

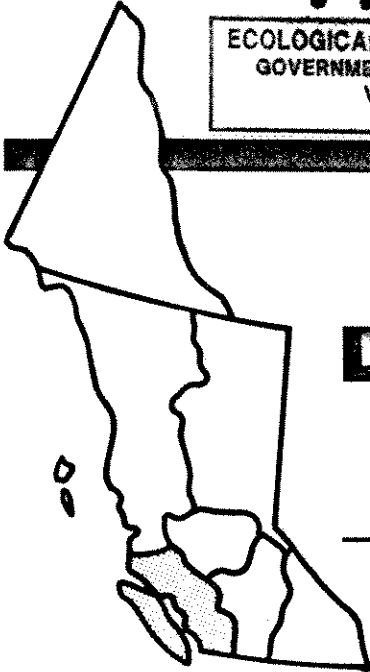
Mount Maxwell

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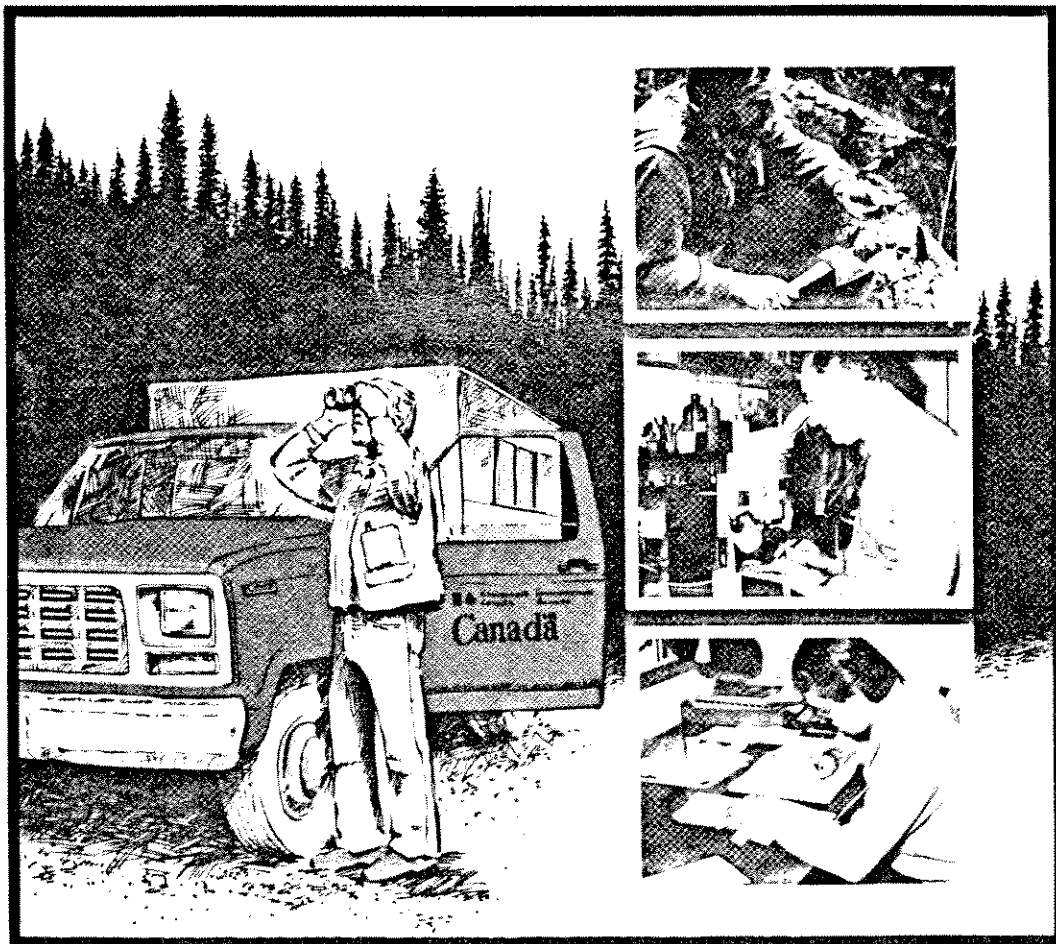
ECOLOGICAL RESERVES COLLECTION
GOVERNMENT OF BRITISH COLUMBIA
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Forest Insect and Disease Conditions

Vancouver Forest Region 1983

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Summary of Pest Conditions

This report outlines forest insect and disease conditions in the Vancouver Forest Region in 1983 and forecasts population trends of potentially damaging pests.

Western spruce budworm populations remained low with no defoliation recorded in the Region. Douglas-fir tussock moth moderately defoliated localized Douglas-fir stands near Chilliwack, Clearbrook, Abbotsford, Cassidy and Victoria. There was an increase in mortality of Douglas-fir by Douglas-fir beetle, notably in the Fraser Canyon and Pemberton areas. Phellinus root rot continued to be a major problem in Douglas-fir stands throughout the Region. Phantom hemlock looper populations at Coquitlam Lake collapsed as predicted and no defoliation occurred in 1983. Mortality and damage of amabilis fir and western hemlock seedlings by a seedling weevil increased in the Holberg area on Vancouver Island. Mountain pine beetle infestations increased in the Homathko River Valley, Lillooet Lake, and Fraser Canyon areas. Defoliation of deciduous trees in the Greater Victoria area by winter moth was moderate to severe, similar to 1982 but larval parasites were more evident. Western oak looper moderately defoliated Garry oak in the Mount Maxwell Ecological Reserve on Saltspring Island for the third consecutive year. Dogwood leaf blight was severe in Golden Ears Provincial Park at Alouette Lake and was recorded at several other locations from White Rock to Powell River on the Mainland and from the Saanich Peninsula to Nanaimo on Vancouver Island.

