

INFORMATION FORESTRY

PACIFIC FORESTRY CENTRE

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Dougie-fir the talking tree is the star attraction of a new display sponsored by the Canada-British Columbia Forest Resource Development Agreement (FRDA). The display is currently travelling throughout British Columbia making people more aware of the benefits of this \$300 million federal/provincial forest renewal initiative. (More stories on FRDA appear on pages 7 & 8.)

Forestry
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THREE BROTHERS RECOGNIZED FOR RESEARCH INTO CANADIAN FOREST DISEASES

by Ian Indridson

While it is rare to find three brothers who have dedicated themselves to careers in the same scientific area, it is more rare to find that they are all recognized as leaders in their field.

Norman, Roy, and Harvey "Stu" Whitney, however, all have performed groundbreaking research that has expanded knowledge about Canadian forest diseases and their management. Their careers, which have all spanned more than three decades, have involved work in forest pathology and mycology.

In recognition of their numerous contributions, the Whitney brothers recently received a special Certificate of Achievements from Forestry Canada and the Canadian Phytopathological Society.

The two younger brothers have had long and distinguished careers with Forestry Canada, Roy at the Great Lakes Forestry Centre, Sault Ste. Marie, Ontario, and Stu at the Pacific Forestry Centre, Victoria, British Columbia.

Stu, the youngest, admits Roy had an influence on his decision to work in pathology. Stu says he actually was working on his Bachelors in Agriculture when he began doing summer work in forest pathology with his brother.

"He needed the help, and I was available," Stu says. But the field impressed him such that when his masters was complete, he applied to work in forest biology, and went to Forestry Canada's Laurentian Forestry Centre in Ste. Foy, Quebec to do nursery research. Later, on education leave, he was the second-fastest student to get through the phytopathology Ph.D. program at the University of California, Berkeley.

Since then, Stu has worked in various capacities for Forestry Canada, and professional interaction between the brothers has been limited. Stu says that although he and his brothers have never worked together in any formally organized way, they once put together a poster session on stain fungi for the



Drs. (l-r) Stu, Roy and Norman Whitney receive a special Certificate of Achievement from 1988 Canadian Phytopathological Society President, Dr. Norman Hall.

Canadian Phytopathological Society, and "that's the only Whitney-Whitney-Whitney contribution that I'm aware of."

Stu says one of his major achievements has been to bring the concept of tree resistance to bark beetle attack into the research lives of entomologists. The significant notion he introduced to bark beetle research was that trees actively react following insect attack. Stu says this fit his research area perfectly, as pathology emphasizes the role of the host.

"Trees respond to fungi that bark beetles introduce," he explains, "so it was natural for me to see that and to exploit it in my research." This work has inspired further entomological research worldwide in this area. Stu is also well known for his pioneering work on nucleic acid content of stem rust-infected cells of wheat, on sexuality in *Rhizoctonia* inducing damping-off and on the use of fungal pathogens in the biocontrol of forest insects.

Just what is it that continues to make research fascinating after 32 years with Forestry Canada? According to Stu, "I've always been interested in discovery, and the opportunity to make discoveries in my field are as good as they can be. The thing that excites me the most is to see something that hasn't been seen before or hasn't been

recorded as having been seen, and to think out the significance or meaning of it in the context of how a pest problem works.

"The motivating thing is to try to find a link where the disease process can be intervened by man, so that the losses caused by pests can be minimized. I don't think of eliminating problems, but of minimizing them."

Roy Whitney, too, has been with Forestry Canada since the outset of his research career, which began 37 years ago.* As a senior scientist at the Great Lakes Forestry Centre in Sault Ste. Marie, Ontario, Roy is known internationally for his extensive research on root and butt rots, particularly root rots caused by *Armillaria* and *Polyporus*. He recently produced a booklet and a video entitled "The Hidden Enemy", which is considered to be one of the best examples of technology transfer dealing with the management of root problems. The booklet won the prestigious Bailey Award at the 1988 Annual General Meeting of the Canadian Phytopathological Society.

