

for incorporating biotechnology, disease and pest resistance, seed and cone pest biology and management control options, genetic worth in growth and yield predictions, genetic diversity and risk assessment of planted forests.



Research stations at Cowichan Lake and Vernon and a research laboratory in Victoria provide the infrastructure for short- and long-term research trials as well as support services to ensure that research can be conducted to a high and consistent standard.

**Industry competitiveness**  
*Understanding the population densities of cone and seed pests to reduce losses in seed orchards.*

## Research Branch Sections

### ECOLOGY AND EARTH SCIENCES

- Watershed research
- BEC – Plant ecology
- Mountain pine beetle
- Wildlife habitat and range ecology
- Climatology and soil conservation
- Silvicultural systems and forest dynamics

### FOREST GENETICS

- Interior tree breeding
- Coastal tree breeding
- Forest genetics research and management
- Cone and seed pest research
- Research stations

### FORESTRY AND TECHNICAL SERVICES

- Stand development modelling
- Technical communications
- Analytical laboratory
- Strategic analysis

## Forestry and Technical Services

**Research focus** Stand development modelling and landscape ecology modelling.

**Research services** Landscape-level analysis using spatially explicit models and GIS.

- Biometrics—application of statistical methods and procedures for research, operations, and policy.
- Growth and yield decision-support tools, development, and analysis.

**Technical support services** Support to Forest Sciences Program—biometrics advice, laboratory analysis, technical communications expertise, and administrative and financial services. ■ Analytical laboratory—innovative high-quality analytical chemistry support and chemical, physical, and biological tests on soil, water, and vegetation.

- Technical communications (Ministry Library, Production Resources Unit, and Knowledge Management Unit)—leading-edge information, scientific publishing, and information management tools and services.
- Finance and Administration—provides essential client service for the provincial Forest Science Program, coordinating FIA FSP project reporting, planning and managing financial and human resources; and developing future research talent through succession planning and client partnerships.



For more information about  
**Ministry of Forests and Range Research Branch**  
activities and publications:  
Web site: <http://www.for.gov.bc.ca/hre/>  
Contact e-mail: [Forest.ResearchBranchOffice@gov.bc.ca](mailto:Forest.ResearchBranchOffice@gov.bc.ca)  
Phone: (250) 387-6721

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MINISTRY OF FORESTS AND RANGE

# Research Branch

Science supporting  
sustainable forest and  
range management



Front page  
*Ecosystem recovery  
in coastal forests  
– measuring baseline  
conditions in  
Haida Gwaii.*



Ministry of  
Forests and Range

The Ministry of Forests and Range Research Branch offers a wide range of programs and services. This brochure highlights these, as well as the many initiatives that Research Branch scientists have taken on to respond to current and emerging issues.



**Mountain pine beetle**  
Core sampling assists in calibrating stand-development models to provide options to mitigate the effect on timber supply in lodgepole pine forests damaged by mountain pine beetle.

