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ANNUAL DISTRICT REPORT
FOREST INSECT AND DISEASE SURVEY
BRITISH COLUMBIA, 1974
PART I, VANCOUVER FOREST DISTRICT

by
R. O. Wood and C. S. Wood^{1/}

PACIFIC FOREST RESEARCH CENTRE
CANADIAN FORESTRY SERVICE
VICTORIA, BRITISH COLUMBIA
- FILE REPORT -

DEPARTMENT OF THE ENVIRONMENT
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^{1/} Forest Research Technicians, Forest Insect and Disease Survey, Victoria, B.C.

INTRODUCTION

This report outlines the status of forest insect and disease conditions in the Vancouver Forest District and forecasts pest population trends. Emphasis is placed on pests capable of sudden, damaging outbreaks.

Forest pest infestations reported to the Forest Insect and Disease Survey by public or private cooperators assist in the interpretation of the general pest situation and population trends.

Regular field work in the District commenced on May 21 and ended on October 30. Special surveys and time expended were as follows: 38 hours on aerial surveys in July and August; 11 days on a spruce budworm egg survey and damage appraisal in August.

A total of 598 insect and 56 disease collections were submitted to the Pacific Forest Research Centre in 1974. Map 1 shows drainages and general location of field collection points.

The number of collections containing larvae decreased in 1974; 66% of the beating samples on Vancouver Island and 70% on the Mainland contained larvae, compared to 86% and 87%, respectively, in 1973.

Western spruce budworm infestations in Douglas-fir stands in the District increased to 194,000 acres (78,540 ha) in 1974. Populations of western blackheaded budworm on Vancouver Island were low and no defoliation was noted. Mountain pine beetles continued to cause tree mortality of western white and lodgepole pine in scattered areas. Small outbreaks of Douglas-fir beetle occurred in standing and windthrown Douglas-fir at a number of locations on Vancouver Island. Moderate populations of European pine shoot moth were present in the Vancouver area. The known range of balsam woolly aphid was expanded slightly in 1974. There was a small outbreak of poplar-and-willow borer at Anderson Lake.

Douglas-fir needle cast lightly infected Douglas-fir at various locations in the District. Berkmann's Blight, a foliage disease, infected western red cedar west of Hope and in the Lois Lake area. A Douglas-fir needle rust was found on a number of trees in a plantation at Aldergrove. Extensive areas of winter injury occurred in lodgepole pine stands in parts of the Mainland section of the District. There were areas of frost and snow damage and climatic injury throughout the District in 1974.

Details on individual insect and disease problems appear in subsequent sections.

