ANNUAL DISTRICT REPORTS
FOREST INSECT AND DISEASE SURVEY
MARITIME PROVINCES
1965

by

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FOREST RESEARCH LABORATORY
FREDERICTON, NEW BRUNSWICK
INFORMATION REPORT M-X-5

DEPARTMENT OF FORESTRY
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ANNUAL DISTRICT REPORTS

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1.0 INTRODUCTION

(G. V. Moran)

Assignments of technicians to survey Districts in 1965 were the same as in 1964 and as outlined in the report for that year.

Precipitation in 1965 was generally below normal each month from January to July inclusive except in February when it was above normal in western Nova Scotia and near normal elsewhere. The five-month period March through July was one of the driest on record. At Halifax the seven-month total precipitation as of July was slightly more than 19 inches, the lowest in 98 years. The period of dry weather ended in August when rainfall was above normal. Mean temperatures during the drier months were generally one to four degrees below normal.

Cooperation by government forest services, National Parks, and woods industries of the Maritime Region was maintained at a high level despite preoccupation with problems arising out of the extremely dry season. The total number of collections received by the Survey increased by approximately 15% over 1964 (Section 1, Table 1). Members of the staffs of government forest services appointed to take samples for the Survey, and other interested personnel, were contacted regularly by District technicians (Section 1, Table 2).

Assistance given by Survey technicians to persons connected with other projects included the following: the installation and maintenance of Bruce spanworm and winter moth adult emergence traps and cocoon sampling funnels for D. G. Embree; collections of Bruce spanworm and spiny elm caterpillar larvae and fall cankerworm eggs for M. M. Neilson, winter moth eggs for D. G. Embree, Mulsantina adults for S. G. Smith, Adelgids on softwoods and Xylococculus spp. on beech and birch for G. R. Underwood, European spruce sawfly larvae for D. E. Elgee, larch sawfly cocoons for J. A. Muldrew, Ips Thomasi for J. B. Thomas, mistletoe specimens for J. M. Bonga, aphids for M. E. MacGillivray, and bark samples of balsam fir for balsam woolly aphid studies by D. O. Greenbank.

The number of plots maintained by the Survey was two less than in 1964 but the number of sampling stations increased by four (Section 1, Table 3).

Approximately 46 hours were spent on aerial surveys, 16 hours of which were supplied by the Nova Scotia Department of Lands and Forests; the remainder was chartered for surveys in New Brunswick and Prince Edward Island.

Spruce budworm egg-mass sampling and defoliation surveys were carried out in August using procedures that have remained much the same since 1961. Survey technicians gave assistance to the Aerial Spraying Project in pre-selected areas in New Brunswick and were responsible for surveys in Prince Edward Island and Nova Scotia. Defoliation and egg-mass infestation maps (Section 1, Figures 1 and 2) were supplied by D. R. Macdonald of the Aerial Spraying Project.

The spruce budworm, Choristoneura fumiferana (Clem.) persisted at epidemic levels over extensive areas in central New Brunswick but was not numerous elsewhere. Infestations of the larch sawfly, Pristiphora erichsonii (Htg.), were more widespread in southern New Brunswick than in 1964 (Section 1, Figure 3), and persisted in several localities in Nova Scotia. The first recorded outbreak of jack pine sawfly, Neodiprion virginianus complex, in the Maritime Region, other than on two or three isolated jack pine trees in eastern Nova Scotia in 1961, occurred in mature jack pine stands near Newcastle, N.B. Infestations of the forest tent caterpillar, Malacosoma disstria Hbn., severe in several trembling aspen stands near Perth, N.B. from 1962 to 1964 inclusive, apparently collapsed in 1965. The balsam gall midge, Dasyneura balsamicola (Lint.), known to occur in large numbers every few years in one or more of the provinces of the Region, increased in numbers, especially in southern New Brunswick and on Cape Breton Island, Nova Scotia. Defoliation of hardwoods by Bruce spanworm, Operophtera bruceata (Hulst) was negligible in northern New Brunswick where moderate and severe damage occurred from 1962 to 1964 inclusive; infestations were smaller but continued severe at locations in several of the northern mainland counties of Nova Scotia. The known distribution of the winter moth, Operophtera brumata (L.), remained much the same as in 1964, as did that of the fall cankerworm, Alsophila pometaria Harr., and spring cankerworm Paleacrita vernata (Peck). No major changes occurred in the known distribution of the Dutch elm disease Ceratocystis ulmi (Buism.) C. Moreau in 1965 (Section 1, Figure 5), but additional diseased trees occurred at or near some areas where infections were known to occur. Browning of hardwood foliage following infection by Gloeosporium spp. was common but generally light. Winter drying, frost damage, heavy snow, and ice conditions all left their symptoms at widely separated locations.

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Through the cooperation of the New Brunswick Forest Service, Fraser Companies Limited, International Paper Company, and National Parks, light traps were again operated at 20 fire towers in New Brunswick. In addition two traps were operated by individuals and one was maintained by the Survey at each of Fredericton and Debert, making a total of 24. The approximate location and the type of attractant light of each trap are indicated in Section 1, Figure 6.

Section 1, Table 1

Sources of Insect and Tree Disease Collections in 1965
(1964 Figures in Brackets)

District	Forest Research Laboratory					Provincial Forest Service			
	Dist. Tech.		Others						
	Insect	Path.	Insect	Path.	Total	Special	Others	Others	Total
N.B.(W.) (Dobson)	451 (437)	152 (192)	543	110 (309)	1256 (938)	198 (219)	5 (0)	8 (10)	1467 (1176)
N.B.(N.E.) (Estabrooks)	358 (317)	149 (185)	61	107 (19)	675 (521)	218 (317)	9 (0)	3 (2)	905 (840)
N.B.(S.) & P.E.I. (MacCall)	519 (564)	175 (158)	45	110 (4)	849 (726)	156 (166)	2 (0)	9 (4)	1016 (896)
Total N.B. & P.E.I.	1328 (1318)	476 (535)	649	327 (332)	2780 (2185)	572 (702)	16 (0)	20 (16)	3388 (2903)
N.S.(W.) (Harrington)	675 (637)	271 (288)	102	137 (125)	1185 (1050)	267 (304)	8 (5)	8 (12)	1468 (1371)
N.S.(E.) (Coady)	722 (712)	214 (186)	2	141 (0)	1079 (898)	234 (151)	6 (7)	4 (6)	1323 (1062)
Total N.S.	1397 (1349)	485 (474)	104	278 (125)	2264 (1948)	501 (455)	14 (12)	12 (18)	2791 (2433)
Total N.B., P.E.I. & N.S.	2725 (2667)	961 (1009)	753	605 (457)	5044 (4133)	1073 (1157)	30 (12)	32 (34)	6179 (5336)

Section 1, Table 2

Number of Co-operators Contacted in Maritime Region in 1964 and 1965

District	Year	Special co-operators		Other co-operators contacted		Total co-operators contacted
		No. in district	No. contacted	Provincial	Others	
N.B. (W.)	1964	13	13	5	3	21
	1965	13	13	5	5	23
N.B. (N.E.)	1964	23	23	22	8	53
	1965	20	20	12	13	45
N.B.(S.) & P.E.I.	1964	9	9	10	16	35
	1965	9	9	0	12	21
N.S.(W.)	1964	31	20	9	7	36
	1965	29	22	6	2	30
N.S. (E.)	1964	18	13	6	5	24
	1965	21	14	4	2	20
Totals	1964	94	78	52	39	169
	1965	92	78	27	34	139

Section 1, Table 3

Plots and Sampling Stations Maintained in Maritime Region in 1965
(Changes from 1964 in Brackets)

District	Sampling stations				Plots			
	Beating	Larch case-bearer	Forest tent caterpillar (egg)	Winter moth	Beech scale	Balsam woolly aphid	Birch	Forest tent caterpillar (defol.)
N.B. (W.)	26(-1)	22(-2)	43(+4)	-	2	1(-1)	-	3
N.B.(N.E.)	25(+1)	14	7	-	1	2	-	-
N.B.(S.) & P.E.I.	10	13	4(+1)	-	-	2	-	-
N.S.(W.)	56	16	-	12	3(-1)	3	1	-
N.S.(E.)	54	16	-	-	1	5	-	-
Totals	171	81(-1)	54(+5)	12	7(-1)	13(-1)	1	3

Section 1, Appendix A

Classifications of Trees Used on Plots

Balsam Woolly Aphid Plots

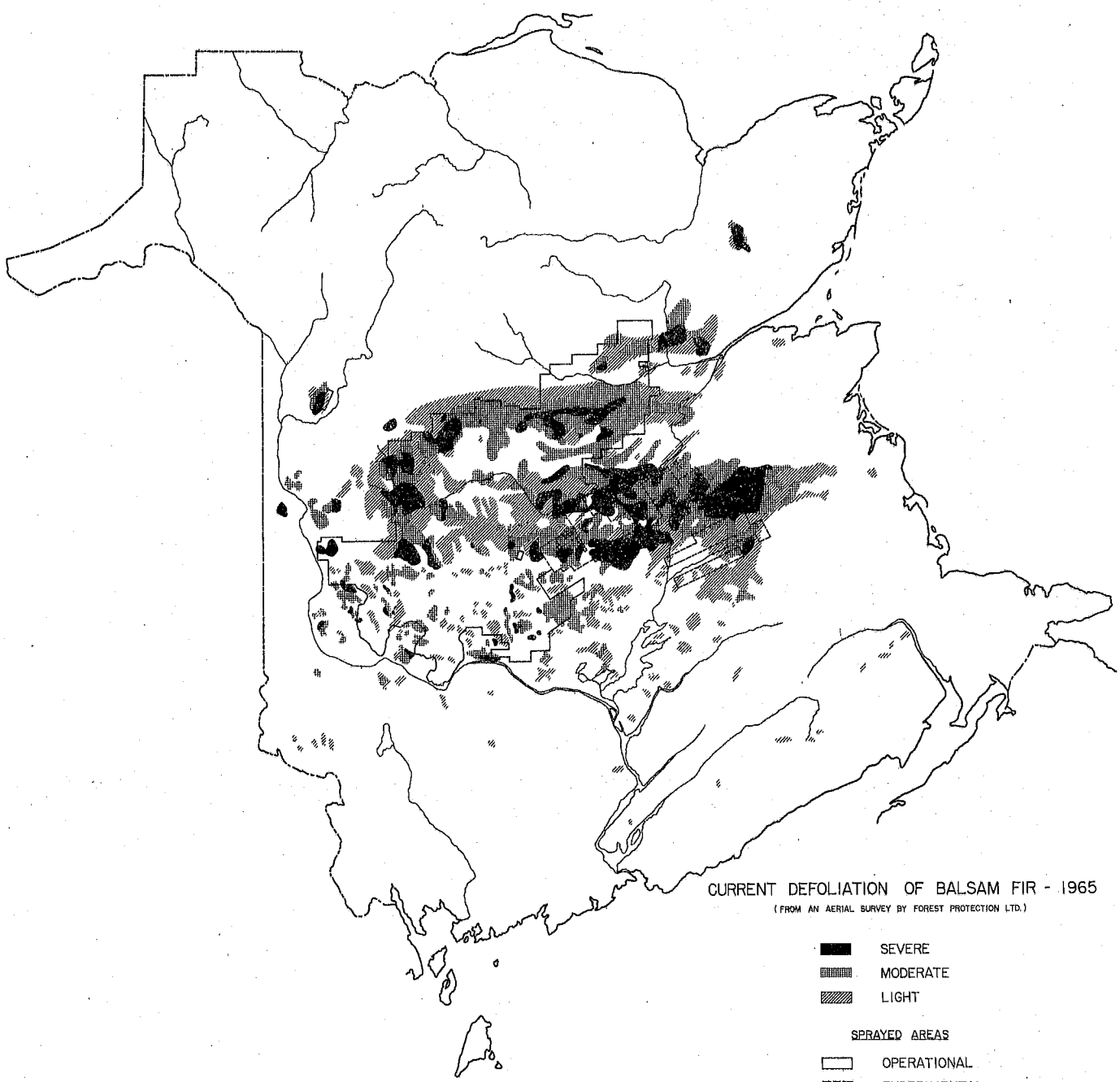
1. Uninfested.
2A. New stem attack, light.
2B. New stem attack, medium.
2C. New stem attack, severe.
3A. Dead from stem attack, red foliage.
3B. Dead from stem attack, bare branches.
4A. Twig attack, distinct but light.
4B. Twig attack, some dying branches.
4C. Twig attack, many dead branches.
5. Dead from twig attack.

Beech Scale Plots

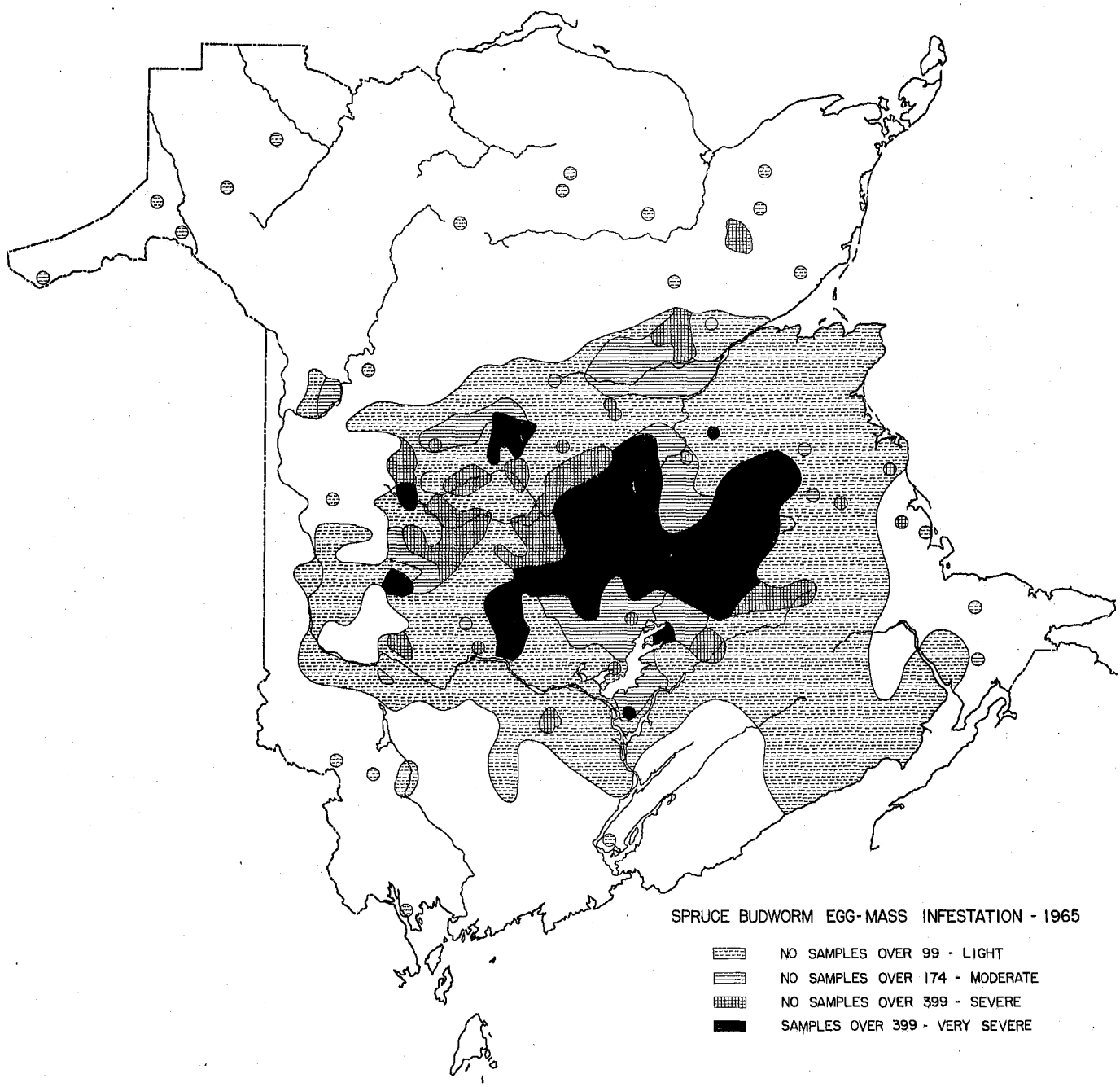
1. Uninfested.
2. Trees with dots or streaks of white wool only.
3. Trees with most of bark streaked or covered with wool but not dying.
4. Trees apparently dying (considerable patches of dead bark and yellowish foliage)
5A. Living trees with cankers, uninfested.
5B. Living trees with cankers, lightly infested.
5C. Living trees with cankers, heavily infested.
6. Trees dead.

Expression of Degrees of Infestation and Defoliation and of Intensity and Incidence of Tree Diseases

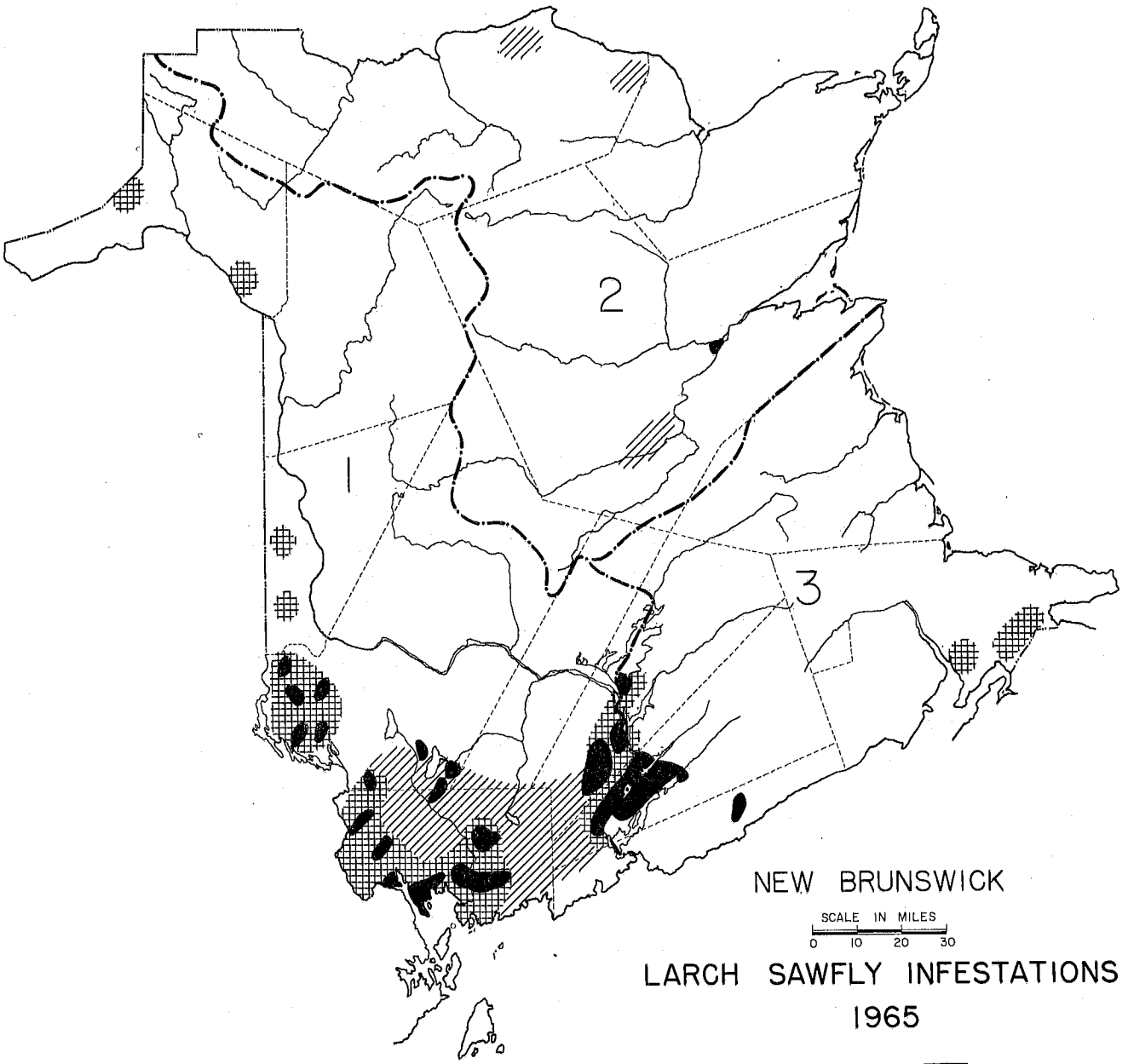
Trace	-	up to 5%
Light	-	10 to 20%
Moderate	-	30 to 60%
Severe	-	70 to 100%



Map Provided by D. R. Macdonald



Map Provided by D. R. Macdonald


1
2
3
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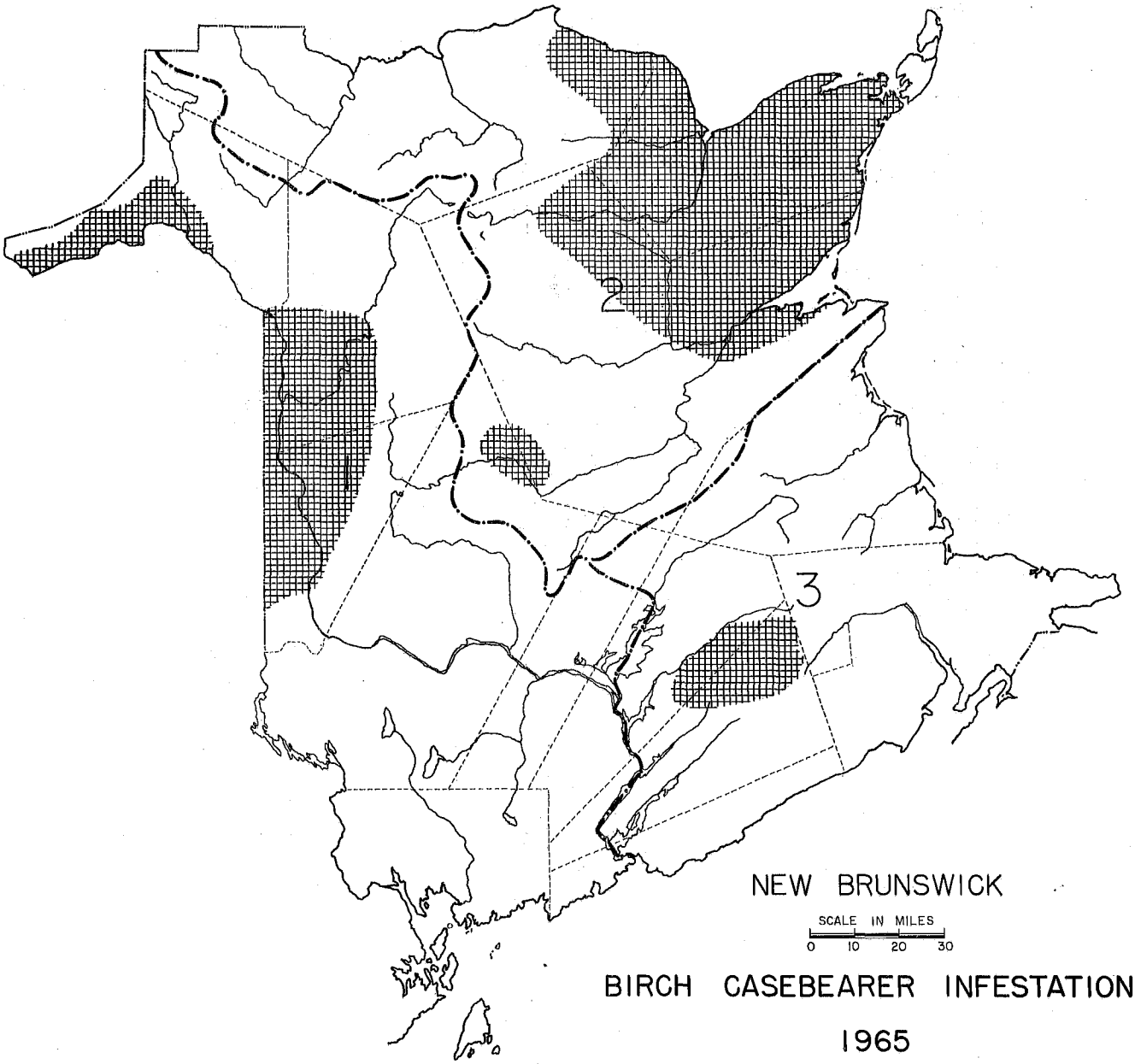
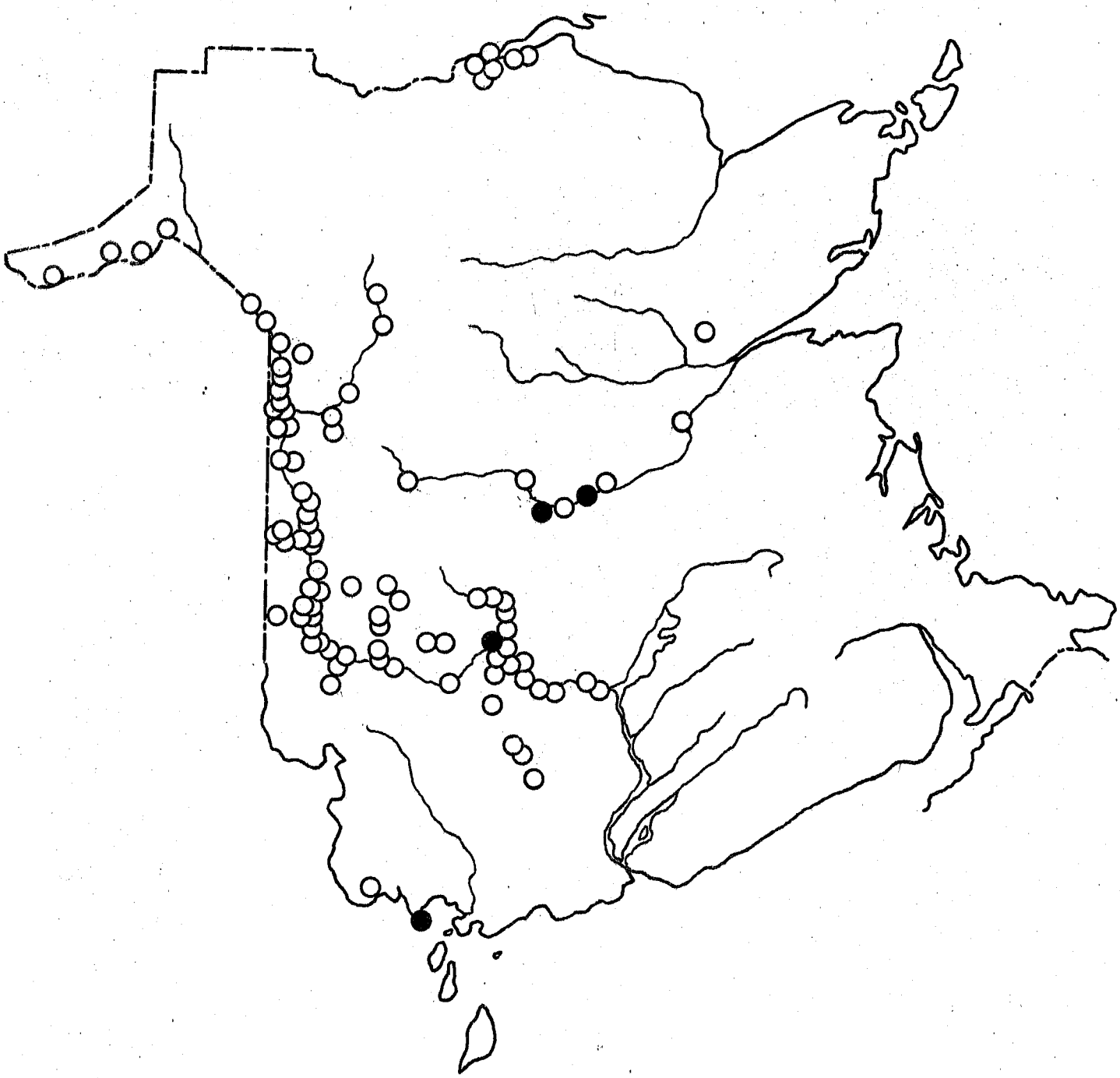
SCALE IN MILES
0 10 20 30
LARCH SAWFLY INFESTATIONS
1965
SEVERE
MODERATE
LIGHT


3
NEW BRUNSWICK
SCALE IN MILES
0 10 20 30
BIRCH CASEBEARER INFESTATIONS
1965
MODERATE TO SEVERE



KNOWN DISTRIBUTION OF DUTCH ELM DISEASE

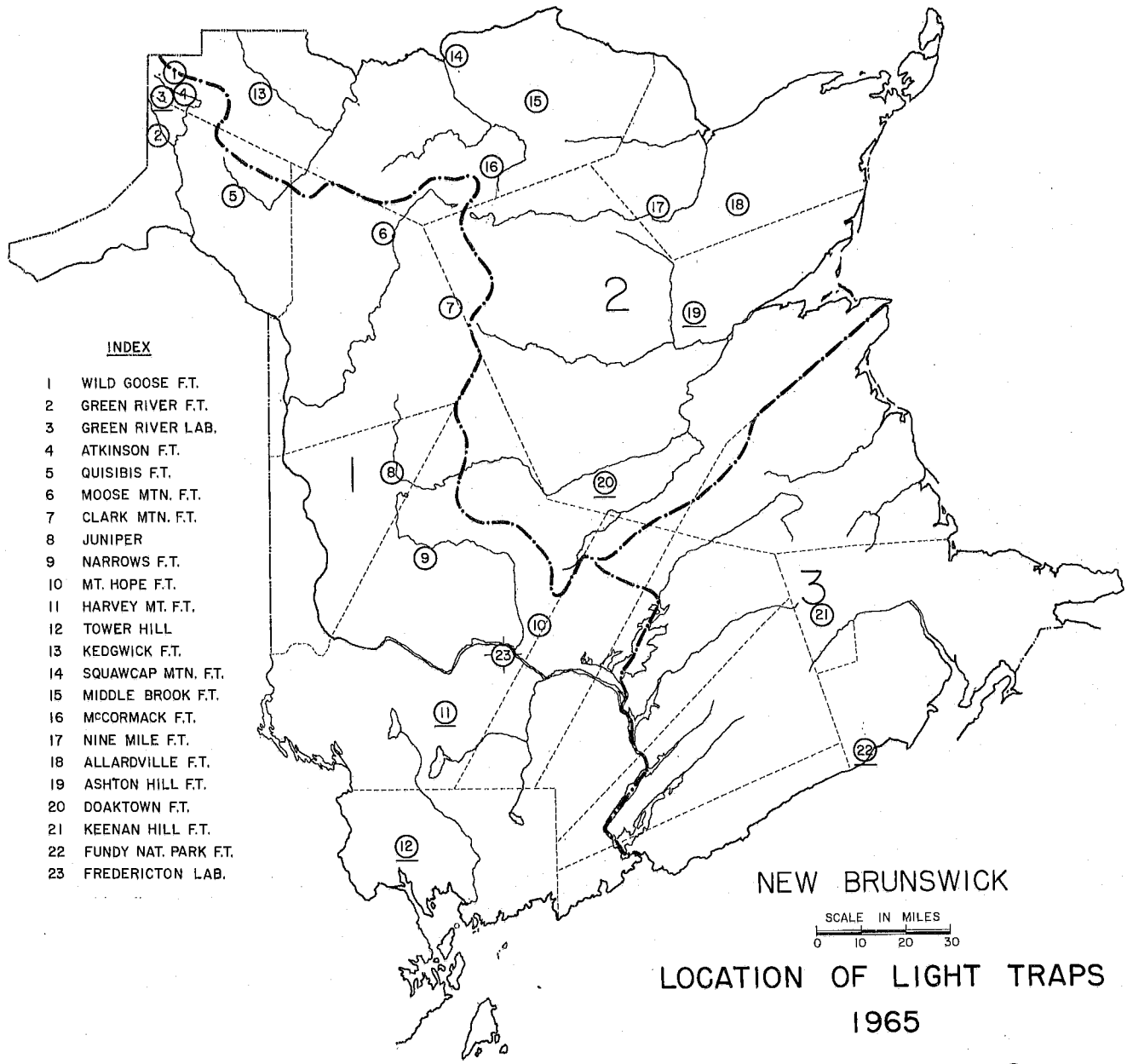
IN

NEW BRUNSWICK

○ 1957 to 1964

● New locations 1965

Scale: 1 inch = 34 miles (approx.)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WESTERN NEW BRUNSWICK

1965

by

C. M. B. Dobson

FOREST RESEARCH LABORATORY

FREDERICTON, N.B.

