

Branch LINES

Volume 1 No.1

September 1990

Background to this Newsletter

THE idea of a newsletter for the Faculty of Forestry was first discussed at length in the spring of 1990. It was agreed between the Dean (R.W. Kennedy), Associate Dean and Department Heads that the Faculty should make a formal commitment to a regular newsletter which could be widely distributed to alumni, interested groups and individuals. Thus, "Branch Lines", a new vehicle of communication for the Faculty, was born. It is our intention to produce the newsletter three times a year, with this being the inaugural issue.

Each issue of this newsletter will feature highlights of research projects from each of the three departments, news from the University Research Forests, comments from the Dean, updates on continuing education activities, Faculty publication listings, news of staff recruitments and retirements, Faculty achievements, notices of special lectures and other newsworthy items.

The present circulation list for this newsletter was compiled from a combination of the Alumni Association's list of all UBC Forestry graduates, and from an updated version of an in-house mailing list of individuals from the forest industry, research organizations, forestry schools and the community. It was intended that the new in-house mailing list for the newsletter would include only those individuals *not* covered by the Alumni Association's listing. Sometimes it was not easy to make this cross-check and certain individuals may be receiving this newsletter in duplicate. Please let us know if this is happening. Also, if this newsletter has reached you by some circuitous route and you would like to receive future editions directly, please let us know. Any requests for mailing list updates, additions or deletions should be directed to Dr. Susan Watts, Newsletter Editor, Faculty of Forestry, University of British Columbia, 270-2357 Main Mall, Vancouver, B.C. V6T 1W5 ☎ (604) 228-6316. □

New Dean Takes Office

Dr. Robert Kennedy stepped down as Dean of the Faculty of Forestry on June 30, 1990 after a seven year term. During his tenure the general purpose Faculty budget was increased from \$2.6 to \$3.6 million, externally funded research support grew from \$1.1 to \$3.1 million, the number of full-time staff members increased from 33.5 to 44.6; five new Chairs were created (Forest Policy, Tree Improvement, Wood Preservation, Silvics/Silviculture and Forest Products Biotechnology), and the number of adjunct professors increased from fourteen to twenty-eight. Dr. Kennedy was also a leading force behind the founding and coordination of the Silviculture Institute of B.C., the Faculty's new Forest Nursery and the Alex Fraser Research Forest. He also instigated the production of a student recruitment video for the faculty, and of course, this newsletter.

As of July 1, 1990, Dr. Kennedy has returned to the Wood Science Department

as a Professor and will resume his teaching commitments. He continues as Commissioner with the B.C. Forest Resources Commission, and as Co-Chair of the Bi-National Committee on Plywood Standards.

On September 1, 1990, Dr. Clark S. Binkley took office as the new Dean of the Faculty of Forestry. Dr. Binkley comes to us from Yale University where he was a Professor of Forestry in the School of Forestry and Environmental Studies. He has an outstanding record of academic achievements having risen from Assistant Professor to full Professor in just seven years. His publication record is equally impressive and includes twenty-six articles from refereed journals, two books and four monographs. Although Dr. Binkley has clearly established himself as one of the top forest economists, he has maintained a very broad background in the area of natural resource management. At age forty, Dean Binkley has the distinction of being the youngest Dean appointed in the history of the Faculty. □

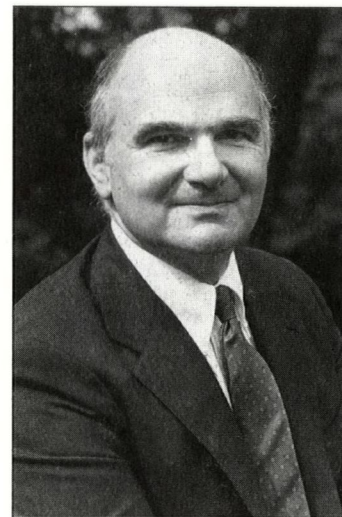
A Message From the Dean

Successful organizations listen and respond to their clients. This newsletter is the first of several methods we plan to communicate better with you – alumni, employers, public and private managers, researchers, and fellow academics – our clientele. Indeed, communication is most appropriate now as we begin the process of developing a five-year plan for the Faculty of Forestry. Although no effective planning process is ever complete, by early this Spring we will have defined the basic framework. Some issues on the agenda include:

- revising the undergraduate curriculum,
- expanding professional and scientific education at the graduate level, and
- increasing involvement in international affairs.