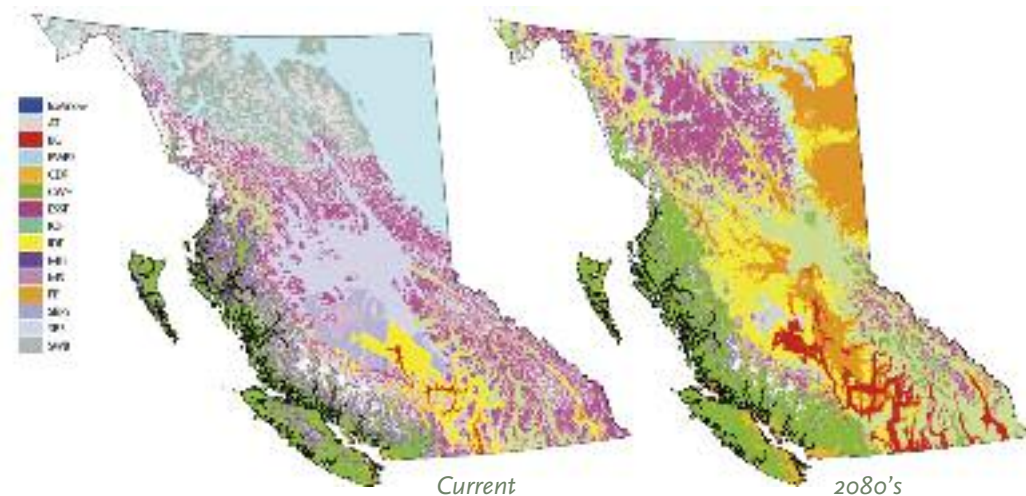


RESEARCH BRANCH, together with the Forest Science sections in the regions, comprise the Forest Science Program. The Branch's three sections—Ecology and Earth Sciences, Forest Genetics, and Forestry and Technical Services—undertake research and provide consultation and extension services in a broad range of disciplines, including tree breeding, growth and yield, and ecosystem classification and correlation. Although each section has its unique specialties, many research initiatives are interdisciplinary (see sidebar). Our team of talented individuals contributes applied and innovative, leading-edge knowledge to help achieve ministry goals:

- to support science-informed policy development
- to conduct research to provide knowledge for present and future policies
- to maintain high scientific standards
- to facilitate co-operation with the wider forest science community
- to communicate and extend research results and scientific knowledge.

## Research Branch Supports These Ministry Initiatives

- Future Forest Ecosystems Initiative
- Forest and Range Practices Act (FRPA), and Forest and Range Evaluation Program
- Chief Forester's Stewardship Vision and Framework
- Timber Supply Review and Allowable Annual Cut Determinations
- Forests for Tomorrow
- Coast Revitalization Strategy
- Chief Forester's Standards for Seed Use
- Forest Tree Genetic Resource Conservation and Management Strategy
- Provincial Mountain Caribou Recovery Strategy



**Climate change**  
Modelling current and future climate-change scenarios using high-resolution spatial climate data.

Map on right by Hamann, A. and T. Wang. 2006. Ecology 87(11):2781.

## Ecology and Earth Sciences

**Research focus** Ecology, hydrology, soils, geomorphology, silvicultural systems, climatology, wildlife habitat, range, fish habitat biology, and non-timber resources research. ■ Co-ordination of provincial research in these disciplines. ■ Liaison with other branches and clients to support forest stewardship policy and practices.



**Sustainable forest management planning**  
Identifying forest management options and silvicultural systems to accommodate timber harvesting and maintain wildlife habitat.

**Research services** Ecology—biogeoclimatic ecosystem classification, stand- and landscape-level biodiversity. ■ Wildlife Habitat and Range—range ecology and wildlife habitat studies and modelling. ■ Soil Conservation—long-term soil productivity, soil ecology, and soil rehabilitation. ■ Watershed Research—watershed hydrology, geomorphology, and fish/forestry interactions. ■ Climatology—forest climate, climate change, forest carbon and water balance. ■ Silvicultural Systems and Forest Dynamics—tree growth and regeneration, wood quality and stand development. ■ Non-timber Forest Resources—Species ecology and habitat, management guidelines, inter-agency co-ordination.

## Forest Genetics

**Research focus** Genetic improvement, seed transfer and climate change, genetic conservation, seed orchard pests, tree physiology, genetic diversity. ■ Liaison with Forest Genetics Council of B.C., Ministry of Forests and Range branches, universities, and industry.



**Research services** Genetic Improvement—tree selection, field testing and breeding, genetic worth determinations, delivery of genetically improved material. ■ Seed Transfer and Climate Change—geographic patterns of genetic variation of commercially and ecologically important tree species, climate change modelling for future seed transfer. ■ Gene Conservation—maintaining important genetic variation in *ex* and *in situ* populations. ■ Additional research projects—adaptive physiology, approaches

**Ecosystem resilience** Ensuring appropriate gene conservation, as well as adaptation and resilience to climate change, through tree breeding research.

## Research Branch's Current Priority Research Themes

- Climate-change adaptation/strategies
- Ecosystem resilience
- Sustainable forest management planning
- Mountain pine beetle
- Ecosystem-based management on the coast
- Second-growth management
- First Nations involvement
- Non-timber forest resources
- Implementation and evaluation of FRPA
- Industry competitiveness
- Forest carbon management

## Non-timber forest resources

Research on the ecology, productivity, and use of commercial species such as pine mushrooms.