DEPARTMENT OF FORESTRY

April, 1966

2.0 WESTERN NEW BRUNSWICK

(C. Dobson)

Introduction

Drought conditions prevailed throughout most of the summer in the southern part of the district causing some wilting and browning of leaves. In Madawaska, Victoria and northern Carleton counties, drought conditions were less severe.

Totals of 451 insect and 152 disease samples were submitted.

Insect Conditions

Spruce Budworm, Choristoneura fumiferana (Clem.)

Thirty-four spruce budworm larval collections were submitted from six counties in western New Brunswick. Hosts were balsam fir, white spruce and red spruce (Section 2, Tables 1 and 2). Larval numbers were higher at twelve permanent sampling stations, the greatest increases occurring on balsam fir at Ripples, Sunbury County, and on balsam fir and white spruce at Hainesville, York County, up 24.7, 49.3, and 33.7 larvae per tree sampled respectively over 1964 populations (Section 2, Table 2).

Egg masses were collected at 246 of 481 locations sampled. Numbers were negligible in Charlotte and Madawaska counties. Summaries of results in remaining counties follow:

Carleton County.-- Egg-mass numbers were very high in an area extending southeast from Juniper to the York County line, and moderate in a small area along the South Burnthill Brook and along Beadle Brook in the northeastern part of the county (Section 1, Figure 2). Elsewhere numbers were low.

Victoria County.-- Numbers were moderate in an area extending from the Anderson road southward approximately six miles towards Tobique Narrows, and in an area from the C. N. Railway eastward between the Carleton County line and the Plaster Rock - Renous Road to the York County line.

York County.-- Egg-mass numbers were high from Fredericton north along the Nashwaak valley through Taymouth and Cross Creek to McGivney, and eastward from Taymouth to the Sunbury County line. Other areas of high egg counts were located northeast of Millville along the Keswick River, along the

Nashwaak River west of Stanley and north to the C. N. Railway line, and at Upper Caverhill. Numbers were moderate at Mouth of Keswick, east of Burtts Corner, along the Nashwaak Narrows road from Grand John Brook to the Carleton County line, and in a small area along the Pokiok River south of Hawkshaw.

Sunbury County.-- Egg numbers were high in an area northwest of Minto bounded on the west by the York County line and on the north by the C.N. Railway line. Elsewhere numbers were moderate from the York County line along Bear Brook and Little River to the Queens County line, and in Camp Gagetown east of Geary.

Queens County.--Egg-mass numbers were moderate at Douglas Harbour and north to Newcastle Creek.

Of 1320 pupal cases collected from balsam fir foliage 542 were of males and 778 females.

Estimates taken at 509 locations indicated that defoliation in counties other than those mentioned below was negligible (Section 1, Figure 1).

In Carleton County large areas of severe and moderate defoliation occurred east of Juniper in an area extending from Nashwaak Lake on the York County line northward to the Victoria County line, and in the northeast quarter of the county. Smaller patches of defoliation occurred east of the St. John River between Northampton and Beechwood and west of the river near Meductic and Greenfield Settlement.

In York County patches of moderate and severe defoliation occurred: from Douglas through Mouth of Keswick to Zealand, Upper Hainesville and Millville; along the Nashwaak River from Penniac through Taymouth; near McGivney; in the Fork and Bear brooks areas at the Sunbury County line; and on the Pokiok River south of Pokiok. Larger areas of defoliation occurred near the headwaters of the Keswick River, on the headwaters of the Nashwaak River, and along Napadogan Brook to the Carleton County line.

In Sunbury County moderate defoliation occurred along the Little River, along Bear and Fork brooks to the York County line, at Hardwood Ridge, along the Noonan stream in the Burpee Game Refuge, and at Ripples.

Balsam Woolly Aphid, *Adelges piceae* (Ratz.)

Stem attacks were very light at Canoose River, Charlotte County, Debec, Carleton County, and McAdam and Scotch Lake, York County. No further extensions to the known boundaries of distribution were found.

Reclassification of the balsam fir trees on Plot 3-5 in the Fredericton City woodlot indicated a slight decrease from 1963 in the number

of uninfested trees and in trees supporting light stem infestations (Section 2, Table 4). Twig attacks continued to cause deterioration in the form of bare twigs and branches and dead tops.

Balsam Gall Midge, Dasyneura balsamicola (Lint.)

Severe infestations occurred on balsam fir reproduction up to three feet in height at Spruce Lake, St. John County, and on co-dominant balsam fir trees at Upper Howard Brook, Carleton County. Moderate infestations occurred at Mile 8 on the Royal Road and Pinder, York County, and at Lorneville, St. John County. Light infestations were recorded at more than 150 locations representing all counties of the district.

Black-headed Budworm, Acleris variana (Fern.)

Larvae were collected from white spruce and balsam fir in six of the ten counties in the district. Numbers averaged 0.9 larvae per tree sampled, an increase of 0.3 from 1964.

European Spruce Sawfly, Diprion hercyniae (Htg.)

Spruce sawfly population levels remained low in 1965. The largest collections were submitted from permanent sampling station #3-47, Waweig, Charlotte County where 8.3 larvae per tree sample were collected. The average number of sawfly larvae per tree sample for the district was 2.1 compared with 0.9 in 1964 (Section 2, Table 5).

Spruce Bud Midge, Rhabdophaga swainei Felt

Spruce buds killed by this midge were common in the district. Collections were taken at six locations and special counts made at five. The results of the counts follow:

Location	Tree Sp.	Tree No.	No. sq. ft. foliage examined	No. galled buds per 100 sq. ft.
Madawaska County				
Green River	bS	3	1.55	222.5
St. John County				
Dipper Harbour	rS	3	1.82	409.3
Victoria County				
Black Brook	wS	3	2.24	455.9
York County				
Maple Grove Rd.	wS	3	1.96	207.7
Hanwell Rd.	wS	3	5.14	124.6

Yellow-headed Spruce Sawfly, Pikonema alaskensis (Roh.)

This insect caused moderate defoliation of five small white spruce trees at Welsford, Queen's County.

Larch Casebearer, Coleophora laricella (Hbn.)

Overwintering populations of larch casebearer were lower than in 1964 at eleven sample stations and higher at seven. The greatest increase occurred at Oak Bay, Charlotte County where an average of 11.24 casebearers per 100 fascicles were collected in 1965 compared to 6.12 in 1964. The greatest decrease occurred at St. Croix, where 4.47 per 100 fascicles were collected in 1965 compared to 23.56 in 1964 (Section 2, Table 6). No more than trace defoliation was observed at any stands examined during the feeding period.

Larch Sawfly, Pristiphora erichsonii (Htg.)

Patches of severe defoliation occurred throughout much of Charlotte County, in Queens County west of the St. John River, and in York County near Second Kedron Lake, east of Oromocto Lake, and at Kirkland (Section 1, Figure 3). Moderate infestations occurred near First Eel Lake, Canterbury and Bolton Lake in western York County, along the Houlton Road

near the Maine border and near Centreville, Carleton County, and along Route #2 near the Quebec border and at Dube Settlement, Madawaska County. Trace to light defoliation occurred in most other tamarack stands examined.

White-pine Weevil, Pissodes strobi (Peck)

Counts of weevil-damaged shoots on fifty open-growing white pines up to 7 ft. in height were taken at three locations. The results follow:

Location	No. trees free of attack	No. trees infested			
		In 1965 only			
		One terminal only	Two terminals or more	1965 and previous	Previous only
Madawaska					
Glazier Lake	37	2	0	2	9
York County					
Allandale	48	0	0	0	2
Woodland	34	3	1	4	8

Birch Casebearer, Coleophora fuscedinella (Zell.)

Severe browning of white birch reproduction occurred at New Denmark, Victoria County. Patches of moderate browning of white birches and to a lesser extent wire birch occurred in Madawaska County between Edmundston and Caron Brook, along Route #2 from Four Falls to Hartland, at Arthurette, and along the old Woodstock Road between St. Croix and Canterbury (Section 1, Figure 4).

Light infestations occurred on white birch at Quisibis Mountain, Madawaska County, and in the Plaster Rock area of Victoria County. Casebearers were common but caused only traces of defoliation at Oak Point, Kings County, in the Stanley area of York County, along the Burma Road in Victoria County, and at Kirkland, York County.

Birch Leaf Miner, Fenusa pusilla (Lep.)

Patches of severe and moderate browning of wire birch and occasionally white birch occurred throughout the southern part of the district, especially in the Tracy to Thomaston Corner area. Browning was negligible in northern Carleton and in Victoria and Madawaska counties.

Birch Skeletonizer, Bucculatrix canadensisella Cham.

Patches of moderate skeletonizing of birch foliage occurred at Gagetown, Queens County, along Route #7 in Sunbury and Queens counties and at Nasonworth, Sunbury County. Light skeletonizing of wire birch foliage occurred at Upper Gagetown, Queens County, Mill Settlement, Sunbury County, along the Hanwell Road between Fredericton and Harvey, and along Route #3 from Thomaston Corner to Lawrence Station.

Bruce Spanworm, Operophtera bruceata (Hulst)

Defoliation of hardwoods was negligible in 1965 in areas where moderate and severe defoliation occurred in 1964. Small numbers of larvae were collected at a total of ten locations in Madawaska and Victoria counties. Hosts were trembling aspen, sugar maple, beech and white spruce.

Satin Moth, Stilpnotia salicis (L.)

Moderate defoliation of Carolina poplars occurred at Minto, at Drummond, Victoria County, and East Florenceville, Carleton County, and of silver poplars at Stickney, Carleton County.

Forest Tent Caterpillar, Malacosoma disstria Hbn.

The forest tent caterpillar infestation in the Tobique Narrows area of Victoria County, severe in several trembling aspen stands from 1962 to 1964 inclusive, apparently collapsed in 1965. First-instar larvae were present on May 13 but following freezing or below freezing temperatures on May 15 and 16 no larvae were found. No defoliation of aspens was observed during later ground and aerial surveys. Two small larval collections were submitted, one each from Oak Point, Kings County, and Old Ridge, Charlotte County.

Egg sampling carried out in November indicated that population will be negligible in the district in 1966.

Fall Cankerworm, Alsophila pometaria (Harr.)

Moderate defoliation of white elm trees occurred at Lakeville Corner and along Route #2 from McGowans Corner to Jemseg. Elsewhere defoliation did not exceed trace except at Milltown where 5 to 10% defoliation of elms occurred. Eleven larval collections were submitted. Host trees were apple, red oak, largetooth aspen, white elm, red maple and white birch.

Ugly-nest Caterpillar, Archips cerasivoranus (Fitch)

Population levels of this insect remained low as is shown by the following results of roadside nest counts taken at three locations: Gagetown, five nests in 100 sq. ft.; Harvey, 13 nests in 1000 sq. ft.; and on the Irish Settlement Road near the International border, 61 nests in 1000 sq. ft.

Fall Webworm, Hyphantria cunea (Drury)

Population levels of fall webworm were low in the district. The results of special counts taken in three areas follow:

Location	No. miles	No. of nests
Lakeville Corner, Sun. Co. to Fredericton via Ripples	35	0
Woodstock west on Houlton road	11	0
Irish Settlement road through Union Corner to Kirkland	20.3	1

Mountain Ash Sawfly, Pristiphora geniculata (Htg.)

Light infestations were common. A few mountain ash trees at Centre Hainesville, York County, were moderately defoliated.

Eastern Tent Caterpillar, Malacosoma americanum (F.)

Larvae were common at Milltown, Charlotte County, where severe defoliation of choke cherry and pin cherry bushes occurred; larvae were also observed feeding on poplars, sugar maple, wild plum and apple. Elsewhere, nests were common on roadside bushes in Woodstock and along Route #3 between Harvey and St. Stephen.

Maple Leaf Roller, Cenopis pettitana (Rob.)

Light defoliation of red maple trees occurred at Acadia Forest Experiment Station and of sugar maples two miles east of Geary. Defoliation did not exceed trace at other locations where this insect was observed.

Additional Species Collected

Insects collected in 1965 but not mentioned in the text are listed in Section 2, Table 7.

Common insects collected at permanent sample stations are listed in Section 2, Table 8.

Tree Diseases

Winter Drying of Conifers

Winter Drying caused moderate browning of the foliage of red pine and Scots pine at Edmundston, and red pine at St. Anne, Madawaska County; and of red spruce at Summit Depot, Restigouche County, Upper Hainesville, York County and Juniper, Carleton County. At Juniper the injury was on 2-year-old nursery stock.

Frost Damage

Frost damage was negligible in the district except at L'Eglise, Madawaska County, where very light wilting of the new foliage of balsam fir occurred.

Animal Damage

Severe damage to a few tamarack and balsam fir trees, possibly by porcupines, occurred at Upper Hainesville. At Zionville, York County, porcupines severely damaged a number of aspen trees. Porcupines and squirrels caused moderate damage to numerous aspen trees along Route #41 between Bartlett and Lawrence Station, Charlotte County.

Numerous buds on young spruce trees at Nasonworth and other locations in the southern part of the district were destroyed, possibly by birds.

White Pine Needle Blight

Browning was moderate on one tree at Connors, Madawaska County, of light intensity and incidence at Brockway, Charlotte County, and trace at Rusagonis, Sunbury County and St. Hilaire, Madawaska County.

Dutch Elm Disease, *Ceratocystis ulmi* (Buism.) C. Moreau

Eleven diseased elm trees were found at Fredericton in 1965, two more than in 1964. One diseased tree was found at St. Andrews, Charlotte County, approximately 15 miles east of the nearest known infection at Milltown. Other diseased trees occurred in areas where the disease has been common in previous years. (Section 1, Figure 5).

Number of suspect trees sampled - 24

Number of positive cultures - 12

Beech Bark Disease, Cryptococcus fagi (Baer.), and
Nectria coccinea var. faginata Lohm., Wats. and Ayers

Cankered trees were common in most beech stands examined in the southern part of the district. Scale infested bark was collected from lightly to moderately cankered trees at Maple Grove and Stanley, York County, and on the Newbridge road at the York-Carleton county line.

The following table indicates that the beech trees on Plot # 1-16 at Nashwaak Narrows continued to deteriorate, 63.4% of the trees in 1965 being cankered and lightly infested with scale compared with 55.7% in 1964. More than 75% of the beech trees on Plot # 3-6 on the University woodlot at Fredericton were also in this condition . Fruiting bodies of the fungus were more common on Plot # 3-6 than on Plot # 1-16.

Location	Plot no.	Year	Per cent of trees in class ✱ 1	2	3	4	5A	5B	5C	6	Dead other causes
Fredericton	3-6	1964	9.0	-	-	3.4	1.1	79.8	-	1.1	5.6
		1965	9.0	2.2	-	4.5	-	76.5	-	2.2	5.6
Nashwaak Narrows	1-6	1964	-	7.7	5.8	17.3	-	55.7	-	13.5	-
		1965	-	7.7	-	9.7	-	63.4	-	19.2	-

✱ See Appendix A, Section 1, for explanation of classes.

Willow Blight, Pollaccia saliciperda (All. & Tub.) v.Arx

Browning of willow foliage was severe in a hedge-row at St. Anne, Madawaska County, and trace at Edmundston, in the Hartland area, along the St. John River between Fredericton and Jemseg, at the Acadia Forest Experiment Station, and at Lorneville, St. John County.

Cherry Blight - Cause Unknown

Infections on pin cherry trees were trace at Lorneville, St. John County and near Halfway Depot, Madawaska County.

Shot Hole of Cherry, Coccomyces hiemalis Higgins

This disease was common but of light intensity throughout the district.

Black Knot of Cherry, Dibotryon morbosum Theiss. & Syd.

This disease was common on choke cherry and pin cherry bushes but no infections in excess of light were observed.

Ash Rust, Puccinia sparganioides Ell. & Barth.

Infections were very light on the foliage of white ash trees at Boyds Corner, York County.

Anthracnose of Ash, Gloeosporium aridum Ell. & Holw.

A trace of leaf browning of white ash occurred at St. Anne, Madawaska County, Oak Point, Kings County, Upper Maugerville, Sunbury County and Boyds Corner, York County.

Anthracnose of Maple, Gloeosporium apocryptum Ell. & Ev.

Moderate browning of maple foliage occurred at Good Corner, Carleton County, Boyds Corner, York County, and Menzie Settlement, St. John County. Infections were trace at the Green River fire-tower, Madawaska County, at Grand Falls and Cliffordvale, Victoria County, Hartland, Carleton County, Hainesville, York County and Hampstead, Queens County.

Ink Spot of Aspen, Ciborinia whetzelii (Seav.) Seav.

Infections on aspen were moderate at Tobique Narrows, at Halfway Brook and Francoeur, Madawaska County, and Waasis, Sunbury County. Infections were light near St. Jacques, Madawaska County and at Rusagonis and Geary, Sunbury County, and trace at numerous other locations.

Tar Spot, Rhytisma acerinum (Pers. ex St. Amans) Fr.

Infections on the foliage of red maple reproduction was of moderate intensity at Newbridge, Carleton County, light at Tower Hill, Charlotte County, and trace at Upper Durham, York County and at Ripples, Sunbury County.

Red Flag of Balsam Fir, Fusicoccum abietinum (Hartig)

Prill. and Delacr.

Infections of trace intensity and light incidence, occurred at Black Brook, Victoria County, Waweig, Charlotte County and Oak Point, Kings County.

Tip Blight of Balsam Fir, Rehmiellopsis balsameae Waterman

Symptoms of this disease were common in Victoria and Madawaska counties. Near Perth, the top 5 to 7 feet of numerous trees were moderately infected.

Needle Casts

Bifusella faullii Darker caused infections of moderate intensity and light incidence on balsam fir reproduction near Summit Depot, Madawaska County, and of light intensity and moderate incidence at Tobique Narrows, Victoria County, Spruce Lake, St. John County and Brockway, Charlotte County.

Lophodermium filiforme Darker caused infections of moderate intensity and trace incidence on white spruce near Rusagonis, Sunbury County, and of trace intensity at Tracy Mills, Carleton County and along the Maple Grove road, York County.

Hypodermella nervata Darker caused infections of moderate intensity on scattered balsam fir trees near Oxbow, Victoria County and Fredericton Junction, Sunbury County. Light infections occurred at Lorneville, St. John County and Tobique Narrows, Victoria County.

Bifusella crepidiformis Darker caused moderate infections on a red spruce tree at Wirral, Queens County.

Needle Rusts

Infections of Pucciniastrum epilobii Otth. on balsam fir needles did not exceed trace except at Maquapit Lake where one tree was lightly infected.

Pucciniastrum vaccinii (Wint.) Jorst. caused trace infections on hemlock near Fredericton Junction and at Waasis, Sunbury County.

The needle rust, Coleosporium asterum (Diet.) Syd. caused trace infections of a few red pine trees at Grand Lake, Queens County.

Infections of Chrysomyxa ledicola Lagh. were trace on black spruce trees at Juniper, Carleton County.

White Pine Blister Rust, Cronartium ribicola J. C. Fischer

This organism caused severe damage to white pine at Little Pocologan, Charlotte County. Elsewhere it was common on Ribes sp. at Green River and Summit Depot road, Madawaska County, and Brockway, Charlotte County.

Other Noteworthy Diseases

Organism	Host(s)	Location	Remarks
Adelopus balsamicola (Peck) Theiss.	Fir, balsam	Summit Depot Rd., Mad. Co.	
Ciborinia whetzelii (Seav.) Seav.	Aspen, trembling	Ripples, Sun. Co.	Common but light throughout district
Coccomyces strobi Reid & Cain	Pine, white	Acadia Forest Experiment Station	
Coryneum negundinis Berk. & Curt.	Maple, Manitoba	Andover, Vict. Co.	Dieback of branches
Cronartium quercuum (Berk.) Miyabe ex Shirai	Pine, jack	Gunters, Princess Park, Queens Co.	Eastern Gall Rust
Cryptodiaporthe salicina (Curr.) Wehm.	Willow	Lincoln, Sun. Co.	
Cytospora chrysosperma (Pers.) Fr.	Poplar, lombardy Elm, white	Grand Falls, Vict. Co.	First herbarium specimen from Vict. Co.
Cytospora sp.	Poplar, lombardy	Union Mills, St. Andrews, Char. Co., Hoyt, Sun. Co.	
Dasyscypha agassizii (Berk. & Curt.) Sacc.	Pine, white	Acadia Forest Experiment Station, Sun. Co.	Common on slash
Dermea balsamea (Peck) Seaver	Fir, balsam	Summit Depot Rd., Mad. Co.	Trace
Dothichiza populea Sacc. & Briard	Poplar, lombardy	St. Andrews, Char. Co., Andover & Grand Falls, Vict. Co.	Trace infections

Organism	Host(s)	Location	Remarks
Ganoderma applanatum (Pers. ex Wallr.) Pat.	Maple	Grand Falls, Vict. Co.	
Gloeosporium fagicola Pass.	Beech	Hainesville, York Co.	Trace infection
Gloeosporium ulmeum Miles	Elm,white	Hampstead, Queens Co.	Trace
Gliocladium penicillioides Corda	Spruce, red	Juniper, Car.Co.	
Gnomonia ulmea (Schw.) Thuem.	Elm, white	Woodstock, Car. Co.	Found on all trees examined in area
Gnomoniella coryli (Batsch ex Fr.) Sacc.	Hazelnut	Upper Durham, York Co.,Tobique Narrows, Vict. Co., and Brockway, Char. Co.	Common but no more than trace infections were found.
Guignardia aesculi (Peck) V.B. Stewart	Horse-chest-nut	St. Andrews, Char. Co.	Trace
Gymnoconia peckiana (Howe) Trotter	Rubus species	Acadia Forest Experiment Station, Sun. Co., Waweig, Char. Co.	
Herpotrichia sp.	Spruce, white	Oak Point, Kings Co.	Moderate on three trees
Hypoderma sp.	Pine,white	Woodlands, York Co.	Secondary disease on 1964 needles
Hypodermella ampla (Davis) Dearn.	Pine,jack	Gunters,Queens Co.	Moderate on 1964 needles

Organism	Host(s)	Location	Remarks
Hypodermella mirabilis Darker	Fir, balsam	Two Brooks Road and Grand Falls, Vict. Co., Brockway, Char. Co.	Moderate infections
Hypoxylon pruinatum (Klot.) Cke.	Aspen, trembling	Acadia Forest Experiment Station	Common but light in district
Leucostoma kunzei (Fr.) Munk	Fir, balsam	Acadia Forest Experiment Station	Cankers at base of several trees
Lophodermium sp.	Spruce, white Spruce, red Pine, white	Madawaska, Victoria, York, Kings and Sunbury counties	Needle cast
Marssonina fraxini Ell. & Davis	Ash	Ranger Settlement, Vict. Co.	Trace leaf spot
Melampsorella caryophyllacearum Schroet.	Fir, balsam		Common in district
Melampsora sp.	Aspen, trembling	Newbridge, Car. Co.	Leaf rust
Melampsora sp.	Tamarack	St. Leonard, Mad. Co.	Trace needle rust
Microsphaera penicillata (Wallr. ex Fr.) Lev.	Oak, red	Douglas, York Co.	Trace
Milesia sp.	Fir, balsam	Wirral, 2 mi. S.E., Char. Co.	Trace, most trees examined
Nectria cinnabarina (Tode ex Fr.) Fr.	Maple, red	Nashwaaksis, York Co.	