How should we prepare to meet the challenge of the next decade and lay the groundwork for meeting those of the next century? I would like to hear your views, in person or by letter (address on page 6); phone: (604) 228-2467; fax: (604) 222-8645 or E-mail: CLARK_BINKLEY@MTSG.UBC.CA.

Dean Clark S. Binkley



RESEARCH HIGHLIGHT

Ethanol From Woodwaste

CONTINUED concerns about national energy security (Iraq) and the atmospheric greenhouse effect bring renewable energy once again into the foreground. The use of wood waste for energy generation is on the rise but only limited efforts are underway to deal with the massive emissions from automobiles, which generate 60% of the greenhouse gasses. A 20% reduction in greenhouse gas emissions will be required (and pledged) by the year 2000. Only the substitution of clean burning liquid fuels, derived from renewable raw materials, such as ethanol, can contribute to a real reduction of greenhouse gas emissions.

Ethanol as a clean burning fuel can be made by a) hydration of ethylene, b) hydrolysis of grain starch and fermentation of glucose and c) hydrolysis of cellulose (wood carbohydrates) and fermentation of the wood sugars. Wood sugars are by far the most abundant and cheapest source of sugar for ethanol production.

The technology for converting wood to sugars using mineral acid as the hydrolysis agent, has been well researched. However, low fermentable sugar yields from wood sources have prevented this industry from unfolding.

The problems of cellulose hydrolysis have been solved by the application of solvent hydrolysis technology, an offshoot of solvent pulping. This rapid process can be operated in a continuous mode and has been declared as "state of the art" in wood hydrolysis. The high efficiency of the process is due to the unique chemical reaction which takes place between the wood sugars and acetone and the excellent solubility of the fragmented lignin in acetone. The process is expected to yield between 430 to 450 litres of ethanol (anhydrous) per tonne of wood and up to 600 litres per tonne from paper waste.

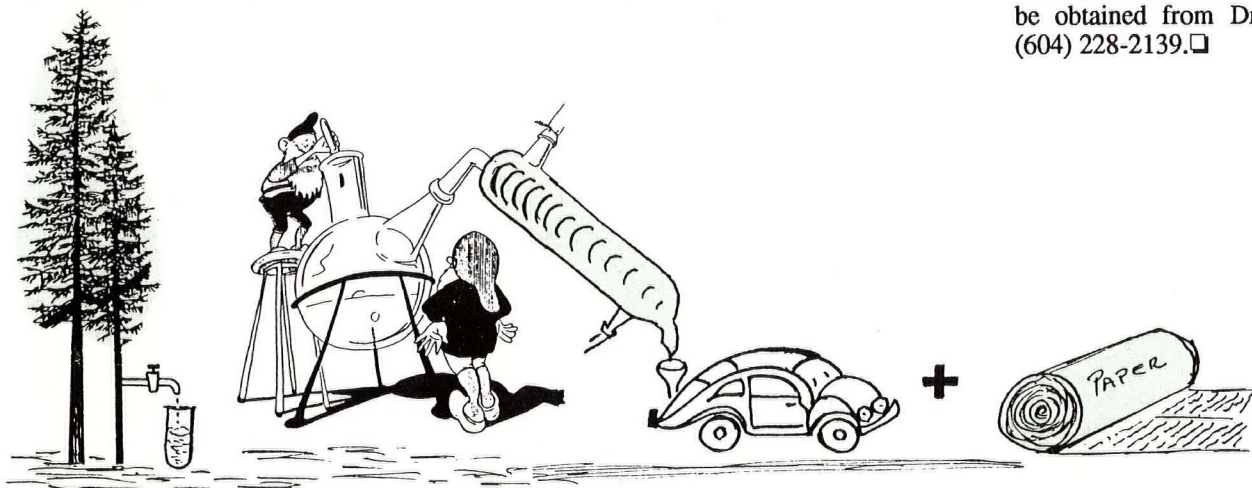
Currently work is in progress to study the simultaneous fermentability of xylose and hexose sugars manufactured by the ACOS