Map I

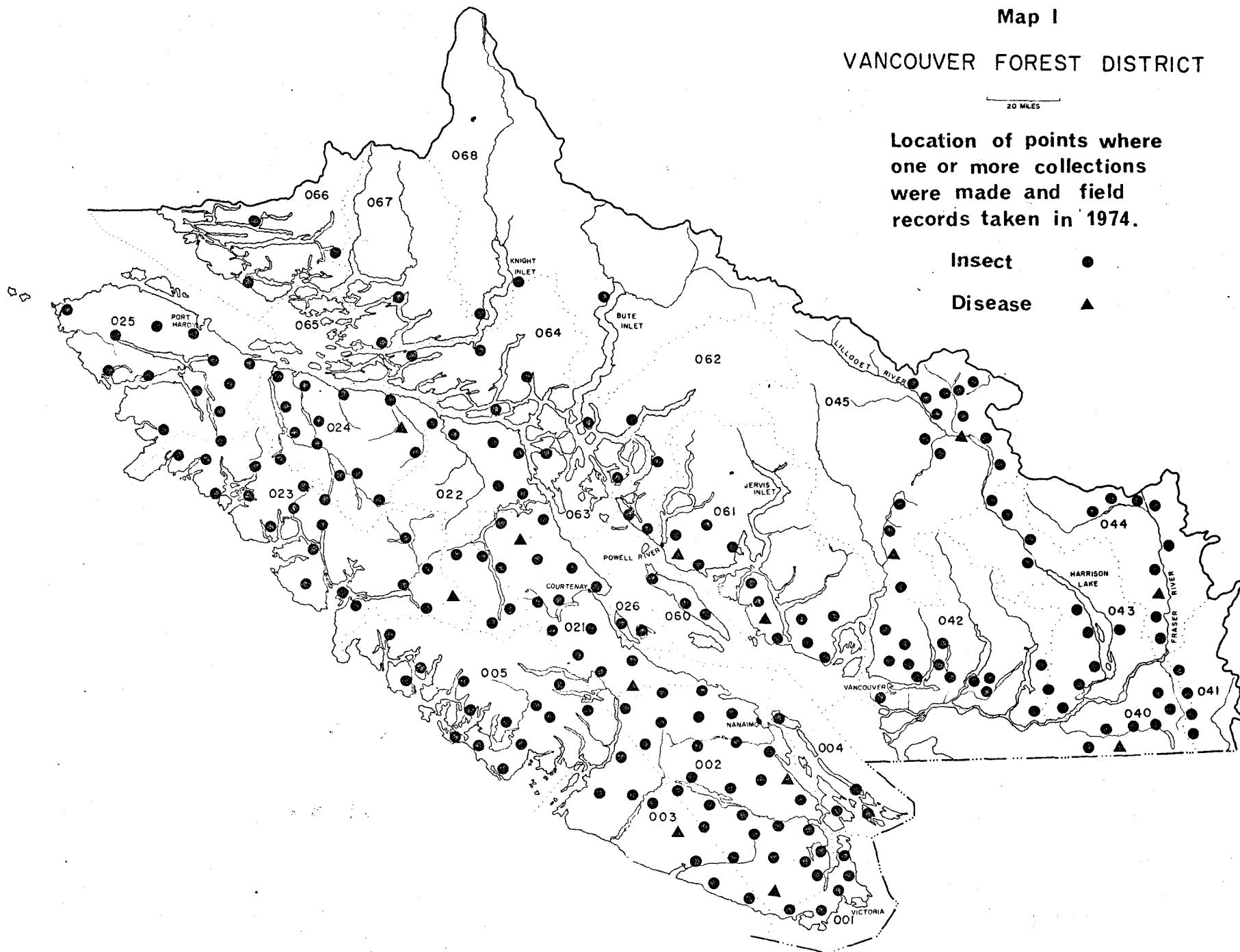
VANCOUVER FOREST DISTRICT

20 MILES

Location of points where
one or more collections
were made and field
records taken in 1974.

Insect ●

Disease ▲



FOREST INSECT CONDITIONS

Defoliators

Western spruce budworm, *Choristoneura occidentalis*

Western spruce budworm infestations on the Mainland portion of Vancouver District increased by about 63,000 acres in 1974 to a total of 194,000 acres (78,540 ha). Douglas-fir was the main host of the insect except in the north end of the Lillooet River valley where alpine and amabilis fir were defoliated.

The late spring of 1974 caused budworm larvae to emerge from their hibernacula later than usual. Examinations of Douglas-fir buds in early June showed that only 6% contained larvae but by mid-June 32% were infested. Feeding damage was evident late in June and by July there were moderate to high numbers of larvae in beating collections from widely-separated areas: Gingerbread Creek (150); Haylmore Creek (207); Birkenhead Lake (220); Rutherford Creek (147); Sumallo River (70). Along the Coquihalla and Skagit rivers, samples yielded up to 50 larvae whereas in 1973 only occasional larvae were found. In Manning Park, a new area of infestation, collections contained up to 500 larvae. Along the lower end of Cheakamus River and around Harrison Lake budworm larvae were collected for the first time in recent years, indicating a possible build-up of populations in those areas. Table 1 shows a comparison between 1973 and 1974 larval populations in drainages where infestations occurred.

Larvae were checked for parasites at Haylmore and Gingerbread creeks and at Sumallo River. Dissection of 100 larvae at each location showed that 2% were parasitized at Haylmore Creek and none at either of the other two locations.

Table 1. Summary of spruce budworm beating collections from Douglas-fir, Vancouver Forest District

Drainage divisions *	No. samples taken during larval period		% samples containing larvae		Avg no. larvae per positive sample		Avg no. larvae per sample	
	1973	1974	1973	1974	1973	1974	1973	1974
041	8	9	38	89	5	133	2	118
044	6	6	33	17	1.5	2	0.5	0.3
045	15	13	53	100	107	79	57	79

* See Map 1.

An aerial spray control program using Fenitrothion at the rate of 4 ounces per acre was conducted on June 25 by a private company on 500 acres near Tashme. Unfortunately, a rainfall about 13 hours after the application probably lessened the effects of the insecticide. Three days after the application, beating samples from the lower fringe of the sprayed area yielded 77 larvae, all of which were dead or died en route to the laboratory. Regeneration western