Organism	Host(s)	Location	Remarks
Penicillium sp.	Pine, red	Juniper, Car. Co.	
Phaeostoma sphaerophila (Peck) Barr.	Cherry	Grand Falls, Vict. Co., St. Jacques, Mad. Co.	Light infection at St. Jacques
Phloespora aceris (Lib.) Sacc.	Maple, sugar	St. Jacques, Mad. Co. Boyds Corner, York Co.	Trace infection
Phyllosticta minima (Berk. & Curt.) Underw. & Earle	Maple, sugar	Boyds Corner, York Co.	New herbarium host record
Podosphaera clandestina (Wallr. ex Fr.) Lev.	Cherry, choke	St. Quentin, Vict. Co.	New host record for N.B.
Pollaccia radiosa (Lib.) Bald. & Cif.	Aspen, trembling	12 Collections	Common in district
Pucciniastrum goeppertianum (Kuhn.) Kleb.	Vaccinium sp.	U.N.B. Woodlot	New herbarium record for N.B.
Rhytisma salicinum Pers. ex Fr.	Willow	Acadia Forest Experiment Station	
Steccherinum septentrionale (Fr.) Banker	Elm, white	Fredericton, N. B.	
Stegonosporium ovatum (Pers. ex Merat) Hughes	Maple, sugar	Fredericton, N.B.	
Taphrina caerulescens (Mont. & Desm.) Tul.	Oak, red	Douglas, York Co., Gunters, Queens Co.	Trace, found on two trees

Organism	Host(s)	Location	Remarks
Taphrina carnea Johanson	Birch, white	Perth, Vict. Co.	Trace
Taphrina dearnessii Jenkins	Maple, red		
Taphrina populina Fr.	Poplar, lombardy	Grand Falls, Vict. Co.	
Taphrina robinsoniana Gies.	Alder	Acadia Forest Experiment Station, Summit Depot road, Mad. Co.	Trace
Taphrina wiesneri (Rathay) Mix	Cherry, pin	St. Joseph and Summit Depot road, Mad. Co., Acadia Forest Experiment Station, Sun. Co.	Trace
Tranzschelia pruni-spinosae (Pers.) Diet.	Cherry, pin	St. Jacques, Mad. Co.	Rust on cherry
Tympanis hypopodia Nyl.	Pine, white	Acadia Forest Experiment Station, Sun. Co.	
Tympanis sp.	Fir, balsam	Acadia Forest Experiment Station, Sun. Co.	Black Leaf blister
Uncinula salicis (DC. ex Merat) Wint.	Poplar, balsam	U.N.B. Woodlot	Powdery mildew
Uredinopsis sp.	Fir, balsam	Upper Hampstead, Queens Co.	Trace

Section 2, Table 1

Spruce Budworm Larvae Collected by Counties in Western New Brunswick by Random Sampling in 1965

County	Tree sp.	No. of colls.	Total trees	No. specimens	Av. per tree sample
Carleton	bF	1	2	4	2.0
Sunbury	bF	1	2	41+	20.5+
	rS	2	3	41+	13.3+
	wS	1	6	42+	7.0+
Victoria	bF	3	8	75	9.4
York	bF	4	11	40	3.6
	wS	1	2	2	1.0

Section 2, Table 2

Spruce Budworm Larval Sampling Records at Permanent Sampling Stations in Western New Brunswick in 1965

County and location	Station no.	Tree* sp.	No. specimens	Av. per tree sample	Deviation from 1964
Carleton					
Glassville	1-5	wS	9	3.0	+1.3
Biggar Ridge	1-6	bF	14	4.6	+3.3
Juniper	1-7	wS	26	8.6	+6.9
	1-8	bF	33	11.0	+11.0
Ashland	1-44	wS	110	36.7	+3.4
		bF	38	12.6	-11.7
Kirkland	1-48	wS	0	0	-1.7
Charlotte					
Waweig	3-45	wS	0	0	0
Madawaska					
Connors	1-15	wS	0	0	0
Glazier Lake	1-19	bF	0	0	0
	1-22	wS	0	0	0
Upper Siegas	1-47	wS	0	0	0
L'Eglise	1-48	bF	0	0	0
	1-48	wS	0	0	0
Restigouche					
Mamozekel Road	1-24	bF	0	0	0
		wS	0	0	-0.3
Sunbury					
Ripples	3-24	bF	84	28.0	+24.7
	3-24	wS	25	8.1	+5.4
Victoria					
Salmonhurst	1-16	wS	1	0.3	-2.4
South Tilley	1-17	wS	9	2.0	-1.3
Riley Brook	1-18	wS	0	0	0
Three Brooks	1-23	bF	0	0	-1.0
	1-23	wS	2	0.6	-0.4
Jardine Brook	1-28	bF	0	0	0
	1-28	wS	0	0	0

(cont'd)

Section 2, Table 2 (cont'd)

County and location	Station no.	Tree sp.*	No. specimens	Av. per tree sample	Deviation from 1964
York					
Maplewood	1-4	wS	50	16.7	+16.7
Hainesville	1-20	wS	101	33.7	+33.7
	1-21	bF	148	49.3	+49.3
Hanwell Road	3-23	wS	7	2.3	+2.3
	3-23	bF	6	2.0	+2.0
Warren	3-29	wS	0	0	0
Thomaston Corner	3-31	bF	0	0	0
	3-31	wS	0	0	0

* Each station consisted of three trees and was sampled once

Section 2, Table 3

Estimates of Spruce Budworm Defoliation of Balsam Fir by Counties in Western New Brunswick in 1964 and 1965

County	No. observation pts.		Av. per cent defoliation*				Mortality **
			Current		Previous		
	1964	1965	1964	1965	1964	1965	
Carleton	75	78	40	15	L	L	0
Charlotte	11	13	0	T***	0	L***	0
Kings	-	2	-	T***	-	M***	0
Madawaska	24	32	0	0	0	0	0
Northumberland	-	2	0	0	-	0	0
Queens	12	23	T	T-L	0-T	0-L	0
Restigouche	10	7	0	0	0	0	0
Sunbury	19	58	T	15	4	L	0
Victoria	130	65	T	T-L	0-L	T	0
York	252	229	20	25	L	L	2

* T = Trace L = Light M = Moderate

** Number of points at which mortality was recorded

*** At one location only

Section 2, Table 4

Condition of Trees on Balsam Woolly Aphid Plots in Western New Brunswick in 1961, 1962, 1963 and 1965

Plot	Location	Year	No. trees	Per cent trees in each class*										Dead other causes & cut
				1	2A	2B	2C	3A	3B	4A	4B	4C	5	
3-5	O'Dell Park,	1961	146	17.8	26.9	-	-	-	4.8	10.9	10.2	0.7	3.4	25.3
	Fredericton,	1962	146	24.7	7.5	-	-	-	4.1	15.8	8.9	2.1	4.1	30.1
	N.B.	1963	146	35.6	10.9	-	-	-	4.1	8.2	6.2	0	4.1	30.9
		1965	146	32.9	10.2	-	-	-	4.1	4.8	5.5	0.7	4.8	37.0

* See Appendix A, Section 1, for explanation of classes

Numbers of European Spruce Sawfly Collected
in Random Samples and from Permanent Sample Stations
in Western New Brunswick in 1965
(All collections from white spruce)

Location	Sample station	No. trees	No. of sawfly larvae June 25-July 13 1st sample	No. of sawfly larvae Aug. 8-Sept. 1 2nd sample
Random Samples				
Kings	-	2	2	-
Queens	-	3	-	13
Sunbury	-	3	14	-
York	-	2	-	14
Permanent Sample Stations				
Carleton County				
Glassville	1-5	6	7	8
Biggar Ridge	1-6	6	0	0
Juniper	1-7	6	0	0
Ashland	1-44	6	1	11
Kirkland	1-46	6	16	1
Charlotte County				
Waweig	3-45	6	28	23
Madawaska County				
Baker Brook	1-14	6	1	9
Connors	1-15	6	1	6
Glazier Lake	1-22	6	3	1
Upper Siegas	1-47	6	0	0
L'Eglise	1-48	6	0	1
Restigouche County				
Mamozekel Road	1-24	6	0	0
Sunbury County				
Ripples	3-24	6	1	0

(cont'd)

Section 2, Table 5 (cont'd)

Location	Sample station	No. trees	No. of sawfly larvae June 25-July 13 1st Sample	No. of sawfly larvae Aug. 8-Sept. 1 2nd Sample
Victoria County				
Salmonhurst	1-16	6	0	4
South Tilley	1-17	6	0	0
Riley Brook	1-18	6	2	0
Three Brooks	1-23	6	2	1
Jardine Brook	1-28	6	2	0
York County				
Maplewood	1-4	6	0	3
Hainsville	1-20	6	2	2
Hanwell Road	3-23	6	0	22
Thomaston Corner	3-31	6	0	17
Warren	3-29	6	0	13

Larch Casebearer Numbers and Defoliation Estimates
at Sampling Stations in Western New Brunswick
in 1964 and 1965

Sampling station No.	Location	Casebearer/100 fascicles 1964	1965	Defoliation* 1964	1965
	Carleton County				
1-32	Carlisle	0.19	0	0	0
1-43	Holmesville	0.24	0.30	0	-
	Charlotte County				
3-39	Oak Bay	6.12	11.24	L	T
	Madawaska County				
1-38	St. Jacques	0	0	0	0
1-39	Green River	2.50	0.33	T	0
1-51	Stewart Highway	0.72		0	0
	Queens County				
3-17	Welsford	0.45	1.48	L	T
	Sunbury County				
3-13	Waasis	0.33	2.11	-	T
3-16	Blissville	4.25	0.96	T	0
3-20	Acadia Station	0.70	0.31	-	T
	Victoria County				
1-40	Gillespie Settlement	1.06	0	T	0
1-41	McLaughlin	-	0	0	T
1-42	Burtland Brook	0.21	0.27	0	0
1-45	Dover Hill	1.53	0.30	T	T
	York County				
1-33	Canterbury	0.67	0.31	T	0
1-34	Pinder	0.70	0.94	T	-
1-35	Woodlands	0.92	0.65	-	0
1-36	McGivney	0	0	T	0
3-11	Hanwell	1.46	0.31	-	-
3-19	St. Croix	23.56	4.47	L	T
3-49	Nevilles Field, F'ton.	2.44	6.43	-	-

* T = Trace L = Light

Section 2, Table 7

Insects Collected in Western New Brunswick in 1965
(In addition to those mentioned in the text)

Species	Collected from	No. collections	Remarks
Acleris sp.	rO, Ap	2	Two larvae in beating samples
Acrobasis betulella Hulst	wiB	5	Low numbers in collections from Queens, Sunbury and Charlotte counties
Adelges abietis (L.)	wS	3	Common in district
Agonopterix grotella Rob.	Wi	1	Six larvae from Black Brook, Victoria County
Agromyzidae	cPo	2	Twenty four plus larvae from Madawaska County
Altica ambiens alni Harr.	Al	2	Moderate patches St. Croix to Lawrence Station
Altica populi Brown	tA	1	One adult collected at Bayside, Charlotte County
Anacampsis innocuella Zell.	tA	6	Common but light
Anoplonyx luteipes (Cress.)	tL	1	One larva
Aphidae	Al,ScP,bPo	4	Collections taken for Dr. MacGillivray
Aphorphoridae	Wi	1	Fourteen nymphs from Newmarket, York County
Archips argyrospilus (Wlk.)	Ap	1	Two larvae
Archips purpuranus Clem.	wB	2	Two larvae. St. John and York counties
Argyresthia aureoargentella Brower	eC	1	Trace leaf miner in Charlotte County
Argyresthia laricella Kft.	tL	1	Common but no more than trace infestations in district
Argyresthia thuiella (Pack.)	eC	1	Trace leaf mining at Belleville, Carleton County
Argyrotaenia lutosana Clem.	wS	1	One larva
Argyrotaenia quadrifasciana Fernald	cCh	1	Hand picked from choke cherry trees on Royal Road, York County
Caliroa sp.	yB	1	
Campaea perlata Guen.	Ap	2	Two larvae collected in Charlotte County
Cantharis sp.	Wi	1	One adult
Caripeta divisata Wlk.	wS, bF	10	Beating samples throughout the district
Choristoneura conflictana (Wlk.)	tA, rO	4	Low numbers from four locations

(cont'd)

Species	Collected from	No. collections	Remarks
Chrysochus auratus F.	—	1	One beetle
Chrysomela sp.	tA	1	Two beetles
Chrysomelidae	wS	1	One adult from Stanley, York County
Clepsis persicana (Fitch)	Ap, suM, wS	3	Five larvae from three locations
Coleophora sp.	wiB	1	
Compsolechia niveopulvella Chamb.	tA, ltA	3	Four larvae from three locations
Contarinia canadensis Felt.	As	1	41+ pupae collected at Boyds Corner, York County
Croesia semipurpurana Kft.	rO	1	Moderate infestation at Aroostook Junction, Victoria County
Dasyneura communis Felt	sM	1	One larva collected at Hampstead, Queens County
Dichelonyx albicollis Burm.	wB, tA	3	
Dioryctria reniculella (Grote)	wS	3	One larvae from each of three locations
Dioryctria sp.	wS, blue spruce	6	In beating samples from four locations
Elaphria versicolor (Grote)	bF, wS	3	Four larvae from 3 locations
Epinotia sp.	tA, W	3	Colonies collected at Bayside and Upper Mills, Charlotte County
Eriophyes sp.	rM	1	Common
Eupithecia filmata Pears.	wS, bF	24	Low numbers in beating samples from 21 locations
Eupithecia luteata Pack.	wS, bF	4	Six larvae from four locations
Eupithecia sp.	wS	1	
Eupithecia transcanadata McK.	wS	9	Fourteen larvae from nine locations
Fenusa dohrnii (Tisch.)	Al	1	Leaf mining no more than trace in district
Fenusa ulmi Sund.	wE	1	Trace on one tree at Milltown
Feralia jocosa (Guen.)	wS	3	
Gossyparia spuria (Mod.)	wE	3	Common at Lakeville Corner, Fredericton and Woodstock
Gracilaria syringella(F.)	Lilac	1	Common but light
Criselda radicana Wlshm.	wS	3	
Herculia thymetusalis (Wlk.)	wS	1	One larva
Hydriomena divisaria(Wlk.)	wS	2	Three larvae
Hylobius pinicola (Couper)	eH	1	One larva
Hypagyrtis piniata (Pack.)	bF	1	One larva collected at Britt Brook Lake, Victoria County
Itame anataria Swett	wiB, wB, tA	3	Seven larvae from three widely separated locations

(cont'd)

Species	Collected from	No. collections	Remarks
Lambdina fiscellaria fiscellaria Gn.	wS	2	Not common
Lithophane sp.	Su, wE	2	Eight larvae
Mindarus abietinus Koch	bF	1	Common but twig curl no more than trace in district
Nematus robustus(Marl.)	tA	4	Seven larvae
Nematus species	wiB,tA,cPo,W	5	In small numbers throughout district
Neodiprion abietis complex	wS, bF	5	Low numbers in beating samples
Neodiprion nanulus nanulus Schedl.	rP	3	In small colonies at Brockway, York County and Anfield, Victoria County
Noctuidae	sPo	1	Five larvae, St. Leonard
Nyctobia limitaria Wlk.	bF, wS	3	Four larvae from three locations
Olethreutidae	wP	1	One larva, Rusagonis
Operophtera sp.	pch,Ap,tA,rO	7	Low numbers in southern part of district
Palthis angulalis Hbn.	wS	4	In beating samples
Pamphiliidae	wS	1	One larva
Pandemis canadana Kft.	rM	1	One larva, Pinder, York County
Parorgyia plagiata(Wlk.)	eH	1	Not common
Phalaenidae	wB	1	
Phigalia titea Cram.	wE	1	
Phyllocnistis populiella Cham.	tA	3	Trace of leaf mining at Taymouth, Royal Rd., and St. Quentin
Pikonema dimmockii (Cress.)	wS	9	Small numbers in beating samples throughout district
Pineus coloradensis (Gill.)	rP	1	Thirty larvae, Princess Park, Queens County
Pineus pinifoliae(Fitch.)	rS	1	Light at Brockway
Pineus similis (Gill.)	wS	3	Common in district
Pineus strobi (Htg.)	wP	5	Common but light
Pleroneura borealis Felt	bF	1	Balsam twig sawfly
Pontania pisum (Walsh)	W	2	Light one tree at Maugerville, trace at Edmundston
Profenusa thompsonii (Konow)	wB, wiB	5	Thirty-six larvae
Protoboarmia porcelaria indicataria Wlk.	wS,bF,eH	5	Eight larvae
Recurvaria thujaella Kft.	eC	3	Common in district
Rhyacionia bouliana (Schiff.)	rP	1	Trace at Central Blissville
Saperda moesta Lec.	tA	1	Collected at Perth
Sciaphila duplex Wlshm.	tA	3	Three larvae
Scolytidae	rP	2	
Semiothisa dispuncta complex	wS, bF	20	In beating samples throughout district

(cont'd)

Section 2, Table 7 (cont'd)

Species	Collected from	No. collections	Remarks
Syngrapha sp.	wS, bF	2	
Syrphidae	wS	1	One larva
Tenthnedinidae	rO	1	One larva
Undetermined leafroller	wB	1	One larva
" loopers	yB	1	Chamcook, Charlotte County
" lymantridae	aP	1	
" sawfly	wB,wiB,tA	5	
Vasates quadripedes Shimer	Su	1	Common
Xylococculus betulae Pergande	Be, yB	7	Common but light
Zieraphera sp.	wS, wP	2	

Section 2, Table 8

Numbers of Common Insects collected from 26 Permanent Sampling Stations in Western New Brunswick in 1965

Species	No. and type of stations producing larvae	Av. no. larvae per tree sample	Deviation from 1964
Acleris variana (Fern.)	11 wS, 2 bF	1.05	-0.8
Choristoneura fumiferana (Clem.)	12 wS, 6 bF	12.5	-5.5
Diprion hercyniae (Htg.)	19 wS	2.3	-0.3
Eupithecia filmata Pears.	16 wS, 5 bF	0.5	-0.6
Neodiprion abietis complex	1 wS, 4 bF	0.4	-0.1
Pikonema dimmockii (Cress.)	8 wS	0.5	-0.3
Semiothisa dispuncta complex	15 wS	0.8	-0.2

ANNUAL DISTRICT REPORT

FOREST INSECT AND DISEASE SURVEY

NORTHEASTERN NEW BRUNSWICK

1965

by

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DEPARTMENT OF FORESTRY

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3.0 NORTHEASTERN NEW BRUNSWICK

(G. F. Estabrooks)

Introduction

The spruce budworm was the major pest in northeastern New Brunswick in 1965 with infestations extending over most of the Miramichi River drainage and over a small portion of southern Gloucester County. Other organisms attracting special attention were: the redheaded jack-pine sawfly in Northumberland County; birch casebearer over an extensive area; white pine weevil on white pine reproduction; white pine blister rust and the Dutch elm disease.

Insect Conditions

Spruce Budworm, Choristoneura fumiferana (Clem.)

Spruce budworm larval populations were moderate at most sample stations in southern Northumberland County and in York County. Sampling indicated a general increase in numbers over 1964 along the Miramichi River west of Parker Station. Increases were greatest at Carrolls and Park with 36 and 25 more larvae per tree sample respectively than in 1964. Larval counts in beating samples were negligible in Gloucester County except at a location along the Tabusintac River west of Route #8 where high numbers occurred. Sampling by beating at 15 locations in Restigouche County yielded only two larvae. The numbers of larvae collected at sample stations in 1965 are shown in Section 3, Table 1.

Of 1344 budworm pupal cases examined 925 were females and 419 were males.

Spruce budworm egg masses were collected at 231 of the 374 locations sampled. A summary by counties of egg-mass records in 1965 follows:

Northumberland County.--One hundred and sixty positive and 52 negative egg samples were taken in the County. Numbers were high: over the southern portion of the County west of a north and south line through Upper Blackville including most of the Bartholomew River and Porter Brook drainages; in a triangular shaped area extending about 10 miles north from the little Dungarvon River along the Northumberland-York County line and east to Bamford Brook; in an area four to eight miles wide north from Sunny Corner to Trout Brook; in a small area south of McGraw Brook; and in small patches, one each near the mouth of the Cains River, ten miles south of Gray Rapids, and between the Dungarvon and the Little South Renous River (Section 1, Figure 2). Numbers were moderate: over an area extending west from the

Miramichi River at Derby Junction and Quarryville along the Plaster Rock-Renous Road to McGraw Brook and north to the Mullin Stream road including the Little Sevogle River drainage; in a 6- to 8-mile wide area extending from the Northumberland-Kent County line to Bartholomew and Blackville; in an area between the Plaster Rock-Renous road and the Northumberland-York County line south of Louis Lake. Generally low numbers occurred elsewhere in the County south of a line extending eastward from Tuadook Lake to Wayerton and Bartibog Bridge. Low numbers were found at two additional locations in northeastern Northumberland County.

York County.--Egg-mass numbers were high: east of Route #25 except in a narrow band along the railroad to McGivney where they were low; in a triangular shaped area between Maple Grove, Upper Hayden Brook and the Taxis River at Brewer Brook; west from the Northumberland-York County line over an 8 mile stretch of the Rocky Brook north of Youngs Dam and extending southwest to include most of the Sisters Brook drainage; over an area extending eastward from the district boundary across the lower stretches of the Burnt Hill and Clearwater Brooks and south of the Miramichi River to Trout Lake; over an area extending south from Salmon Brook Lake and the mouth of Rocky Brook across the Miramichi River to include the lower stretches of McLean and Trout brooks. Numbers were moderate in a band, varying in width from two to six miles, east from the district boundary at Beaver Brook Lake to the Northumberland-York County line. Low egg counts were general elsewhere in the County.

Gloucester County.--Numbers were high over most of the Tabusintac River drainage west of Route #8. Low egg-mass counts were found at three sampling locations elsewhere in the County.

Restigouche County.--Low egg-mass counts were found at two locations in southeastern Restigouche County and at one location along the Gounamitz River road in northern Restigouche County.

A summary account by counties of defoliation of balsam fir in 1965 follows:

Northumberland County.--Severe defoliation of the 1965 foliage of balsam fir occurred in several extensive areas through most of the County south of an east-west line through Upper Blackville and along the Plaster Rock-Renous road west from McGraw Brook (Section 1, Figure 1). Severe defoliation occurred also in a large area astride the Northwest Miramichi River south of Sevogle, and in smaller patches along the Northwest Millstream and near the headwaters of the Little Sevogle River. Moderate defoliation with patches of light occurred throughout most of the remainder of the County south of the Little Southwest Miramichi River excepting along the lower reaches of the Bartholomew River and near the North Bartholomew and Little Dungarvon rivers.

York County.--Defoliation was mostly moderate to severe east of Route #8, and west of Route #8 between Astle and McGivney. Moderate defoliation occurred over the Rocky Brook drainage north of Young Dam and over the northern half of Sisters Brook, along the Miramichi River at Clearwater Brook, and along Salmon Brook and the Miramichi River to Holtville. Light defoliation occurred over most of the Taxis River drainage and north to Hayesville between Stewart Brook and the Miramichi River, and between the Todd Mountain road and the Miramichi River.

Gloucester County.--Severe defoliation occurred in a 12-square mile area west of Route #8 between the Northumberland County line and Daulnay. Defoliation was negligible elsewhere in the County.

Restigouche County.--No defoliation attributable to the spruce budworm was found in the County.

Balsam Woolly Aphid, Adelges piceae (Ratz.)

No extensions of the known limits of the balsam woolly aphid were found. Counts of aphids on bark samples indicated that numbers were low on balsam fir stems.

Balsam Shoot-boring Sawfly, Pleroneura borealis Felt

Small numbers of this insect were found on balsam fir reproduction at Mile 4 southeast of the Upsalquitch Gate and at Mile 10 Kedgwick Portage, Restigouche County.

Balsam Gall Midge, Dasyneura balsamicola (Lint.)

This gall midge was found on the new needles of balsam fir trees at numerous locations. Numbers were low at 26 sample locations, moderate at Mile 2 Lorne Settlement road, Gloucester County and high on a few trees at Mile 8 Pabineau road, Gloucester County.

Black-headed Budworm, Acleris variana (Fern.)

Black-headed budworm were collected in small numbers from white spruce and balsam fir trees at locations in Restigouche, Gloucester and Northumberland counties. The average numbers of larvae per tree sample from white spruce and balsam fir were 1.9 and 0.9 respectively.

Red-headed Jack-pine Sawfly, Neodiprion virginianus complex

Moderate to severe loss of old foliage of mature jack pine trees occurred over an estimated 8-square-mile area in northeastern Northumberland County about 14 miles west of Route #8 between the Bartibog

River and Green Brook (Section 3, Figures 1 to 4 inclusive). Defoliation of new foliage was trace to light in patches where complete loss of old foliage occurred.

European Spruce Sawfly, Diprion hercyniae (Htg.)

Thirty-three collections from white spruce trees contained spruce sawfly. Larval numbers were low and averaged 2.3 per tree at permanent stations and 1.6 per tree at random sample locations (Section 3, Table 3). Numbers were highest at Parker Station and Trout Brook, Northumberland County where collections averaged 8 and 6 larvae per tree respectively. Numbers were nil or very low at locations in York County and northern Restigouche County.

Eastern Spruce Gall Aphid, Adelges abietis (L.)

The incidence of galls on spruce trees was widespread but infestations were mostly trace or light on occasional trees. In Gloucester County gall damage was moderate on 25% of white spruce reproduction at Lugar and moderate to severe at Grand Anse.

Spruce Bud Moth, Zeiraphera ratzeburgiana Ratz.

This insect was hand-picked from white spruce trees at six widely separated locations in Restigouche County, at one location in Gloucester County and at two locations in Northumberland County. Defoliation was trace or light.

Larch Sawfly, Pristiphora erichsonii (Htg.)

Low numbers of this sawfly were found on tamarack trees at 12 locations. Numbers were high over a 1- to 2-acre area at Derby Junction where severe loss of foliage occurred. Elsewhere in the district defoliation was trace or light.

Larch Casebearer, Coleophora laricella (Hbn.)

Population levels of larch casebearer were low at nine sample stations and nil at the remaining five. A trace of defoliation was observed at a few widely separated locations in the district. The results of sampling overwintering populations and the defoliation estimates at sample stations for 1964 and 1965 are compared in Section 3, Table 4.

Pine Leaf Chermes, Pineus pinifoliae (Fitch)

Galls caused by this aphid were collected from black spruce at six locations in the district. Galls were numerous on a few black spruce trees of reproduction size near Moose Brook, Northumberland County.

White-pine Weevil, Pissodes strobi (Peck)

This weevil, collected from white pine reproduction in Gloucester, Northumberland and Restigouche counties, was less common in Restigouche than elsewhere. Fifty open-growing white pine trees, less than 8 feet high, were examined for weevil attacks at each of four locations in Northumberland County. The results for 1964 and 1965 follow:

Location	No. trees free of attack		No. trees infested: Current attack: One terminal only		Current attack: Two terminals or more		Current and previous		Previous only	
	1964	1965	1964	1965	1964	1965	1964	1965	1964	1965
Doaktown	4	1	0	0	0	0	24	38	22	11
Upper Blackville	23	15	3	5	2	0	6	15	16	15
Village St.Laurent	21	20	2	2	0	0	19	13	8	15
South Esk	-	14	-	5	-	0	-	21	-	10

Cedar Leaf Miners, Argyresthia thuiella (Pack), Recurvaria thuiella Kft., and Argyresthia aureoargentella Brower

Cedar leaf miners were collected at four locations in Restigouche County, nine in Northumberland County and at one location in Gloucester County. Browning was generally trace. Recurvaria thuiella was collected only at Blacklands, Restigouche County and at a location eight miles from Renous along Route #109 and Argyresthia aureoargentella only at Blacklands. Browning was light at these two locations.

Birch Casebearer, Coleophora fuscedinella (Zell.)

Moderate to severe defoliation of white birch trees occurred throughout Gloucester County, at Charlo and New Mills in eastern Restigouche County, in northeastern Northumberland County, including the Newcastle and Chatham areas, and between Holtville and Rocky Brook, York County (Section 1, Figure 4). Defoliation was generally light along the Miramichi River between Boiestown and Derby and at Popple Depot, Northumberland County. Elsewhere in the district defoliation was light or trace.

Birch Leaf Miners, Fenusa pusilla (Lep.), and Profenusa thompsonii (Konow)

Browning of white birch and wire birch foliage was mostly trace and light respectively in Northumberland County. Browning of white birch reproduction was light in western Restigouche County, where Profenusa thompsonii was also collected, and trace to light sporadically throughout the remainder of the district (Section 3, Table 5).

Satin Moth, Stilpnotia salicis (L.)

This caterpillar caused moderate defoliation of five large Carolina poplar trees at Nordin, Northumberland County. The insect was also collected from Lombardy poplar at Belledune River, Restigouche County, where the few ornamental trees affected were almost completely bare of foliage and had many dead branches, probably the result of persistent attacks by the insect.

Fall Cankerworm, Alsophila pometaria (Harr.)

Population levels of this defoliator were low on white elm trees at three locations in Northumberland County.

Ugly-nest Caterpillar, Archips cerasivoranus (Fitch)

Infestations of this insect were sporadic on roadside cherry trees throughout Gloucester and Northumberland counties. Nests were most numerous in the Chatham area.

The results of roadside counts of webs in 1,000 square-foot areas follow:

Location	No. nests per 1,000 sq.ft.		No. locations at which 1,000 sq. ft. or more of solid webbing occurred		
	1964	1965	1963	1964	1965
Douglastown	32	56	-	0	0
Doaktown	2	8	-	0	0
Millerton to Derby	-	49	7	3	0
Newcastle to Chatham	-	104	0	2	0
Youghall Beach Road	54	98	-	0	0
Victoria St., Chatham	-	140	-	-	0

Bruce Spanworm, Operoptera bruceata (Hulst)

A few larvae of Bruce spanworm were collected from sugar maple trees at Connacher fire tower, Restigouche County. Defoliation was trace in 1965 compared with light to moderate in 1964. Individual larvae were collected at a few widely separated locations in Restigouche and Gloucester counties.

Fall Webworm, Hyphantria cunea (Drury)

Nine clumps of alders at a location eight miles northwest of Bathurst were infested with fall webworm. Light to moderate defoliation occurred. Roadside counts were taken, with negative results, at the following locations:

Location	Distance in miles
Gloucester County	
St. Anne to Route #11	2
Rose Hill	2.6
Northumberland County	
Chatham to Black River	8
Blackville to Renous	6

A Leaf Roller on Oak, Croesia semipurpurana Kft.