Norman Whitney, the eldest brother, who lives in Nackawic, New Brunswick, has divided much of his career between research, university-level teaching and the church. It was as an agriculture student at the University

of Alberta that Norm says he developed an interest in botany. This interest grew, and study in mycology and plant pathology earned him a Masters at the University of Western Ontario and a Ph.D. at the University of Toronto. But as his research progressed, his fervor for helping others took a new turn, and he began studying theology at the McGill University in 1961. He was ordained as a minister of the United Church of Canada in 1964.

Variety has filled Norm's professional life as much as his education. In his research he has performed pioneering work on antibiotics produced by lignicolous fungi in forest and marine habitats and mechanisms of mycotoxin

production by needle-inhabiting fungi and their relation to forest-defoliating insects. More recently, he has been involved in the extraction and analysis of needle endophytes, which affect the spruce budworm. His teaching life is split between half-appointments in Biology and Forest Research at the University of New Brunswick, and a professorship in Religious Studies at nearby St. Thomas University. Ultimately, he also serves as minister of a parish.

"I've always combined university and church work," Norm says, adding that he finds the entire process of

experiments and discovery fascinating. "I'm directing the work of seven graduate students at present, all of whom are doing different things. They challenge me all the time, and I find that exciting." Although he finds it "very demanding" to teach full time and meet the requirements of Sundays, "I like all the aspects of both jobs."

Overall, through their studies of forest fungi, the Whitney brothers together have given more than a century of valuable research to improving the understanding and management of forests in Canada and abroad.

*recently retired

STAFF ORGANIZE CHEMISTRY SYMPOSIUM

A Chemistry in Forestry Symposium is to be held in Victoria June 4-8, 1989, as part of the 72nd Canadian Chemical Conference and Exhibition. Symposium organizers are Drs. John Manville and Caroline Preston of the Pacific Forestry Centre.

The Chemistry in Forestry Symposium will focus on three separate discussion areas over two days: Applications of Magnetic Resonance; Advances in Forest Products Chemistry; and Forest Chemistry. The latter session will highlight chemical and biochemical studies of the components of the forest ecosystem (eg., plants, litter, soil, microflora, insects, etc.).

A session of this symposium is being supported by the Canadian Pulp and Paper Association in order to bring together Canadian scientists and academics working in such diverse areas of study as wood chemistry, carbohydrate and cellulose chemistry, and biotechnology. The CPPA see this symposium as a unique opportunity to encourage communication between the younger and older scientific communities.

"In the past the Canadian Society for Chemistry Conferences have tended to be very academic and university-oriented. We would like this symposium to bring together academic, government

and industrial researchers, and to foster better lines of communication between these groups", say Drs. Manville and Preston.

Sponsors of this Chemistry in Forestry Symposium include: Forestry

Canada, NMR Technologies Ltd., Calgary, and MacMillan Bloedel Research, Vancouver.

Anyone wishing more information may contact either Dr. Manville or Dr. Preston at (604) 388-0600.

Featured speakers will include:

