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Pacific Forest Research Centre
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Canada




 Peatland regions

Canada's Peatland

An Unexplored Resource

After Montreal Engineering Co. Ltd. Map

Canada has the second largest deposits of peat in the world — second only to the USSR. It is estimated that some 14 per cent of Canada's land mass is peat; however, unlike the USSR, a country which uses approximately 60 per cent of its peat resource, Canada uses far less than one per cent of its valuable resource.

Until just recently there was very little concern about Canada's extensive peat resources and latest statistics are drawn from 1969 surveys. However, constant searches for alternate energy sources have brought this valuable and yet untapped resource into perspective.

It is with these thoughts in mind that the Canadian Committee on Ecological Land Classification, and more specifically the Wetlands Subcommittee, have decided to conduct a more up-to-date survey and inventory of the available peatlands in Canada. Some European countries such as Finland, Great Britain and Norway are way ahead of Canada in terms of realizing the potential of peat and are using it for a variety of purposes including running hydro-electric plants, manufacture of pulp and for heating homes. The major use of peat in Canada has been for horticultural products such as sphagnum moss, peat pots, etc.

In Vancouver, B.C., there are at least two major horticultural peat producers. Amazingly enough, with our vast peat resources, much of this product is imported from the United States.

Most of the provinces have already commenced detailed surveys of peat regions within their respective boundaries. Most of Canada's peat reserves lie within the boreal forest areas and the largest deposits are found in the Hudson Bay lowlands of Northern Ontario and Quebec where the Barlow-Ojibway Lake once lay. These peatlands are the former basin of the lake. (see map)

Because other countries are much further ahead of Canada in terms of documenting the resource and its potential, it is important for Canadians to gain knowledge from other lands — the Scandinavian countries and the USSR in particular. For this reason plans are being developed to host (in Canada) a symposium on peatland survey and inventory in 1983. It will be under the sponsorship of the International Peat Society. Recognized experts from all over the world will attend, and PFRC staff will assist in helping this event get underway.

Forestry Potential

It has been determined that peatlands can support vast forests of black spruce, a desirable specie because of its long fibre, particularly valuable in the pulp industry. There are experiments being conducted at this time on the potential of regenerating black spruce on peatlands; however, in general not much attention has been paid to the utilization of peat terrain for the regeneration of other species.

It is possible to drain and fertilize this terrain and move some of the more highly productive species into heretofore non-utilized areas. Because of the increased interest in regeneration and forest management it is felt the question of the potential of using peatlands has to surface sooner or later and having a real handle on what and how much peatland is available is important.

Product Uses

Extensive experimentation has been carried out in Europe, USSR and Great Britain on product uses of peat. The USSR is burning compressed peat to produce steam in the hydraulic mining industry. Presently there is no regular production of fuel peat in Canada although a small experimental



FOR PEAT'S SAKE No, this fellow didn't drop a dime. He's gathering samples in a typical peatland of a boreal forest. Here, as in many such areas of the country, the peat is 10 feet deep.

steam plant at Lameque, New Brunswick, does exist, and another such plant is planned for operation in Quebec.

In some European countries "briketing" is a thriving industry whereby peat is mixed with coal dust, compressed and turned into bricks for use in solid fuel stoves.

Some countries such as Liechtenstein, Austria and Czechoslovakia, world-famous for their health spas, use peat for balneology purposes — the science of therapeutic use of baths. Other countries use peat in the production of chemicals and in the production of fibre and paper products.

Other Potentials

In some provinces peatlands are being used for agricultural pur-

poses and depending upon the crop location and the properties of the peat, have had great success in growing such root crops as carrots and potatoes. The Holland Marsh, an area of peatland near Toronto rich in calcium, has been turned into extremely productive agricultural land.

By fertilizing peatlands it has been determined that the fauna base is in turn enriched, thereby increasing the food supply for wildlife such as rabbit and deer.

Future

Judging by the successes of other countries, the future and potential for utilizing Canada's peatlands seems to be promising. The first step, however, must be an intensive inventory and survey of the existing resource. ■

Additional Foresters Urgently Required

Canada needs nearly 5,000 more professional foresters in the field and some 1,500 additional administrative personnel this decade if the country's forest management program is to be effective.