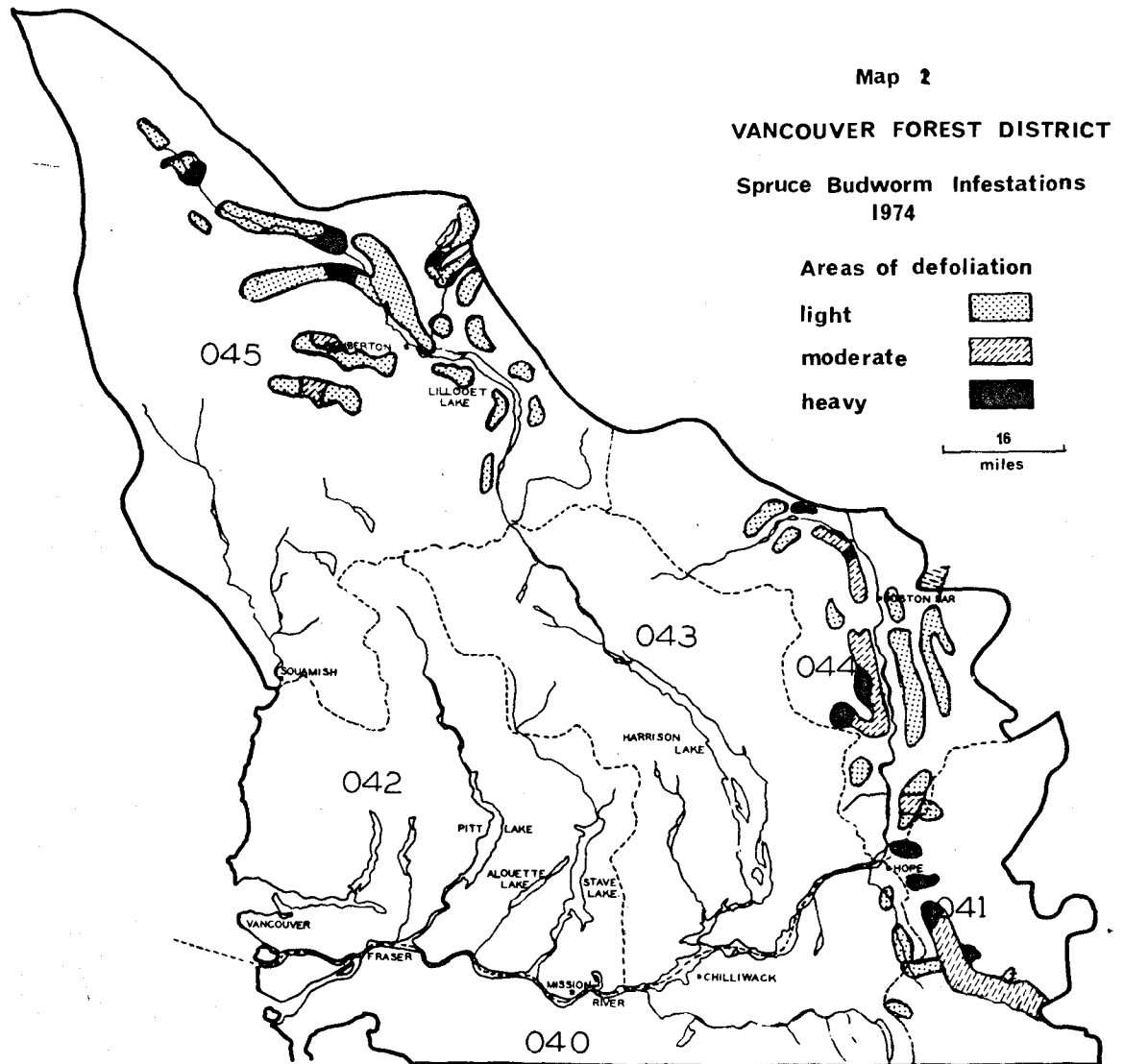
hemlock, as small as one foot high, had a high number of budworm larvae feeding in needles typically webbed together. Many of these larvae were very sluggish but their condition may have been due to the cold, damp weather rather than from the effects of insecticide. When the area was re-examined on July 9, samples still yielded more than 70 larvae and defoliation was much heavier. Presumably many of these were larvae that were scattered throughout the crown at the time of spraying, then concentrated at the lower crown level late in the larval period.

Aerial mapping of infestations in August showed that most of the defoliation was in the light category, although there were pockets of moderate to heavy damage (Map 2). Many of the infestations in the Pemberton area actually decreased in size and intensity while those in the Fraser Canyon and Sumallo River areas increased. New infestations occurred along the Coquihalla River, Silverhope Creek, Skagit River, in Manning Park and along both sides of Lillooet Lake. Defoliation in 1974 was categorized as follows: light - 148,000 acres (59,920 ha); moderate - 35,200 acres (14,250 ha); heavy - 10,400 acres (4,210 ha), for a total of 193,600 acres (78,380 ha) (Table 2).

Table 2. Areas of spruce budworm defoliation of Douglas-fir, Vancouver Forest District

Location	No. acres defoliation					
	light		moderate		heavy	
	1973	1974	1973	1974	1973	1974
Lillooet R [*]						
(Pemberton to Lillooet Gla.)	39,800	35,360	13,980	8,960	6,880	4,000
Rutherford Cr	2,400	3,680	1,600	800	960	0
Soo R	1,440	3,040	0	640	0	0
Cheakamus L	2,080	0	480	0	0	0
Birkenhead L & R, Blackwater Cr	11,840	21,600	8,600	320	1,280	320
Haymore Cr	1,440	5,440	4,000	640	0	0
Spruce Cr	0	2,400	0	160	0	0
Gates R	0	2,400	10,840	160	2,080	0
Lillooet L - Green R	1,920	12,320	2,720	0	0	0
Fraser Canyon (Choate to Boston Bar)	2,560	30,400	1,920	6,720	5,760	2,720
Nahatlatch L & R	2,080	6,240	1,920	5,120	0	1,600
East Anderson R	640	11,200	640	800	0	0
Eight Mile Cr (east of Hope)	0	0	320	480	480	320
Sumallo R	480	800	320	4,960	2,880	1,440
Silverhope Cr - Skagit R	0	10,400	0	3,200	0	0
Coquihalla R	0	320	0	0	0	0
Snass R	0	1,920	0	960	0	0
Skaist Cr	0	480	0	1,280	0	0
Totals	66,680	148,000	47,340	35,200	20,320	10,400
Grand totals:	1973 - 134,340 acres (54,390 ha); 1974 - 193,600 acres (78,380 ha)					

*Host was alpine and amabilis fir along the upper end of Lillooet River.



