

## Forest Health activities

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### Surveys

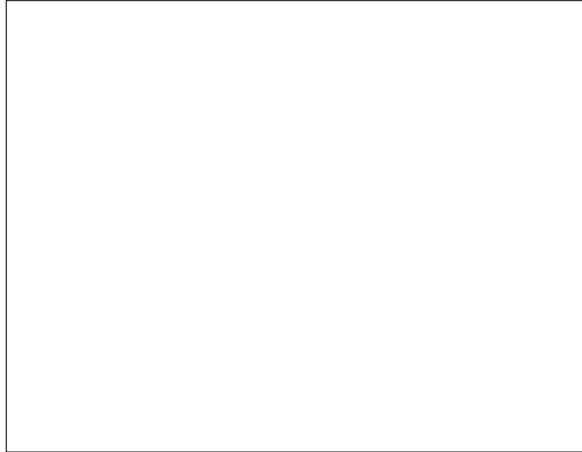
Forest Health management decisions depend on accurate and reliable data. Primarily, information is gathered through forestry surveys which detect and identify forest insect and disease problems.

Currently, Forest Health-related surveys include: annual aerial overview surveys, specific operational forest health aerial and ground surveys, silviculture surveys, and special forest health surveys.

### Control

Many damaging agents are natural residents of forest ecosystems and are usually innocuous or beneficial when their populations are at low levels. For example, bark beetles remove weakened or old trees, aiding in the natural process of forest renewal.

When a damaging agent population gets out of hand and causes excessive damage, Forest Health staff determine how to lessen the damage and return populations to their natural levels. Management strategies usually involve silvicultural practices, but may also include direct control measures to reduce populations of damage-causing agents.



*Spraying B.t.k. (a biological insecticide) to control Western Spruce Budworm.*

### Training

Forest Health treatments, including silvicultural procedures and direct treatments, must be carefully planned and monitored to ensure the desired results are accomplished. Consequently, a large number of people in the Forest Service and related industries must be trained to identify and manage forest insects, diseases, and mammals.

### Auditing

Forest Health activities are audited to confirm that treatments are effective, that new forests have been successfully established and are growing well, and that treated areas are responding appropriately. Cooperative auditing techniques are being developed to ensure that Forest Health goals will be met as an integral part of the Silviculture Program.

### The future

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Currently, Forest Health is formulating a strategic plan to guide its activities over the next five years. The primary goal is the control of forest damage. Improvement of the subprogram will require increased staffing, especially at the district level, extensive training, improved research and data-collection techniques, expanded use of long-term control techniques, and integration of Forest Health policies and procedures with other Forest Service activities.

The developing Forest Health subprogram provides substantial benefits including protection of mature trees, employment, wood-quality improvement through the reduction of tree deformities and defects, increased recreational use of British Columbia's forests, and more harvestable timber.

Increasingly, Forest Health staff will ensure that management decisions enhance or protect forest ecosystems, and will continue to develop and apply treatments to improve the security of mature forests and enhance the productivity of young stands. By working together with other Forest Service programs, Forest Health will help maintain British Columbia's forests for the future.

### For more information

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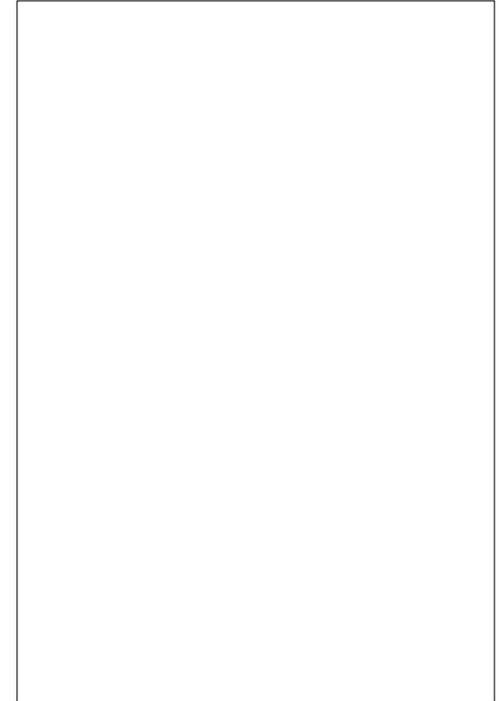
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# An Introduction to Forest Health

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*Checking extent of bark beetle attack.*



## What is Forest Health?

British Columbia's economy largely depends on forests for both their commercial and aesthetic values. Over the years, the British Columbia Forest Service has worked hard to develop programs that will sustain the forests which are so crucial to this province's future.

As part of the Forest Service, the Silviculture Program ensures that the harvesting and renewal of the province's forests are carried out in an ecologically sound manner. With the cooperation of forest companies, specific forest management objectives are applied before and after harvesting to ensure that lands logged or burned by wildfires are reforested with healthy, productive young trees.

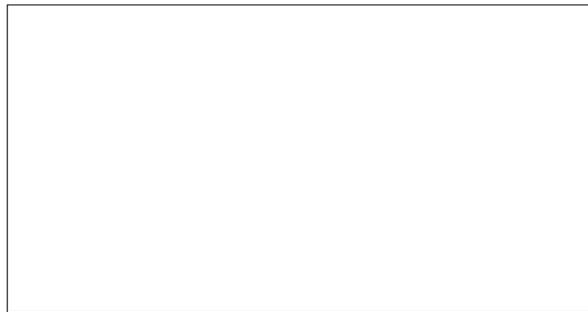
Forest Health, a subprogram of Silviculture, is responsible for the detection and quantification of forest health problems, and, where necessary, the prescription and implementation of protective or suppressive treatments to anticipate and prevent insect, disease and mammal damage to reforested areas and old growth stands. It also evaluates the effect of forest practices on forest health, as these occasionally increase the risk of damage from insects, diseases and mammals.