This requirement was stressed by CFS Assistant Deputy Minister **F.L.C. Reed** in a recent address to the Canadian Forestry Association of B.C. in Vancouver.

In his speech entitled "The Manpower Dimension of Forest Renewal" Reed referred to a Science Council of Canada study which found the United States had about 10 times more foresters than Canada . . ." and we have 32 million more hectares of productive forest than they do."

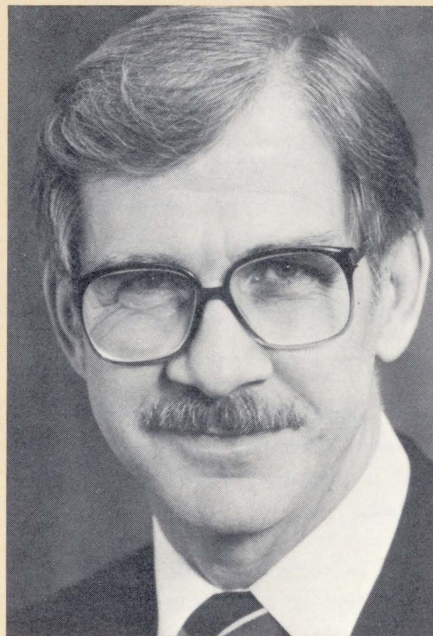
He said Canada has about 4,500 foresters engaged in some aspect of forestry, "but only a small portion of the country's productive land is being aggressively managed."

"We cannot expect much real improvement in forest management until we have more foresters practicing on the ground."

He indicated the manpower problem was even worse when it is realized many of today's foresters entered the field between 1945 and 1960, and some 1,600 of them will retire by the end of this decade.

The A/DM also emphasized the need for more specialized scientists with graduate training . . ."people needed to carry out research that supports forest

management and operational programs in silviculture, protection, tree breeding, biometrics, mensuration, photogrammetry and economics."



Les Reed

"The Canadian Forestry Service," he continued, "must recruit 65 scientists over the next half decade just to maintain its current level of scientific expertise."

In a quick review of current activities, Reed said the Canadian Forestry Service was:

- Examining its funding policies. "In Canada, governments as a whole turn back into forestry only five cents of every forestry tax dollar. Taken a step further, this means only one cent of every dollar generated in forestry

industry sales is used for renewal and regeneration."

- Coordinating efforts of various government departments and agencies to avoid duplication, confusion and waste.

- Developing strategies and policies that reflect the requirements of both domestic and international markets.