(Acid Catalyzed Organosolv Saccharification) process of paper sludge and low temperature purification of unbleached dissolving pulps for the cellulose derivatives industries.

Several areas of B.C. presently generate sufficient volumes of wood residues to support a wood hydrolysis plant (Quesnel, Williams Lake, Prince George, Lower Mainland). Collection of slash (forest) residues could generate numerous jobs in the future. Furthermore, burning and landfilling of the wood waste in such areas has already created environmental stress. B.C.'s wood residues would be sufficient to provide gasohol (10% ethanol, 90% gasoline) for 10% of the U.S. gas consumption. Such a move could reduce urban automobile emissions by 20-30%. Legislation is currently being drafted to use 10% ethanol in gasoline in 40 of the most polluted cities in the U.S. This will require doubling of the ethanol output in the U.S. to 3.5 billion liters annually and will consume 60% of the corn produced in that country.

Ethanol from the forests is potentially worth \$10 to 12 billion annually to the forest products industry.

Further information on this project can be obtained from Dr. Laszlo Paszner at (604) 228-2139. □



DEPARTMENT NEWS

New Faculty Appointments: Dr. Tom Maness has recently joined the Department. He will be applying his extensive industrial experience to developing a sawmill process control research and graduate studies program.

Drs. Jack Saddler and Colette Breuil will take up positions in a new NSERC Industrial Chair in forest products biotechnology effective September 1,

1990. This will establish the first forest products biotechnology research and graduate studies program in Canada.

Dr. Robert Kennedy returns to the department after a seven year term as Dean of the Faculty.

New Facilities: A new wood products laboratory housing aspects of the Department's wood composite products, wood engineering and wood drying research is to be officially opened in the fall 1990.

Research Initiatives: Meetings with the Ministry of Forests and Forestry Canada (Pacific Forestry Centre) have identified many areas of common research interest with excellent prospects for development of collaborative programs. Efforts are now being directed to establishing collaborative programs with the Ministry of Forests in areas related to the environmental impact of harvesting operations and the assessment of alternative harvesting methods. □

Forest Information Resource Management Systems (FIRMS)

THE ability to gather, organize, analyze and understand relationships among spatial sets of data is crucial to many areas of forest management.

The FIRMS project, whose long-term objective is to develop an integrated image analysis and resource management information system with on-line access to digital map data in Victoria, has evolved from the faculty's remote sensing laboratory. Recent funding from the Science and Technology Development Fund has allowed for expansion of the remote sensing activities, the addition of geographic information systems (GIS), and the hiring of Jerry Maedel as systems manager.

FIRMS now provides research facilities using remote sensing software (PC-Meridian and EarthProbe) as well as GIS software (TERRASOFT, PAMAP, and ARC/INFO). When the system is fully operational it will permit modelling management decisions prior to implementation and the assessment of the environmental impacts of such decisions. These management decision scenarios would not be possible without the aid of this sophisticated computer technology, GIS and remotely sensed data. The major research focus of FIRMS has continued to be the assessment of vegetation damage through the integration of remote sensing and GIS.

