Pacific Forest Research Centre

VICTORIA, BRITISH COLUMBIA

Environment Canada
Forestry Service

Environnement Canada
Service des Forêts

The Canadian Forestry Service, active in British Columbia since the early part of the century, faces a greater challenge today than ever before. With population growth, technology changes and increased demand on our national resources, researchers must continually explore ways to gain improved knowledge and understanding of the entire forest environment in order to help solve our forestry problems.

Objectives

The Pacific Forest Research Centre develops and promotes improved methods to aid forest land managers in planting, growing, protecting, preserving and managing the forest resources of British Columbia and the Yukon Territories.

More specifically, our aims are to:

- improve man's knowledge of the basic land, timber and forest resources.
- study primary forest land use objectives in order to develop guidelines for efficient land management.
- find improved methods of managing forest cover to attain full productive potential.
- improve nursery, plantation and other reforestation techniques.
- reduce forest losses caused by insects, disease and fire.
- detect forest pests and appraise damage.
- improve fire danger assessment and make more efficient use of fire as a management tool.

CUSTOMERS

The Service cooperates with provincial governments, industrial forest companies, universities, other federal government agencies and environmental organizations, as well as the general public.

Program Activities

The program of the Pacific Forest Research Centre is based on the area's needs. Priorities are set in consultation with resource managers through a Program Advisory Committee, the B.C. Forest Research Board, and other technical committees composed of provincial, federal, industrial and university representatives.

1. *Insects are reared under special conditions so scientists can find ways to stop timber losses.*
2. *Magnification equipment is used extensively by researchers to study destructive forest diseases.*

Forest Resources Research

Any form of forest management requires a basic knowledge of the capabilities of the land -- its potential productivity, the types of trees for which the land is most suited, the most appropriate method of reforesting the land and other factors necessary to obtain the greatest returns in the shortest period of time.

Cooperative investigations are being undertaken by specialists in land-form, soil, silviculture, ecology, mensuration, entomology, pathology and hydrology to examine relationships among factors that make up an ecosystem.

Major studies include:

- **LAND CLASSIFICATION.** More knowledge about the land will enable the land manager to make wise use of earth satellites and other high flying aircraft as tools to map our natural resources.
- **IMPROVING QUALITY AND PRODUCTION OF SEEDLINGS** by studies that affect tree genetics, seed germination and seedling survival; the influence of soil, microorganisms and application of fertilizers to container-grown seedlings.
- **DEVELOPING IMPROVED REGENERATION METHODS** particularly in regions of the province where conditions such as climate and short-growing season influence the establishment of a new forest.
- **DEVELOPING SILVICULTURAL PRACTICES TO ENHANCE THE PRODUCTIVITY OF COASTAL FORESTS** by defining how Douglas-fir and hemlock trees respond to spacing and fertilization treatments. Assessment studies involve the impact that treatments have on environmental quality and tree physiology in relation to fertilization and thinning. Development of more efficient research procedures includes single tree sampling methods which predict the effects of various treatments under different stand and ecological conditions.

3. *Single tree sampling methods and other techniques being developed by scientists will improve man's knowledge of the environment.*

Forest Protection Research

Insects, disease and fire are natural parts of the forest environment. They hasten the disintegration of old and weakened trees, allowing nutrients to move back into the soil. When insects, disease and fire run rampant, man must have the knowledge and the necessary techniques to prevent extensive damage.

INSECTS The blackheaded budworm, hemlock looper, balsam woolly aphid, cone and seed insects and bark beetles are the most damaging in British Columbia. Epidemic attacks by these pests result in loss of valuable wood fibre and often in death of a forest.

DISEASE Tree diseases that cause extensive damage to the forests of British Columbia include those that cause heart-rot decay, root rot and loss of foliage. The white pine blister rust is a serious threat, as is dwarf mistletoe -- a parasite that reduces tree growth, ruins wood quality and weakens the tree, making it susceptible to attack from insects and other diseases.

FIRE The Centre's fire research and development programs are concerned with developing a fire-danger rating system -- a technique for determining if the fire hazard is nil, low, moderate, high or extreme; fire behavior in different forest types; prescribed burning for hazard reduction and seed bed preparation.