SPEAKER	TOPIC	ADDRESS
Dr. Hartmut Stegmann	Photosynthesis, EPR and damage to Forests	University of Tubingen, Tubingen, West Germany
Dr. Laurie Hall	Imaging wood by NMR	University of Cambridge, Cambridge, Great Britain
Dr. Roger Newman	13-C NMR Pulse sequences for Wood Science	Department of Scientific and Industrial Research Petone, New Zealand
Dr. Alexander MacKay	NMR Imaging of Wood	University of British Columbia, Vancouver, B.C.
Dr. Joel Garbow	Solid State NMR of intact Biological Systems	Monsanto Company, St. Louis, Missouri
Dr. Alan Procter	Challenges in Forest	MacMillan Bloedel Products Chemistry Research, Vancouver, B.C.
Dr. Andre Lawrence	Thermal Desorption/Ion Mobility Spectrometry-Wood Species Ident.	National Research Council, Ottawa, Ontario
Dr. William Reynolds	2D NMR of Natural Products	University of Toronto, Toronto, Ontario
Dr. Peter Sollins	Soil Solution Chemistry	Yale University, New Haven, Connecticut
Dr. Tom Kimmerer	Chemistry of Cambial Respiration in Trees	University of Kentucky, Lexington, Kentucky
Dr. William Gensler	The Phytogram Index used to determine Health of Trees	Agricultural Electronics Corporation, Tucson, Arizona
Dr. Edith Camm	Photosynthetic Membranes Conifers & Angiosperms	University of British Columbia, Vancouver, B.C.
Dr. John McLean	Pheromones	University of British Columbia, Vancouver, B.C.

Staff Announcements



T. John Drew New Director General

Dr. T. John Drew was appointed Director General of the Pacific Forestry Centre effective January, 1989. His appointment was announced by Tom Lee, Assistant Deputy Minister of Forestry Operations, Forestry Canada.

Dr. Drew's new role includes responsibility for federal forest research in British Columbia and Yukon and co-management of the Canada-British Columbia Forest Resource Development Agreement (FRDA).

Dr. Drew joined Forestry Canada from the Alberta Forest Service where he served as Director, Reforestation and Reclamation.

After receiving his Ph.D. in Forestry, plant physiology and genetics, from North Carolina State University in 1973, Dr. Drew worked as Chief, Research and Development on the Jari project in northern Brazil. Dr. Drew then joined the Weyerhaeuser Company and served at their Western Forestry Research Centre in Washington State as a silviculturalist in forest management research. In 1979, he was promoted to manager, Forest Regeneration and Research with Weyerhaeuser Canada, B.C.

While completing his Masters of Business Administration at Washington State University in 1983-84, Dr. Drew served that same university as a lecturer in Finance.



Terry Honer Returns

Terry Honer returned from an overseas assignment and is on a one-year secondment to the Ministry of Forests under the STEP program. Dr. Honer's duties will include serving as Executive Secretary to the B.C. Coastal and Interior Forest Productivity Councils. He will also be providing executive and technical services focussed on provincial requirements for determining forest growth, the estimation of forest yield and the evaluation of computer models for application in the analysis of long term timber supply.



Raj Prasad transfers to PFC

Dr. Raj Prasad, a plant physiologist cum weed scientist, has transferred from Forestry Canada's Forest Pest Management Institute in Sault Ste. Marie. Dr. Prasad will be working in the forest regeneration project at PFC. He obtained his Ph.D. in plant physiology and weed science from the University of Oxford, U.K. and then carried out postdoctoral research in weed biology and physiology at the University of California, Berkley, Ca. He is currently editor of the "Herbicide Handbook" of the Weed Science Society of America and is also an organizer of the Surfactant Section of the E.C.W. (East).

New Department, New Name

In keeping with the federal government's continuing commitment to forestry, Prime Minister Brian Mulroney last fall announced the creation of a new full-scale Department of Forestry.

Pending the passage of legislation to create the new Department, the organization will be known as Forestry Canada.

The mandate for the new Forestry Department will include the development and coordination of national forest policy, research and development in the forest sector, and close cooperation in wide-ranging areas of forest management and protection with the industry as well as with provincial and territorial authorities.

The Honourable Frank Oberle, M.P., Prince George-Peace River has been appointed federal Forestry Minister.

PFC SCIENTIST COMPILES REVIEW OF PACIFIC CANADA WETLANDS

by Ian Indridson

Nearly one-quarter of the world's wetland resource, which is valued for its ecological and socio-economic importance, is found within Canada's borders. As such, it's not surprising that Canadian researchers should produce a book entitled **Wetlands of Canada** that is the culmination of nearly two decades of research by land classification experts.