These developments have profound implications for undergraduate and graduate students, Faculty and curriculum



Some of the FIRMS equipment being demonstrated to Canadian Astronaut Scott McLean in November, 1989.

and the manner in which course material has been presented. A three-year strategic plan for the integration of GIS into the Faculty was presented last February. Some minimal efforts are now (summer 1990) being implemented. One of the faculty's computer rooms has been upgraded to a 10-station GIS laboratory running TERRASOFT. Two training sessions for TERRASOFT were given in July in which a dozen faculty and several technicians and

graduate students participated. Several core courses will be modified to integrate GIS ideas into course instruction (including spring camp). When the entering first year students graduate in 1994, knowledge of GIS will be one of the sophisticated tools in their knapsacks.

Further information about the FIRMS project can be obtained from Dr. Peter Murtha at (604) 228-6452 or Jerry Maedel at (604) 228-4148. □

DEPARTMENT NEWS

Positions available: With the retirement of Professor Harry Smith on June 30, the Department now has two academic positions vacant. One will be used to strengthen the program in growth and yield

with an emphasis on stand modelling. This position will be filled, hopefully, in January 1991. The second position will be filled by a specialist in social forestry who will introduce a perspective to forest management which is currently lacking in the Department.

New Faculty Appointments: On July 1, 1990, Professor G.C. (Casey) Van Kooten joined the staff as a joint appointee with the Department of Agricultural Economics. Professor Van Kooten will develop a new graduate course in forest resource economics. □

RESEARCH HIGHLIGHT

The SCHIRP (Salal/Cedar/Hemlock Integrated Research Program)

TWO very different forest types occupy much of northern Vancouver Island – the "CH" (western redcedar/western hemlock) and "HA" (western hemlock/amabilis fir). These two forests grow side by side on similar soils, but while the HA forests have been repeatedly windthrown and are highly productive, the CH forests are old and undisturbed with low and declining productivities. After harvest, regenerating forests grow well on HA sites, but on CH sites, although a post-harvest flush of nutrients allows the trees to grow well at first, growth declines significantly after a few years. This decline in growth coincides with the resprouting of salal (*Gaultheria shallon*) which dominates the understory vegetation of the CH old growth. Conifers growing on CH cut over sites display N and P deficiencies.

A real opportunity exists to increase the productivity of CH sites, if the factors limiting growth can be determined and controlled. To this end, the SCHIRP research project was established in 1985 as a cooperative research program between

the University of British Columbia, Western Forest Products Ltd., MacMillan Bloedel Ltd., Fletcher Challenge Canada, Forestry Canada and the B.C. Ministry of Forests. The project's objectives are as follows:

- to examine the reasons for the different growth rates of conifers in the two forest types,
- to examine the importance of salal in limiting tree growth, and
- to apply remedial treatments to improve growth on regenerating cut over sites.

Scientists from the cooperative group (including faculty and graduate students from UBC) are studying both the CH and HA ecosystem cut over dynamics, nutrient cycling, fertilization and organic matter decomposition.

Western Forest Products has constructed a temporary residence facility in Port McNeill to house scientists and students working on the SCHIRP project around the Port McNeill area. The facility is equipped with two kitchens, a living room, work shop and sleeping accommodation for 10 persons.

Visitors are welcome to the SCHIRP project. Arrangements can be made through Steve Joyce of Western Forest Products in Port McNeill at (604) 956-4446. Further technical information on the SCHIRP project can be obtained from the Project Co-ordinator, Morag McDonald, at the Faculty of Forestry, UBC. Her telephone number is (604) 228-6027. □

SPECIAL LECTURES COMING THIS FALL

Environmental and Dietary Carcinogens and the Causes of Cancer

By Professor Bruce A. Ames

Thursday, October 11, 1990
12:30 to 1:30 p.m.

MacMillan Building, Room 166

Professor Ames is this year's invited lecturer for the combined Cecil H. and Ida Green Visiting Professor and Burgess-Lane Memorial Lecturer Series. Professor Ames is currently the Chairman of the Department of Biochemistry at the University of California, Berkeley. He has received over fifteen prestigious awards in recognition of his research including the top American award for cancer research and the Tyler Medal for work in environmental concerns.

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The Lodgepole Pine in Sweden

By Dr. Stig O.A. Hagner

Thursday, October 18, 1990
12:30 to 1:30 p.m.