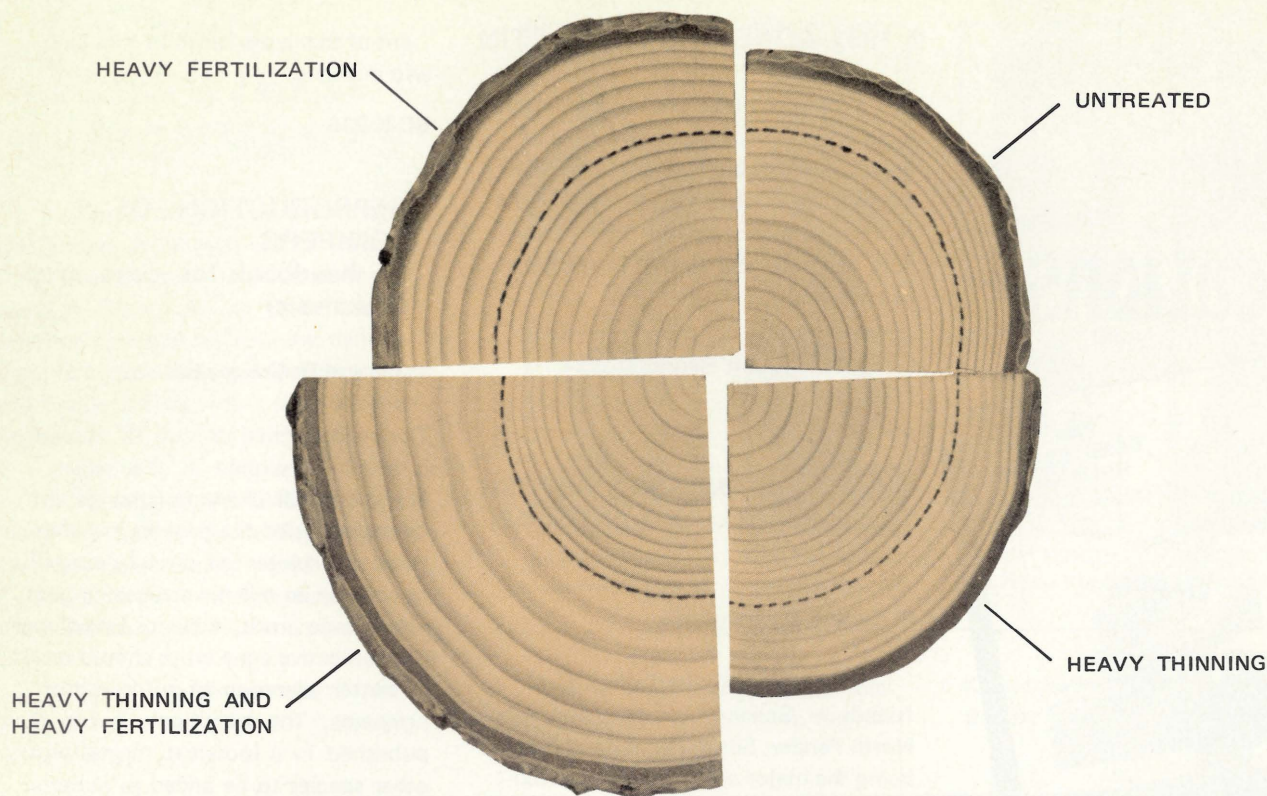
- Intensifying public awareness programs. "There's something lacking in our information process when forest fires get massive coverage while the much greater destruction caused by insects is almost unknown by the public."

- Investigating research opportunities to pursue every possible means of accelerating forest regeneration. ■

VANCOUVER FIRM DID TRAINING

In the last issue of **Information Forestry** there was a story about three members of the Lower Similkameen Indian Band who recently spent 10 weeks at the Pacific Forest Research Centre as part of a forest management training program.

It was mentioned the trio had earlier spent a similar period of training at the B.C. Institute of Technology. Apparently not so. That previous instruction was provided by a Vancouver organization known as Sylva Pest Management Ltd. ■



Shawnigan Lake Installation Receives Second Fertilization Treatment

It has been nine years since a 24-year-old Douglas-fir stand located about 40 km north of Victoria near Shawnigan Lake underwent initial treatment to determine the effects of nitrogen fertilization and thinning as silvicultural treatments.

This spring researchers at the Pacific Forest Research Centre decided to carry out repeat fertilization of the plots. It had been shown that in the first six years of response to the initial fertilization treatment the trees had actually doubled their growth in terms of diameter and volume. However, in the following three years, the increased growth rate had diminished.

The purpose of the second fertilization is to determine whether this

will have the same effect on the trees. The thinning treatment is still effective and need not be repeated at this time. However, 12 plots were treated with a second application of urea and four plots with ammonium nitrate, exactly as had been done in 1972. Two types of fertilizer were originally applied at two rates in order to compare the nitrogen sources and rates.

Project Leader **Dr. Holger Brix** and his co-workers are looking for a lot of answers in the coming years. Will the response of the second fertilization be just as good or better? Will it last as long? Are there any detrimental effects of refertilizing? Will other soil nutrients become deficient as a result of this second nitrogen fertilization? Is it really necessary to refertilize in order to

attain a sustained growth throughout the rotation age of the stand?

The trees within the treated plots will be measured every three years and all aspects of the environment within the area will be measured from time to time over the next six to nine years. Among other things the researchers will be looking for information on the movement and transformation of the nutrients in the soil, the role of the flora and fauna in the nutrient turnover, the nutrient status of the trees and the physiological mechanisms of the growth response of the trees.