Egg counts were made in mid-August on samples consisting of two 18-inch branches from the mid-crown of each of 10 trees at each of 10 locations. Defoliation estimates were made on the 10 trees at each egg sampling site (Table 3). Predictions were based on the criterion that from 50 to 145 egg masses per 100 ft² of foliage could result in moderate defoliation, and more than 150 could result in heavy defoliation in 1975.

Table 3. Spruce budworm egg masses and intensity of defoliation of Douglas-fir trees, Vancouver Forest District

Location	Avg no. egg masses per 100 ft ² of foliage		Estimated loss of current year's foliage (%)		Estimated total defoliation (%)		Predicted* defoliation for 1975
	1973	1974	1973	1974	1973	1974	
Railroad Cr	96	50	85	90	35	40	M
Gingerbread Cr	81	95	60	80	15	30	M
Rutherford Cr	61	67	80	90	20	25	M
Birkenhead L	30	185	75	80	25	25	H
Haylmore Cr	78	90	90	95	35	35	M
Gates R	159	68	80	55	25	15	M
Sumallo R	112	162	85	90	35	40	H
Nahatlatch R	5	94	trace	20	trace	5	M
Manning Park	-	117	-	80	-	10	M
Skagit R	-	93	-	trace	-	trace	M

* M - moderate - from 35 to 70% of foliage lost;
H - heavy - more than 70% of foliage lost.

Defoliation estimates were made on 100 Douglas-fir trees in damage appraisal plots at two locations in the District (Map 3). At Haylmore Creek defoliation declined from 30% in 1973 to 25% in 1974 and top stripping was recorded on only one tree. At Sumallo River the average defoliation increased from 35% in 1973 to 55% in 1974; 78% of the trees had suffered top stripping ranging from one to 30 feet. Also at Sumallo River, there was an average of 30% defoliation on understory western hemlock and amabilis fir on 50 trees ranging in height from one to 20 feet.

Detailed plot studies by the Forest Insect and Disease Survey Appraisal Group at Railroad Creek showed that 2% of the trees in the study area were dead and that trees which suffer 50% or more defoliation for three or more consecutive years produce little or no increment.

Traps baited with a sex attractant were used for the third consecutive year to further test them as a survey tool for measuring adult budworm popula-

tions. The sex attractant was trans-11-tetra decenal (CSC 74) and was injected into magicaps at the rate of 4 mg per cap. The traps were of the same size and type as those used in 1973 - 3 M Sectar XC-26 with a bottom surface trapping area of 85 square inches. They were set out at the beginning of July and collected in August. Budworm moths were noted in flight from July 2 to August 15 in the Pemberton area. Table 4 shows a comparison of the numbers of moths caught in 1973 and 1974.

Table 4. Number of male western spruce budworm adults in pheromone baited traps, Vancouver Forest District

Location	Larval population density		No. adults in traps					
	1973	1974	range		total		avg	
			1973	1974	1973	1974	1973	1974
Thetis L	light	nil	17-43	0-1	133	2	27	0.4
Green Mtn	light	nil	1-12	0-9	20	18	4	4
Fuller L	-	nil	-	0-6	-	14	-	3
Skagit R	light	light	20-32	42-67	118	282	24	56
Sumallo R [*]	heavy	moderate	68-121	93-97	457	190	91	95
Spuzzum Cr [*]	moderate	moderate	61-133	100-128	441	228	88	114
Rutherford Cr	heavy	heavy	53-78	40-59	280	239	70	48
Haylmore Cr	heavy	heavy	50-60	16-57	224	202	56	40
Birkenhead L	heavy	heavy	61-124	47-85	445	311	89	62

*Based on two traps in 1974 - remainder destroyed by bears.

The survey results indicate that western spruce budworm populations will continue in 1975. Infestations may intensify in the Birkenhead Lake and Sumallo River areas and could expand into new regions along the Cheakamus River and around Harrison Lake.