This insect caused moderate defoliation of red oak trees at Chatham Head and Storeytown and light defoliation at Blissfield and Boiestown, Northumberland County.

A Leaf Roller on Maple, Cenopsis pettitana (Rob.)

Small numbers of this leaf roller were found on maples throuthout the district. Light leaf rolling occurred on red and sugar maples at locations in Northumberland and York counties. Elsewhere leaf damage was trace.

Additional Species Collected

Common insects collected at permanent sampling stations are listed in Section 3, Table 6.

Insects collected in 1965 but not mentioned in the text are listed in Section 3, Table 7.

Tree Diseases

Snow Damage

Heavy snow caused moderate breakage in patches of young tamarack and white spruce trees at Little Belledune Point, Gloucester County.

Winter Drying

Winter drying resulted in moderate browning of the foliage of white spruce trees in a hedge at South Tetagouche, Gloucester County.

Frost Damage

Late spring frosts caused moderate to severe reddening of the foliage of a few young open-growing tamarack trees at Little Belledune Point, Gloucester County. A trace of damage occurred on the new shoots of balsam fir and white spruce reproduction at Astle, York County.

Dutch Elm Disease, *Ceratocystis ulmi* (Buism.) C. Moreau

No major change occurred in the known distribution of this disease (in the district) in 1965. However, diseased trees were found for the first time at Taxis River, York County, and at McNamee, Northumberland County (Section 1, Figure 5).

Beech Bark Disease, *Cyptococcus fagi* (Baer.) and *Nectria coccinea* var. *faginata* Lohm., Wats. & Ayers

Beech scale infestations of various degrees occurred throughout most of Northumberland and Gloucester counties where beech stands generally contain trees with cankered stems and some which are being killed by the disease. Very light infestations of the scale but no cankered stems occurred at Mile 3 Southeast Upsalquitch road in Restigouche County.

Specimens of the Nectria fungus were collected from severely cankered beech trees at Porter Brook, Northumberland County and St. Rose and St. Isidore, Gloucester County.

Leaf and Twig Blight of Poplar, *Pollaccia radiosa* (Lib.) Bald. and Cif.

This disease was collected at locations throughout the district. Infections were of trace to light intensity on young trembling aspen trees except moderate at one location along the Bathurst Mines road, Gloucester County.

Balsam Fir Tip Blight, *Rehmiellopsis balsameae* Waterman

Tip blight of light intensity was found on balsam fir at Caribou Depot, and Kedgwick Fire Tower, Restigouche County, and Allardville, Gloucester County. Intensity was moderate on occasional trees at Millstream Lake road, Gloucester County and Lyttleton, Northumberland County.

Red Flag of Balsam Fir, Fusicoccum abietinum (Hartig) Prill. & Delacr.

Traces of this canker on balsam fir were found ten miles southeast of Flying Eddy, Restigouche County, along the Rocky Brook road, York County and along the Millstream Lake road, Gloucester County.

Needle Rust of Balsam Fir, Pucciniastrum epilobii Otth.

Traces of this fungus were found on balsam fir trees at widely separated locations. The disease was collected on fireweed, an alternate host, at Grand Anse and Bathurst Mine road, Gloucester County.

Needle Casts

Infections of Hypodermella nervata Darker were of light intensity on balsam fir at St. Rose, Gloucester County, at Berry Brook, Restigouche County, and at Mile 12 Plaster Rock-Renous road, Northumberland County.

Bifusella faullii Darker caused moderate needle cast on a few young balsam fir trees at Mann Mountain, Restigouche County, and at a location on the Bathurst Mine road, Gloucester County. Infections were of light intensity at Southeast Upsalquitch Falls, Restigouche County.

Lophodermium filiforme Darker occurred on spruce trees at widely separated locations throughout the district. Infections were generally of light intensity on white spruce except at Rose Hill, Gloucester County, and Lower Newcastle, Northumberland County where they were moderate on occasional trees. Infections were of light intensity on red spruce at McGivney, York County and at Mile 18 Mullin Stream road, Northumberland County, and of trace intensity on black spruce at Lyttleton, Northumberland County.

Infections of Hypodermella ampla (Davis) Dearn. were of moderate to severe intensity on jack pine trees at Russelville and of light to moderate intensity along the Cains River near McKenzie Brook.

White Pine Needle Blight

Moderate browning of the tips of white pine needles occurred on individual trees or small groups of trees at Belledune and Jacquet Head, Gloucester County. Varying degrees of browning was observed on scattered white pine trees along the southeast Upsalquitch road west of Mile 20.

White Pine Blister Rust, Cronartium ribicola J. C. Fischer

Blister rust was common on white pine reproduction throughout the district. Infections were light except severe at Nigadoo Lake, Gloucester County, and moderate at Porter Brook, Northumberland County and at 7 miles east of Flying Eddy, Restigouche County. The disease was found on Ribes sp. at two locations in both Restigouche and Northumberland counties.

Anthracnose of Maple, Gloeosporium apocryptum Ell. & Ev.

Leaf browning of maples was of light intensity and incidence at Blackville and Mile 11 Mullin Stream road, Northumberland County; at Lower Tetagouche Lake, McCormack Gate, six miles west of St. Quentin and Mile 10 Kedgwick Portgage, Restigouche County; and along the Rocky Brook road, York County.

Tar Spot, Rhytisma acerinum (Pers. ex St. Amans) Fr.

Tar spot infections of light intensity and incidence occurred on red maple leaves at Redmondville, Bartibog, 12 miles west on the Plaster Rock-Renous road, and at Jacquet Head.

Black Leaf Blister, Taphrina dearnessii Jenkins

This disease was found on red maple trees at locations in Northumberland and Gloucester counties and at Upsalquitch Depot, Restigouche County. Infections were of light intensity except moderate on two trees at Bathurst Mines, Gloucester County.

Ink Spot of Aspen, Ciborinia whetzelii (Seav.) Seav.

Leaf browning of aspen was of moderate intensity and incidence at Guercheville, Restigouche County, and of moderate intensity on a few aspen trees at St. George, Gloucester County. Elsewhere in northeastern New Brunswick infections were of trace or light intensity.

Witches' Broom on Service Berry, Apiosporina collinsii (Schw.) Hoehn.

A sample of this disease was submitted from Tetagouche Falls, Gloucester County, where eight brooms were counted on one clump of service berry bushes.

Willow Blight, Pollaccia saliciperda (Symptoms only)

Blighted willow foliage was not common in the district. Light browning was found near Blackville and six miles east of Doaktown, Northumberland County.

Cherry Blight

Blighting of the foliage of a few pin cherry trees was moderate at Miltonbrae, Gloucester County and Lower Newcastle, Northumberland County, and light thirteen miles southeast of Flying Eddy; two miles east of Upsalquitch Gate and at Jacquet Head, Restigouche County.

Black Knot of Cherry, Dibotryon morbosum Theiss. & Syd.

This fungus occurred on pin cherry and choke cherry trees sporadically throughout northeastern New Brunswick. Moderate infections occurred on pin cherry at a location along the Bathurst Mines road, Gloucester County, and at Upsalquitch Depot, Restigouche County. Infections elsewhere were light.

A Leaf Spot of Hazelnut, Gnomoniella coryli (Batsch ex Fr.) Sacc.

Traces of this fungus were common on hazelnut foliage throughout the district. Moderate to severe infections occurred two miles north of Pabineau Falls, Gloucester County.

Other Noteworthy Diseases

Organism	Host(s)	Location	Remarks
Adelopus balsamicola (Peck) Theiss	bF	Charlo	
Armillaria mellea (Vahl. ex Fr.) Kummer	rM	Rocky Brook Rd.	
Apiosporina collinsii (Schw.) Hoehn	honeysuckle	Grand Anse	
Coccomyces hiemalis Higgins	pCh, cCh	Throughout N.E. N.B.	Light infections
Coryneum negundinis Berk. & Curt.	moM	Campbellton	
Cronartium quercuum (Berk.) Miyabe ex Shirai	jP	Lyttleton	Moderate on one tree
Dermea pinicola Groves	wP	Porter Bk.	Fungus from a dying tree
Didymascella thujiana (Durand) Maire	eC	Wedge Mine, North.Co., Berry Bk., Rest. Co.	Light infections
Erysiphe aggregata (Peck) Farl.	Al	Berry Bk., Rest. Co., Exmor, North. Co.	Light powdery mildew
Fomes pini (Brot. ex Fr.) Karst	bS	S.E. Upsalquitch Falls, Rest. Co.	Wood decay fungus
Fomes pinicola (Swartz ex Fr.) Cooke	wP	S.E. Upsalquitch Falls, Rest. Co.	Wood decay fungus
Fomes subroseus (Weir) Overh.	bS	S.E. Upsalquitch Falls, Rest. Co.	Wood decay fungus
Gloeosporium fagicola Pass.	Be	Bathurst Mine Rd., Glou. Co.	Light
Gnomonia ulmea (Schw.) Thuem.	wE	Exmor, North. Co.	Light
Hypodermella mirabilis Darker	bF	5 mi. S. on Burnt Hill Rd., York Co.	
Hypoxylon pruinatum (Klot.) Cke.	tA	Glou., North., & Rest. Co's.	Sporadic infections throughout
Marssonina brunnea (Ell. & Ev.) Magn.	tA	Doaktown	Moderate leaf spot
Marssonina juglandis (Lib.) Magn.	Bu	Storytown, North. Co.	
Melampsora epitea Thuem.	W	Charlo, Rest. Co., Bathurst Mines Rd., Glou. Co.	Light on a few trees
Melampsora medusae Thuem.	tA	Glenlevit, Rest. Co.	

Organism	Host(s)	Location	Remarks
Melampsorella caryophyllacearum Schroet.	bF	Throughout the district	Light infections on occasional trees
Nyssopsora clavellosa (Berk.) Arth.	Aralia sp.	S.E. Upsalquitch Falls, Rest. Co.	Rust, common
Phleospora aceris (Lib.) Sacc.	rM,sM,stM	Throughout the district	Trace - light leaf spot
Phyllactinia guttata (Fr.) Lev.	Al	White Rapids, North. Co.	Light powdery mildew
Phyllosticta minima (Berk. & Curt.) Underw. & Earle	rM	Blackville, Bartibog, North. Co.	Light leaf spot
Rhytisma punctatum (Pers.) ex Fr.	moM,rM,stM	Rest. Co.	Five locations
Rhytisma salicium Pers. ex Fr.	W	McCormack Gate, Rest. Co.	Light leaf spot
Septobasidium pinicola Snell	wP	Porter Brook, North. Co.	Common on three wP
Septoria musiva Peck	tA	White Rapids, North. Co.	Common, leaf spot
Taphrina carnea Johanson	yB	Berry Bk., Kedgwick Road, Rest. Co.	Trace of leaf curl
Taphrina robinsoniana Gies.	Al	Exmor & Porter Bk., North. Co., & Berry Bk., Rest. Co.	Light to moderate infection
Taphrina wiesneri (Rathay) Mix	pCh	Three locations in Rest. Co.	Trace.
Uredinopsis osmundae Magn.	A fern	S.E. Upsalquitch Falls, Rest. Co.	Trace of rust

Section 3, Table 1

Spruce Budworm Larval Sampling Records at Permanent Sampling Stations in Northeastern New Brunswick in 1965

County and location	Station no.	Tree* sp.	No. specimens	Av. per tree sample	Deviation from 1964
Gloucester					
Bass River Road	2-2	wS	0	0	-0.7
Bathurst	2-3	wS	1	0.3	-0.3
Northumberland					
Park	2-6	wS	108	36.0	+25.3
Blackville	2-16	wS	5	1.7	-1.3
Parker Station	2-18	wS	46	15.3	+3.3
20 mi. Fraser Co's Road	2-19	wS	2	0.7	-1.0
20 mi. Fraser Co's Road	2-19	bF	1	0.3	-0.7
Renous	2-26	wS	30	10.0	+8.7
Little Bartibog	2-27	wS	5	1.7	+0.4
Carrolls	2-32	wS	113	37.7	+36.4
Trout Brook	2-33	wS	24	8.0	+5.7
Redmondville	2-38	wS	38	12.7	-1.3
Restigouche					
Blackland	2-1	bF	2	0.7	+0.7
Flatlands	2-5	wS	0	0	0
Simpson Field	2-20	wS	0	0	0
		bF	0	0	0
Dalhousie Jct.	2-34	wS	0	0	0
5 mi. S.E. Upsalquitch	2-35	bF	0	0	0
Road	2-35	wS	0	0	0
Kedgwick Forks	1-11	wS	0	0	0
	1-12	bF	0	0	0
Kedgwick River	1-49	wS	0	0	0
Union Brook	1-52	wS	0	0	0
	1-52	bF	0	0	0
York					
Norrad Bridge	1-3	wS	102	34.0	+25.0
McGivney	1-29	wS	125	41.7	+3.4

* Each station consisted of three trees and was sampled once.

Section 3, Table 2

Estimates of Spruce Budworm Defoliation of Balsam Fir by Counties in Northeastern New Brunswick in 1964 and 1965

County	No. observation pts.		Av. per cent defoliation*			
			Current		Previous	
	1964	1965	1964	1965	1964	1965
Gloucester	31	37	0	10	0	L
Northumberland	338	407	40	30	L-M	L-M
Restigouche	67	62	0	0	0	0
York	73	155	70	25	L-M	L-M

* L = Light M = Moderate

Section 3, Table 3

Numbers of European Spruce Sawfly Collected
from Permanent Sample Stations
in Northeastern New Brunswick in 1965
(All collections from white spruce)

Location	Sample station	No. of sawfly larvae* June 29-July 12 1st sample	No. of sawfly larvae* Sept. 8-Sept. 16 2nd sample
Gloucester County			
Bass River Road	2-2	5	16
Bathurst	2-3	9	12
Northumberland County			
Park	2-6	0	0
Blackville	2-16	0	0
Parker Station	2-18	3	24
Little Bartibog	2-27	2	-
Carrolls	2-32	0	1
Trout Brook	2-33	0	19
20 mi. Fraser Road	2-19	1	-
Redmondville	2-38	6	15
Renous	2-26	1	4
Restigouche County			
Blacklands	2-1	0	9
Flatlands	2-5	5	4
Simpson Field	2-20	0	1
Dalhousie Jct.	2-34	12	2
5 mi. S.E. Upsalquitch Rd.	2-35	0	0
Union Brook	1-52	4	0
Kedgwick River	1-49	0	0
Kedgwick Forks	1-11	1	0
York County			
Norrad Bridge	1-3	0	1
McGivney	1-29	0	0

* Three trees sampled each time

Larch Casebearer Numbers and Defoliation Estimates at Sampling Stations in Northeastern New Brunswick in 1964 and 1965

Sampling station No.	Location	Casebearer/100 fascicles 1964	1965	Defoliation* 1964	1965
	Gloucester County				
2-9	Six Roads	4.22	1.90	T	T
2-15	Tracadie	5.87	0.66	L	T
2-24	Pokeshaw	0.24	0.67	T	0
2-30	7 mi. S. of Bathurst	1.68	0.94	0	T
	Northumberland County				
2-8	Bartibog Bridge	4.62	0.99	T	T
2-11	Redmondville	2.07	0.33	T	T
2-14	Little Bartibog	1.37	0.32	T	0
2-21	Weaver Station	0.89	0	T	0
2-23	Derby Junction	2.16	0.30	T	T
2-28	Carrolls	0.23	0	0	0
	Restigouche County				
2-12	Glenlevit	0.25	0	0	0
2-25	Little Belledune Point	0.98	0.94	T	T
2-29	Blackland	0.23	0	T	0
1-50	St. Quentin	0.70	0	T	T

* T = Trace L = Light

Section 3, Table 5

Birch Leaf Miner Defoliation Estimates Based on Ocular Estimates, Northeastern New Brunswick in 1965

Location	Degree of defoliation*			
	White birch		Wire birch	
	1964	1965	1964	1965
Northumberland County				
Park	T-L	T	M	L
Renous	T-L	T	L-M	L
Blackville	T-L	T	L-M	M
Kirkwood	-	T	-	L
Redmondville	-	T	-	L
Black River	L	L	L-M	M
Bay du Vin	-	T	-	L
Carrolls	T-L	T	L-M	L
Derby	T	T	M	L
Restigouche County				
St. Maure	-	T	-	-
McCormack Fire Tower	0	T	-	-
28 mi. S. E. Upsalquitch Road	-	L	-	-
Kedgwick Forks	Neg.	L	-	-
Hornes Gulch	T	L	-	-
10 mi. S. E. of Flying Eddy	-	L	-	-

* T = Trace L = Light M = Moderate

Section 3, Table 6

Numbers of Common Insects Collected from Permanent Sampling Stations in Northeastern New Brunswick in 1965

Species	No. and type of stations producing larvae	Av. no. larvae per tree sample	Deviation from 1964
Acleris variana (Fern.)	13 wS, 4 bF	1.7	+1.0
Caripeta divisata Wlk.	9 wS	0.6	-1.1
Choristoneura fumiferana (Clem.)	12 wS, 2 bF	14.1	+6.2
Diorcyctria reniculella (Grote)	3 wS	0.4	-0.3
Diprion hercyniae (Htg.)	16 wS	3.2	+1.4
Eupithecia filmata Pears.	14 wS, 2 bF	0.7	+0.2
Feralia jocosa Gn.	3 wS	0.3	-0.1
Griselda radicana Wlshm.	14 wS	1.3	+0.6
Lambdina fiscellaria fiscellaria Guen.	2 wS	0.5	+0.5
Neodiprion abietis complex	4 bF	0.8	+0.1
Pikonema alaskensis (Roh.)	5 wS	0.4	-0.1
Pikonema dimmockii (Cress.)	12 wS	1.3	+0.5
Semiothisa dispuncta complex	14 wS	2.3	+1.5
Zeiraphera ratzeburgiana Ratz.	1 wS	0.3	+0.3

Insects Collected in Northeastern New Brunswick in 1965
(In addition to those mentioned in the text)

Species	Collected from	No. collections	Remarks
Adelges strobilobius (Kalt.)	bS	1	Light infestation at Wayerton, North. Co.
Agromyzidae	cPo, lPo	3	Light leaf mining at Campbellton, Dalhousie and Loggieville
Altica corni Woods	Do	2	Common at Doaktown and Tetagouche Falls
Anacampsis innocuella Zell.	tA	7	Low numbers throughout
Archips argyrospilus (Wlk.)	tA	2	Low numbers collected in Glouc. Co.
Archips purpuranus Clem.	tA	2	Three larvae
Argyresthia laricella Kft.	tL	2	Low numbers
Badebecia urticana Hbn.	tA, sM	3	Four larvae
Bucculatrix canadensis-ella Cham.	wB	1	Low numbers at Hornes Gulch, Rest. Co.
Campaea perlata Gn.	rM, moM	2	Two larvae, Rest. Co.
Caripeta divisata Wlk.	wS	10	Low numbers in all counties
Choristoneura conflic-tana(Wlk.)	tA, moM	5	Widespread in low numbers
Choristoneura rosaceana (Harr.)	sM, rM, Hazel-nut	4	Eight larvae
Clepsis persicana(Fitch)	wS	1	One larvae
Compsolechia niveopul-vella Chamb.	tA	4	Nine larvae from Glouc. Co.
Depressaria groteella Rob.	Hazel-nut	1	Two larvae
Dioryctria reniculella (Grote)	wS	4	Six larvae in beating samples
Dioryctria sp.	wS	4	Low numbers in beating samples
Eucordylea atrupictella Dietz.	wS	11	Widespread in low numbers
Eupithecia castigata Hbn.	wS	1	One larva
Eupithecia filmata Pears.	wS, bF	20	Numbers low at beating locations throughout with 0.7 larvae per tree
Eupithecia luteata Pack.	wS	2	Two larvae in beating samples
Eupithecia sp.	wS	4	Eleven larvae in beating samples
Eupithecia transcanadata McK.	wS	2	Seven larvae in beating samples
Feralia jocosa (Guen.)	wS, bF	3	Four larvae in beating samples
Griselda radicana Wlshm.	wS	16	Numbers low at beating locations throughout with 1.2 larvae per tree
Hemichroa crocea (Four.)	Al	1	Moderate defoliation of a small clump of alder at Blissfield, North. Co.

(cont'd)

Species	Collected from	No. collections	Remarks
Hydriomena divisaria (Wlk.)	wS	1	One larva
Ipimorpha pleonectusa Grote	tA	2	Three larvae from Glouc. Co.
Lambdina fiscellaria fiscellaria Gn.	wS, bF	4	Five larvae in beating samples
Mindarus abietinus Koch.	bF	10	Light infestations common throughout
Mordvilkoja vagabunda Walsh.	bP	1	Low numbers at Simpson Field, Rest. Co.
Mulsantina hudsonica Csy.	wS, bF	4	Four specimens from Rest. Co.
Neodiprion abietis complex	bF	7	Twelve larvae in beating samples
Nyctobia limitaria Wlk.	bF, wS	9	Widespread in low numbers
Nymphalidae (poss. Vanessa cardui Linn.)	Tall white aster	2	Common at Lugar, Glouc. Co.
Palthis angulalis Hbn.	wS	8	Widespread in low numbers in beating samples
Pamphillidae	wS, bF	7	Eight larvae in beating samples
Pandemis canadana Kft.	rO	1	One larva
Panthea acronyctoides Wlk.	wS	1	One larva
Parorgyia plagiata Wlk.	bF	1	One larva
Phyllocnistis populiella Cham.	tA	5	Common in low numbers in North. and York counties
Pikonema alaskensis (Roh.)	wS	5	Seven larvae in beating samples
Pikonema dimmockii (Cress.)	wS	15	Widespread in low numbers in beating samples
Pineus floccus Patch	wS	1	Light infestation
Pineus similis Gill.	wS	2	Light infestations
Pineus strobi (Htg.)	wP	2	Common on young white pine at Up. Blackville and Grand Lk. Rd., North. Co.
Plagiotrochus scitula Bass.	rO	1	Light infestation
Protoboarmia porcelaria indicataria Wlk.	wS	5	Six larvae - widespread locations
Sciaphila duplex Wlshm.	tA	6	Common in low numbers
Semiothisa dispuncta complex	wS	18	Common throughout in beating samples with 2.2 larvae per tree
Syngrapha alias (Ottol.)	bF	1	Two larvae
Trichiocampus irregularis (Dyar)	W	3	Light infestations in Rest. Co.
Zeiraphera fortunana Kft.	wS	2	Twelve larvae hand picked
Xylococculus betulae Pergande	Be	6	Common in low to moderate numbers

Section 3, Figures 1 and 2.

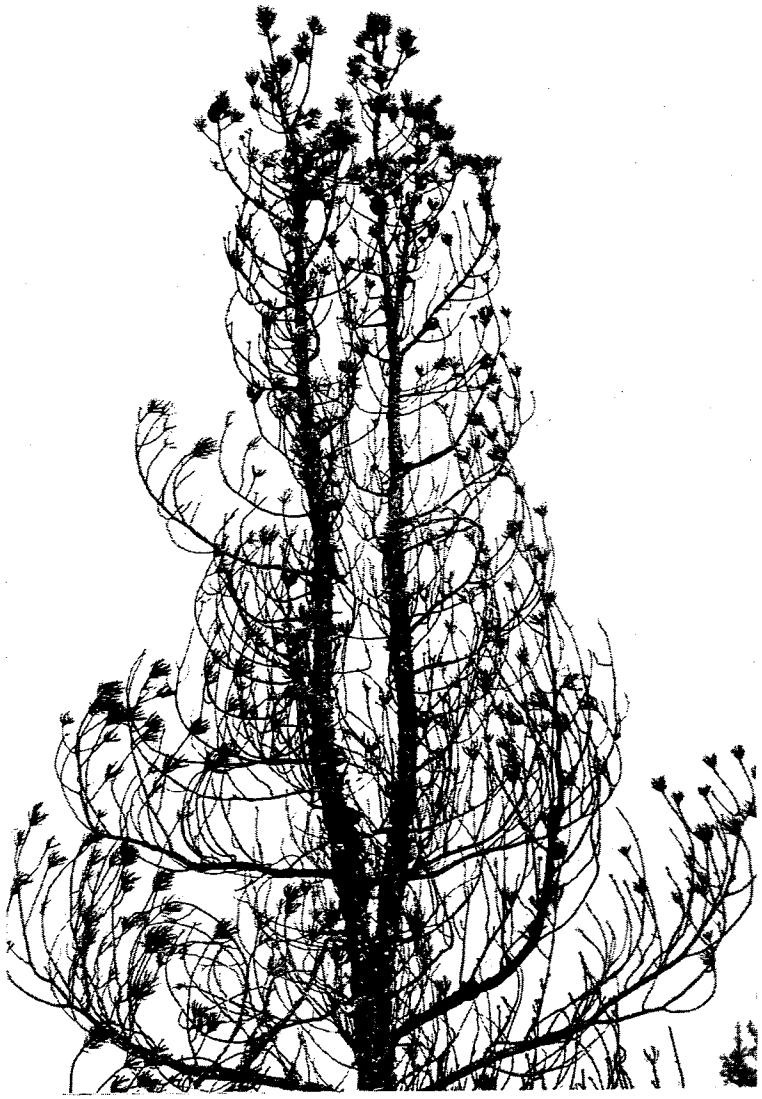
Defoliation of mature jack pine trees by *Neodiprion virginianus* complex. Bartibog, North. Co., N.B. October 21, 1965.

G. V. Moran

Section 3, Figures 3 and 4.

Defoliation of jack pine by Neodiprion virginianus complex. Bartibog, North. Co., N.B. October 21, 1965.

G. V. Moran



ANNUAL DISTRICT REPORT

FOREST INSECT AND DISEASE SURVEY

SOUTHEASTERN NEW BRUNSWICK

AND

PRINCE EDWARD ISLAND

1965

by

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FOREST RESEARCH LABORATORY

FREDERICTON, N.B.

DEPARTMENT OF FORESTRY

April, 1966

4.0 SOUTHEASTERN NEW BRUNSWICK AND PRINCE EDWARD ISLAND

(C. D. MacCall)

Introduction

Spruce budworm continued as the major pest in the district, infestations having increased in intensity and scope in some areas. Moderate and severe defoliation of tamarack by the larch sawfly was more widespread in Queens and Kings counties of New Brunswick. Bruce spanworm was again found on hardwoods in Albert and Kings counties and eastern dwarf mistletoe infections were found at five new locations in Prince Edward Island.

A total of 694 insect and disease samples were submitted during the field season which lasted approximately eight months.

Insect Conditions

Spruce Budworm, Choristoneura fumiferana (Clem.)

Nineteen spruce budworm larval collections were taken in the district, four of which were from Prince Edward Island. Larval numbers increased at permanent sample stations and from random locations in Kent, Kings and Westmorland counties. Slight decreases occurred at random locations in Queens County, N.B., and in Prince and Queens counties, P. E. I. (Section 4, Tables 1 and 2).

Branch samples of balsam fir and white spruce were collected from 153 locations in southeastern New Brunswick and 32 locations in Prince Edward Island and examined for egg masses. The results of counts by counties follow:

Kent County.--Egg-mass numbers were high from the Queens County line northeast to include most of the headwaters of the Salmon River and of the Richibucto and Kouchibouguacis rivers, at Brest, McKees Mills and East Galloway. Elsewhere egg numbers were low (Section 1, Figure 2).

Queens County.--Egg numbers were high in an area south of the Kent County line to Chipman and east to Westmorland County including small patches between Watt and Hector brooks, and at Cumberland Bay and Lower Jemseg. Low numbers were found in other places.

Westmorland County.--High egg counts occurred on the Canaan Game Refuge. Numbers were low west of Moncton and from Smith Lake east to Dorchester.

Sunbury County.--High egg-mass numbers occurred in the northern half of that portion of Sunbury County which falls in Survey District 3.

Albert, Kings and St. John counties.--Egg-mass numbers were low.

A total of 1211 empty pupal cases was examined. These represented 713 females and 498 males.

In Kent County moderate and severe current defoliation occurred northeast from Lake Stream and McLeod Brook to Kent Junction and the headwaters of the Bass River. Loss of new foliage was light in an area extending in a wide arc from the Queens County line to Big Hole Indian Reserve (Section 1, Figure 1). Defoliation averaged 30% at 95 locations (Section 4, Table 3).

In Queens County a small patch of moderate current defoliation was observed near Pangburn. Light defoliation extended southwest of the Kent County line to a point near Bronson Settlement, and several small areas occurred between Cranberry Lake and Lower Jemseg. Defoliation averaged a trace at 101 locations.

In Sunbury County a large area of severe defoliation occurred between the Gaspereau and Cains rivers.