MacMillan Building, Room 166

Dr. Stig Hagner is this year's invited Leslie L. Schaffer Guest Lecturer in Forest Sciences. He is currently the Director of Forestry Operations at Svenska Cellulosa Aktiebolaget, SCA, a shareholding corporation which owns 2.4 million hectares of forest land in Sweden. Dr. Hagner has publications in the areas of reforestation, forest economics, management, growth and yield, the growing of exotic trees, forest fertilization and tropical forestry.

If you are interested in attending special lectures in the Faculty, please call (604) 228-2507 to check whether you are on our mailing list.

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DEPARTMENT NEWS

Dr. Tom Sullivan has recently been appointed as an assistant professor in forest wildlife. His research and teaching will focus on the role of small mammals in reforestation and in sapling-pole stands. Dr. Sullivan's appointment was the result of an extensive North American search for potential faculty members with interests in the ecology and physiology of small mammals. He brings to the faculty a background of twelve years of independent consulting experience in this area.

Dr. Karel Klinka is the initial incumbent in the newly created Vladimir Krajina Chair in Silvics and Ecology. The Chair is funded by the B.C. Ministry of Forests. Dr. Klinka (who has been seconded to UBC from the Ministry of Forests for the past five years) will continue his teaching and research program as a full member of the Forest Sciences Department.

Dr. John Worrall will be on sabbatical leave for the academic year 1990/1991. During his leave, he will be co-authoring a book on Dendrology and Silvics with Dr. Klinka. The book will serve as a course text book for Forestry 111 (Dendrology) and Forestry 204 (Silvics).

Dr. Hamish Kimmins has recently returned from a sabbatical leave during which he has been working on a book "Only Diamonds are Forever", due to be published by March, 1991. The book is an ecologically-based guide to environmental issues in Forestry and will include chapters on clearcutting, herbicides, old growth, biodiversity, carbon budgets and slashburning. It is a book designed for the general public with the aim of providing a better understanding of how ecosystems function and how they respond to natural and human caused disturbance. Further details will be provided in this newsletter closer to the publication date. □

Off-campus Programs and Continuing Education

Many forestry faculty and staff members are involved in continuing education activities, both on and off campus.

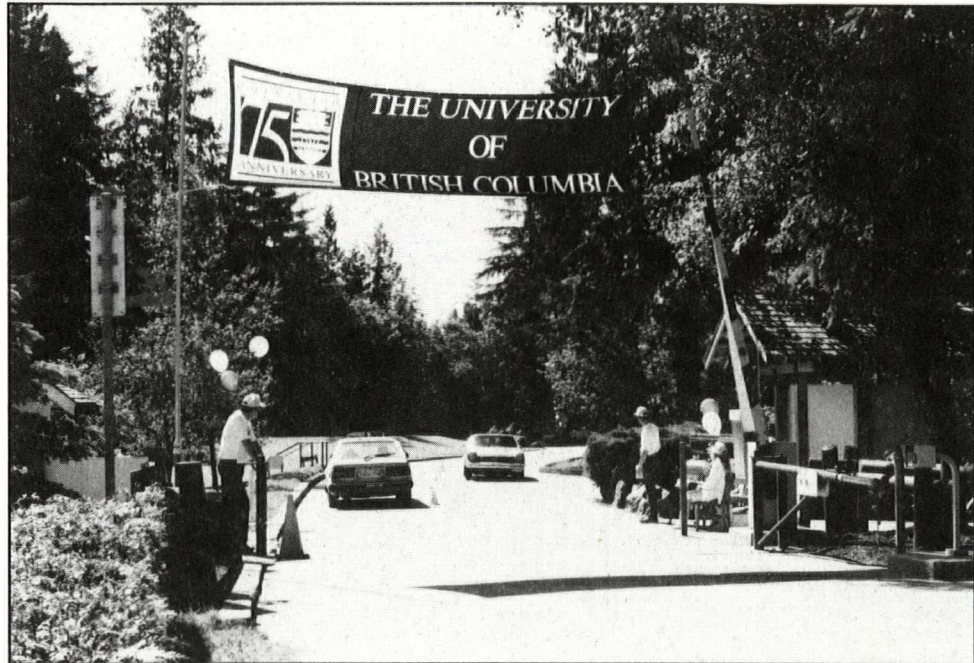
Some 15 or so undergraduate forestry courses have been prepared as correspondence courses for distance education students over the past few years. For further information about these credit courses call UBC ACCESS at (604) 228-6565.