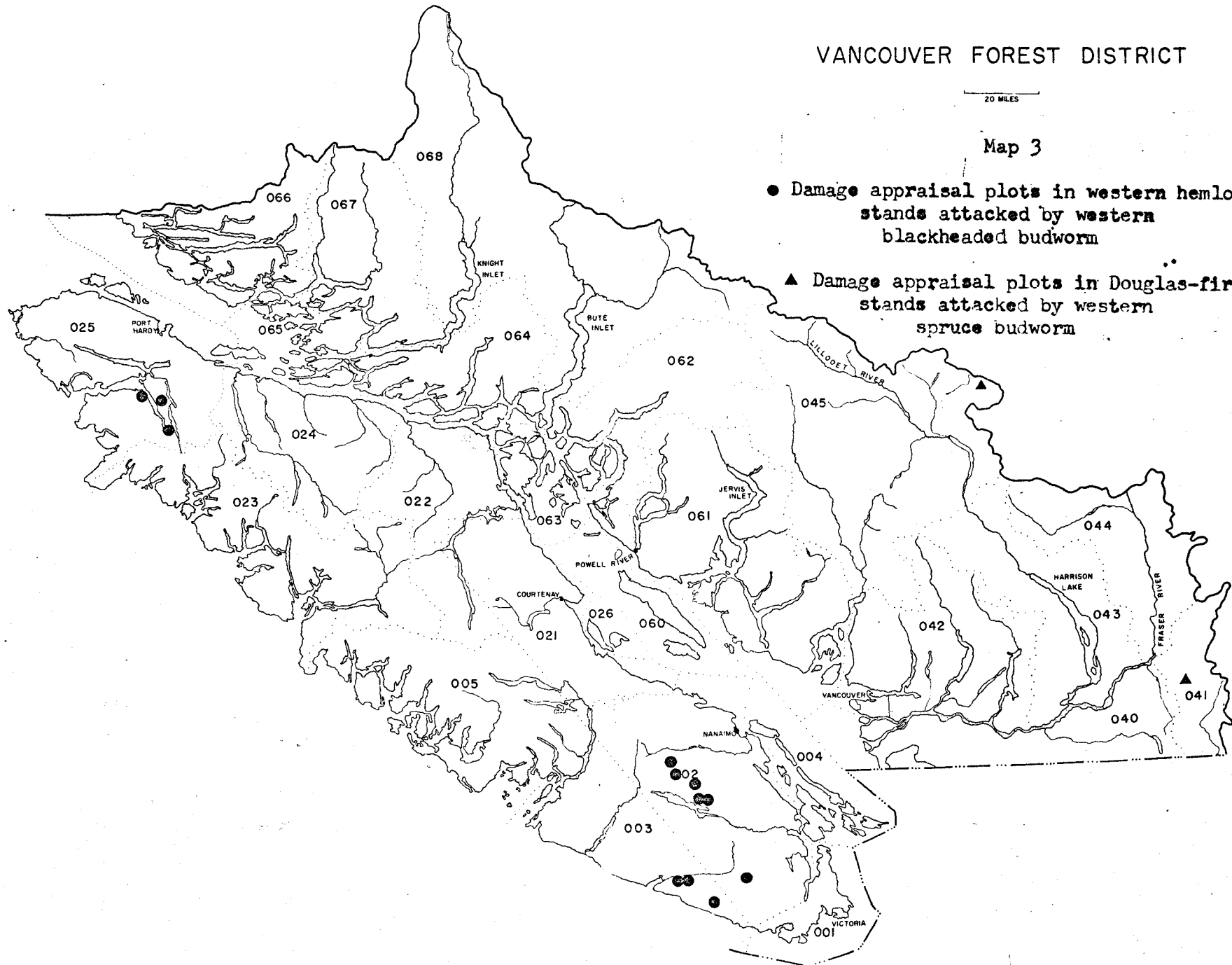
VANCOUVER FOREST DISTRICT

20 MILES

Map 3

● Damage appraisal plots in western hemlock stands attacked by western blackheaded budworm

▲ Damage appraisal plots in Douglas-fir stands attacked by western spruce budworm



Western blackheaded budworm, *Acleris gloverana*

Blackheaded budworm populations in the Vancouver Forest District have declined steadily since 1972 and were at very low levels in 1974. The maximum number of larvae per positive sample was 37, collected at Little Espinosa Inlet. There was no defoliation observed in western hemlock stands in the District in 1974, either in damage appraisal plots (Map 3) or in other areas examined.

Experiments in testing sex attractants for male blackheaded budworm were conducted at seven locations on Vancouver Island in 1974. The traps used were 3 M Sectar 1 with a total trapping surface of 72 square inches and were set in groups of five at each location on August 15 and collected on November 7. Some traps were baited with either a virgin female moth or the pheromone trans-11-tetra decenal (CSC 74) in magicaps at the rate of 4 mg per cap; some were left blank for comparison. The results indicated that blackheaded budworm populations were generally light on Vancouver Island except at Port Alice where moderate numbers of male moths were caught (Table 5). On the Mainland, black-headed budworm populations were light.

An additional test using a group of 30 baited and unbaited traps was conducted at Holberg. The result was an average of 0.2 adults in traps baited with CSC 74; those baited with virgin females and the unbaited traps attracted no moths.