In Kings County light defoliation was observed near Head of Millstream, Salt Springs, Waterford and Mechanic Settlement. Current defoliation averaged 30% at 19 locations.

In Albert and St. John counties defoliation did not exceed a trace.

Balsam Woolly Aphid, Adelges piceae (Ratz.)

Collections of balsam woolly aphid were submitted from 25 locations in New Brunswick and five in Prince Edward Island. Bark samples containing 10 or more aphids per 10 square inches of bark surface were taken at Anagance, Breau Village, Petitcodiac and Mount View, N.B., and at Bedford, Burlington and Alma, P. E. I.

The trees on Plot 3-21, Point Wolfe road, Albert County, N.B. remained uninfested. The following table indicates that little change from 1964 occurred in the condition of trees on Plot 3-20, Old Shepody road, Albert County, N.B.

Location	Year	No. trees	1	2a	2b	2c	3a	3b	4a	4b	4c	5	Dead other causes
Old Shepody road	1963	104	71.1	1.0	-	-	-	-	6.4	1.0	-	-	20.5
	1964	104	75.0	-	-	-	-	-	4.8	-	-	-	20.2
	1965	104	75.0	-	-	-	-	-	2.8	-	-	-	22.2

European Spruce Sawfly, Diprion hercyniae (Htg.)

The following table shows small annual increases in the average numbers of larvae taken from white spruce and red spruce trees by the beating method in 1964 and in 1965.

Year	No. collections	No. trees	No. larvae	Av. no. larvae per tree sample
1963	26	70	172	2.4
1964	21	54	162	3.0
1965	17	48	176	3.7

The numbers of sawfly collected in random samples and from permanent sampling stations are listed in Section 4, Table 4.

Spruce Bud Midge, Rhabdophaga swainei Felt

Counts of white spruce buds damaged by this midge were taken from three small trees at each of seven locations in 1964 and 1965. The results listed below indicate a slight decrease in 1965 in the number of damaged buds per 100 square feet of foliage.

Location	No. sq. ft. of foliage examined 1965	No. of galled buds per 100 sq. ft. of foliage 1964	1965
New Brunswick			
Lutz Mountain, Westmorland Co.	7.0	166	85
Schoales Dam, Kings Co.	3.5	152	56
Cumberland Bay, Queens Co.	9.4	62	21
Little Forks Cache, Kent Co.	5.3	166	75
Prince Edward Island			
Hartsville, Queens Co.	6.1	111	82
Harrington, Queens Co.	3.2	69	62
Georgetown, Kings Co.	5.0	30	20

Balsam Gall Midge, Dasyneura balsamicola (Lint.)

This gall midge (Section 4, Figure 1) was found at more locations in 1965 than in 1964. Moderate and severe gall attacks occurred on the new needles of galsam fir trees near Alma, five miles north of St. Martin, Lutz Mountain, Kierstead Mountain, and Cumberland Bay in New Brunswick, and at West Devon and Wellington in Prince Edward Island. The insect was recorded at 34 locations in southeastern New Brunswick during spruce budworm egg-mass surveys.

Black-headed Budworm, Acleris variana (Fern.)

As indicated in the following table, there was a slight increase from 1964 in the average numbers of black-headed budworm larvae per tree sample from white spruce and red spruce in the district.

Year	No. collections	No. trees	No. larvae	Av. no. larvae per tree sample
1964	17	40	124	3.1
1965	13	33	122	3.7

Larch Sawfly, Pristiphora erichsonii (Htg.)

Larch sawfly infestations increased in area and intensity in 1965. Severe defoliation occurred in larch stands between Kingston and Hampton and at Lower Kars, Kings County, at Jemseg, Queens County and near Wood Lake, St. John County. Light and moderate defoliation was observed in central Queens, in eastern Kings and in Westmorland counties (Section 1, Figure 3). Only a trace of defoliation was observed in Prince Edward Island.

Larch Casebearer, Coleophora laricella (Hbn.)

Larch casebearer population levels remained low. Sequential counts of overwintering population at 13 sample stations showed small increases in casebearer numbers from 1964 at New Canaan, Robertson's Point, and Frosty Hollow, N.B., and at Pooles Corner and Miscouche, P. E. I. Decreases occurred at the remaining nine stations.

White-pine Weevil, Pissodes strobi (Peck)

Small white pine trees were examined at three locations to assess the incidence of terminals damaged by this insect. The results follow:

			No. trees infested			
			In 1965 only			
	Total trees	Free of injury	One terminal only	Two terminals or more	1965 and previous	Previous only
New Brunswick						
Jemseg, Queens Co.	50	24	0	0	3	23
Kierstead Mtn., Kings Co.	50	7	4	5	6	28
Prince Edward Island						
Point Pleasant, Kings Co.	25	22	0	0	0	3

European Pine Shoot Moth, Rhyacionia buoliana (Schiff.)

Moderate shoot damage occurred on young red pine trees at Souris, P. E. I., and on a few ornamental pine trees at Fundy National Park, N.B. Very light shoot attacks were observed in red pine plantations at Iona, Queens County, and 48 Roads and Goose River, Kings County, P. E. I.

Fall cankerworm, Alsophila pometaria Harr.

Seventy two larval collections were taken in the district. The

counties where larvae were found and the number of collections from each county were: Albert 6, Kent 8, Kings 12, Queens 7, Sunbury 1, and Westmorland 16, N.B., and Prince 10, Queens 6, and Kings 6, P. E. I. The preferred hosts were apple and white elm. Defoliation was very light.

Bruce spanworm, Operophtera bruceata (Hulst)

Moderate to severe infestations of this looper occurred on hardwood ridges in central Albert and eastern Kings counties, N.B. Young beech, sugar maple and trembling aspen stands sustained the highest populations. Numbers were low in other areas. Twenty-eight larval collections were taken from scattered points in the district.

Winter Moth, Operophtera brumata (L.)

No changes occurred in the known distribution of the winter moth in 1965. Larvae were taken in small numbers from apple trees at Point de Butte and Upper Point de Butte, Westmorland County, and at Albert, Albert County, N.B. Defoliation was negligible.

Birch casebearer, Coleophora fuscedinella (Zell.)

Severe casebearer defoliation was observed on wire birch and white birch trees from Havelock, Queens County, west to Hunter Home, Queens County, N.B. (Section 1, Figure 4). Moderate leaf damage occurred in birch stands near Charlottetown, P. E. I. Elsewhere casebearers were common but light.

Birch Leaf Miner, Fenusa pusilla (Lep.)

Moderate and severe leaf miner damage occurred in central Kings and Albert counties, and in western Westmorland and northeastern Queens counties. Light leaf mining was common on wire birch and white birch trees elsewhere in southeastern New Brunswick. Light browning with scattered patches of moderate occurred in Prince Edward Island.

Birch Skeletonizer, Bucculatrix canadensisella Cham.

Severe infestations of this skeletonizer on birch continued in Queens County. Light defoliation with patches of moderate occurred in eastern Kings and western Westmorland counties. In Prince Edward Island leaf damage was very light.

Forest Tent Caterpillar, Malacosoma disstria Hbn.

Numbers of this tent caterpillar remained low in the district. No egg masses were found at four sample stations examined. Adults were captured in small numbers in light traps located at Fundy Park and Keenan Hill.

Fall Webworm, Hyphantria cunea Drury

Nests of this webworm occurred in small numbers in New Brunswick

at Apohaqui, Berwick and Bloomfield, Kings County, Collier Mountain, Albert County, from Aulac to Cape Tormentine, Westmorland County, and in Prince Edward Island on Route #2 between Summerside and Tignish, from Mount Stewart to Morrel, and at Wood Island East. Nest counts taken along roadsides at two locations produced the following results:

Location	Distance in miles	No. of nests per mile 1963	1964	1965
Sussex By-pass, N.B.	4.8	-	1.3	0.8
Tignish to Elmsdale, P. E. I.	11.0	2.0	2.5	4.5

A Leaf Roller on Maple, Cenopis pettitana (Rob.)

Moderate defoliation of red maple trees recurred in central Westmorland and southeastern Kent counties. Leaf roller damage was common but light elsewhere in Kent and Westmorland counties and at scattered points in Albert County, N.B., and Prince County, P. E. I.

Ugly-nest Caterpillar, Archips cerasivoranus Fitch

Nests of this caterpillar on cherry bushes occurred in small groups at East Memramcook and Cocagne, N.B., and at Hunter River, East Royalty, Marshfield and New Perth, P. E. I. The results of roadside nest counts taken at five locations follow:

Location	No. of nests per 1000 sq. ft. 1964	1965
New Brunswick		
Richibucto	Too numerous to count	Negative
Shediac Cape	200 sq. ft. of webbing	130
Moncton	-	Too numerous to count
Prince Edward Island		
Wellington	140	110
Mt. Stewart	-	130 nests per mile

Alder Flea Beetle, Altica ambiens alni (Harris)

Scattered patches of severe defoliation of alder bushes occurred at Sussex Corner and Waterford, Kings County and Long Creek, Queens County, N.B.

Satin Moth, Stilpnotia salicis (L.)

Moderate defoliation of Carolina poplar and silver poplar shade trees by satin moth occurred at Shediac Bridge and Lakeside, N.B., and at

Charlottetown and Bedford, Queens County, and St. Peters, Kings County, P. E. I.

Mountain-ash Sawfly, Pristiphora geniculata Htg.

Sawfly defoliation ranged from light to severe on European and American mountain-ash trees at scattered locations in the district.

Additional Species Collected

Insects collected in 1965 in addition to those mentioned in the text are listed in Section 4, Table 7.

Common insects collected at permanent sample stations are listed in Section 4, Table 8.

Tree Diseases

Winter Drying

Winter drying resulted in moderate browning of balsam fir foliage at Emerald, and light browning at Hazeltown and Bothwell, Prince Edward Island.

Frost Damage

Late frost resulted in moderate damage to current shoots of scattered balsam fir trees at Parkindale and near Long Creek.

Fume Damage

Some mortality of conifer trees occurred over a 2-acre site near the cement plant at East Havelock, New Brunswick. Fume damage was suspected.

Dutch Elm Disease, Ceratocystis ulmi (Buism.) C. Moreau

Observations were made but no diseased trees were found in the district.

Willow Blight, Pollaccia saliciperda (All. & Tub.) v. Arx and Physalospbra miyabeana Fukushi

Moderate browning of willow foliage occurred for the second consecutive year at Tignish, P.E.I. Light browning was observed at Glenfanning, P.E.I. and at Chapman Corner, N.B.

Black Knot of Cherry, Dibotryon morbosum Theiss & Syd.

Light shoot damage occurred on pin cherry and choke cherry bushes at numerous locations throughout the district.

Leaf Blister of Cherry, Taphrina wiesnerii (Rathay) Mix

Brooming was of moderate intensity on pin cherry near Sackville, N.B. and of light intensity and trace incidence in Prince Edward Island.

Anthracnose of Maple, Gloeosporium apocryptum Ell. & Ev.

Light leaf browning of red maple trees occurred at East Galloway and Union Settlement, N.B., and at Belfast, P.E.I.

Anthracnose of Basswood, Gloeosporium tiliae Oud.

Trace to light infections occurred on basswood shade trees in Charlottetown.

Ink Spot of Aspen, Ciborinia whetzelii (Seav.) Seav.

Moderate infections of this disease occurred in aspen stands at

Cap Pelé and just north of Moncton, and light leaf damage occurred at Bass River, Little Forks Cache and Chipman, N.B., and near Summerside and Primrose, P.E.I.

Hypoxylon Cankers, Hypoxylon pruinatum (Klot.) Cke.

Examination of aspen stands at six locations for the incidence of hypoxylon canker produced the following results:

Location	No. trees examined	No. infected trees
Murray River, Kings Co., P.E.I.	42	0
Hermanville, Kings Co., P.E.I.	15	1
Hazelbrook, Queens Co., P.E.I.	60	8
Belfast, Queens Co., P.E.I.	52	8
Kierstead Mountain, Kings Co., N.B.	50	1
St.Louis de Kent, Kent Co., N.B.	100	9

Leaf and Twig Blight of Poplar, Pollaccia radiosa (Lib.) Bald. & Cif.

Infections of trace intensity and light incidence occurred on trembling aspen trees at Bass River and Chapman Corner, N.B., and at West Point, St. Nicholas and Hermanville, P.E.I.

Beech Bark Disease, Cryptococcus fagi Baer and Nectria coccinea var. faginata Lohm., Wats. & Ayer

Light infestations of beech scale, Cryptococcus fagi Baer occurred at Weldon, Kierstead Mountain, and Mile 3 Shepody road, N.B. and at Kensington, Uigg and Primrose, P.E.I.

The Nectria fungus was collected in beech stands located near McMannus fire tower and Mile 2 Shepody road, N.B., and Uigg, P.E.I.

Eastern Dwarf Mistletoe, Arceuthobium pusillum Peck

Infections of moderate intensity occurred on black spruce at Wood Island, P.E.I., south of Narrows and at Mile 2 Shepody Road, N.B. Infections were of light intensity at Dalvay, Milltown Cross and Brackley Beach, P.E.I. Tree mortality was observed at Wood Island.

Red Flag of Balsam Fir, Fusicoccum abietinum (Hartig) Prill. & Delacr.

Cankers were of light intensity of balsam fir trees at Union Settlement, N.B. and Hazelton, P.E.I.

Tip Blight of Balsam Fir, Rehmiellopsis balsameae Waterman

Infections of moderate intensity occurred on one balsam fir tree near Rexton. Light shoot damage was observed at Bothwell, P.E.I.

Needle casts

Infections of Hypodermella nervata Darker were of light intensity in eastern Kings and Queens counties and central Westmorland county in New Brunswick and in Queens and Prince counties, Prince Edward Island.

Infections caused by Bifusella faullii Darker were of moderate intensity on balsam fir foliage at Beaver Brook and Mill Cove and light at Little Forks, Union Settlement, Cambridge, and near Sackville, N.B. and at Uigg and Farmington, P.E.I.

Needle cast of spruce caused by Lophodermium filiforme Darker occurred in red spruce and white spruce stands in Albert, Kings, Queens and Westmorland counties in New Brunswick and at two locations in each of the three counties in Prince Edward Island.

Hypodermella ampla (Davis) Dearn. caused light needle cast of jack pine at Springdale, St. Louis de Kent and Dorchester, N.B.

Needle Rust

Trace infections of Pucciniastrum epilobii Otth. were common in balsam fir stands in Queens County and at scattered locations in Albert, Kings, Kent, Westmorland and St. John counties.

One collection of the needle rust Chrysomyxa ledi DBy. on white spruce was submitted from Upper Point de Butte.

The needle rust Melampsorella caryophyllacearum Schroet. caused infections of trace intensity at numerous locations in southeastern New Brunswick and at scattered points in Prince Edward Island.

White Pine Blister Rust, Cronartium ribicola J. C. Fischer

White pine stands at four locations were examined for incidence of blister rust. The results follow:

Location	No. trees examined	No. trees infected
Thompson Corner, Kings Co.	40	9
Jemseg East, Queens Co.	20	1
Mill Cove, Queens Co.	36	0
Rexton, Kent Co.	20	1

Other Noteworthy Diseases

Organism	Host(s)	Locality	Remarks
Adelopus balsamicola (Peck) Theiss.	Fir, balsam	Coles Island, Queens Co.	Needle Cast
Coccomyces hiemalis Higgins	Cherry, pin	Bass River, Kent Co., Canaan River, Kings Co., Moncton North, West. Co., N.B. Emerald, Queens Co., P.E.I. Bothwell, Kings Co., P.E.I.	Trace and light infections
Coryneum negundinis Berk. & Curt.	Maple, Manitoba	Memramcook, Westmorland Co., N.B., Summerside, Prince Co.,P.E.I.	Trace infection
Cronartium coleosporioides Arth.	Pine, jack	St. Louis de Kent, Kent Co.	Trace infection
Cronartium quercuum(Berk.) Miyabe ex Shirai	Pine, jack	Five Points, Kings Co., Chapman Cor., Westmorland Co.	Moderate infection Trace infecton
Crytodiaporthe salicina (Curr.) Wehm.	Willow	Sackville, St. John, N.B.I. Inverness, Prince Co., Charlottetown, Queens Co., P.E.I.	Trace infection
Cytospora sp.	Willow	Canaan Road, Kings Co., Fundy Park, Albert Co., Charlottetown, Orwell, Queens Co., P.E.I., Summerside, Prince Co. P.E.I.	Light twig damage
Dermea balsamea (Peck) Seaver	Fir, balsam	Mill Cove, Queens Co.	Trace infection

Organism	Host(s)	Locality	Remarks
Didymascella thujina (Durand)	Cedar, eastern white	New Canaan, Queens Co.	Trace leaf blight
Dothichiza populea Sacc. & Briard	Poplar, lombardy	Painsec Junction, West. Co., Chipman, Queens Co., N.B., Summerside, P.E.I.	Light twig damage
Gloeosporium aridum Ell. & Holw.	Ash, white	Cambridge, N.B.	Trace infection
Gloeosporium fagicola Pass.	Beech	Kierstead Mtn., N.B., Orwell, P.E.I.	Trace leaf blight
Gloeosporium quercinum Westend.	Oak, red	Robertson's Point, Queens Co.	Light browning
Guignardia aesculi (Peck) V.B.Stewart	Horse chestnut	Surrey, Albert Co.	Trace infection
Guignardia populi G.E.Thompson	Aspen, trembling	St.Louis de Kent, Kent Co.	Light leaf spot
Gymnoconia peckiana (Howe) Trotter	Briar	Chapman Cor., West. Co.	Light leaf rust
Lophodermium autumnale Darker	Fir, balsam	Cambridge, N.B.	Trace infection
Melampsora epitea Thuem	Willow	National Park, P.E.I.	Trace leaf rust
Nectria cinnabarina (Tode ex Fr.) Fr.	Basswood Maple, sugar	North Tryon, Prince Co., P.E.I., Sussex, N.B.	Light infections
Phleospora aceris (Lib.) Sacc.	Maple, red	Shepody Road, Albert Co., McMannus, F.T., Kings Co. N.B., Emerald, Queens Co., P.E.I.	Light leaf spot
Septomyxa tulasnei Hoehn.	Maple, Manitoba	Charlottetown, St. Eleanor, P.E.I.	Light infections

Organism	Host(s)	Locality	Remarks
Taphrina caerulescens (Mont. & Desm.) Tul.	Oak, red	Waterboro, N.B.	Light leaf blister
Taphrina carnea Johanson	Birch, yellow	Cambridge, McMannus, F.T.,N.B.	Trace infection
Taphrina deformans (Berk.) Tul.	Plum	Charlottetown, P.E.I.	Nursery stock
Taphrina robinsoniana Gies.	Alder	East Galloway, Kent Co., Salmon River Rd., Queens Co., N.B., Hazelton, National Park, Queens Co., P.E.I., Alberton, Norborough, Prince Co., P.E.I.	Common but light

Section 4, Table 1

Spruce Budworm Larvae Collected by Counties in Southeastern New Brunswick and Prince Edward Island by Random Sampling in 1965

County	Tree sp.	No. of colls.	Total trees	No. specimens	Av. per tree sample	Deviation from 1964
New Brunswick						
Kent	wS	1	3	13	4.3	+1.0
Kings	wS	1	3	7	2.3	+1.8
Queens	bF	1	3	50	16.7	-6.6
Westmorland	wS	1	3	18	6.0	+4.7
	rS	1	3	37	12.3	-
Prince Edward Island						
Queens	wS	2	5	4	0.8	-0.3
Prince	wS	2	5	4	0.8	-1.5

Section 4, Table 2

Spruce Budworm Larval Sampling Records at Permanent Sampling Stations in Southeastern New Brunswick in 1965

County and location	Station no.	Tree* sp.	No. specimens	Av. per tree sample	Deviation from 1964
Albert					
Bennett Lake	3-4	wS	20	6.7	+6.7
Shale Hill	3-28	wS	13	4.3	+4.1
Hillside	3-38	wS	11	3.7	+3.7
Kent					
Little Forks Cache	3-36	bF	89	29.7	+20.0
Kings					
Berwick	3-2	wS	8	2.7	+2.0
Schoales Dam	3-32	wS	8	2.7	+2.7
Queens					
Gaspereau Forks	3-3	bF	26	8.7	+7.9
Robertson's Point	3-37	wS	17	5.7	+3.0
Narrows	3-46	wS	6	2.0	+0.7
Sunbury					
Salmon Creek	3-1	wS	119	39.7	+19.7

* Each station consisted of three trees and was sampled once

Section 4, Table 3

Estimates of Spruce Budworm Defoliation of Balsam Fir and White Spruce by Counties in Southeastern New Brunswick and Prince Edward Island in 1964 and 1965

County	Tree sp.	No. observation pts. 1964	No. observation pts. 1965	Av. per cent defoliation Current 1964	Current 1965	Previous 1964	Previous 1965	Mortality **
New Brunswick								
Albert	bF	10	15	T	T	0	0	0
Kent	bF	110	95	10	30	L	L	7
Kings	bF	17	17	10	T	0	0	0
Queens	bF	45	101	T	T	L	L	13
St. John	bF	4	7	0	0	0	0	0
Sunbury	bF	10	20	20	40	L	L	0
Westmorland	bF	21	19	T	30	L	0	0
Prince Edward Island								
Kings	bF	8	8	T	0	L	0	0
Prince	bF	7	7	T	0	0	0	0
Queens	bF	15	14	T	0	0	0	0
	wS	5	3	10	T	0	0	0

* T = Trace L = Light

** Number of points at which mortality was recorded

Numbers of European Spruce Sawfly Collected
in Random Samples and from Permanent Sample Stations
in Southeastern New Brunswick and Prince Edward Island in 1965

Location	Sample station	No. trees*	No. of sawfly larvae June 24-July 14 1st sample	No. of sawfly larvae Sept. 9-Sept. 21 2nd sample
Random Samples				
Kent Co., N.B.	-	3	1	-
Kings Co., N.B.	-	3	3	-
Westmorland Co., N.B.	-	3 rS	4	-
Kings Co., P.E.I.	-	2	1.5	-
Prince Co., P.E.I.	-	3	0.7	-
Queens Co., P.E.I.	-	4	1.0	-
Permanent Sample Stations				
Albert County				
Shale Hill	3-28	6	0	1.3
Hillside	3-38	6	0	4.0
Kings County				
Berwick	3-2	6	0	3.1
Schoales Dam	3-32	6	0	14.1
Queens County				
Gaspereau Forks	3-3	6	0	7.7
Robertson's Point	3-37	6	2.7	8.0
Narrows	3-46	6	1.7	8.0
Sunbury County				
Salmon Creek	3-1	6	0	2.0

* All collections from white spruce except where otherwise indicated

Section 4, Table 5

Larch Casebearer Numbers and Defoliation Estimates at Sampling Stations in Southeastern New Brunswick in 1964 and 1965

Sampling station No.	Location	Casebearers/100 fascicles 1964	1965	Defoliation* 1964	1965
	Kent County				
3-8	Cocagne	2.13	0.30	T	0
	Kings County				
3-6	Folkins	1.22	0.91	T	T
3-10	Hatfield Point	7.18	4.49	T	T
	Queens County				
3-5	Coles Island	2.28	1.73	T	T
3-7	Goshen	5.97	1.86	T	T
3-9	New Canaan	1.74	11.28	T	T
3-37	Robertson's Point	0.63	0.97	T	T
	St. John County				
3-44	Garnet Settlement	5.41	0	T	0
	Westmorland County				
3-40	Frosty Hollow	1.18	3.91	T	0

*T = Trace

Section 4, Table 6

Larch Casebearer Numbers and Defoliation Estimates at Sampling Stations in Prince Edward Island in 1964 and 1965

Sampling station No.	Location	Casebearers/100 fascicles 1964	1965	Defoliation* 1964	1965
	Kings County				
3-43	Pooles Corner	1.29	1.46	T	0
	Prince County				
3-41	Miscouche	4.52	6.93	T	T
3-48	O'Leary	4.82	2.70	T	T
	Queens County				
3-42	Milton	3.59	1.92	T	T

*T = Trace

Section 4, Table 7

Insects Collected in Southeastern New Brunswick
and Prince Edward Island in 1965
(In addition to those mentioned in the text)

Species	Collected from	No. collections	Remarks
Adelges abietis (L.)	wS	3	Light gall attacks common in southeastern New Brunswick
Archips argyrospilus (Wlk.)	wE,Ba,Ap	9	Small numbers but widespread in southeastern New Brunswick
Archips purpuranus Clem.	Ap, wE,rO	8	Found on hardwoods in small numbers
Argyresthia aureoargentella Brower	eC	3	Found in small numbers
Argyresthia laricella Kft.	tL	5	Population levels low
Argyresthia thuiella (Pack.)	eC	5	Very light leaf-mining in southeastern New Brunswick
Campaea perlata Guen.	Ap	2	Small numbers from two counties
Caripeta divisata Wlk.	wS	7	Small numbers taken in beating samples
Coleophora serratella(L.)	Ap	20	Few larvae at several points
Croesia semipurpurana Kft.	rO	2	Low population levels
Dioryctria reniculella (Grote)	wS	3	Small numbers in beating samples
Eupithecia filmata Pears.	wS	6	Few larvae at scattered locations in southeastern New Brunswick
Euura atra Jur.	W	5	Light shoot damage
Griselda radicana Wlshm.	wS	4	Few larvae
Lambdina fiscellaria fiscellaria Gn.	rS	1	Very low populations
Malacosoma americanum (F)	Ap, cCh	3	Small groups of nests in Albert and Westmorland counties
Mulsantina hudsonica Csy.	wS	3	Low populations
Neodiprion nanulus nanulus Schedl.	rP	1	Scattered colonies at one location in P. E. I.
Nyctobia limitaria Wlk.	wS, bF	2	A few larvae
Nymphalis antiopa (L.)	tA	1	One colony collected in P. E. I.
Orgyia antiqua (L.)	wB	1	Not common
Petrova albicapitana Busck.	jP	3	Pitch masses numerous on young pine trees on Woodhurst Rd., Westmorland Co., N.B.
Phyllocistis populiella Cham.	tA	2	A few mined leaves
Pikonema alaskensis (Rob.)	wS	4	Population levels low
Pikonema dimmockii (Cress.)	wS	7	Small numbers from scattered locations in the district

(cont'd)

Section 4, Table 7 (cont'd)

Species	Collected from	No. collections	Remarks
Pineus pineoides (Chol.)	rS	2	Light stem attacks on scattered trees at once location in each of Albert and Kings counties
Pineus pinifoliae(Fitch.)	rS	2	Very light infestations
Profenusa alumna (MacG.)	wB	5	Light leaf-mining at scattered locations
Protoboarmia porcelaria indicataria Wlk.	wS	2	Few larvae
Recurvaria thujaella Kft.	eC	9	Very light leaf-mining at scattered points
Sciaphila duplex Wlshm.	tA	1	Moderate leaf damage extending over several acres in Kent County
Semiothisa dispuncta complex	wS	7	Small numbers in white spruce beating samples
Zeiraphera fortunana Kft.	wS	3	Low populations
Zeiraphera ratzeburgiana Ratz.	wS	8	Light injury on current shoot of young white spruce trees at several points

Section 4, Table 8

Numbers of Common Insects Collected from 10 Permanent Sampling Stations in Southeastern New Brunswick in 1965

Species	No. and type of stations producing larvae	Av. no. larvae per tree sample	Deviation from 1964
Acleris variana (Fern.)	13 wS, 1 rS	3.7	+3.4
Caripeta divisata Wlk.	7 wS	0.9	-0.8
Choristoneura fumiferana (Clem.)	11 wS,1 rS,3 bF	29.5	+22.5
Dioryctria reniculella (Grote)	3 wS	5.5	+5.2
Diprion hercyniae (Htg.)	16 wS, 1 rS	3.6	-2.6
Eupithecia filmata Pears.	6 wS	0.7	+0.4
Griselda radicana Wlshm.	4 wS	0.6	+0.3
Lambdina fiscellaria fiscellaria Gn.	1 rS	0.3	+0.3
Neodiprion abietis complex	3 wS	0.6	+0.3
Pikonema alaskensis (Roh.)	4 wS	0.5	0
Pikonema dimmockii (Cress.)	7 wS	0.7	+0.7
Semiothisa dispuncta complex	7 wS	1.5	+0.3
Zeiraphera ratzeburgiana Ratz.	3 wS	0.8	+0.5
Zeiraphera fortunana Kft.	1 wS	0.7	+0.4

Section 4, Figure 1.

New needles of balsam fir infested with
balsam gall midge, Dasyneura balsamicola (Lint.)

E. B. Bates

ANNUAL DISTRICT REPORT

FOREST INSECT AND DISEASE SURVEY

WESTERN NOVA SCOTIA

1965

by

W. Harrington

FOREST RESEARCH LABORATORY

FREDERICTON, N.B.