DETECTION AND APPRAISAL Specialists in detection and appraisal of forest insects and diseases carry out annual inspections. The survey identifies problem areas, assesses the impact and diagnoses the cause of damage.

RESEARCH GRANTS AND CONTRACTS

The Pacific Forest Research Centre administers research and development contracts that utilize the talents of local high-calibre scientists in forestry disciplines.

4. *Insects cause severe losses to our forest resources.*

5. *'Conks' or fruiting bodies on the bark indicate the tree is decayed.*

Forestry and Environmental Development Services

NEW REFORESTATION TECHNIQUES. Technological innovation and changes are proceeding at an unprecedented rate in the field of reforestation. Through research, a number of new methods of growing and planting seedlings are available to the forester, most of them incorporating the principle of CONTAINERIZATION. Assessment of these methods is necessary, both in terms of biological performance and economic factors.

Growing and field-testing of high quality seedlings in various types of containers has demonstrated the importance of new techniques to help achieve the provincial goal of 150 million seedlings per year by 1980.

EFFECTS OF FORESTRY PRACTICES. To preserve and enhance our land resources, and to make the land available for recreation, wildlife, fisheries, water production and agriculture, as well as for forestry, it is important to identify, measure and describe the effects of present practices on the environment. In cooperation with the provincial land managers and other agencies, PFRC foresters are developing new techniques for all-round resource management. Included are methods to develop and promote the testing of present forest management procedures that satisfy economic needs and are compatible with environmental concerns.