Table 5. Numbers of male western blackheaded budworm adults in baited and unbaited flight traps, Vancouver Island, 1974

Location	Trap no.	Bait*	No. adults	Total	Avg
Marshall Cr	1	none	0	0	0
	2	none	0		
	3	none	0		
	4	none	0		
	5	none	0		
Gracie L	1	virgin female	3	6	1.2
	2	virgin female	3		
	3	none	0		
	4	none	0		
	5	none	0		
Espinosa Inlet	1	none	0	6	1.2
	2	CSC 74	2		
	3	none	0		
	4	CSC 74	4		
	5	virgin female	0		
Kelsey Bay	1	virgin female	9	32	6.4
	2	none	0		
	3	CSC 74	14		
	4	none	0		
	5	virgin female	9		
Port McNeill	1	none	0	2	0.4
	2	none	0		
	3	CSC 74	2		
	4	none	0		
	5	none	0		
Port Alice	1	CSC 74	21	49	9.8
	2	none	0		
	3	CSC 74	11		
	4	none	0		
	5	CSC 74	17		
Holberg	1	none	0	0	0
	2	virgin female	0		
	3	none	0		
	4	none	0		
	5	none	0		

* CSC 74 - trans-11-tetra decenal.

Table 6. Summary of western blackheaded budworm beating collections from western hemlock, Vancouver Forest District, 1972-1974

Drainage division*	No. samples during larval period			% samples containing larvae			Avg no. larvae per positive sample			Avg no. larvae per sample		
	72	73	74	72	73	74	72	73	74	72	73	74
<u>Vancouver Island</u>												
001	0	0	1	-	-	0	-	-	-	-	-	-
002	36	31	13	97	90	8	132	40	1	129	37	0.1
003	21	18	4	86	83	0	93	43	-	80	35	-
004	0	0	2	-	-	0	-	-	-	-	-	-
005	15	19	9	80	89	11	8	15	8	7	13	0.9
021	15	13	7	73	31	0	10	3	-	7	1	-
022	16	15	7	56	60	0	19	21	-	11	13	-
023	14	12	10	93	100	60	99	57	13	92	57	7.8
024	10	17	8	80	100	63	20	70	8.6	16	70	5.4
025	26	31	18	100	94	56	206	136	7.4	206	127	4.1
026	1	1	1	0	100	0	-	1	-	-	1	-
<u>Mainland</u>												
040	5	5	5	20	0	0	1	-	-	0.5	-	-
041	9	8	8	22	50	25	1	4	2.5	0.7	2	0.6
042	32	33	20	41	67	15	2	3	1.3	1.6	2	0.2
043	7	13	5	100	61	0	6	5	-	6	3	-
044	4	8	1	50	38	100	3	10	3	2.5	4	3
045	10	14	7	50	21	29	1	6	1	0.7	1.4	0.3
060	1	3	2	0	0	0	-	-	-	-	-	-
061	18	21	16	39	50	0	7	6	-	2.5	3	-
062	3	4	4	67	75	0	3	3	-	2	2.5	-
063	6	4	3	67	25	33	4.5	5	5	3	1.3	1.7
064	5	5	5	60	60	0	6	7	-	4	3.6	-
065	2	2	1	100	100	0	21	40	-	21	40	-
066	4	3	3	75	100	67	10	9	1	7.7	9	0.7
067	2	2	2	100	100	0	2	13	-	2	13	-
068	3	3	3	67	67	33	1	6	1	0.6	4	0.3

* See Map 1.

Mountain pine beetle, *Dendroctonus ponderosae*

This insect continued to kill western white and lodgepole pine trees on the Mainland section of the District. Numbers of red-topped western white pine were generally lower in 1974 than in 1973 (Table 7).

Table 7. Numbers of western white pine trees killed by mountain pine beetles, Vancouver Forest District

Location	No. red-tops	
	1973	1974
Joffre Cr	50	0
Cheakamus L & R	35	20
Lillooet R	50	50
Tenquille Cr*	100	
Birkenhead L - Blackwater Cr	125	300
Rutherford Cr	50	0
Soo R	-	50
Ryan R	20	50
Anderson R	300	320
Scuzzy Cr*	700	-
Kookipi Cr	1,500	1,125
Gates L & R	-	40
Totals	2,930	1,955

* Not surveyed by air in 1974.

Extensive mortality of lodgepole pine was observed along the Klinaklini River during aerial surveys in 1974. An estimated 10,300 red-tops were recorded in groups of from 100 to 5,000 from Knot Creek to Klinaklini Lake. Numerous old, dead trees indicated that mountain pine beetles had been active in that area for a number of years. An estimated 400 beetle-killed lodgepole pine trees were recorded at Haylmore Creek near Anderson Lake.

Douglas-fir beetle, *Dendroctonus pseudotsugae*

Douglas-fir beetle attacks occurred at widely-separated points on Vancouver Island in 1974. A total of about 80 standing Douglas-fir trees as well as a number of felled and windthrown trees harbored high numbers of beetle larvae in July. Attacked trees were found in MacMillan Park, near Cameron River, at East Saanich Indian Reserve, at Stocking Creek near Chemainus, at Coombs, Oyster and Heber rivers and north of Ralph Creek on Buttle Lake. The highest hazard potential existed in the Cameron - Alberni region where beetle populations were high in windthrown trees and in some large trees which had been felled and left.