DEPARTMENT OF FORESTRY

April, 1966

5.0 WESTERN NOVA SCOTIA

(W. Harrington)

Introduction

The larch sawfly, balsam woolly aphid, beech bark disease, and lepidopterous defoliators such as winter moth, fall cankerworm, spring cankerworm and Bruce spanworm continued as major problems in Western Nova Scotia in 1965. Work in the district was carried out by other members of the Survey staff during the short period in June when the writer was absent due to injuries. Insect collections totaled 675 and tree disease samples 271.

Insect Conditions

Balsam Woolly Aphid, Adelges piceae (Ratz.)

Light stem wool and twig attacks occurred in balsam fir stands in all western counties. Severe stem wool was noted at Beech Hill and near Ten Mile Lake, Queens County.

Some recovery from twig attack was noted in the three areas where plots are located, but changes in tree conditions from 1964 were slight, as indicated in the following table:

Location	Plot no.	Year	Per cent in class*									Dead other causes
			1	2a	2b	2c	3a	3b	4a	4b	4c	5	
Colchester County													
MacCallum's Settlement	1-1	1964	24.3						25.7	17.1	8.6	10.0	14.3
		1965	24.3	1.4					28.6	14.3	5.7	10.0	15.7
Annapolis County													
Medway River	1-18	1964	47.0						7.6	6.1	12.1	7.6	19.6
		1965	53.1						4.5	4.5	10.6	9.1	18.2
Queens County													
Rossignol Lake	1-19	1964	42.8						13.3	2.0	9.2	8.2	24.5
		1965	41.8						11.2	4.1	6.1	9.2	27.6

*See appendix A, Section 1, for explanation of classes.

Balsam-fir Sawfly, Neodiprion abietis complex

A trace of feeding was noticeable on scattered balsam fir trees at Lower Ship Harbour East and Jeddore Oyster Pond, Halifax County. A few larvae were collected at scattered locations in Annapolis, Digby, Hants, Lunenburg and Shelburne counties.

No defoliation was evident on balsam fir trees at the defoliation plot near Ship Harbour, Halifax County.

European Spruce Sawfly, Diprion hercyniae (Htg.)

Numbers of this sawfly on spruce were generally low in all counties of Western Nova Scotia (Section 5, Table 1). Collections containing the highest average numbers of sawfly larvae per tree sample were taken at Salem, Cumberland County, and Oak Lake, Kings County (11 larvae per tree), Landsdowne and Barton, Digby County (10 larvae per tree), Mapleton and Hartford, Cumberland County and Bloomfield, Yarmouth County (7 larvae per tree sample).

Spruce Bud Midge, Rhabdophaga swainei Felt.

Damage caused by this insect was more noticeable than in 1964. Counts were made at fourteen locations to find numbers of killed buds per 100 square feet of foliage. The results were as follows:

Annapolis County - Lequille, 16.4 per 100 sq. ft.; Tupperville, 8.3; Middleton, 6.8.

Colchester County - East Mines, 46.5 per 100 sq. ft.; Summit, 11.8; West Earltown, 13.5.

Cumberland County - Wentworth, 55.5 per 100 sq. ft.; South Victoria, 41.0, Wallace, 51.3.

Halifax County - Boutilier Point, 3.0 per 100 sq. ft.; Ingramport, Nil.

Hants County - Rawdon, 18.1 per 100 sq. ft.

Kings County - Grand Pre, 30.6 per 100 sq. ft.

Lunenburg County - Lake Williams, nil.

Larch Casebearer, Coleophora laricella (Hbn.)

Defoliation of tamarack trees by this casebearer was less extensive than in 1964 and occurred only between Hubbards and Queensland, Halifax County, in a localized area at Hemford, Lunenburg County, and near Landsdowne, Digby County, and Pleasant Valley, Yarmouth County.

Results of sampling overwintering populations at 16 sampling stations are shown in Section 5, Table 2. Defoliation estimates taken in June are included.

Larch Sawfly, Pristiphora erichsonii (Htg.)

Distribution of this sawfly in Western Nova Scotia showed little change from 1964 (Section 5, Figure 1). Conditions by counties were as follows: Annapolis, Hants, Lunenburg, Queens and Yarmouth counties.-- Only a few scattered colonies were observed.

Colchester and Cumberland counties.-- Colonies common throughout, but no moderate or severe defoliation was observed.

Digby County.-- The severe outbreaks at Weymouth North, North Range and Hassett persisted but fewer colonies were present due to thin crowns in many stands. Tree mortality due to repeated defoliation was observed at Hassett, Weymouth North, between North Range and Big Mark Corner, and to the west and southwest of Doyle Lake along the brook towards the road to New France.

Halifax County.-- Few larvae were found except at Little Salmon River (near Cole Harbour) where moderate to severe defoliation of scattered tamarack trees occurred. Tree mortality was noted at Upper Sackville.

Kings County.-- Severe defoliation of European larch trees occurred on the grounds of the Kentville Research Station. Elsewhere only a few scattered colonies were found.

Shelburne County.-- The trees in several tamarack stands in the Upper Ohio-Birchtown Lake area were severely defoliated. Ten open cocoon recovery trays were set out at North Range and ten at Weymouth North, Digby County, where totals of 25 and 108 cocoons, respectively, were collected. At Weymouth North one tray was destroyed by vandals.

Defoliation estimates are shown in Section 5, Table 3.

White-pine Weevil, Pissodes strobi (Peck.)

This weevil was common in young eastern white pine stands throughout the district. Trees were classified as to incidence of attack at three locations. The results are shown in the following table.

Location	No. trees	No. trees free of attack	No. trees infested			
			In 1965 only			
			One terminal only	Two terminals or more	1965 and previous	Previous only
4 mi. N. of Milton, Queens Co.	50	21	7	0	17	5
South Brookfield, Queens Co.	50	25	5	0	3	17
West River, Lun. Co.	50	28	10	0	4	8

Spruce Budworm, Choristoneura fumiferana (Clem.)

Spruce budworm populations remained low and no defoliation was observed. Thirteen collections containing a total of 17 budworm were taken, compared with three collections totaling 10 budworm in 1964. No egg masses were found at any of the 32 locations sampled.

Balsam Gall Midge, Dasyneura balsamicola (Lint.)

Galled needles were found on balsam fir trees throughout the district but infestations were generally classed as a trace to light. Moderate infestations occurred on several trees at Weymouth North and severe attacks were noted in a small group of trees in the Debert Military Camp area.

A total of 18 collections of balsam gall midge was submitted; four each from Halifax and Lunenburg counties, three from Colchester, two each from Annapolis, Digby, and Queens, and one from Hants.

Elm Leaf Miner, Fenusa ulmi Sund.

Very severe outbreaks of this leaf miner occurred on white elm trees at Wolfville, Port Williams, and Church Street, Kings County, and at Windsor, Hants County. The infestations at Wolfville and Windsor were present in 1964 but increased both in intensity and extent in 1965.

At Windsor the foliage of most white elm trees around the Haliburton Museum, the Hospital and the Edgehill School for Girls, was completely browned. In Wolfville damage was most severe in the eastern end of the town.

Birch Skeletonizer, Bucculatrix canadensisella Cham.

Feeding by this insect was more widespread than in 1964. Severe browning of foliage occurred in wire birch stands from Tatamagouche, Colchester County, southwest to Wentworth and north and northwest to Oxford and Amherst, Cumberland County. Yellow birch trees in a localized area near North River, Colchester County were severely defoliated as were white birch and wire birch in the Annapolis Valley from Lawrencetown to Kentville.

Condition of Birch

Little change occurred in the condition of yellow birch trees on Plot 17 at East Folly Mountain, Colchester County from 1962 to 1965, as shown below:

Year	Per cent of trees in class*							
	1	2	3a	3b	4	5a	5b	6
1962	33.3	33.3	11.2	5.5				16.7
1963	27.8	44.4	11.1					16.7
1964	27.8	38.8	16.7					16.7
1965	35.3	29.5	17.6					17.6

*For explanation of classes, see Appendix A, of Section 1

Winter Moth, Operophtera brumata (L.) and
Fall Cankerworm, Alsophila pometaria (Harr.)

Aerial and ground surveys were used in plotting outbreaks and degrees of infestation. Where possible the species of insects present was determined through ground observations.

Winter moth populations decreased in Colchester and Cumberland counties but showed little change in other areas (Section 5, Figure 2).

The severe outbreaks of fall cankerworm which occurred in 1964 near the Bedford Rifle Range, Halifax County, on the east side of the Nictaux River near Alpena, Annapolis County, and on one small island west of Eel Brook, Yarmouth County, subsided in 1965. No defoliation noticeable from the air occurred in these areas except on the island where small patches persisted. Elsewhere, severe infestations, mainly of fall cankerworm, reported on red oak in parts of Shelburne, Queens, Digby, Annapolis and Yarmouth counties in 1964, worsened in 1965. A general summary of conditions by counties follows:

Annapolis County.--The severe outbreak of fall cankerworm on the east side of the Nictaux River subsided. Severe defoliation, apparently caused by fall

cankerworm, occurred in small areas near Allen Lakes and near the Alpena road junction just west of Route #10. Severe defoliation of red oak occurred over extensive areas between Trout Lake-Paradise Lake and Eel Weir Lake.

Colchester County.--Population levels were generally lower than in 1964. Only a trace to light feeding occurred except at Economy and Upper Economy where a few apple trees supported moderate attacks.

Cumberland County.--Only a trace to light feeding occurred. Boundaries remained as in 1964 extending from the Colchester County line to Parrsboro, along the Parrsboro shore, and north through Springhill and Amherst to the New Brunswick border.

Digby County.--Large areas of severe defoliation attributed to the fall cankerworm occurred south of Fourth, Fifty and Sixth lakes toward Whitesand Lake and Moosehide Lake. Defoliation by the fall cankerworm occurred in this region in 1964 but was confined to a much smaller area.

Halifax County.--The 1963-64 fall cankerworm outbreak near the Bedford Rifle Range subsided. However, this insect caused severe defoliation of hardwoods, mainly red oak, near the south end of Shubenacadie (Grand) Lake, and near Beaverbank Lake. Fall cankerworm numbers continued to increase in the area between Waverley and the Bedford rock crusher. Elsewhere in the county little feeding was noted.

Hants County.--The fall cankerworm outbreak north of Smith Corner increased in area from 1964, and in 1965 extended south from Windsor Forks along the east face of the high ground on the west side of the Avon River almost to the power dam near Smith Corner. South and southwest of Ellershouse fall cankerworm feeding was less than in 1964, being severe only in one red oak stand.

Kings County.--Mixed populations were generally at low levels and no browning of apple trees was noted.

Lunenburg County.-- Populations were mainly winter moth. Defoliation in the Shingle Lake area was not as extensive as in 1964. Feeding was severe from Sefferville to Lonesome Lake, west to Gold River and east to Walker Lake and Lantz Lake. Only low populations were present in the remainder of the county.

Queens County.--The fall cankerworm outbreak to the west and southwest of Liverpool increased in area and extended south across Route #3, east to the town limits and northwest to Town Lake, including about 40 acres along the northwest shore of Town Lake. This outbreak, although small in size, was of very severe intensity.

Mixed populations were at low levels between Shelburne River, Ring Lakes, West Caledonia and Lake Rossignol, except for a small area near the Kedgie Bridge

which was classed as light to moderate. Severe defoliation, mainly caused by leaf rollers, occurred in this area in 1964; the reduction in 1965 was due mainly to lower leaf roller numbers.

Severe, spotty defoliation attributed to winter moth occurred north of Port Joli and in one small area between Robertson Lake and Port Mouton.

Feeding, mainly by winter moth ranged from moderate to severe in red oak stands northwest of Liverpool to northwest of the Mersey River, except for one stand near Eagle Lake. More specifically, the boundaries of this infestation extended from First Lake northwest to Lake Rossignol, thence north and east to Sixteen Mile Lake, northwest to Second Christopher Lake, along the southwest side of Ponhopk Lake to the road from Greenfield to Pleasantfield, thence south and west past George Lake to the Mersey River. Spotty, severe defoliation also occurred between George Lake, Ten Mile Lake and Little Ten Mile Lake.

Light to moderate feeding by winter moth occurred on white elm and apple trees in the town of Liverpool mainly in the areas around Fort Point.

Shelburne County.--Severe defoliation, attributed to mixed populations of winter moth and fall cankerworm, occurred on red oak trees in an area of approximately 40 acres just north of the Nine Mile Road opposite Green Lake, also to the south of Wilkins Lake near Route #3 and east into Queens County.

Yarmouth County.--Infestations consisted almost entirely of fall cankerworm. Only a few patches of defoliation were noticeable west of Eel Brook where red oak trees on one small island were completely stripped of foliage in 1964.

The infestation in the West Mihchihohe-Wagatha Lake area persisted and extended northwest from the Davis River to near Kegeshock Lake.

A new area of high populations was found in the vicinity of Davis Lake, Solomon Lake and Nepsedek Lake.

Sequential sampling of winter moth and fall cankerworm larvae was carried out on red oak at eight sampling stations (Section 5, Table 5).

The locations where random samples were taken to establish proportions of the winter moth, fall cankerworm and, where applicable, the spring cankerworm, are listed in Section 5, Table 6.

Fall cankerworm egg masses were collected near the Bedford Rifle Range, Halifax County, at a point 2 miles southwest of Liverpool, and at Kedgie River bridge, Queens County. Twelve soil samples were taken for pupal counts of the winter moth and the spring cankerworm, three each from McKay Settlement, Brooklyn, St. Croix and Windsor, Hants County.

Spring Cankerworm, Paleacrita vernata (Peck.)

Severe defoliation of white elm trees by spring cankerworm occurred at McKay Settlement (Smiley's Camp Grounds), Brooklyn, Windsor (old graveyard), Falmouth, and St. Croix. Mass larval collections were made in these areas and the proportions of this species to winter moth are shown in Section 5, Table 6. Two collections of spring cankerworm eggs were made at McKay Settlement.

Bruce Spanworm, Operophtera bruceata (Hulst.)

Aerial and ground surveys showed reductions in populations and distribution. Severe defoliation occurred again along the high ground from west of the Sutherland Lake road to Cleveland Lake in Cumberland County. No noticeable defoliation occurred to the east of Sutherland Lake where feeding was severe in 1964.

Ugly-nest Caterpillar, Archips cerasivoranus (Fitch.)

Nests of this insect were noted at scattered locations throughout the district but were not numerous. Numbers of nests per 1,000 square feet at five locations were as follows: Belmont (185), Colchester County; Truemanville (3), Mapleton (nil), Southampton (nil), and Maccan (nil), Cumberland County.

Egg masses were collected at five locations in Colchester County and two in Cumberland County.

Fall Webworm, Hyphantria cunea (Drury)

Fall webworm nests were observed only at Beech Hill, Queens County, Middle Sackville, Halifax County, and at several scattered locations in Colchester County.

Roadside nest census made from Admiral Rock school to Maloney Road, Hants County, Inglisville Road to south of Nictaux, Annapolis County, Upper Rawdon corner to Rawdon Gold Mines, Hants County, and from Windsor Road school south to Route #3, Lunenburg County, were negative.

Additional Species Collected

The names of other insect species collected along with pertinent remarks are included in Section 5, Table 7. Common insects collected at sampling stations in 1965, with average numbers per tree sample, are listed in Section 5, Table 8.

Tree Diseases

Dutch Elm Disease, Ceratocystis ulmi (Buism.) C. Moreau

A survey of elm trees was made in all towns in western Nova Scotia but no symptoms of this disease were found.

Frost Injury

Frost damage to current shoots of balsam fir reproduction was severe at Summit, Colchester County, and was light at scattered locations throughout the remainder of the district.

Willow Blight, Pollaccia saliciperda (All. & Tub.) v. Arx.

Leaf browning of willow occurred in parts of Annapolis, Cumberland, Halifax, Hants, Kings, and Lunenburg counties. Intensity and incidence ranged from a trace to light except at Brooklyn, Hants County and Hantsport, Kings County where the foliage of most willow trees was moderately browned.

Winter Drying of Conifers

Reddening of Scots pine foliage was severe in several hedges at Amherst Point, Cumberland County.

Beech Bark Disease, Cryptococcus fagi (Baer.) and Nectria coccinea var. faginata Lohm. Wats. & Ayers

Classification of beech trees on three permanent plots indicated that conditions changed little since 1964. The most common class of beech tree encountered in 1965 was one which was cankered as a result of infections by the fungus and supported light attacks of the scale (Section 5, Table 9).

Severe attacks of the scale were common on the stems of beech trees near Parkdale, Lunenburg County and fruiting bodies of the fungus could be found in many stands throughout Western Nova Scotia.

Anthracnose of Hardwoods

Gloeosporium apocryptum Ell. & Ev. was common on maples throughout the district but infections did not exceed light. Host trees included red maple, sugar maple and mountain maple. Collections were taken in Annapolis, Colchester, Cumberland, Halifax, Hants, Kings and Queens counties.

Infections by Gloeosporium aridum Ell. & Howl. were severe on a few white ash trees at Cheverie and moderate on one tree at Maitland, Hants County. Also there was a trace to light foliage browning on white ash in Annapolis, Colchester, Digby, Halifax, Hants, Lunenburg and Queens counties.

Gloeosporium fagicola Pass. caused light browning of foliage on scattered beech trees in Colchester and Queens counties.

The intensity and incidence of infections by Gloeosporium quercinum Westend were both severe on recently planted red oak trees at Clairmont Park (Kingston), Kings County and Brickton, Annapolis County.

Leaf Blotch of Horse-chestnut, Guignardia aesculi (Peck.) V. B. Stewart

This disease was severe at Pugwash and Wallace, Cumberland County and light wherever else horse-chestnut trees occurred.

Ash Rust, Puccinia sparganioides Ell. & Barth.

Leaves of white ash shade trees were moderately infected at Wolfville, Kings County. Elsewhere in the district damage was generally less than in 1964, especially in the Round Hill-Annapolis Royal areas. Light infections were noted in Annapolis, Digby, Colchester, Halifax, Kings and Lunenburg counties.

Ink Spot of Poplar, Ciborinia whetzelii (Seav.) Seav.

Ink spots were found on the leaves of trembling aspen at two locations in Colchester County, and at 11 locations (one on lombardy poplar) in Cumberland County. Attacks ranged from a trace to light.

Leaf and Twig Blight of Poplar, Pollaccia radiosa (Lib.) Bald. & Cif.

This disease was common but no more than light on trembling aspen and largetooth aspen reproduction. Collections were taken in all but Shelburne and Yarmouth counties.

Black Knot of Cherry, Dibotryon morbosum Theiss. & Syd.

This disease was common on pin cherry and choke cherry bushes but new infections were generally light. A fungus parasite on black knot, Phaeostoma sphaerophila (Peck.) Barr. was collected for the first time at Stewiacke East, Colchester County, Twin Bridges and Apple River, Cumberland County, and Pleasant River and South Brookfield, Queens County.

White Pine Blister Rust, Cronartium ribicola J. C. Fischer

Infected white pine trees were noted at Portapique, Colchester County, and West Caledonia, Queens County and infected Ribes (alternate host) were found at Springhill Jct., Cumberland County and Chester Grant, Lunenburg County.

Eastern Dwarf Mistletoe, Arceuthobium pusillum Peck.

Stunted trees and witches' brooms caused by this organism were seen in

Digby, Halifax, Queens, Shelburne and Yarmouth counties. Eight collections were made from black spruce and one each from white spruce and red spruce.

Needle Casts

Bifusella faullii Darker caused light needle cast of balsam fir in a few widely scattered areas. Specimens were collected at two locations in Halifax County and three in Lunenburg County.

Hypodermella nervata Darker was one of the most common needle casts found in Western Nova Scotia in 1965. Infections on balsam fir were moderate at Ten Mile Lake, Queens County and Weaver Settlement, Digby County, and light elsewhere in Queens County and in Annapolis, Colchester, Halifax, Hants and Lunenburg counties.

Lophodermium filiforme Darker was commonly found on black spruce and red spruce trees in Western Nova Scotia.

Lophodermium pinastri (Schrad. ex Fr.) Chev. was common on red pine needles in the Debert Military Camp area, Colchester County.

Needle Rusts

Due to an exceptionally dry summer the incidence of needle rusts in Western Nova Scotia was very low.

Pucciniastrum epilobii Otth. was the most common needle rust found in 1965. Samples were collected from balsam fir trees in Colchester, Cumberland, Halifax and Yarmouth counties.

Chrysomyxa ledicola Lagh. was collected from red spruce at Riverport, Lunenburg County.

Infections of Coleosporium asterum (Diet.) Syd. were moderate to severe on scattered Scots pine at Skinner Lake. This constitutes a new herbarium record for Yarmouth County.

Melampsorella caryophyllacearum Schroet. causing yellow witches' brooms, was common on balsam fir trees throughout the district. Infections were light except at Pleasant Harbour, Halifax County, where brooming was moderate on a few trees.

Tip Blight of Balsam Fir, Rehmiellopsis balsameae Waterman

Damage resulting from this organism was not common in Western Nova Scotia. Intensity and incidence was a trace to light at Debert, Colchester County, Goff, Halifax County and Fox Point, Lunenburg County.

Catkin Hypertrophy, Taphrina robinsoniana Gies.

Present on alder throughout most of Western Nova Scotia, this disease was recorded as moderate at Moose River and Wentworth, Cumberland County, and as light at scattered locations in Cumberland, Digby and Lunenburg counties.

Other Noteworthy Diseases

Organism	Host	Location	Remarks
Adelopus balsamicola (Peck.) Theiss.	Fir, balsam	Folly Lake, Col. Co.	Incidence and intensity light
Bifusella linearis (Peck.) Hoehn.	Pine, white	Coldbrook, Kings Co. 10 Mile Lake, Queens Co.	Trace to light incidence and intensity on 1964 needles
Cherry blight cause unknown	Cherry, pin	Lower Onslow, Col. Co., Lake Charlotte, Lr. Ship Harbour East, Scott Lake, Hfx. Co., Fraserville, Cumb. Co.	Incidence and intensity light
Chrysomyxa arctostaphyli Diet.	Spruce, red Spruce, black	Annapolis, Digby, Hants, Lunenburg, Queens, Halifax, and Shelburne counties	More common than in previous years, but generally limited to one or two brooms at each location
Coccomyces hiemalis Higgins	Cherry, pin	Western Nova Scotia	Common but light throughout the district
Cronartium coleosporioides Arth.	Pine, jack	Thompson, Cumb. Co.	Caused mortality of scattered trees
Cronartium quercuum (Berk.) Miyabe ex Shirai	Pine, jack Pine, Scots	Thompson Stn., Cumb. Co., Lantz, Hants Co.	Several trees infected at each location

Other Noteworthy Diseases (cont'd)

Organism	Host	Location	Remarks
Cryptodiaporthe salicina (Curr.) Wehm.	Willow	Round Hill, Ann. Co. Jeddore Oyster Pond, Upper Sackville, Hfx. Co.	Twig canker, generally light
Cytospora sp.	Maple, red Aspen, trembling Aspen, largetooth Willow Poplar, Carolina Ash, black	Annapolis, Cumberland, Colchester, Halifax and Kings counties	Superficial branch cankers
Cytospora friesii Sacc.	Fir, balsam	Cooks Brook, Hfx. Co.	Light
Cytospora salicis Rab.	Willow	Moose Brook, Hants Co.	Twig blight, light incidence and intensity
Dothichiza populea Sacc. & Briard	Poplar	Dartmouth. Hfx. Co.	Light
Durandiella lenticellicola Groves	Mountain-ash	Moose River Cumb. Co.	New herbarium record
Erysiphe aggregata (Peck.) Farl.	Alder, speckled	West Wentworth, Chignecto Game Sanctuary, Cumb. Co., Coldbrook, Kings Co., Bridgewater, Lun. Co.	Commonly associated with Taphrina robinsoniana Gies.
Fomes pini (Brot. ex Fr.) Karst.	Spruce, red	Ten Mile Lake, Queens Co.	Wood decay fungus
Gnomonia ulmea (Schw.) Thuem.	Elm, white	Brooklyn, Hants Co.	Leaf spot, common

Other Noteworthy Diseases (cont'd)

Organism	Host	Location	Remarks
Gnomoniella coryli (Batsch ex Fr.) Sacc.	Witch-hazel	Lantz, Hants Co.	New herbarium record
Guignardia populi G. E. Thompson	Aspen, trembling	Mill Village, Queens Co.	New herbarium record for Nova Scotia
Gymnoconia peckiana (Howe) Trotter	Briar	Lower Onslow, Col. Co. Harrison Sett., East Branch, Wentworth, Cumb. Co. Sandy Cove, Digby Co. Kelly Lake, Hfx. Co. Cambridge, Hants Co.	Leaf rust, common on Rubus sp.
Gymnosporangium clavariiforme (Pers.) DC.	Serviceberry	Annapolis, Digby and Lunenburg counties	Light infections common
Gymnosporangium cornutum Arth. ex Kern.	Mountain-ash American	Ship Harbour, Hfx. Co.	Leaf rust, light
Herpotrichia nigra Hartig	Spruce, white	Chignecto Game Sanct. Cumb. Co.	Light
Hypoxylon pruinatum (Klot.) Cke.	Aspen, trembling	Debert, Col. Co., Springhill Jct., Cumb. Co. Greenwood, Kings Co.	Present in most aspen stands
Marssonina brunnea (Ell. & Ev.) Magn.	Aspen, trembling	Hubbards, Lun. Co.	New Nova Scotia record

Other Noteworthy Diseases (cont'd)

Organism	Host	Location	Remarks
Melampsora abietis -canadensis C.A. Ludwig ex Arth.	Aspen, large-tooth	Blanket Hill, Ann. Co.	Intensity trace
Melampsora epitea Thuem.	Willow	Weymouth North, Digby Co.	Rust, light
Phleospora aceris (Lib.) Sacc.	Maple, red Maple, mountain Maple, striped	Lawrencetown, Ann. Co. Folly Lake, Cumb. Co. Reid, Porters Lake, Mill Lake, Little Pine Lake, Hfx. Co. Fox Point, Lun. Co.	Leaf spot common but light except at Folly Lake, where incidence was moderate and intensity was severe
Phyllosticta minima (Berk. & Curt.) Underw. & Earle	Maple, red	Goodwood, Hfx. Co., Lantz, Hants Co., Fox Point, Lun. Co.	Leaf spot. Common but generally light
Pollaccia elegans Serv.	Poplar, balsam	Newport Corner, Hants Co.	Not common
Polyporus abietinus Dicks. ex Fr.	Pine, white Fir, balsam	Salmon Lake, Ann. Co., Middle Sackville, Goff, Hfx. Co.	Wood decay fungus
Polyporus sulphureus Bull. ex Fr.	Pine, white	Bridgewater, Lun. Co.	On one tree
Puccinia recondita Rob. ex Desm.	Ribes	Chignecto Game Sanctuary, Cumb. Co.	New record for Nova Scotia

Other Noteworthy Diseases (cont'd)

Organism	Host	Location	Remarks
Pucciniastrum goeppertianum (Kuhn.) Kleb.	Blueberry	Riverport, Lun. Co.	One witches' broom
Pullularia pullulans (deBy.) Berkh.	Pine, red	Debert, Lower Onslow, Col. Co.	Red flagging severe in an area of approx. one acre
Rhizosphaera pini (Corda) Manbl.	Fir, balsam	Cooks Brook, Hfx. Co.	Light browning of needles
Rhytisma acerinum (Pers. ex St. Amans) Fr.	Maple, red Maple, sugar	Blanket Hill, Ann. Co., Wentworth, Cumb. Co., Coldbrook, Kings Co., Carleton, Yar. Co.	Tar spot. Common
Rhytisma punctatum Pers. ex Fr.	Maple, mountain	Lily Lake, Col. Co.	Speckled tar spot. Common in this area
Rhytisma salicinum Pers. ex Fr.	Willow	Folly Lake, Cumb. Co.	Moderate on several clumps. First herbarium specimen from Cumb. Co.
Sarcotrochila balsameae (Davis) Korf.	Fir, balsam	Forties Sett., Lun. Co.	New herbarium record for Nova Scotia
Septobasidium pinicola Snell.	Pine, white	Little Tobeatic Brook, Queens Co. Newburn, Lun. Co.	Common on several trees at each location
Taphrina caerulescens (Mont. & Desm.) Tul.	Oak, red	Milford, Ann. Co.	On the foliage of young red oak

Other Noteworthy Diseases (cont'd)