A 2-year contract with the **Knowledge Network** will provide television airing time for the Faculty's student recruitment video "*UBC Forestry - Take the Challenge*". The next scheduled airing is Saturday October 13th at 12:30 p.m.

Other outside involvements by the faculty include talking to school children, organizing/attending conferences and workshops, talking to special interest groups, teaching at the Silviculture Institute of B.C., and many other voluntary extra-curricular activities. According to statistics collected by Peter Sanders, Forestry's director of off-campus programs and continuing education, faculty and staff members were involved in over 500 continuing education activities last year alone. For further information on off-campus forestry programs, or any other aspect of continuing education in forestry, call Peter Sanders at (604) 463-8148. □

Coming up this month is a "first time offered" 8-session non-credit course entitled **Our Forests: A Citizen's Course In Current Issues**. This lecture and panel discussion series is being offered through the Centre for Continuing Education at UBC. Each of the weekly evening lectures will be given by a different member of the Forestry faculty. The series is open to the general public and will provide an opportunity for non-foresters to learn about forestry, its principles and practice. Before each session is opened up for general discussion there will be responses given by invited speakers from industry, government and the environmental sectors. Registration for the eight-session course is \$39. Each weekly session will be held in the MacMillan Building on the UBC campus commencing on Wednesday September 26 at 7:30 p.m. (there is free parking directly behind the building). For registration information call the UBC Centre for Continuing Education at (604) 222-2181.

FOREST NEWS from UBC Malcolm Knapp and Alex Fraser Research Forests



For the first time in the history of the Malcolm Knapp Research Forest, the public were invited to take driving tours of the forest during the Open House event held in June.

The UBC Malcolm Knapp Research Forest in Maple Ridge celebrated its forty-first anniversary this year. The next few issues of this newsletter will provide some snippets of historical interest from the Forest. If you would like to make some suggestions for future topics (maybe a project that you were involved in and how it may or may not have developed), please contact Peter Sanders with your ideas.

As a start, over 550 research projects have been initiated since 1949, a Woodlot License has been established covering the strip of Crown land on the west of the Forest, the AAC is down to under 8,000 cubic meters at the present time (the "fall down" effect in action), the Forest has one of the most sophisticated and comprehensive inventories of any forest area in Canada, a new electronic device now controls the main gate and records entries and exits, also the Forest is storing a couple of tonnes of Harry's papers.

A very successful Open House was held at the Forest in June as part of the University's 75th anniversary celebrations.

Close to 400 vehicles toured a predetermined circuit with some 60 volunteers on hand to answer questions.

Any questions concerning the Malcolm Knapp Research Forest, or any suggestions for Forest topics for this newsletter should be directed to Peter Sanders (Resident Silviculturist), UBC Malcolm Knapp Research Forest, R.R.#2, Maple Ridge, B.C. V2X 7E7 ☎ (604) 463-8148.

The Faculty's second research forest was acquired more recently. The Alex Fraser Research Forest near Williams Lake opened in 1987.

To date thirty-six research projects have been initiated by a variety of organizations. The BC Forestry Association's Gavin Lake camp offers a base for researchers and third year field school students.