On the Mainland, an estimated 200 Douglas-fir red-tops were recorded in the Silver-Skagit Valley south of Hope.

European pine shoot moth, *Rhyacionia buoliana*

Pheromone traps were tested in the Vancouver Forest District in 1974 as a survey tool for assessing European pine shoot moth populations. The pheromone was trans-9-dodecenyl acetate incorporated in plastic polymer for controlled emission. Each trap had a bottom surface trapping area of 36 square inches and was baited with 0.5 cm (1/8 inch) of the polymer. The pheromone was supplied by Dr. G. N. Daterman, Pacific Northwest Forest and Range Experiment Station, Portland, Oregon.

Traps were set up at six locations in the Vancouver area where shoot moth populations have become established so that results of the trial could be compared with results of trapping experiments in the Interior where the moth is not established but has been found on planted-out stock (see Annual Reports for Kamloops and Nelson districts). The traps were set out on June 3 in groups of five at a height of 6 to 10 feet from the ground; they were retrieved on July 9. The experiment indicated a moderate to heavy shoot moth population in areas sampled (Table 8).

Table 8. Number of male European pine shoot moths caught in pheromone traps, Vancouver Forest District, 1974

Location	No. of adults in traps		
	range	total	average
Airport Inn	20 - 79	218	44
Langara A*	3 - 48	79	20
Langara B	19 - 62	170	34
UBC (Japanese Gardens)	2 - 10	21	4
UBC (Faculty Building)*	21 - 49	140	35
UBC (Nursery)	6 - 14	43	9

* One trap destroyed at site.

Balsam woolly aphid, *Adelges piceae*

The presence of balsam woolly aphid in Garibaldi Park was determined in 1974 in an area a few miles north of the recorded boundary of the insect. Stem attacks were noted on several amabilis fir trees but there was little evidence of gouting or other characteristic damage in the crowns. It is believed that the insect could have been there for two or three years, which indicates the advisability of more detailed specific surveys for the aphid. It is now suspected that balsam woolly aphid may be established in the Squamish River Valley.

Western hemlock looper, *Lambdina fiscellaria lugubrosa*

Populations of western hemlock looper in 1974 were at the lowest level in recent years in the Vancouver District. Collections from western hemlock yielded a few early-instar larvae near Harrison Lake; at Coquitlam Lake the maximum number was 4. Throughout the District, 5% of the samples in 1974 were positive with an average of 4 larvae, compared to 18% with 4.7 larvae in 1973.

Satin moth, *Stilpnotia salicis*

Severe defoliation by this rather erratic pest was observed on an area of about 1 to 2 acres near Birkenhead Lake during aerial surveys in August, 1974. No specimens were taken, but since satin moth adults were collected there in 1973, the damage was attributed to that species.

Poplar-and-willow borer, *Cryptorhynchus lapathi*

Black cottonwood shade trees along the spawning channels at the Federal Fisheries station at Anderson Lake were heavily infested by poplar-and-willow borers in 1974. From 700 to 1,000 trees up to 15 feet high and from 2 to 4 inches dbh were damaged. Some of the smaller trees had been damaged so severely that they had broken off above the root collar. Some of the larger trees will probably survive, but Fisheries personnel were advised to interplant native birch, which is more resistant to the insect, and thus ensure the shade which aids in fish development.

Table 9. Other insects of current minor significance

Insect	Host(s)	Locality	Remarks
<i>Altica tombacina</i> A chrysomelid beetle	Fireweed	Stawamus R, Chapman Cr	Defoliator. Moderate population.
<i>Malacosoma californicum pluviale</i> Western tent caterpillar	Miscellaneous deciduous trees	Coquihalla R, Gulf Is, Saanich - Victoria	Defoliator. Severe defoliation in localized areas.
<i>Melanolophia imitata</i> Green-striped forest looper	Western hemlock, Douglas-fir	General	Defoliator. Slight decrease of population; on hemlock 13% of collections were positive with avg of 1.8 larvae.
<i>Neophasia menapia</i> Pine butterfly	Douglas-fir	Neroutsos Inlet area	Defoliator. Heavy flights of adults reported.
<i>Nyctobia limitaria</i> A yellow-lined forest looper	Western hemlock, Douglas-fir	General	Defoliator. Low populations; on hemlock 18% of collections were positive with avg of 2.6 larvae.
<i>Nepytia phantasmaria</i> Phantom hemlock looper	Douglas-fir	Southern and eastern sections of District	Defoliator. Low populations; 3% of collections positive with avg of 2.7 larvae.
<i>Orgyia pseudotsugata</i> Douglas-fir tussock moth	Douglas-fir	Fraser Valley	Defoliator. No larvae collected in 1974.
<i>Operophtera occidentalis</i> A spanworm	Garry oak	Saanich - Victoria	Defoliator. Light to moderate defoliation. Heavy on some fruit trees.