Organism	Host	Location	Remarks
Taphrina carnea Johanson	Birch, yellow	Moose River, Cumb. Co. Devon, Hfx. Co.	Light infections of leaf blister
Taphrina dearnessii Jenkins	Maple, red Maple, sugar	Bayview, Landsdowne, Digby Co. Twin Bridges, Sutherlands Lake, Cumb. Co.	Black leaf blister, trace to light where found
Uncinula flexuosa Peck.	Horse-chestnut	Liverpool, Queens Co.	Powdery mildew, new herbarium record
Uredinopsis osmundae Magn.	Fern	Goodwood, Hfx. Co., Fox Point, Chester Grant, Lun. Co., Lower East Pubnico, Yar. Co.	New herbarium host record
White Pine Needle Blight (Cause unknown)	Pine, white	Moose River, Cumb. Co., Low Landing, Queens Co.	Light needle browning at both locations

Section 5, Table 1

Numbers of European Spruce Sawfly Collected
from Permanent Sampling Stations
in Western Nova Scotia in 1965

Location	Sampling station	Tree sp.	No. trees	No. of sawfly larvae: June 21-July 13 1st sample	July 14-Aug. 16 2nd sample**	Aug. 24- Sept.21 3rd sample
Annapolis County						
Lequille	1-19	wS	6	8	-	11
Round Hill	1-37	wS	6	7	-	7
West Inglisville	*	wS	3	7	-	-
Squirreltown	*	wS	6	1	7	-
Kingston	*	wS	3	-	2	-
Perotte	*	rS	3	-	-	1
Colchester County						
Masstown	1- 1	rS	6	0	-	0
Great Village	1- 2	wS	6	1	-	0
Portapique Mtn.	1- 3	wS	6	4	-	5
Lr.Five Islands	1- 4	wS	6	4	-	5
Tatamagouche Mtn.	1-17	wS	6	12	-	8
Nuttby	1-22	wS	6	0	-	0
Portapique	1-35	wS	6	0	-	3
Cumberland County						
Allen Hill Rd.	1- 5	rS	6	4	-	0
Harrison Sett.	1- 8	wS	6	4	-	15
Joggins	1- 9	wS	6	3	-	0
Truemanville	1-11	wS	6	19	-	10
Moose River	1-20	rS	6	3	-	1
Mapleton	1-21	wS	6	19	-	14
Lr.River Hebert	1-24	wS	6	12	-	25
Salem	1-28	wS	6	7	-	34
Fraserville	1-23	rS	6	0	-	2
Tidnish Bridge	1-47	wS	6	1	-	2
Lakelands	1-62	rS	6	12	-	5
Lakelands	1-63	wS	6	22	-	12
Wallace Ridge	1-65	wS	6	9	-	19
Little Forks	*	wS	6	34	-	-
Birchwood	*	wS	6	14	-	-
Chignecto Game Sanctuary	*	wS	3	15	-	-

Section 5, Table 1 (cont'd)

Location	Sampling station	Tree sp.	No. trees	No. of sawfly larvae: June 21-July 13 1st sample	July 14-Aug.16 2nd sample **	Aug. 24-Sept.21 3rd sample
Cumberland County (cont'd)						
Chignecto Game Sanctuary	*	rS	3	2	-	-
Hartford	*	wS	6	21	-	8
Victoria	*	wS	3	-	2	-
Digby County						
Barton	1-31	rS	6	0	-	29
Landsdowne	1-38	rS	6	5	-	29
Tibideau Rd.	1-41	rS	6	0	-	17
Lake Jolly	*	wS	12	37	15	-
New France	*	rS	9	3	8	-
Halifax County						
Tangier	1-39	wS	6	0	-	1
Chezzetcook	1-59	rS	6	2	-	12
Moose River	1-61	rS	6	0	-	9
Chaswood	*	rS	9	14	10	-
Chaswood	*	wS	9	16	26	-
Lewis Lake	*	rS	6	1	1	-
Pace Lake	*	rS	3	-	1	-
Hants County						
Admiral Rock	1- 7	wS	6	0	-	4
Ardoise	1-15	wS	6	0	-	14
Noel	1-25	wS	6	4	-	16
Kings County						
Oak Lake	*	rS	9	69	2	-
Lunenburg County						
East River	1-16	wS	6	0	-	0
East River	1-55	rS	6	2	-	0
Windsor Road	1-56	wS	6	2	-	14
North River	*	rS	3	-	1	-

Section 5, Table 1 (cont'd)

Location	Sampling station	Tree sp.	No. trees	No. of sawfly larvae: June 21-July 13 1st sample	July 14-Aug.16 2nd sample ***	Aug.24-Sept.21 3rd sample
Queens County						
Pleasant River	1-10	wS	6	2	-	3
Beech Hill	1-49	rS	6	3	-	2
Brooklyn	1-50	rS	6	0	-	5
Tobeatic Rd.	1-51	rS	6	1	-	3
New Grafton	*	rS	3	3	-	-
Shelburne County						
Middle Ohio	*	wS	3	-	1	-
Middle Clyde	*	wS	3	-	-	2
Yarmouth County						
Bloomfield	1-43	wS	6	11	-	31
Carleton	1-44	rS	6	15	-	2
East Kemptville	*	wS	12	29	8	5
Kemptville	*	wS	3	-	3	-

* Co-operators' samples.
*** No stations sampled by district technician during this period.
\- No samples taken.

Section 5, Table 2

Larch Casebearer Numbers and Defoliation Estimates
at Sampling Stations in Western Nova Scotia
in 1964 and 1965

Sampling station No.	Location	Casebearers/100 fascicles 1964	1965	Defoliation 1964	1965
	Colchester County				
1-103	Great Village	25.7	9.2	M	T
1-109	Belmont	26.4	26.8	L	T
1-111	Debert	40.9	5.6	L	O
1-112	Beaverbrook	4.8	4.1	T	T
1-113	Bass River	57.3	9.5	S	T
1-114	Five Islands	31.7	3.0	M	O
1-116	Fort Ellis	1.8	1.3	T	T
	Cumberland County				
1-115	East Branch	79.2	3.8	S	T
	Digby County				
1-101	Bloomfield	1.9	19.6	L	L
1-102	Springdale	6.6	106.0	L	L
	Halifax County				
1-110	Hubley	6.1	5.9	L	T
	Lunenburg County				
1-107	Bridgewater	0.3	1.6	T	T
1-108	East River	6.9	71.3	L	O
1-117	Danesville	0.7	5.1	L	O
	Shelburne County				
1-119	Allandale	1.1	1.9	T	T
	Yarmouth County				
1-104	Chegogue	0.0	1.3	O	T

T = Trace L = Light M = Moderate S = Severe

Section 5, Table 3

Larch Sawfly Defoliation Records Based on Ocular Estimates in Western Nova Scotia in 1965

Location	Defoliation*
Annapolis County	
2 mi. S. of Lawrencetown	T
West Inglisville	T
Clementsvale	T
Stony Lake	T
2 mi. N.W. of Lake Hendry	T
Colchester County	
Upper Economy	L
Londonderry	T
Tatamagouche	T
Middle Corner	T
Glenholme	T
East Village	T
Cumberland County	
Birchwood	T
West Wentworth	T
Nappan	Severe on one tree
Streets Ridge	T
West Leicester	L
East Leicester	L
Hastings	L
Tidnish	T
Warren	T
Salem	T
Rockwell Sett.	L
Northport	T
Wallace Bridge	T
Oxford	T
4 mi. N.E. of Amherst	T
River Hebert	L
Two Rivers	L
1.7 mi. S.W. of Sand River	L
Little Forks	L
3 mi. N.W. of Apple River	L

Section 5, Table 3 (cont'd)

Location	Defoliation*
Cumberland County (cont'd)	
River Philip	T
1 mi. S. of Apple River	L
5 mi. S.W. of Two Rivers	L
Sutherland Lake	T
Parrsboro	L
Kirkhill	L
3 mi. N.E. of Apple River	L
2 mi. N.W. of Sand River	L
2 mi. N. on Allen Hill Rd.	L
Rose	L
4.7 mi. S.W. of Shulie	L
Digby County	
Weymouth North	S
New France	L
Southville	S
Griffith Road	S
Havelock	M
Sandy Cove	T
Weymouth Mills	L
Hilltown Road	L
New Tusket	L
Doyle Lake Brook	M-S
Rossway	T
Roxville	T
Wentworth Lake	T
Weaver Sett.	L
Corberrie	L
Waterford	L
Halifax County	
1 mi. S. of Kelly Lake Airport	L
Stillwater Lake	T
Black Point	T
Devon	T
Ship Harbour	T
2 mi. N.E. of Goffs	T
Mooselands	T
Reid	T

Section 5, Table 3 (cont'd)

Location	Defoliation*
Halifax County (cont'd)	
Lindsay Lake	T
1 mi. S. of Oldham	T
Porters Lake	T
Upper Sackville	L
Jeddore Oyster Pond	T
Little Salmon River	M-S
Hants County	
Walton	L
Rawdon Gold Mines	T
Kings County	
Kentville	S in one stand of European larch
Kingston	T
Aylesford	T
Lunenburg County	
Middlewood	T
Shelburne County	
Barrington	T
2 mi. W. of Sable River	T
Shelburne to Upper Clyde River	S in several stands

*T - Trace, up to 5%; L - Light, 10% - 20%; M - Moderate, 30% - 60%; S - Severe, 70% - 100%.

Section 5, Table 4

Classification of Browning of Wire Birch by the Birch Leaf Miner in Western Nova Scotia in 1965

Location	Infestation class*
Annapolis County	
Maitland Bridge	S
Stony Lake	S
Colchester County	
Portapique	L
Portapique Mtn.	S
Masstown	S
Great Village	M
Upper Economy	L
Tatamagouche Mtn.	S
Stewiacke East	S
Cumberland County	
Fraserville	L
Moose River	L
Harrison Sett. to River Hebert	S
Salem	L
Wallace Ridge	M
Allen Hill Rd.	S
Truemanville	S
Mapleton	S
Lower River Hebert	S
Halifax County	
Hubley	S
1 mi. S. of Kelly Lake Airport	S
Cooks Brook	S
Stillwater Lake	S
Lake Echo	L
Porters Lake	L
Ship Harbour	L
Lower Ship Harbour East	L
Mooselands	L
Westphal	M
Gays River	L

Section 5, Table 4 (cont'd)

Location	Infestation class*
Hants County	
Minasville	S
Lower Burlington	S
Cambridge	S
Central Rawdon	S
Lantz	S
Little Indian Lake	L
Kings County	
Lake Paul	S
Lunenburg County	
Meisners	M
West River	S
East River	S
Chester	S
Queens County	
Pleasant River	S
Tobeatic Rd.	S
Greenfield	S
4 mi. N.W. of Milton	M

*L = Light, 10% - 20%; M = Moderate, 30% - 60%; S = Severe, 70% - 100%

Section 5, Table 5

Infestation Intensities of Winter Moth and Fall Cankerworm at Red Oak Sampling Stations in Western Nova Scotia in 1965

Sampling station		Per cent by species		No. trees examined	Infestation class*					
Location	No.	Winter moth	Fall cankerworm	1965	1960	1961	1962	1963	1964	1965
Lunenburg County										
Cookville	1-122	60	40	2	M	M	L	Nil	Nil	L
New Germany	1-120	100	0	1	L	M	L	L	Nil	L
West Northfield	1-131	0	100	1	L	M	L	L	Nil	L
Chester Basin	1-135	100	0	2	M	M	L	L	Nil	L
Queens County										
Mill Village Rd.	1-123	100	0	2	M	L	L	L	Nil	L
Mill Village	1-134	80	20	2	M	M	M	L	Nil	L
Pleasant River	1-106	60	40	2	M	M	L	Nil	Nil	L
3 mi. N. of Middledale	1-100	100	0	2	L	M	L	L	Not sampled	L

*L = Light, 10% - 20%;
M = Moderate, 30% - 60%;
S = Severe, 70% - 100%.

Section 5, Table 6

Proportions of Winter Moth, Fall Cankerworm and Spring Cankerworm Larvae Present in Random Hand-picked Samples in Western Nova Scotia in 1965

Location	Hosts	Percentage of species present			Defoliation*
		Winter moth	Fall cankerworm	Spring cankerworm	
Annapolis County					
Springdale	rO		Larvae dropped		M
Squirreltown	rM	0	82	12	T
Perotte	rM	0	100	0	T
Halifax County					
Waverley	rO	9	91	0	S
Timberlea	rO	83	17	0	L
Lewis Lake	rM	100	0	0	M
Chaswood	yB	100	0	0	L
Hants County					
Smiley's Camp Grounds	wE	3.1	0	96.9	S
Brooklyn	wE	0	0	100	S
Windsor	wE	4	0	96	S
Falmouth	wE	56	12	32	S
St. Croix	wE	3	0	97	S
Kings County					
Lake Paul	wB	20	80	0	L
Oak Lake	wB, rM	40	60	0	L
Lunenburg County					
Chester Basin	rO	100	0	0	L
Cookville	rO	60	40	0	L
West Northfield	rO	0	100	0	L
Pinehurst	rO	0	0	0	Nil
New Germany	rO	100	0	0	L
2 mi. S. of Nineveh	rO	80	20	0	M
New Elm	rO, rM	87	13	0	S
Seffernville	rO	100	0	0	S
5.5 mi. N. of Chester Basin	rO, rM	25	75	0	M
Dalhousie Rd.	rO	0	100	0	T

Section 5, Table 6 (cont'd)

Location	Hosts	Percentage of species present: Winter moth	Fall cankerworm	Spring cankerworm	Defoliation*
Queens County					
Pleasant River	rO	60	40	0	L
South Brookfield	Ap, wAs	100	0	0	L
2 mi. S. of South Brookfield	rO, Wi	85	15	0	S
3 mi. N. of Middledale	rO	100	0	0	L
2 mi. S.W. of Liverpool	rO, rM	3	97	0	S
2.2 mi. W. of Milton	rO	0	100	0	T
6.2 mi. W. of Milton	rO	50	50	0	M
Mersey Townsite	rO, rM	73	27	0	S
Indian Gardens	rO, rM	92	8	0	M
3 mi. N.E. of Indian Gardens	rO, rM	83	17	0	S
6.4 mi. N.E. of Indian Gardens	rO, Wi	98	2	0	S
Greenfield Rd. Jct.	rO	86	14	0	M
Rossignol Rd. (Mile 4)	rM	75	25	0	L
Rossignol Rd. (Mile 8)	rO, rM, Al	5	95	0	L-M
Kedgie Bridge	rM	33	67	0	L

*T = Trace, up to 5%; L = Light, 10% - 20%;
M = Moderate, 30% - 60%; S = Severe, 70% - 100%.

Section 5, Table 7

Insects Collected in Western Nova Scotia in 1965
(In addition to those mentioned in the text)

Species	Collected from	No. colls.	Remarks
Acleris pulverasana Wlk.	wS	1	1 larva from Cumb. Co.
Acleris variana (Fern.)	wS, bF	10	From Ann., Col., Cumb., Hfx., and Yar. counties
Acronicta oblinata (A. & S.)	yB	1	Halifax County
Adelges abietis (L.)	wS	1	Collected for R. Underwood
Altica ambiens alni Harr.	Al	5	Severe at Seffernville and Upper New Cornwall, Lun.Co.
Amorbia humerosana Clem.	wS, rS, bF	7	Low numbers, generally distributed
Anomogyna elimata (Guen.)	bF, wS, wP	4	Yar., Kings, Hfx. and Cumb. counties
Anomogyna perquiritata (Morr.)	rS, bS, bF, tL	5	1 larva in each sample collected in Digby, Hfx. and Shel. counties
Anoplonyx luteipes (Cress.)	tL	8	Small numbers throughout district
Anthoraea polyphemus (Cram.)	yB	1	From Halifax County
Aphrophora parallela Say	scP	4	Spittle bugs. Numerous at Lawrencetown, Kings Co.
Archips argyrospila (Walker)	rM, wE	3	Occasional larvae
Archippus packardianus Fern.	wS, rS, bF	16	A few larvae in most counties
Argyrotaenia lutosana Clem.	wS	2	In beating samples from Ann. and Cumb. counties
Autographa sp.	wS, rS, wP	4	1 larva each from Ann., Kings, Queens and Yar. counties
Caliroa cerasi (L.)	rO	1	Scattered larvae on red oak at Gays River, Hfx. Co.
Caliroa sp.	wO	1	Severe defoliation of several small white oak trees at Mt. Uniacke, Hants County
Calligrapha amelia confluens Schffr.	rS	1	1 adult
Caripeta divisata Wlk.	wS, rS, bF, eH, tL	27	Endemic numbers throughout district
Cecidomyia ocellaris (O.S.)	rM	1	At Chaswood, Hfx. Co.
Charadra deridens Gn.	yB	1	At Pace Lake, Hfx. Co.
Cimbex americana (Leach.)	wB	1	Not common

Section 5, Table 7 (cont'd)

Species	Collected from	No. colls.	Remarks
Coleophora fuscedinella Zell.	wB, Al, Ap	7	No infestations, taken in Col., Dig., Hfx., Kings and Queens counties
Prob. Conophthorus resinosa (A.T.)	rP	1	On a few trees at Kentville, Kings Co.
Ctenicera propola Lec.	wS	2	Col. and Cumb. counties
Dasyneura salicifolia (Felt.)	Willow	1	Middle Ohio, Shel. Co.
Dicerca sp. poss. punctulata (Sch.)	wP	1	1 adult, Queens Co.
Dichelonyx albicollis Burm.	bS	1	Shelburne County
Dimorphopteryx sp.	wP	1	Not common: from Queens Co. only
Ectropis crepuscularia Schiff.	bF, rS, rM, tL, Be	17	Generally distributed throughout district
Elaphria versicolor (Grote)	wS, rS, bF, tL	12	Small numbers in all counties
Epirrita autumnata henshawi Swett.	wS, rS, bF	14	Occasional larvae in most areas
Eucordylea atrupictella (Dietz.)	wS	3	From beating stations in Cumb. and Col. counties
Eufidonia notataria Wlk.	bF	1	A single larva from Cumb. Co.
Eupithecia filmata Pears	wS, rS, bF	8	Generally distributed
Eupithecia luteata Pack	wS, rS, bF, wP, tL, eH	64	Small numbers common throughout district
Eupithecia palpata Pack	wS, rS, bF, wP	13	Endemic numbers in all counties
Fenusa dohrnii (Tisch.)	Al	1	Severe on a few bushes at Westphal, Hfx. Co.
Feralia jocosa Guen.	wS, bF	4	Not common
Gracillaria syringella (F.)	Lilac	1	In one hedge at Parrsboro, Cumb. Co.
Griselda radicana Wlshm.	wS, rS, bF	11	Small numbers from beating stations
Heterocampa guttivitta Wlk.	yB	1	Two larvae from Halifax County
Heterocampa manteo Dbldy.	rM	1	Oak Lake, Kings County
Hydria undulata L.	pCh	2	Colonies taken in Lunenburg and Hants counties
Hydriomena divisaria Wlk.	wS, rS, bF, wP	17	Small numbers only
Hypagyrtis piniata Pack.	wS, bF, tL, rM	6	Scattered collections
Hypermallus villosus (F.)	rO	1	Oak twig pruner, common at Clairmont Park, Kings County

Section 5, Table 7 (cont'd)

Species	Collected from	No. colls.	Remarks
Ips pini (Say)	wP	1	Kentville, Kings County
Lambdina fiscellaria fiscellaria Gn.	wS, rS, bF, rM, eH, yB, Be	32	Endemic numbers in all counties except Yar. and Hants where it was not collected
Lecanium quercifex Fitch	rO	3	Collected in Kings, Shel., and Queens counties
Lithophane antennata (Wlk.)	rO, wB, wE	4	Not common
Lucidota corrusca Linn.	rS	1	1 adult
Macrobasis unicolor Kby.	rS, rM, wB	3	Lewis Lake, Hfx. Co.
Malacosoma americanum (F.)	pCh, Ap, rO	6	Very numerous in Ann. and Lun. counties
Mindarus abietinus Koch.	bF	6	Less common than in 1964 collected from Cumb. and Queens counties
Mulsantina hudsonica Csy.	wS, rS, bF	14	Adults common
Nematocampa limbata Harr.	wB, rM	2	From Oak Lake, Kings Co.
Nematus pisum Walsh		1	A few galls
Nemoria mimosaria Guen.	wS	1	A single larva from Cumb. County
Neodiprion pratti paradoxicus Ross	jP	2	Scattered colonies at Debert, Col. Co.
Neomysia pullata randalli Csy.	wS	1	Two adults, Col. Co.
Nepytia canosaria Wlk.	wS, bF, wP, eH	13	Not causing noticeable defoliation
Nyctobia limitaria Wlk.	wS, rS, bF	13	Low numbers
Nymphalis antiopa L.	wE, tA, willow	10	Collected for M. Neilson, more common than in 1964
Orgyia antiqua L.	rS, bF, wM	3	Endemic numbers
Orgyia leucostigma J.E.Smith	tL, wS, Ap, puW, rM wB, eH, Be, rS	11	General in Digby and Halifax counties. Noticeable defoliation only at Weymouth North, Dig. Co.
Palthis angulalis Hbn.	rS, wS	3	1 larva in each collection
Panthea acronyctoides Wlk.	bF	2	Digby and Kings counties
Paonias excaecatus (H. & S.)	wP	1	Single larva from Lun. Co.
Parorgyia plagiata Wlk.	rM	1	Not common
Petrova albicapitana (Busck.)	jP	1	Collected at Debert, Col.Co.
Petrova sp.	scP, jP	2	Common at Lawrencetown, Ann. Co.
Phyllocnistis populiella Cham.	tA, lA	5	Common on trembling aspen reproduction at Glenholme, Col. Co.

Section 5, Table 7 (cont'd)

Species	Collected from	No. colls.	Remarks
Pikonema alaskensis (Roh.)	wS, rS	24	Small numbers throughout district. Severe on four small red spruce at Upper Sackville, Hfx. Co.
Pikonema dimmockii (Cress.)	wS, rS	24	No infestations, scattered larvae throughout district
Pineus pinifoliae (Fitch.)	wS, rS	3	Light in Lunenburg and Queens counties
Pristiphora geniculata (Htg.)	aMo	8	Colonies present throughout district
Protoboarmia porcelaria indicataria Wlk.	wS, rS, bF wP, tL	18	Found in small numbers in most areas
Pseudexentera cressoniana Clem.	rO	8	Greatly reduced in numbers from 1963 and 1964. Little noticeable defoliation in Queens and Lun. counties
Psylla floccosa (Patch)	Al	4	Common in Col. and Cumb. counties
Psylla sp.	pCh, wB, yB	5	Collected in Cumb. Co.
Pteronidea harringtoni (Marl.)	puW	4	Severe defoliation of scattered clumps of willow in Col., Hants and Yar. counties
Rhyacionia buoliana Schiff.	scP, rP	4	Found in most Scots pine plantations, especially Annapolis Valley
Schizura concinna A. & S.	Ap	1	Collected in Digby County
Schizura ipomoeae (Dbldy)	yB	1	Not common
Semiothisa dispuncta Wlk.	wS, rS, bF wP, eH	36	Common throughout the district
Semiothisa sexmaculata Pack.	tL, eH	7	Present in most tamarack stands
Solenobia walshella Clem.	wS, rS, bF	7	Present but not causing noticeable damage
Spilonota ocellana (D. & S.)	Ap	1	Collected in Queens Co.
Stilpnotia salicis L.	sPo, cPo, puW	3	Severe at Tatamagouche Mtn., Col. Co., Nictaux Falls to Middleton, Ann. Co., and at Pugwash, Cumb. Co.

Section 5, Table 7 (cont'd)

Species	Collected from	No. colls.	Remarks
Taniva albolineana (Kft.)	wS, rS	2	Not common
Tolype velleda (Stoll.)	wiB	1	Portapique, Col. Co.
Zale sp.	wP	5	A few scattered larvae
Zanclognatha minoralis Sm.	wS	1	1 larva from Col. Co.
Zeiraphera sp.	wS	5	Small numbers from Cumb., Digby, Hfx. and Yar. counties
Zeiraphera diniana Gn.	tL	2	From Cumberland County
Zeiraphera ratzeburgiana Kft.	wS, rS	4	Common in most areas

Section 5, Table 8

Numbers of Common Insects Collected from 56 Permanent Sampling Stations in Western Nova Scotia in 1965

Species	No. and type of stations producing larvae	Av. no. larvae per tree sample	Deviation from 1964
Lepidoptera			
Acleris variana (Fern.)	6 wS	0.7	+0.4
Amorbia humerosana Clem.	3 wS	0.3	-0.4
	2 rS	0.3	+0.3
Caripeta divisata Wlk.	12 wS	0.4	-0.6
	5 rS	0.2	-1.0
	2 bF	0.5	0
	1 eH	0.7	+0.7
Elaphria versicolor (Grote)	2 wS	0.3	-0.5
	1 rS	0.7	-0.1
	1 bF	0.7	-0.8
Eupithecia luteata Pack.	18 wS	1.6	+0.4
	2 bF	0.9	-0.4
	10 rS	1.4	+0.5
	1 tL	0.7	+0.7
	1 eH	1.0	-0.3
Eupithecia palpata Pack.	6 wS	0.4	+0.1
	2 rS	0.5	+0.1
Hydriomena divisaria Wlk.	11 wS	0.7	+0.3
	1 wP	0.7	+0.2
	1 bF	0.7	+0.7
Hypagyrtis piniata Pack.	1 wS	0.3	+0.3
Lambdina fiscellaria fiscellaria Gn.	2 wS	0.5	-0.2
	1 rS	0.7	+0.3
	2 eH	1.3	+0.3
Nepytia canosaria Wlk.	2 eH	0.8	-0.4
Protoboarmia porcelaria indicitaria Wlk.	3 wS	0.6	-0.3
	3 rS	0.7	+0.4
	1 bF	1.0	+1.0
Semiothisa dispuncta complex	12 wS	1.6	+0.5
	5 rS	1.9	+0.8
	2 eH	0.8	-0.2
	2 bF	5.0	+4.0
	1 wP	5.7	+5.7

Section 5, Table 8

Species	No. and type of stations producing larvae	Av. no. larvae per tree sample	Deviation from 1964
Hymenoptera			
Diprion hercyniae (Htg.)	23 wS	2.9	+0.2
	14 rS	1.9	-0.2
Neodiprion abietis complex	2 wS	0.3	-0.5
	1 rS	1.5	-0.5
Pikonema alaskensis (Roh.)	16 wS	0.7	-0.4
	1 rS	0.7	-0.1
Pikonema dimmockii (Cress.)	13 wS	0.3	-0.5
	1 rS	0.2	-0.4