The forest pest field survey was conducted from May 12 to September 15 and included several special surveys: to collect winter moth larvae for parasitism studies on Vancouver Island; to monitor provincial parks and campsites; to set attractant-baited apple maggot traps in the Comox area in co-operation with Agriculture Canada; to locate and assess pest conditions in 7 EBAP projects and 9 NSR sites in the Region; to examine western hemlock plantations in the Northwest Bay area on Vancouver Island for terminal crook disease.

A total of 613 insect and disease samples from throughout the Region were submitted to the Pacific Forest Research Centre in 1983. CFS-FIDS personnel submitted 542 samples and other agencies or individuals submitted 76. Locations of samples collected and areas of the Region covered during 22 hours of aerial survey from fixed-wing aircraft are shown on Map 1.

The number of samples from all hosts which contained larvae in Mainland forest collections increased to 86% from 78% in 1982, and increased to 80% from 67% in 1982 on Vancouver Island.

Details on 1983 forest pests are described by host in order of importance.

TABLE 9. Incidence of spruce weevil attack in spruce plantations, Vancouver Island, Vancouver Forest Region, 1983.

| Location | % of Trees Attacked | |
|--------------|---------------------|-------------------------|
| | Current (1983) | Old (1982 and previous) |
| Nimkish | 4 | 0 |
| Tsolum R. | 34 | 66* |
| Sprise Lk. | 5 | 21 |
| Staghorn Cr. | 9 | 61 |
| Sayward | 33 | 59+ |
| AVERAGE | 17 | 41 |

*Norway spruce plantation

+Sayward provenance trials

At a Loss Creek plantation 5% of the trees were previously attacked but current attack was not evident, due possibly to the early examination date. At Robertson River, two Sitka spruce plantations (average 1.9 m high) planted under a deciduous canopy, were not attacked.

In a plantation in the Nimkish River Valley, attack was not recorded in 1982, but by 1983 trees averaged about 2 m high and apparently had reached a more susceptible size, age and vigor and 4% of the leaders were infested. Increased damage is projected for this area in 1984.

Leader mortality and current attack was common from Campbell River to Kelsey Bay in roadside regeneration. Severe damage at Swah Creek near Vernon Lake was reported by forest industry, and leader clipping control programs continued in several plantations in the Tahsis area where high weevil populations and annual terminal mortality remain a problem.

DECIDUOUS TREE PESTS

Western oak looper, Lambdina f. somniaria

Defoliation of Garry oak ranged from 5 to 20% and averaged 10%, a decrease from 50 to 100% defoliation in 1982 over approximately 16 ha of the Mt. Maxwell Ecological Reserve on Saltspring Island. This was the fourth consecutive year of defoliation.

Early summer surveys produced only 125 larvae in three standard samples from Garry oak which resulted in light defoliation of oak but there was no feeding on Douglas-fir as in previous years. However, 5 000

larvae were collected from only six Garry oak trees in mid-August. The late development of larvae was attributed to cool, wet weather in June and July.

About 1 142 larvae and pupae were collected from lichen and 26 burlap traps in August for parasitism studies. Preliminary results showed that 19% were parasitized by dipterous parasites, 6% by hymenopterous parasites, and 3% were infected by either a nuclear polyhedrosis virus (NPV) or a pathogen, Beauveria bassinia. Of 3 511 larvae reared from the August mass collections, 27% were parasitized by dipterous insects and 1% by hymenopterous parasites. The larval and pupal mortality apparently had little effect on the looper population, since large numbers of adults were in flight in October and November. This indicated continued high populations in 1984, with the potential for moderate to severe defoliation in the Ecological Reserve.

The bark beetle, Dendroctonus pseudotsugae attacked four mature Douglas-fir trees, partially defoliated by the oak looper for three consecutive years.

Winter moth, Operophtera brumata

Defoliation of deciduous trees on southern Vancouver Island continued in 1983 for the thirteenth consecutive year, with no reduction in extent or intensity in the Greater Victoria, Colwood and Saanich Peninsula areas. Defoliation, mainly of Garry oak but also of broadleaf maple and fruit trees, was generally light to moderate except for localized areas of severe defoliation in Victoria and on the Saanich Peninsula.

The pest was collected in Duncan for the first time when 80 larvae were collected from 3 lightly defoliated fruit trees, a significant spread from the Victoria area. Surveys for the moth in the Delta-Richmond areas on the Mainland were negative.

A parasite release program, initiated in 1979 in the Greater Victoria area, has established the parasites but not at levels high enough to affect the general winter moth population. Final results of rearing programs to determine percentage of 1983 larvae parasitized by Cyzenis albicans and Agrypon flaveolatum will not be available until the spring of 1984. A special trapping and netting program for adult parasites resulted in 80 C. albicans and 36 A. flaveolatum adults at eight locations in 1983 as compared to no C. albicans and 12 A. flaveolatum found at three locations in 1982. This increase indicated that larval parasites could reduce winter moth populations in the near future. However, high numbers of winter moth adults in November indicated high populations and continuing defoliation within Greater Victoria in 1984.