6. *Mechanical planting of 'plug' seedlings.*

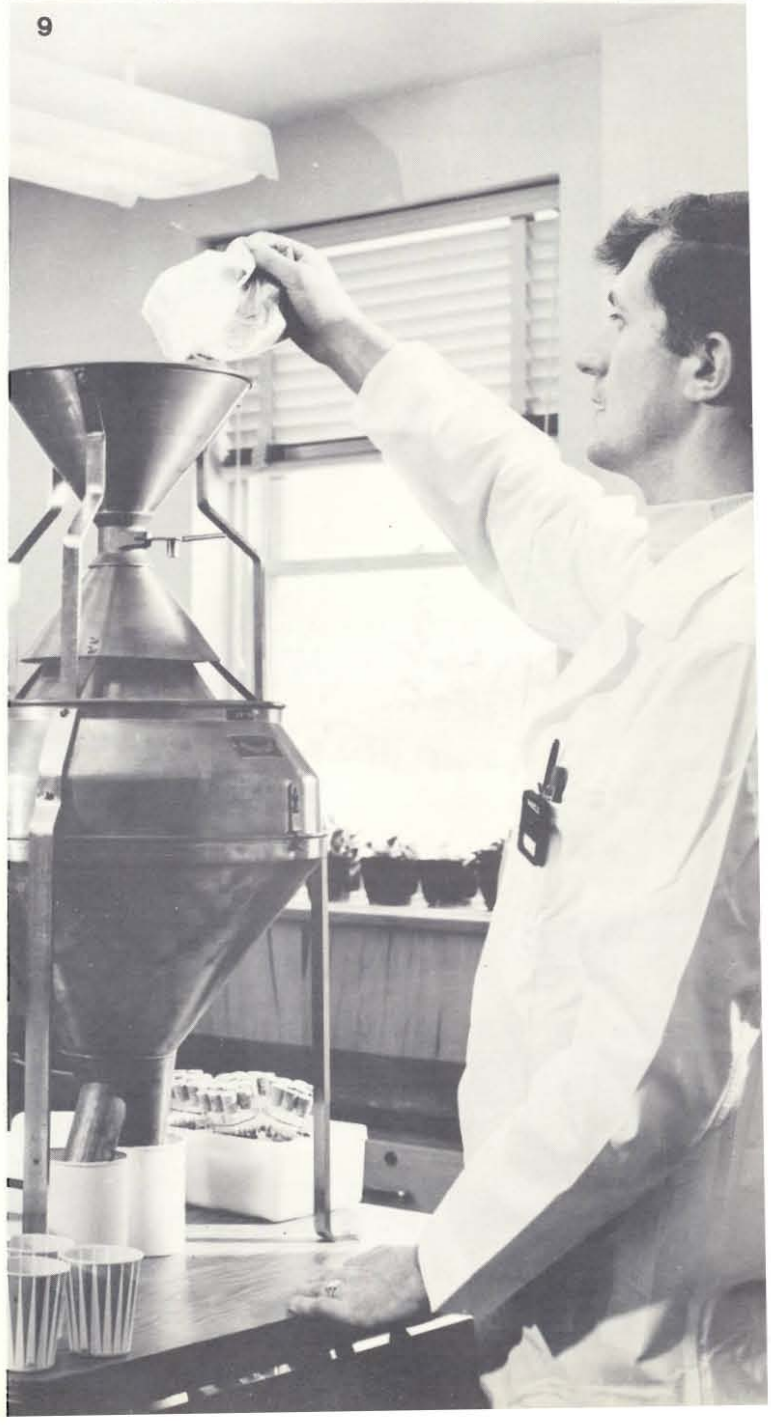
Economics

Specialists in forest economics are employed by the PFRC to ensure that research projects reflect the total demands being placed on the forest environment. These specialists clarify and quantify the objectives of resource use and develop criteria for measuring achievement.

Support Services

Essential to the efficient operation of the Pacific Forest Research Centre are:

- Soils and Chemistry Service Laboratory - where soil, tree, plant, and insect samples are analyzed for chemical and physical characteristics and their reaction to treatments imposed during various experiments.
- Date Processing - to facilitate date analysis, advice is provided on the most suitable type of statistical analysis on preparing computer programs for experiments and in analyzing data on computers.
- Library Services - the availability of reference material enables researchers to utilize the work of others, preventing duplication of effort.
- Administrative and Operations Services - to assist in efficient operation of the establishment.



7. *Researchers use complex apparatus in forestry investigations.*
8. *Computers provide rapid analysis of information.*
9. *Problems associated with seed production and seed germination are being investigated.*

Pacific Forest Research Centre

STAFF

The present staff (176) consists of:
67 Professional scientists who are specialists in

Forest Ecology	Land Classification
Tree Physiology	Soil Science
Silviculture	Forest Economics
Entomology	Mensuration
Fire Science	Meteorology
Forest Diseases	Insect Taxonomy
Forest Hydrology	Mycology
Forest Genetics	Photogrammetry

Scientists are supported by 78 highly trained technicians and 31 operational and administrative personnel.

FACILITIES

The main structure at the Pacific Forest Research Centre was officially opened in February, 1965, integrating the previously separated units of forest research, forest entomology and forest pathology. Situated on a 22-acre site overlooking Victoria, the Centre houses 38 laboratories, 60 offices, a service penthouse, and a full basement that contains six varied-temperature cold rooms, six growth rooms, two environmental chambers and two insect rearing rooms; also, a comprehensive library, a computer centre, a large conference room and a photographic studio. Other buildings on the grounds include a headerhouse with two greenhouse units and two annexes that contain laboratory and office facilites.

Services include three boiler units that produce 450 horsepower of high-pressure steam, and 57 fan units that supply forced and filtered fresh air. Labs are serviced with hot and cold water, propane gas, steam, compressed air, and a vacuum line. Tempered glass lines carry distilled water to each floor.

CANADIAN FORESTRY SERVICE is a federal government agency serving all regions of Canada with major research centres in:

- Edmonton, Alberta
- Sault Ste. Marie, Ontario
- Ste. Foy, Quebec
- Fredericton, New Brunswick
- St. John's, Newfoundland

Besides the regional centres, there are national forestry institutes that specialize in problems of national scope, specifically in forest management, forest fire, pest control and ecology.

Also, Forest Products Laboratories in Vancouver and Ottawa deal with problems stemming from the manufacture and use of forest products.

Forestry Information

- To ensure that results of research are readily available, the PFRC maintains a comprehensive information program where publications, films, exhibits, speakers, tours, and photographs are provided.

Additional detail on activities may be obtained by contacting the Information Office.

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