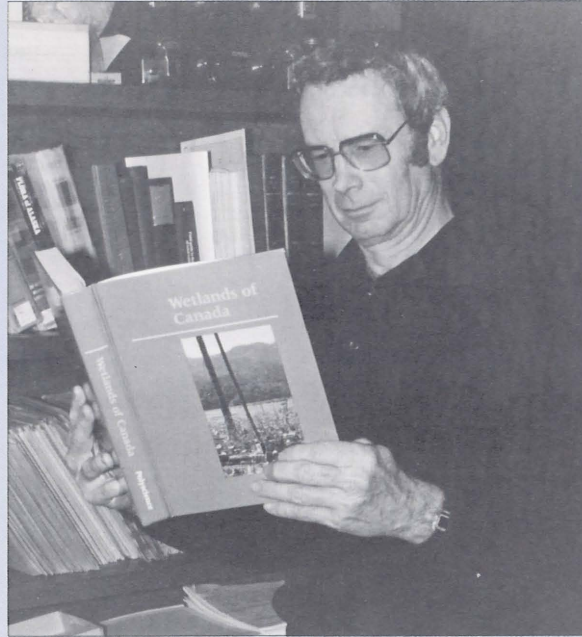
This new book has recently been compiled by the National Wetlands Working Group (NWWG) of the Canada Committee on Ecological Land Classification. **Wetlands of Pacific Canada** has been reviewed in part by Pacific Forestry Centre's terrain classification research scientist, Dr. Ed Oswald.

The book defines wetland as "land that has the water table at, near, or above the land surface or which is saturated for a long enough period to promote wetland or aquatic processes as indicated by hydric soils, hydrophytic vegetation, and various kinds of biological activity that are adapted to the wet environment." Unlike other ecosystems, wetlands transcend typical ecological boundaries.

Although the richness and diversity of wetland composition has been of interest to archaeologists, biotechnologists, farmers, developers and others for some time, there was no systematic study of Canadian wetlands until the 1970s. Dr. Oswald notes that there is a vitality to this study, "because of the abundance of wetlands in Canada and because of the resources available. Their value comes not only from the mining of peat, but also from wildlife habitat.

"Canadian wetlands cover the whole spectrum, from productive to non-productive," he adds. "Many areas are being farmed for agriculture, and virtually all market gardens in the Fraser Valley have been set up on wetlands."

Dr. Oswald says the book's



Dr. Ed Oswald

greatest values are in its description of different wetlands and its portrayal of them "in a manner that can be understood by most people, including the public." Species names are used throughout the factual description, but an absence of excessive technical jargon contributes to an interesting presentation, which is effectively accented by photographs and diagrams of various bogs, marshes, fens and swamps.

Among the most striking aspects of Dr. Oswald's chapter is the depth with which his team has explained the saliency of Pacific wetlands, particularly along the coast. An overview of various environmental factors affecting wetland formation explains that the effects of fog, high precipitation and low temperatures help to create a situation where the decomposition of vegetative matter is slow, thus promoting the formation of wetlands. Later in the chapter, a more historical look at climate and geomorphology describes wetland genesis and succession. Detailed are three broad climatic regimes since deglaciation, the last of which primed the Pacific Northwest for wetland development.

Given that systematic historical and technical study of wetlands is a recent phenomenon, the book is groundbreaking in its focus. Recent factors affecting wetlands, however, are also addressed. In Dr. Oswald's chapter, the effects of fire and man on Sphagnum growth and peat accumulation, particularly in the developing Fraser lowland, are mentioned. Of note is the effect of altered drainage, as "A lowering of the water table allows shore pine, western hemlock and paper birch to expand at the expense of Sphagnum spp. and other bog species in basin and domed bogs."

