree. While the bands require some guidance, they also value their ability to make decisions and control the direction of their management plans. The Lillooet and Bridge River Bands marked their accomplishments with a plaque during a ceremonial planting in the spring.

Plum Creek Timber takes on new direction

Is it possible for a company that was called the 'Darth Vader of the timber industry' in Washington State to turn around in a few short years and become the Luke Skywalker of forestry in the Pacific Northwest? With 850,000 hectares in Washington, Idaho and Montana, the Seattle-based Plum Creek Timber Company is the second largest owner of private timberland in the Pacific Northwest. Facing a history of 50 years of clearcutting and increasing public pressure, the Plum Creek Timber Company decided to change their approach to forestry.

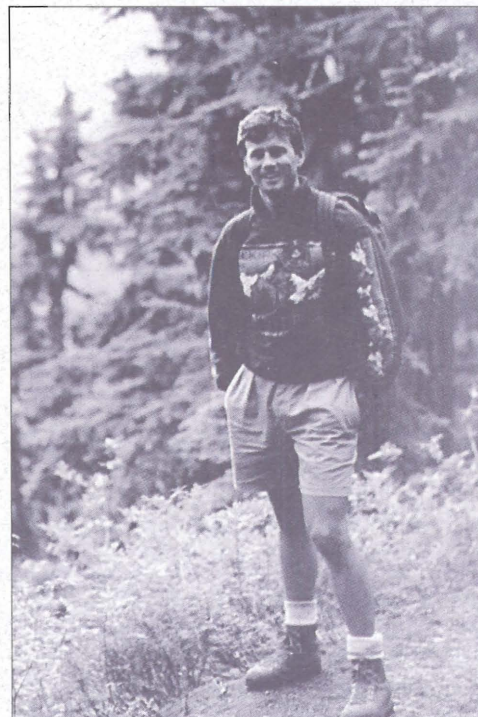
Because there is an extensive research and development program in British Columbia currently focused on alternatives to conventional clearcutting, the B.C. Ministry of Forests, Silviculture Practices Branch has taken an interest in Plum Creek Timber's activities. With the help of the Canada-B.C. Partnership Agreement on Forest Resource Development (FRDA II), they prepared a report titled Environmental Forestry, Plum Creek Timber Company's Approach to Forest Management: A Case Study.

In 1989, Plum Creek Timber was sold by Burlington Northern, becoming an independent company producing four primary forest products: logs, lumber, plywood and medium-density fibreboard. Using new methods, they set out to prove that the environmental values of the forest could be combined with economical timber growth and harvest.

Plum Creek Timber began their corporate evolution by adopting an approach they call environmental forestry, a combination of "new forestry" which maintains stand components after harvesting, with a set of environmental principles developed by the company.

To fulfill their objectives, Plum Creek Timber foresters began using a number of systems including partial cutting and contoured patch retention (designing leave-strips in areas of cutting units that have a mixture of tree species, snags and sizes). Landing sizes were minimized and reforestation carried out within two to five years. By the end of 1990, 50 trial blocks had been logged using new forestry techniques, rather than the six blocks originally proposed.

"Plum Creek Timber's success in implementing their new approach came down to the basic principles of managing a good organization with leadership and environmental integrity," says forestry consultant and report author Ken Zielke.



"Plum Creek Timber's success in implementing their new approach came down to the basic principles of managing a good organization with leadership and environmental integrity," said forestry consultant and report author Ken Zielke. "They use a flat corporate structure with people in the field working together as a team, making decisions on their own with full support from above." This generalist team-approach is quite a departure from the classic "specialist-hierarchy" Plum Creek used to follow.

Though Plum Creek Timber's efforts have been successful ecologically, one of the main criticisms of new forestry is that it accounts for concepts that aren't quantifiable, such as biodiversity. To foresters, these considerations also translate into higher costs. The largest cost comes from lost revenue associated with leaving timber volume behind; Plum Creek estimates that this lost volume is about three percent of their average annual harvest. Other costs were minimized with the development of harvesting systems like contoured patch retention, however the layout time in new forestry blocks doubles or triples when compared to traditional clearcuts. Though they face increases in these and other operating costs, Plum Creek feels "they can live with the long-term implications to annual harvests, considering the integrated management benefits," reported Zielke.

Foresters in B.C. will be able to use the report, and the benefit of hindsight, to learn from the mistakes and successes of Plum Creek Timber Company. "Reports such as the Plum Creek Case Study allow us look at areas that have embraced alternative cutting and forestry practices," said Forest Practices

continued on p. 8

Healthy heart, healthy trees

Researchers find that salmon oil not only helps prevent heart disease, but may also be an effective fertilizer for B.C.'s forests

Are salmon, heart disease prevention and healthy trees connected? Although it may seem unlikely, this trio may provide small-scale woodlot owners with an inexpensive source of fertilizer in the near future.

The connection begins at Ikon Laboratories in Sidney where they produce a nutritional supplement for the prevention and treatment of heart disease. The supplement contains Omega 3 fatty acids which are extracted from salmon oil. However, Omega 3 fatty acids compose only 25 percent of the salmon oil — and the remainder is considered waste. And because the supplement's salmon oil byproduct is rich in nitrogen, it promotes the growth of aerobic microorganisms such as algae and cannot be disposed of through Sidney's sewage system.

The byproduct solution is composed of urea, a nitrogen compound that is currently used by coastal B.C. foresters as fertilizer, and fatty acids. So researchers at the Canadian Forest Service (CFS) in Victoria set out to see whether the waste solution would also work as a nitrogen-rich fertilizer for small-scale woodlots.