Forest Health evolved from a concern over catastrophic damage caused by insects such as western spruce budworm and mountain pine beetle, and by root diseases and dwarf mistletoes.

Before 1980, the Forest Service relied on the Canadian Forestry Service to supply advice on insect and disease management, but it was determined that a considerable amount of timber volume could be saved if the Forest Service developed its own program.

In 1989, the program, originally called "Pest Management", was re-named "Forest Health" to emphasize the goal of prevention before suppression and the benefits of long-term approaches to reduce damage losses and increase the productivity of our forests.

In 1991, Forest Health was incorporated into the Silviculture Program.



*Western spruce budworm larvae kill thousands of trees each year.*

## Provincial organization

Forest Health activities are administered by staff in 43 district offices, six regional centres, and Victoria branch offices.

District staff conduct field operations and act as primary contacts with the public, industry, and other organizations concerned with the practice of forestry. They conduct surveys, perform treatments, and develop forest management strategies and programs to minimize damage from insects, diseases and mammals.

Forest Health staff in the six forest regions (Vancouver, Prince Rupert, Prince George, Cariboo, Kamloops, and Nelson) provide professional expertise and diagnostics to district personnel. They provide advice on stand treatments, plan and conduct field research, conduct large-scale detection surveys, and help set district and regional forest health goals and priorities. Regional officers also act as a link between the staff at the branch and those at the districts engaged in field activities.

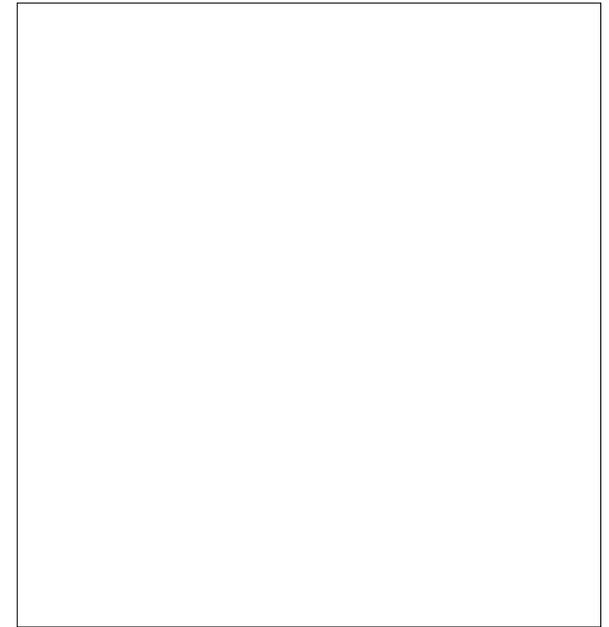
Staff at the branch level are responsible for the overall guidance of Forest Health activities. They establish provincial policies and standards, and provide expertise, leadership, and support necessary for the program as a whole.

In addition, they provide current information and professional advice, and develop management and data-handling systems. They also act as a link with other government and public agencies, and help to develop and coordinate provincial training strategies. They develop public information documents and advise the ministry executive.

## Damaging agents

British Columbia's forests are home to and are occasionally damaged by many insects, diseases and mammals. Some cause losses in tree volume and growth equivalent to approximately 25% of the allowable annual timber harvest (regulated lands only) per year. (As a comparison, forest fires claim less than the equivalent of two percent of British Columbia's allowable annual harvest). Insect, disease and mammal damage can also threaten the beauty of our forests and make them unsafe for recreational activities. Watersheds and wildlife can also be affected because widespread tree mortality disrupts water run-off patterns and habitats.

In the Flathead River Valley during the mid-1970's, over seven million lodgepole pine trees were killed by the mountain pine beetle. By 1984, mountain pine beetle infestations covered over 500 000 hectares province-wide. Bark beetles, especially mountain pine beetle and spruce beetle, have destroyed more timber than any other damaging agents.



*Pushover logging with an excavator helps control root disease.*

Defoliators, tree diseases, and mammals also cause significant damage in the form of reduced growth, top kill, thinned foliage, lost volume and, in some cases, mortality. They can also lower the aesthetic value of British Columbia's forests and create fire hazards.

In some cases, the damage caused by insects, diseases or mammals can be exacerbated by forest practices. When this is identified, recommendations are made by Forest Health staff to rectify the problem and to prevent further complications from these procedures.

Occasionally, insects and diseases that are not native to the province are detected in British Columbia. These are of concern because if untreated they could become permanently established in British Columbia and potentially cause harm to ecosystems and resources.

Over the past eight years, gypsy moth has been repeatedly detected in southwestern British Columbia. Eggs and larvae, possibly transported here on the undersides of cars or in household effects, have been found on Vancouver Island, the lower mainland, and in Kelowna.

Fortunately these occurrences, mostly confined to urban settings, were detected at an early stage, and eradicated through the application of a bacterial insecticide, *Bacillus thuringiensis* Berliner var. *kurstaki* (Btk).