Yet is such change undesirable? If opinions on this were as divided as the wetland values suggested at the end of the chapter, the question would be impossible to answer. As the book puts it, "The wetlands of Pacific Canada have significant ecological, economic, educational and aesthetic values." While they reduce flood hazards by absorbing and storing water, and provide valuable sites for wildlife, recreation and scientific study, they are also well suited to development as landfills, dumps, and even golf courses. A trend towards wetland conversion for such commercial purposes was significant from 1967 to 1982, but current efforts by federal and provincial governments are fostering conservation and wise use of this economically small yet significant resource.

Wetlands of Canada sells for \$56.00 and is available from Polyscience Publications Inc. of Montreal, who published the book in cooperation with Environment Canada and the Canadian Government Publishing Centre, Supply and Services Canada. The NWWG previously has published Canada's Wetlands, a set of maps of wetland regions and distribution in Canada. It is available by mail from the Canada Map Office, 615 Booth Street, Ottawa, Ontario, K1A 0E9.

PUBLICATIONS

- **Program Review - Pacific Forestry Centre - 1987-88**

E.L. Teske, Editor

The organization and activities of the research and development programs at the Centre are reported on.

- **Estimation of the effect of intensive logging on ungulates (cervids) in the White River drainage**

G. Schuerholz, P. McNamee and M.R.C. Massie

A generalized ungulate population module was developed to estimate sustainable populations of elk, moose and deer before and after salvage logging of beetle-damaged Lodgepole pine in the White River area of the E. Kootenays. The results show that salvage logging in the area will significantly enhance winter ranges for elk, deer and moose.

BC-X-303

- **An evaluation framework for forestry R & D: an application to the ENFOR program**

T.L. McDaniels

This report presents an economic evaluation framework for the ENFOR program, a government R&D program intended to conduct research on issues associated with the utilization of forest biomass for energy.

BC-X-304

- **Dynamic programming applications to stand level optimization**

William A. White

The features which characterize dynamic programming problems are reviewed. Optimal forest management problems are then shown to fit into the framework for solution using dynamic programming. A chronological review of literature of dynamic programming in forestry follows.

BC-X-305

- **Forest insect and disease conditions - British Columbia & Yukon 1988**

C.S. Wood and G.A. Van Sickle

More than 40 forest pests are discussed and some predictions are made for 1989.

BC-X-306

- **Production of regional biomass yield tables for Canada: a feasibility study**

G.M. Bonnor and H.W.F. Bunce

The production of regional biomass yield tables for Canada is feasible. This study identifies the necessary data and its sources and provides a working plan for the production of the yield tables. It includes a pilot study, provides a 6-year schedule and makes a global cost estimate of \$1.120 million.

BC-X-307

- **Hog fuel availability in the north coastal and interior regions of British Columbia**

P.W. Appleby

An ENFOR report on the availability of hog fuel in two regions of British Columbia.

BC-X-308

- **Effects of burning and mechanical site preparation on growth and nutrition of planted white spruce**

T.M. Ballard and B.C. Hawkes

Report focuses on the growth and nutrition of planted white spruce near the Willow and Bowron Rivers, east of Prince George, which have been dramatically affected by prescribed burning.

BC-X-309

Special Yukon Series

In order to obtain a more complete understanding of the opportunities and constraints to the development of Yukon's forest industry, the governments of Canada and Yukon signed a special agreement in October 1986. The Yukon Departments of Renewable Resources and Economic Development; Mines and Small Business; Indian and Northern Affairs Canada, and the Forestry Canada agreed to finance an 18 month series of studies on Yukon's forest industry. This work was also supported by the Yukon Forest Industry Association.

Author of this series is Colin Heartwell. The three resulting publications are:

- **A forest tenure system for Yukon**

This paper discusses the concept of property rights, and the role that tenure systems play across Canada and in Alaska, and evaluates the impact of governments' goals and objectives on the tenure system.

- **The forest industry in the economy of the Yukon**

A study of the Yukon's small but vital forest industry was undertaken in 1987. The major impediments and economic benefits of development of the forest resource are discussed and suggestions are made on methods for improving the Yukon industry's financial position and viability for the future.