Any questions concerning the Alex Fraser Research Forest should be directed to Ken Day (Resident Forester), UBC Alex Fraser Research Forest, 1040 S. Lakeside Drive, Williams Lake, B.C. V2G 3A6 ☎ (604) 392-2207. □

RECENT PUBLICATIONS OF INTEREST

SPECIAL FEATURE

The History of UBC's Forestry Faculty

In 1988 Dean R.W. Kennedy initiated a project to assemble background data on the history of the Faculty. Interviews with early pioneers such as Malcolm Knapp, Braham Griffith and Tom Wright were recorded on tape. In 1989, Dr. Harry Smith, the longest serving member of the Faculty, was persuaded to continue the task of assembling information about the Faculty's history into the form of a book. This Dr. Smith accomplished prior to his retirement on June 30, 1990. The book is titled "UBC Forestry 1921-1990: An Informal History" and contains 140 pages with a soft cover. The eleven chapters of the book cover the topics of students (undergraduate society, women in forestry, enrollment, characteristics and recruitment), good advice to graduates (from Heads, Deans and Honorary Presidents), graduates (numbers by degrees and their accomplishments), staff (names and appointment dates including the Sopron Division), teaching (changes in curriculum and degrees offered), research and publication (funds, books and graduate studies), extension and demonstration (including five University Forestry properties), professional development and community service, administration (organization, budgets, buildings and sources of support), and Faculty accomplishments (by Heads then Deans, current issues, and future plans). An appendix contains the names and degrees of 2794 graduates from UBC Forestry. There are 13 tables and 20 photographs. The book is published and distributed by the Faculty of Forestry. For ordering information see the publications column on this page of the newsletter.

AVAILABLE FROM THE FACULTY OF FORESTRY

Faculty of Forestry Research Review, 1988/90. This highlights each Faculty member, along with his/her area of research and publications. The theses of graduating Masters and Ph.D. students are also summarized. *Free*

An Assessment of Opportunities for Alternative Silvicultural Systems in the SBS, ICH and ESSF Biogeoclimatic Zones of the Prince Rupert Forest Region, 1990. Contract Report prepared for British Columbia Ministry of Forests, Prince Rupert Forest Region, by Dr. G.F. Weetman, E. Panozzo, M. Jull, and K. Marek. \$20

Sustained Productivity of Forest Land, 1990. Proceedings of the 7th North American Forest Soils Conference held at the University of British Columbia, Vancouver, July 1988. \$45

Western Red Cedar: Does It Have a Future? 1989. Proceedings of a 1987 Faculty-sponsored symposium. \$25

Physiology & Genetics of Reforestation, 1988. Proceedings of the 10th North American Forest Biology Workshop, held at the Faculty of Forestry. \$16

Wildlife and Range Prescribed Burning, 1988. Workshop proceedings sponsored by Faculty of Forestry, Ministry of Forests, Ministry of Environment, the B.C. Conservation Foundation and Assoc. of Professional Biologists of B.C. \$10

UBC Forestry 1921-1990: An Informal History, 1990. A compilation of information on students, staff, teaching, research, extension, demonstration, administration and Faculty accomplishments. Published by the Faculty of Forestry, 160 pages. \$10

All of the above publications are available from the Faculty of Forestry for the prices indicated. Please include \$5 postage for 1 book and \$2.50 for each additional book. Direct your orders to:

Publications
Faculty of Forestry
2357 Main Mall
University of British Columbia
Vancouver, B.C.
V6T 1W5
☎ (604) 228-4312

AVAILABLE FROM UBC PRESS

The University of British Columbia Press has published several books written or edited by Forestry faculty members. Two of the most recent such books are:

Regenerating B.C.'s Forests, 1990. A compendium of methods for establishing and maintaining plantations, and optimizing natural regeneration (D.P. Lavender, editor in chief), 372 pages. \$25.95. Available from UBC Press.

Introduction to Forestry Economics, 1990. Peter H. Pearse. An introductory textbook emphasizing economic issues underlying forestry management and policy decisions, 226 pages. \$36.95. Available from UBC Press.

Books published by UBC Press are available in bookstores and from the Press. For ordering details contact the Press at:

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6344 Memorial Road
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