Progress reports on this project will be issued from time to time as results become available. ■

Recent Publications

● 1981 CONE CROP BULLETIN

A comprehensive record of past cone crops which provides a base of cone crop periodicity. This makes it possible, through understanding of the reproductive process, to make reasonably accurate and timely predictions of cone crops.

CFS - BCFS Joint Report No. 14

● GULF ISLANDS OF BRITISH COLUMBIA — A LANDSCAPE ANALYSIS

S. Eis and D. Craigdallie

British Columbia's Gulf Islands — Galiano, Saturna, Mayne, North Pender, South Pender and Prevost being the major ones — cover approximately 16,680 hectares. At present the scenic islands are lightly settled but there is increasing pressure for retirement and summer homes. This study provides the environmental framework for planning, and a base against which future development proposals may be assessed. Eight landscape units are described in terms of their environmental and vegetational characteristics, and the impact of human activity on the environment, soils and vegetation is evaluated. (Limited distribution)

BC-X-216

● EFFECT OF INSECTICIDAL SOAP USED IN THE GYPSY MOTH CONTROL PROGRAM IN KITSILANO ON INSECTS AND VEGETATION

George S. Puritch and Brian C. Brooks

Effects of the commercial insecticidal soap used in the 1978 program to eradicate the gypsy moth from the Kitsilano area of Vancouver, B.C., are described. The report of Vancouver's city manager on the history and treat-

ment of the gypsy moth in Kitsilano is also included.

BC-X-218

● REPRODUCTION OF CONIFERS (A handbook for cone crop assessment)

S. Eis and D. Craigdallie

The reproductive process of conifers is briefly described in this paper. Morphological characteristics of different stages of the process are identified and presented photographically to provide an aid for estimating next year's cone crops. Advance knowledge of prospective cone crops should result in better planning of reforestation programs. The handbook is being published in a looseleaf format with other species to be added as material becomes available.

BC-X-219

● POSITION PAPER ON MOUNTAIN PINE BEETLE PROBLEMS WITH SPECIAL REFERENCE TO THE ROCKY MOUNTAIN PARKS REGION

This paper reviews past and current mountain pine beetle outbreaks in western Canada with particular reference to economic impact, international concerns, and the state of knowledge concerning the biology and management of beetle populations. Recommendations for control action are made and attempts to identify gaps in knowledge and needs for future research outlined.

● ACTION PLAN FOR FOREST DEVELOPMENT

Speaking notes for the Hon. John Roberts, Minister of the Environment, in an address to the Canadian Institute of Forestry, Vancouver, B.C., April 14, 1981.

1981 FIDS FIELD ASSIGNMENTS

Forest pest survey technicians, also known as rangers, will be at their field headquarters from mid-May through September to survey and monitor forest pests, appraise damage done to timber stands by various insects and predict trends within their assigned regions.

Their work also includes advising forest managers on methods of reducing pest-caused losses and providing a pest extension service to the public, government agencies and the forest industry.

Survey superintendent **Lew Fiddick** has announced the following assignments:



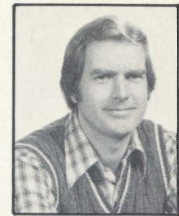
LEW FIDDICK



DICK ANDREWS
Cariboo



BOB ERICKSON
Vancouver Island



PETER KOOT
East Nelson



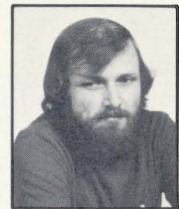
ERNIE MORRIS
South Prince George



COLIN WOOD
North Kamloops



ROLY WOOD
East Prince Rupert



LEO UNGER
Vancouver Mainland

New rangers, expected to join PFRC soon, will be posted to South

Kamloops, West Nelson, West Prince Rupert and North Prince George. ■

Tree Improvement Meeting

The 18th biennial meeting of the Canadian Tree Improvement Association will be held at Duncan, B.C., August 17-20. It will feature a symposium on seed orchards and improvement strategies.

Two panel discussions and two field trips have been scheduled. The first panel will deal with species with discussion on hard pines, spruces, Douglas-fir and others. The second panel will focus on seed orchards, provenance trials and breeding. Field trips will be made to the Cowichan Lake Experimental Station and to the Koksilah seed orchard.