- **Markets for Yukon forest products**

This study summarizes the available information on the timber resources of Yukon, reviews the historical and present markets for each of Yukon's forest products, and provides an overview of the local and export markets, along with a discussion of the impact that external factors such as exchange rates, and tariffs can have upon these market prospects. Finally, the report provides options for possibly implementing, in the near future, a marketing strategy.

Copies of these publications may be obtained by filling out the enclosed card and returning it to the PFC Information Office.

VISITING SCIENTISTS FACE NEW CHALLENGES AT PFC

Training programs and outside funding are currently allowing the Pacific Forestry Centre (PFC) to host four visiting scientists, who have found working in a different research environment - and a different country - exciting and challenging. Dr. Thomas Sieber and his wife, Dr. Francesca Sieber, have come from Switzerland, and researchers Tan Yingchun and Fan Bao-sheng have come here from China.

In collaboration with research scientist Dr. Charles Dorworth, Dr. T. Sieber is working in the biocontrol of forest weeds. This work is further to endophyte research he has performed in Switzerland. His current work is funded by the Swiss National Research Council and the Canada-British Columbia Forest Resource Development Agreement, and his wife is assisting with the work. The couple will be working at PFC for one year.

Tom says he finds the atmosphere "easier" at PFC than in Switzerland, where researchers face a 42 hour work week.

"People are more relaxed here," he says. "Here, people help and seem to have more time to speak."

Tom and Francesca previously worked in the Swiss Federal Institute of Technology's Department of Microbiology. The department's research structure is similar to that of PFC, but project leaders are professors.

"Professors have many rights," Francesca explains. "If you want to work with some of them, you are working strictly on their initiatives. Here, there is more consultation and collaboration."

"It's harder to get money for travel to congresses in Switzerland," she adds. "Public relations are not as important where we were."

Tan Yingchun is here under the Canada-China Human Development Training Programme, working with Dr. Stu Whitney and studying the use of fungi to control pests. This follows previous study in forest entomology.



Dr. Charles Dorworth (l) speaking with Drs. Tom and Francesca Sieber, visiting researchers from Switzerland.

Tan has found that PFC is well equipped and has a friendly atmosphere.

"Working conditions here are better, generally speaking," he says. At his work unit in China, he works eight hours a day, six days a week.

The size of PFC does not impress Tan as much as the spaciousness. In China, he works in the research institute of the Chinese Academy of Forestry. The institute's 300 staff work in "two large buildings" that are not as large as PFC, he says. As well, he says the extent of equipment services for staff here is surprising. "My supervisor showed me how to use the microcom-

puter to write a memo. That's interesting."

Microcomputer use equally impresses Fan Bao-sheng, who is working under the supervision of Dr. Y. Jim Lee, PFC's remote sensing researcher. "I'm surprised that here every family has a computer, because in China that's impossible."

Since Fan has been involved in forest inventory and planning both at home and here, he has witnessed a very different style of field work here.

"Up until now, I could not imagine using a helicopter to do inventorying," he says. Due to

the great winds in northeast China where the forests are, "you do planning and inventory and you just use your feet." He notes, however, that remote sensing techniques are reducing field work in China, which mostly takes up half the year in his unit.

Fan describes with enthusiasm the variety of activities that have colored his year in Canada. He has watched slash burning, seen road construction, attended a silviculture meeting, and flown in a helicopter. Inevitably, the excitement of these experiences will appear in the lectures and reports he prepares when he returns home.

NSR Reduced Due to FRDA

The recently released 1988 Summary of Backlog Not Satisfactorily Restocked Forest Land indicates an impressive 25 percent reduction in not satisfactorily restocked (NSR) forest land over the first three years of the Canada-British Columbia Forest Resource Development Agreement (FRDA).