FOREST DISEASE CONDITIONS

The organisms currently causing tree mortality, growth loss and quality reduction attributed to diseases are dwarf mistletoes and stem and root rot fungi. These organisms, once established in a stand, persist for many years. They usually intensify at a slow rate, making annual summaries of their status repetitious; for this reason the following report may omit some of the more important diseases. Emphasis is placed on new outbreaks, the status of annually varying foliage diseases and the effects of abnormal weather conditions, i.e., frosts, drought, snow damage, etc., which immediately affect tree appearance and often cause dieback and mortality. Other aspects of the Disease Survey dealing with mortality, growth loss and factors influencing the occurrence of the more important diseases are summarized elsewhere.

Currently Important Diseases

Foliage Diseases

Berckmann's Blight, *Lepteutypa cupressi*

Discoloration of western red cedar foliage was very common on roadside trees for a mile along No. 1 Highway west of Hope. On the Freda Lake road in the Lois Lake area, dead tips were evident.

Damage to western red cedar foliage by this organism has been more noticeable and widespread during the past two years.

Douglas-fir needle casts, *Rhabdocline* spp.

This foliage disease persists in varying intensities throughout much of the host range. Up to 75% of the foliage was infected on Douglas-fir trees in a plantation west of Oyster Bay on Vancouver Island.

On the Mainland, light infection was noted along the Chilliwack River and near Clearbrook.

Douglas-fir needle rust, *Melampsora occidentalis*

Heavy infection by *M. occidentalis* occurred on the current year's growth of 300 Douglas-fir trees in a plantation in Aldergrove.

Non-infectious Diseases

Early frost damage

Frost caused some light damage to Douglas-fir buds and flushing terminals in the Spuzzum Creek area in May.

Snow damage

Stands of birch, alder and black cottonwood suffered extensive snow damage in some of the eastern parts of the District during the winter of 1973-74. The most severe damage occurred between Hope and Yale, where many stems were broken at points between the base of the crown and the top. Lesser damage in the form of broken branches occurred as far west as Abbotsford.

Western red cedar injury

Top dieback and some tree mortality occurred in the Saanich Peninsula as a result of site changes and drier than usual summers over the past four years.

Winter injury

Discolored foliage of lodgepole pine trees, attributed to winter injury, was observed during aerial surveys in the Klinaklini River Valley. The damaged trees were in patches of about 500 acres (200 ha) to 2,000 acres (800 ha) (Table 10). The winter-damaged trees were in some cases mixed with trees killed by mountain pine beetle. Pine trees damaged by unfavorable climatic conditions usually recover, but in this instance their weakened condition may predispose them to bark beetle attacks, which could result in tree mortality.

Table 10. Areas of winter damage in lodgepole pine stands, Klinaklini River Valley, 1974

Location	No. acres	
Northeast of Dorothy Cr	2,080	(patches)
Frontier Cr	960	
West of Frontier Cr	1,440	(patches)
Frontier Cr to Knot Cr	4,000	(patches)
Knot Cr to Klinaklini L	1,760	(patches)
Total	10,240	

Table 11. Other diseases of current minor significance

Organism	Host(s)	Locality	Remarks
<i>Coleosporium asterum</i> Pine needle rust	Lodgepole pine	Coquihalla R	Light infection.
<i>Coniothyrium juniperi</i> A root disease	Ornamental juniper	Fraser Valley	Light infection. First B.C. record.
<i>Didymascella thujina</i> Cedar leaf blight	Western red cedar	Widespread	Light infection.
<i>Lophodermium juniperi</i> Juniper needle blight	Rocky Mountain juniper	Lillooet L	Light infection.
<i>Puccinia</i> sp. A leaf rust	Red osier dogwood	Sproat L	Light infection. New host record.
<i>Pucciniastrum</i> <i>articum</i> A leaf rust	Thimbleberry	Green Mtn	Light infection. New host record.
<i>Pucciniastrum</i> <i>vaccinii</i> A needle rust	Western hemlock	Pinder Pass	Light localized infection.
<i>Sclerophoma</i> <i>pythiophila</i> A root disease	Ornamental juniper	Fraser Valley, Victoria	Light infection. New host record.
<i>Venturia</i> sp. Poplar leaf spot	Aspen	Port Alberni	Localized heavy infection.

VANCOUVER DISTRICT

Appendix I

Pest Reports from the Vancouver Forest District in 1974

Title	Author	Date published
Forest Insect and Disease Conditions in the Pacific Rim National Park, 1973	H. Peter Koot	February 27
Spruce Budworm in Mainland Forests, Vancouver District	Roland O. Wood	June 17
Douglas-fir Beetle Attacks in Southern Vancouver Island	Colin S. Wood	June 21
Western Spruce Budworm on Mainland of Vancouver Forest District	Roland O. Wood	September 19