Conventional urea, although proven an excellent tree fertilizer, is typically expensive and difficult for small woodlot owners to access because it's sold only in large quantities. But one day's production of nutritional supplements yields 1,000 litres of waste containing 250 kg of urea, enough to fertilize half a hectare of trees.

"We want to test whether the oil solution is as effective as conventional urea," said CFS researcher, Dr. Caroline Preston, "as well as look at different ways of applying the waste."

solution shouldn't react any differently than conventional urea."

In the greenhouse, two-year-old Douglas-fir and western hemlock seedlings have been transplanted into pots to measure



Contractor Allen Hopwood sprays the salmon oil byproduct on a test site near Courtenay.

To test the effectiveness of the solution, CFS scientists set up field and greenhouse trials in February and March of 1995. The field trial site consists of juvenile and near-harvest mature stands near Courtenay. Over a full growing season, test samples will be taken to assess growth response and nitrogen uptake by the trees and understory, and will look at any negative effects of the salmon oil urea.

"Our main concern is the possibility of the high pH burning the foliage or the solution affecting the pH levels in the soil," said Dr. Preston, "but in all other ways the

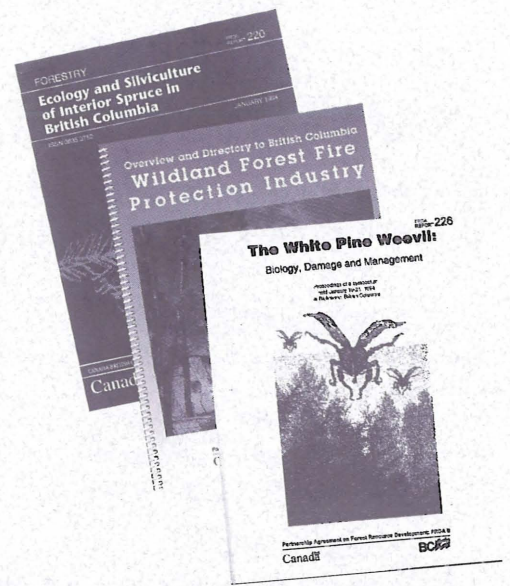
the effectiveness of the waste salmon oil solution against conventional urea. Other pots, without seedlings, will be treated with the solution and monitored for changes in soil properties.

Because sewage sludge, fish silage and urea have all been used successfully as fertilizers in field trials in coastal BC, the salmon oil solution is likely to prove successful. And if it does, preventing heart disease will also result in healthy trees, and probably a little less stress for the small-scale woodlot owner.

Blue rain expected to change into multi-coloured flood

As we enter the final year of FRDA II, the Publications group are gearing up to produce a myriad of reports which will document the research conducted under the Agreement. FRDA reports, which have affectionately been dubbed "The Blue Rain" because of their colour and quantity, are taking on a variety of hues, formats and sizes to get information out to researchers and forest managers.

Recent report covers have featured weevils zooming into pine stands (FRDA Report 226 The White Pine Weevil: Biology, Damage and Management), a spectacular fire (Overview and Directory to B.C. Wildland Forest Fire Protection Industry) and an artist's rendition of an Interior Spruce Branch (FRDA Report 220 Ecology and Silviculture of Interior Spruce).



No, they don't have blue covers, but yes, they are in fact FRDA II reports — just a few of many being published before the wrap-up of FRDA II.

Plum Creek... continued from p. 6

Forester, Peter Bradford with the B.C. Forest Service. Already, many of the practices tried by Plum Creek are in use in B.C. To increase the speed at which B.C. continues to change, the Forest Service has developed courses on stand level biodiversity, partial cutting, and wildlife trees.

Plum Creek Timber Company has continued to move forward and maintain practices beyond what regulations demand. As well as research on watershed management and the impacts of the new practices, currently 15 percent of Plum Creek Timber's harvesting is done using new forestry prescriptions. "Now we're taking a look at the subject of third party compliance and adding performance dimensions to our 10 environmental principles," said Dave Crooker, Director of Operations for Plum Creek Timber. The new steps will involve creating principles for their manufacturing operations and taking all of the principles from general statements to more measurable quantities. An outside firm will audit the company to ensure that it's meeting its set standards; Plum Creek will then issue a yearly report. As well, Plum Creek Timber is developing a multi-species habitat conservation plan under the Endan-

gered Species Act and will incorporate its environmental principles into that plan.

Plum Creek Timber Company has come a long way since it embraced environmental forestry six years ago. And with each move forward into integrated resource management and responsible forest operations, we may reach the day when the public and foresters will say "May the force be with you," in the spirit of ecologically sound forestry.

Renewal is the newsletter of the Canada/ British Columbia Partnership Agreement on Forest Resource Development: FRDA II.

Editor: Barry Gee
Layout: Dan Dunaway

FRDA II is jointly funded by:

Canadian Forest Service,
506 West Burnside Road
Victoria, B.C.
V8Z 1M5
Tel: (604) 363-0600

Please direct your comments and inquiries to:
Barry Gee,
Communications Officer
Canadian Forest Service

Contributors: Catherine
Hamilton, Lyana Patrick,
Jill Peterson, Tania Wegwitz

B.C. Ministry of Forests
1450 Government Street
Victoria, B.C.
V8W 3E7
Tel: (604) 387-5255

Canada

Partnership Agreement on Forest Resource Development: FRDA II

BC