As of September 1988, FRDA funds had made it possible to carry out surveys on over 270,000 of the 738,000 hectares classified as good and medium backlog NSR by the 1984 Forest and Range Resource Analysis. As well, more than 69,000 hectares were replanted through FRDA funds.

The 1988 summary includes NSR

data by region, tree farm license (TFL) and timber supply area (TSA). It indicates that backlog NSR good and medium land has decreased by 29 percent in the Cariboo Forest Region, 35 percent in the Nelson Forest Region and an impressive 54 percent in the Vancouver Forest Region. According to the summary, the number of hectares classified as NSR increased in the Kamloops and Prince Rupert Forest Regions, primarily as a result of increased survey work funded by FRDA resulting in reclassification of some sites.

Copies of the summary are available from the B.C. Forest Service Silviculture Branch at 31 Bastion Square.

IUFRO Congress Preparations Progressing Well

August 5-11, 1990 will be a landmark week for forestry research in Canada when the XIX World Congress of the International Union of Forestry Research Organizations (IUFRO) takes place at the Palais des Congres in Montreal.

This will mark the first time in the 100-year history of the Union that the Congress has been held in Canada and only the second time it has been held in North America. More than 2000 researchers from around the world, representing over 100 countries, are expected to attend this major event.

Organization of the Congress has been in progress for almost two years.

The Canadian Steering Committee, chaired by Lorne Riley on temporary assignment from Forestry Canada, is comprised of: Dave Lemkay (Secretary), Yvon Hardy, Fred Pollett and Gus Steneker, all of Forestry Canada; as well as Jim Cayford of C.I.F.; D.P. Drysdale of Ontario Ministry of Natural Resources, and Claude Godbout of Ministère de l'Énergie et des Ressources du Québec.

The Committee is supported by 13 Subcommittees and a large number of government, industry and university staff across Canada. It maintains regular contact with the Executive Board of IUFRO and with IUFRO president Bob Buckman, who is located at Oregon State University in Corvallis, Oregon.

Varied program

The technical program is being developed by IUFRO's divisional coordinators with the assistance of their many subject group leaders and working party chairmen. The program will treat extensively the range of interests of IUFRO members through numerous expert papers and through the presentation of over 600 posters.

Each day's program will be opened by a keynote address from a knowledgeable, internationally known speaker. Special sub-plenary sessions will be held each day on topics of current importance and concern. Tropical forestry and air pollution will be featured. Throughout, the subject matter at all levels of presentation will be linked.

The Congress will conclude with a program of 17 excursions ranging in length from four to eight days. The excursions will cover all regions of Canada from the east coast to the west coast and the Yukon (being arranged by PFC's Jack de Lestard). Several of the excursions will include important forestry sites in northern parts of continental United States and in Alaska. Although the excursions will feature scientific and technical forestry interests, they will also include scenic and touristic attractions of the regions through which they will travel.

During the course of the Congress there will be an extensive program for accompanying persons, a full slate of events each day. One afternoon will be devoted to in-Congress technical tours for the enjoyment of all delegates.

Updated information on IUFRO will appear in future issues of Information Forestry. Additional information may be obtained by writing Dave Lemkay, c/o Petawawa National Forestry Institute, Chalk River, Ontario K0J 1J0.

FRDA to exceed goals

An independent mid-term audit conducted last summer has confirmed that FRDA is an ongoing success.

According to this report, areas treated under the FRDA forest rehabilitation program will produce more than the original projections of 600,000 cubic metres of timber annually. FRDA will create approximately 500 future full-time jobs and 15,000 seasonal jobs.

The report estimated that areas already treated will produce at

least 340,000 cubic metres of wood annually, enough to build 6,600 houses. Silviculture projects to mid-term have generated about 352,000 days of work.

The report consists of a program by program analysis, including variances, impacts, future prospects and recommendations.

Copies of this Touche Ross Management Consultants report are available at any Ministry of Forests or Forestry Canada office.

Information

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