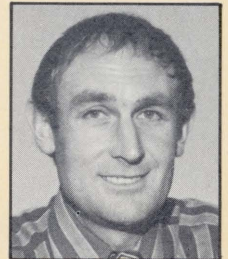
Sessions dealing with seed orchard technology will be chaired by **Mike Crown** with the following speak-

ers: **R. Bower**, State-of-the-art in B.C.; **S. Ross**, flower enhancement; **J. Owens**, phenology and pollen management; **G. Miller**, insect pests; and **C. Masters**, Weyerhaeuser seed orchards.

J. Barker will be chairman of a session devoted to choice of strategy for tree improvement, and speakers will include **D. Lester**, strategy options; **Y. Lamontagne**, interim seed supply; **R.M. Rauter**, vegetative propagation; and **J. Van Buijtenen**, advanced breeding.

Information about the meeting is available from: **Dr. Doug Pollard**, vice-chairman, CTIA symposium, Pacific Forest Research Centre, 506 West Burnside Road, Victoria, B.C. V8Z 1M5. ■

People



Ian Hood is now continuing forest pathology research at PFRC on a one-year scholarship from the National Research advisory Council of New Zealand. He's here from Rotorua, N.Z., where he works with the government's Forest Research Institute.



Philip Gimbarzevsky has joined the Pacific Forest Research Centre as a remote sensing specialist. He came here from Ottawa and was attached to the former Forest Management Research Institute.



Campsite picnics are fun . . . and sometimes dangerous.

Tree Hazard Program Developed For Recreation Sites in B.C.

Trees are a prime environmental feature in most recreation sites and like all living organisms develop defects, faults or areas of weakness with age. This is an ongoing natural process which ultimately leads to the structural failure of portions of a tree or the entire tree. On treed recreational sites failures can result in property damage, personal injury or sometimes death.

Recently scientists at the Pacific Forest Research Centre (PFRC), cooperated with the B.C. Ministry of Lands, Parks and Housing to develop a tree hazard control program aimed at identifying defective trees, assessing the hazard posed by such trees and implementing measures designed to prevent accidents caused by their failures. The objectives of tree hazard control are to provide a high level of public safety while retaining aesthetically pleasing surroundings and remaining within reasonable budgetary limits.

The prime concerns of the Site Management Division of Lands, Parks and Housing were areas such as camp grounds and picnic areas where people were stationary for some time and might be susceptible

to injury from falling trees. As well, there was concern about possible damage to new and relatively expensive parks facilities such as wash-rooms and covered picnic areas.

PFRC forest pathologists **Drs. Gordon Wallis and Duncan Morrison**, assisted by **Al Johnson and George Reynolds**, first conducted surveys of various types of stands present in these recreational areas. In the younger Douglas-fir stands the main problem appeared to be root rot. In the areas with over-mature trees there was a variety of problems to contend with including decays, root rots, top kill, etc.

Several campgrounds throughout the province were surveyed intensively. The first of these was Goldstream Park just north of Victoria. Here the main concern was root rot in second growth Douglas-fir. Trees regarded as hazardous to campers were marked and removed.

Another area carefully surveyed was Lakelse near Terrace where the over-mature stand was a problem. The area had also suffered extensive flooding two years previously. Many trees were decayed

and therefore quite hazardous. These trees were also tagged and removal is now in process.

Since a standardized tree rating system is a fundamental requirement of any tree hazard control program it was naturally a high priority with PFRC staff. This rating system was developed and is based on two elements — **failure potential** and **failure impact**. Each element is quantified on a scale of 1 to 3; their total gives a numerical value of the degree of hazard. The objective of this rating is to evaluate trees with defects and decide whether there is a degree of hazard that requires abatement.

The program is more fully described in the publication "Tree Hazards in Recreation Sites in British Columbia", joint Report No. 13. Copies are available from the Pacific Forest Research Centre or Park Forestry Specialist, B.C. Parks and Outdoor Recreation Division, Lands, Parks and Housing, Victoria, B.C.

Parks personnel are being trained by PFRC staff through workshops and manuals to be able to conduct their own assessments and provide advice on managing these potentially hazardous areas. ■

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