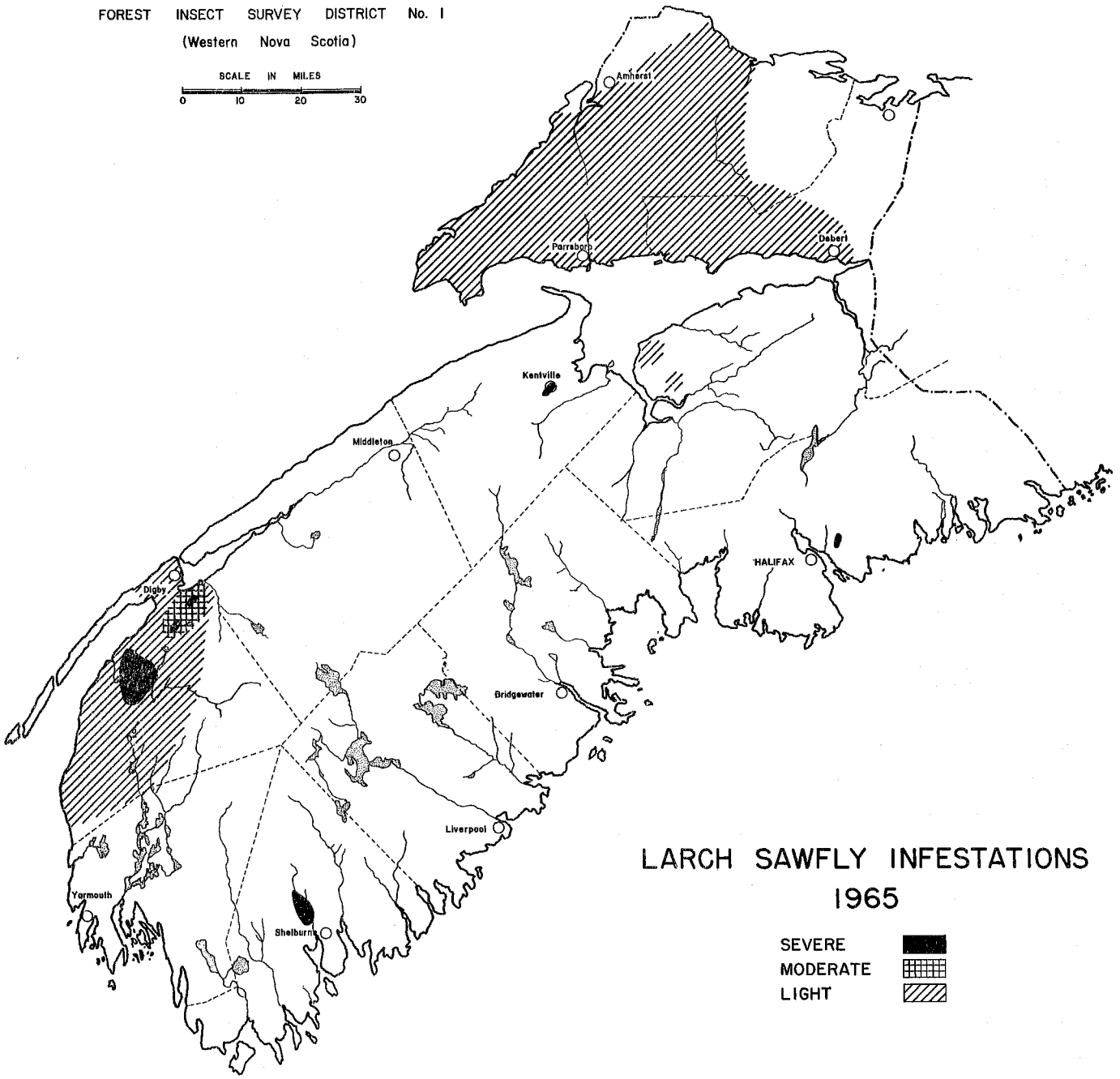
Section 5, Table 9

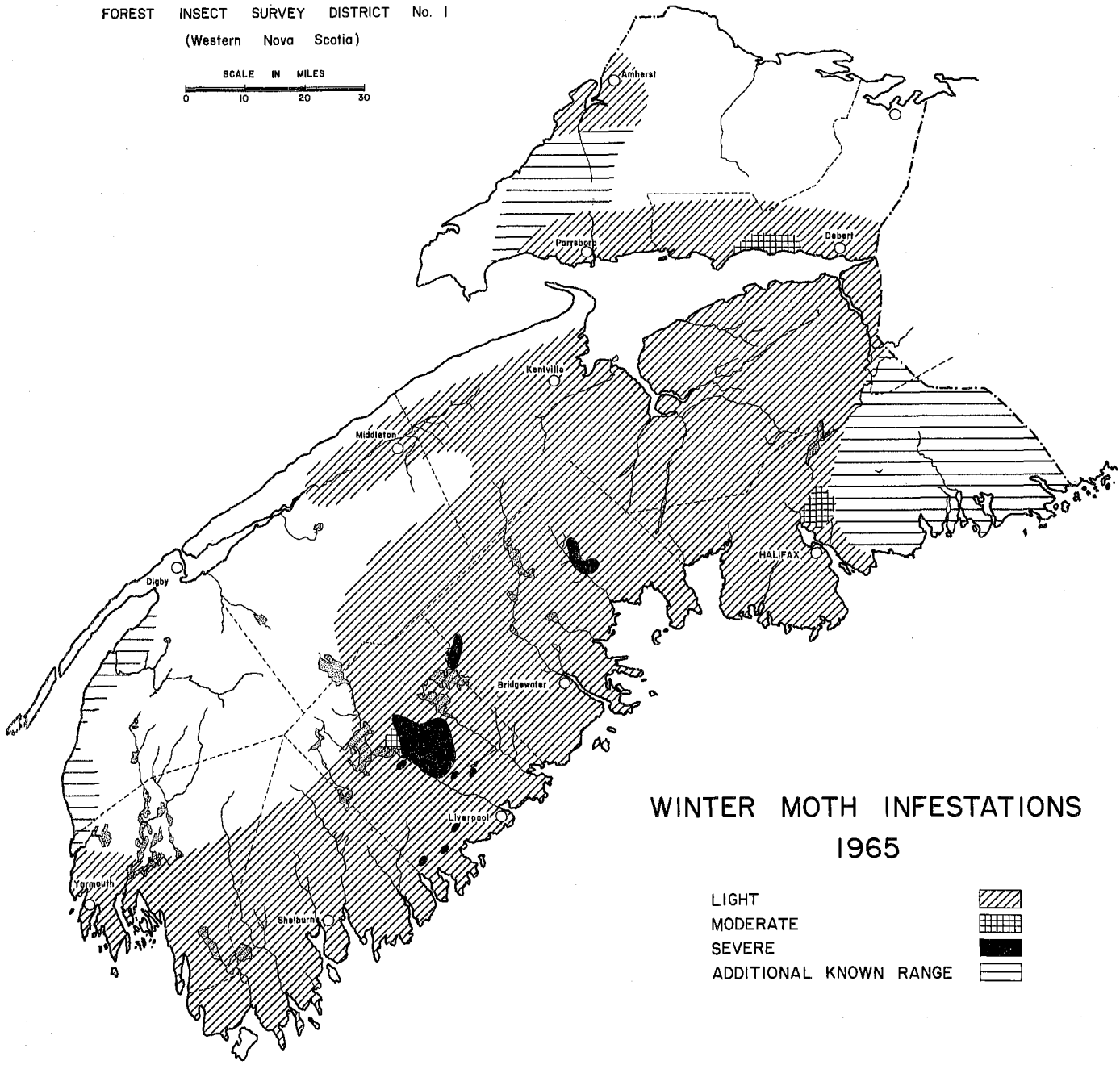
Condition of Trees on Beech Bark Disease Plots
in Western Nova Scotia in 1965

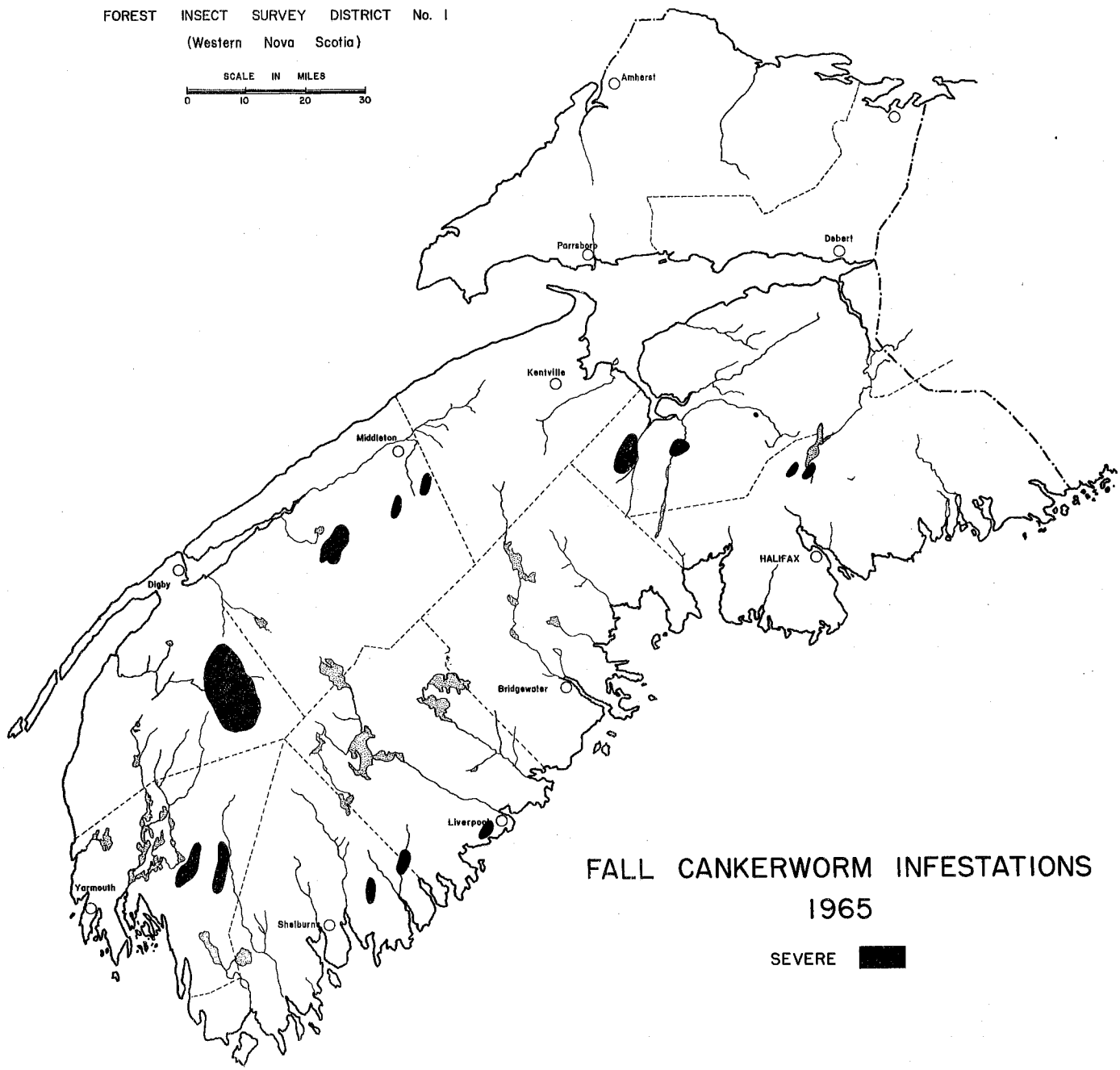
Location	Plot no.	Year	Per cent of trees in class*								Dead other causes
			1	2	3	4	5a	5b	5c	6	
Queens County											
Annis Lake	1-12	1962		0.9		6.0		77.6	0.9	12.9	1.7
		1963				8.6		75.0		13.8	2.6
		1964				11.2		69.8	0.9	15.5	2.6
		1965				12.9		63.8	2.6	18.1	2.6
Colchester County											
East Folly Mountain	1-20	1962		4.2		4.2		69.3	8.6	10.5	3.2
		1963		4.2		5.3		69.5	5.3	12.6	3.1
		1964		4.2		5.3		65.3	4.2	17.9	3.1
		1965		3.2		7.4		61.0	4.2	21.1	3.1
Digby County											
Bayview	1-2	1962	5.0	41.2		3.7		48.8		1.2	
		1963	2.5	22.5		5.0		68.8		1.2	
		1964	1.3	15.0		5.0		77.5		1.3	
		1965	1.3	13.7		6.2		77.5		1.3	

*For explanation of classes, see Appendix A, of Section 1.

Plot #21, Indian Gardens Rd., Queens County, was cut.


FOREST INSECT SURVEY DISTRICT No. 1
(Western Nova Scotia)
SCALE IN MILES
0 10 20 30
Amherst
Parrsboro
Debert
Kentville
Middleton
Digby
HALIFAX
Bridgewater
Liverpool
Yarmouth
Shelburne
LARCH SAWFLY INFESTATIONS
1965
SEVERE
MODERATE
LIGHT


FOREST INSECT SURVEY DISTRICT No. 1
(Western Nova Scotia)
SCALE IN MILES
0 10 20 30
Amherst
Parrsboro
Debert
Kentville
Middleton
Digby
HALIFAX
Bridgewater
Liverpool
Yarmouth
Shelburne
WINTER MOTH INFESTATIONS
1965
LIGHT
MODERATE
SEVERE
ADDITIONAL KNOWN RANGE


FOREST INSECT SURVEY DISTRICT No. 1
(Western Nova Scotia)
SCALE IN MILES
0 10 20 30
Amherst
Parrsboro
Debert
Kentville
Middleton
Digby
HALIFAX
Bridgewater
Liverpool
Yarmouth
Shelburne
FALL CANKERWORM INFESTATIONS
1965
SEVERE

ANNUAL DISTRICT REPORT

FOREST INSECT AND DISEASE SURVEY

EASTERN NOVA SCOTIA

1965

by

L. J. Coady

FOREST RESEARCH LABORATORY

FREDERICTON, N.B.

DEPARTMENT OF FORESTRY

April, 1966

6.0 EASTERN NOVA SCOTIA

(L. J. Coady)

Introduction

Totals of 722 insect collections and 214 tree disease samples were submitted. Collections by other Forest Research personnel and by co-operating staffs of the Provincial Department of Lands and Forests, and of industry, brought the total of insect and disease collections to 1323.

The writer was absent on sick leave from November 8 to 26 inclusive.

Insect Conditions

Spruce Budworm, Choristoneura fumiferana (Clem.)

Spruce budworm populations in eastern Nova Scotia remained at a low level and no defoliation was observed. Larvae were collected at 18 of the 47 sampling stations examined (Section 6, Table 1) and at two random locations in Victoria County, compared with 11 and 8 respectively for the corresponding period in 1964.

Small numbers of egg masses were found at five of the 50 locations sampled, consequently no infestations are expected in 1966 (Section 6, Table 2).

Balsam Woolly Aphid, Adelges piceae (Ratz.)

The trees on five balsam woolly aphid plots were reclassified and the 1965 results are compared with those for 1964 in Section 6, Table 3. An increase in the number of trees supporting light stem attack is indicated on one plot, a decrease on one, and no change on three. Some evidence of tree recovery from aphid attacks occurred on plots at Riversdale, Trafalgar and Gairlock Mountain, where healthy current shoots were observed on younger trees previously infested. On plot 2-38 at Sheet Harbour, similar evidence of recovery was observed on the regeneration and reproduction, but this was not reflected in the actual plot tally. Per cent mortality attributable to twig attacks remained unchanged at Sheet Harbour but increased on the other plots.

Data accumulated for the past ten years from plot 2-21, at North River, Central Victoria County plateau, show that the number of trees having light stem attacks has fluctuated from a low of 1.8% in 1956 to a high of 44.8% in 1961 (9.7% in 1965). The first evidence of twig attack on this plot occurred on reproduction in 1961. Damaged twigs were first recorded on dominant balsam fir in 1963.

Balsam-fir Sawfly, Neodiprion abietis complex

The infestation between East Quoddy and West Quoddy, Halifax County, remained unchanged from 1964 when it was first discovered. Light defoliation of the old foliage of balsam fir occurred over approximately 1.5 square miles of a stand which also contained black spruce and white spruce. Some balsam fir reproduction was severely defoliated.

A new outbreak occurred at Wilson's Cove, Guysborough County, where a moderate infestation was found on the old foliage of balsam fir in a one-quarter square mile area. Occasional branches of black spruce and white spruce were lightly attacked in both areas. Elsewhere population levels of this sawfly were low.

Balsam Gall Midge, Dasyneura balsamicola (Lint.)

A further increase in the occurrence of galled needles on balsam fir was evident in areas of eastern Nova Scotia. As in 1964, the highest numbers were observed in the highland areas of Cape Breton Island, where patchy but moderate to severe damage to reproduction occurred over wide areas at Crowdis Mountain, Gairlock Mountain, and the central North River plateau, Victoria County, and at Cape Mabou, Inverness County. Attacks increased over 1964 on the eastern mainland, but damage was light.

European Spruce Sawfly, Diprion hercyniae (Htg.)

The frequency of spruce sawfly collections in eastern Nova Scotia increased 38.9% over 1964, but populations remained at a low level and no defoliation was observed. Collections by Survey personnel totalled 71, and contained 557 larvae; all were taken at permanent sampling stations (Section 6, Table 4).

Spruce Bud Midge, Rhabdophaga swainei Felt.

Larvae of this bud midge were more prevalent throughout the district than in 1964. Counts of infested buds per 100 square feet of foliage, carried out at eight locations, showed that numbers ranged from 390 near Glenora Falls, Inverness County, to 0 at Heatherton, Antigonish County. The results of these counts follow:

Location	Tree Sp.	Tree No.	No. sq. ft. foliage examined	No. galled buds per 100 sq.ft. of foliage
Antigonish Co.				
Heatherton	wS	3	8.2	0
Halifax Co.				
Marie Joseph	bS	3	6.9	57
Inverness Co.				
Little Judique	wS	3	15.0	20
" "	bS	3	6.8	44
4 mi. N.W. of Glenora Falls	wS	3	4.1	390
Pictou Co.				
Mt. Thom	wS	3	12.6	63
Central West River	wS	3	14.0	14
Broadway	wS	3	8.7	11

Spruce Bud Moth, Zeiraphera ratzeburgiana Ratz.

Infestations were moderate to severe on white spruce at Baddeck, Creignish, Judique and East Bay on Cape Breton Island, and at East Mountain, Colchester County. Elsewhere larvae were common but not numerous.

Larch Casebearer, Coleophora laricella Hbn.

This insect declined in numbers throughout most of eastern Nova Scotia. Severe browning of the foliage of occasional tamarack reproduction occurred on Route #4 from Hay Cove to Soldiers Cove, Richmond County. Moderate browning was observed on a few trees at Big Bras d'Or, Victoria County.

Sequential counts of overwintering larvae and defoliation estimates, taken at 16 sampling stations, are listed in Section 6, Table 5.

Larch Sawfly, Pristiphora erichsonii (Htg.)

The status of the larch sawfly remained much the same as in 1964. In eastern Nova Scotia most specimens were collected on the east coase between Popes Harbour, Halifax County, and Sherbrooke, Guysborough County. Moderate to severe

defoliation occurred in tamarack stands at Halfway Brook, Port Dufferin, and West Quoddy, Halifax County. Defoliation increased from a trace to severe at Gegogan Brook, Guysborough County, where the infestation extended 2.6 miles along Route #7. The moderate infestation observed in a one-tenth acre area at Seafoam, Pictou County in 1964, continued in 1965.

As a result of repeated attacks by the larch sawfly, a reduction in foliage production and some branch mortality was evident at Halfway Brook, Port Dufferin and West Quoddy, Halifax County.

Twenty 1-square foot cocoon recovery trays were set out, 10 each at Port Dufferin, Halifax County, and Gegogan, Guysborough County. Eleven cocoons were taken at Port Dufferin and two at Gegogan.

White-pine Weevil, Pissodes strobi (Peck.)

Weevil attacks were common but light throughout the range of white pine in eastern Nova Scotia. Young trees at five locations were classified as to incidence of white-pine weevil attack. The results follow:

Location	No. trees examined	No. trees free of attack	No. trees infested			
			In 1965 only		1965 and previous	Previous only
			One terminal only	Two terminals or more		
Colchester Co.						
Newton Mills	52	25	7	0	0	20
Upper Stewiacke	52	41	5	0	0	6
Guysborough Co.						
2 mi. northwest of Caledonia	57	28	5	0	4	20
Pictou Co.						
Eden Lake Barrens	52	22	6	0	4	20
Victoria Co.						
Ingonish	57	24	8	2	4	19

European Pine Shoot Moth, Rhyacionia buoliana (Schiff.)

European pine shoot moth damage increased from a trace to light in young red pine nursery stock at Blue Mountain, Pictou County. A count of infested shoots on 37 red pine trees averaging four feet in height was made in a one-half acre plantation. The results, expressed in per cent of trees examined, were as follows: free of injury, 27%; light damage, 70%, and moderate damage, 3%.

Light shoot damage was again found in a 3-acre plantation at Monastery, Antigonish County.

Birch Casebearer, Coleophora fuscedinella (Zell.)

A marked increase in the extent and intensity of casebearer infestations occurred on white birch on Cape Breton Island. Larvae were widespread but were most readily collected at the locations described below.

(a) Infestations were patchy between Creignish and a point two miles east of Port Hood, Inverness County. Defoliation ranged from 80% on most white birch reproduction to 40% on many of the dominant and co-dominant trees, and averaged 70% for the area.

(b) Occasional groups of white birch reproduction from Sydney, Cape Breton County, to Seal Island, Victoria County, had 60% of their foliage destroyed while the remaining trees of this species were lightly damaged.

(c) Spotty and mostly light defoliation of white birch occurred from Baddeck to Baddeck Bay, Victoria County. Most host trees were 10% browned with occasional trees 60%.

(d) Infestations occurred in patches along roadsides of Route #4 from Sydney River to Middle Cape, Cape Breton County. Defoliation ranged from 80% on most reproduction to 30% on the dominant trees, and averaged 70%.

Birch Leaf Miner, Fenusa pusilla (Lep.)

This leaf miner was again prevalent on wire birch and white birch foliage throughout the eastern mainland. Leaf browning, especially on wire birch, was severe through northwest Antigonish County, and Pictou and east Colchester counties. Elsewhere in the district browning was light.

Birch Skeletonizer, Bucculatrix canadensisella Cham.

Populations of this skeletonizer increased noticeably on the eastern mainland of Nova Scotia. Damage was typically patchy wherever found. Severe skeletonizing of white birch and wire birch foliage occurred at Westville, Stellarton, and New Glasgow; from Caribou through Pictou and Durham to Green Hill, Pictou County, and in a localized area near Lower South River, Antigonish

County. Moderate browning of white birch was found from Brookfield to Newton Mills, Colchester County and at Upper Musquodoboit, Halifax County. Light skeletonizing of yellow birch foliage was observed from Newton Mills, Colchester County to Dean, Halifax County. Elsewhere, browning of birch foliage was common but light.

Bruce Spanworm, Operophtera bruceata (Hulst.)

There was a marked reduction in the intensity and extent of infestations of this insect in eastern Nova Scotia.

Severe defoliation occurred only at West River, Antigonish County, where Bruce spanworm in association with the winter moth consumed 90% of the foliage of a few apple trees. The extensive and severe infestations of 1964 which occurred at higher elevations in the Lake Ainslie-Mabou area of Inverness County, and in northwestern Antigonish County and east Pictou County were reduced to moderate intensity in 1965. Defoliation of sugar maple and beech within these areas occurred only at Glenora Falls, Inverness County; Browns Mountain, Antigonish County, and near Woodfield and Laggan, Pictou County.

Satin Moth, Stilpnotia salicis (L.)

Satin moth populations increased along the west coast of Inverness County. Severe defoliation of silver poplar shade trees occurred at Judique, Port Hood, and Inverness (Section 6, Figures 2 and 3).

Winter Moth, Operophtera brumata (L.) and
Fall Cankerworm, Alsophila pometaria (Harr.)

No change in the distribution of the winter moth was observed in 1965. It has occurred through most of eastern Nova Scotia since 1963.

The winter moth continued to be associated frequently with the Bruce spanworm and fall cankerworm, making it difficult to assess the degree of damage caused by each species.

While a decrease in population levels was found in areas of older infestations, there was a marked increase in a 1-square mile area along the East River from Plymouth to Stellarton, Pictou County, where defoliation of most apple and white elm trees averaged 60%, and in a one-half acre area at James River Station, Antigonish County, where defoliation of the same host species was severe.

Numbers of the winter moth were noticeably reduced at Antigonish, especially near the eastern limits of the town, where defoliation of apple trees and cherry bushes, severe in 1964, was light in 1965. Defoliation of white elm occasionally reached 80% but averaged 20%. Moderate defoliation occurred on a

few linden and white ash trees. Bruce spanworm and fall cankerworm were also present but were few in number.

Population levels remained unchanged at Pictou. Defoliation of apple, white elm and linden averaged 30% but was 80% on occasional trees. A trace of damage occurred on occasional sugar maple and red oak trees. The fall cankerworm was present in small numbers.

Populations declined at Truro for the second consecutive year. Defoliation of white elm by winter moth averaged 10% and reached 40% on occasional trees; defoliation of linden and maples averaged a trace. Only a few fall cankerworm were found.

At Upper Stewiacke, Colchester County, defoliation was again severe in patches on apple trees, and light on choke cherry and white elm trees in a 2-square-mile farming area.

At Boylston, Guysborough County, defoliation of apple trees averaged 10% but reached 80% on occasional trees. Other hosts, including linden and white ash, averaged a trace.

The winter moth infestation in the 2-square-mile area at Central West River, Pictou County, increased in intensity but not in extent. Defoliation of apple trees averaged 90%, compared with 60% in 1964. Defoliation of white elm trees, which averaged 60%, occasionally reached severe. Fall cankerworm were also present in this area but in low numbers.

Hand-picked collections were taken at numerous locations to establish the proportions of winter moth, fall cankerworm and Bruce spanworm. The results of some of these collections are shown in Section 6, Table 6.

Ugly-nest Caterpillar, Archips cerasivoranus (Fitch)

Webs of this caterpillar, common throughout eastern Nova Scotia, were particularly noticeable on roadside cherry bushes at North Grant and just east of Antigonish, Antigonish County, and at Saltsprings, Pictou County. Nest counts per 1,000 square feet were made at nine locations. The results follow:

Location	No. of nests per 1,000 sq. ft. 1964	1965
Antigonish Co.		
Just east of Antigonish town	61	Too numerous to count
Monastery	*	8
North Grant	*	121

Location	No. of nests per 1,000 sq. ft. 1964	1965
Colchester Co.		
Union Station	0	2
Greenfield	1	0
Inverness Co.		
3 mi. S. of Port Hood	*	21
Margaree Valley	*	23
Pictou Co.		
Mount Thom	6	0
Salt Springs	41	64

* No count made.

Fall Webworm, Hyphantria cunea (Drury)

Only a few nests of this webworm were found in eastern Nova Scotia in 1965, the third year of very low populations.

Roadside nest counts in the same twelve general areas as in 1964 produced positive results at two locations only (Section 6, Table 7).

A Leaf Roller on Maple, Cenopis pettitana (Rob.)

A localized infestation of this leaf roller continued at Northeast Margaree, Inverness County, where light defoliation occurred on 35 sugar maple shade trees.

Pine Leaf Chermes, Pineus pinifoliae (Fitch)

Galls on red spruce and black spruce caused by this insect were low in numbers at Denver, Guysborough County, at Eden Lake and Glengarry, Pictou County, and near Burke Lake, Halifax County.

Additional Species Collected

Other insects collected in 1965 but not mentioned in the text are listed in Section 6, Table 8. The numbers of common insects collected from sampling stations are listed in Section 6, Table 9.

Tree Diseases

Winter Drying of Conifers

Reddening of conifer foliage, characteristic of this disturbance, was observed at scattered points in eastern Nova Scotia. Damage was especially pronounced on jack pine at South Point, Victoria County, where the trees in a one-half square mile area were exposed to drying winds blowing off the Atlantic Ocean. Moderate damage to the foliage of red pine trees occurred at the Blue Mountain nursery, Pictou County, and to scattered white pine trees along Route #16 from Monastery to Guysborough, Guysborough County.

Frost Injury

Frost injury was unusually light in 1965. Moderate damage to one red maple tree occurred at Central Earltown, Colchester County, and a trace of damage to four red maple trees was observed at Upper Musquodoboit, Halifax County.

Storm Damage

A freezing rain in eastern Nova Scotia during the late winter of 1964-65 was responsible for many broken tops of dominant and co-dominant balsam fir and white spruce, and broken branches and crowns of hardwood trees (Section 6, Figure 4). Damage was patchy, sometimes severe, and usually occurred at higher elevations. Moderate to severe damage to deciduous and conifer trees was most conspicuous in the following areas: River Denys Mountain, Inverness County; New Strathglass and Browns Mountain, Antigonish County; Blue Mountain and Rossfield, Pictou County, and near Earltown, Colchester County. Light damage to dominant and co-dominant balsam fir and white spruce was quite general between Cape Mabou and South Highlands, Inverness County. Elsewhere in the district damage was light and scattered.

Dutch Elm Disease, *Ceratocystis ulmi* (Buism.) C.Moreau

White elm trees were examined throughout eastern Nova Scotia but no symptoms of this disease were found.

Willow Blight, *Pollaccia saliciperda* (All. and Tub.) v. Arx and *Physalospora miyabeana* Fukushi

Leaf browning was severe on a few willow trees at West River, Antigonish County and moderate at Strathlorne Station, Inverness County, Antigonish and Maryvale, Antigonish County, Milford Haven Bridge, Guysborough County, and Lorne, Pictou County. Elsewhere in eastern Nova Scotia browning was a trace to light and scattered.

Leaf and Twig Blight of Poplar, Pollaccia radiosa (Lib.) Bald. & Cif. and Pollaccia elegans Serv.

The disease of trembling aspen and largetooth aspen caused by Pollaccia radiosa was widespread but infections continued light.

Pollaccia elegans infections were moderate on balsam poplar reproduction near Lorne, Pictou County and near Sheet Harbour, Halifax County. Light infections occurred on single trees at Lower South River, Antigonish County, Whycocomagh, Inverness County, and Greenwood, Pictou County.

Leaf Blotch of Horsechestnut, Guignardia aesculi (Peck) V. B. Stewart

This disease of horsechestnut foliage was less prevalent than in 1964. Moderate leaf browning occurred on single trees at Merigomish, Dufferin and Green Hill, Pictou County. A trace of damage was observed at Sydney, Port Hood, and Baddeck.

Ink Spot, Ciborinia whetzelii (Seav.) Seav.

Infections by this disease resulted in moderate leaf browning at Mill Creek, Cape Breton County in a one-half acre stand of young trembling aspen, and was light from Mill Creek to McCreadyville and at Beaver Cove in the same county. A trace of damage to a few trembling aspen trees was observed for the first time at Milford Haven Bridge, Guysborough County and on Pictou Island, Pictou County.

Anthracnose of Ash, Gloeosporium aridum Ell. & Holw.

Light infections of this organism were observed on occasional white ash trees near Antigonish, near Hazel Hill and Boylston, Guysborough County, and Greenwood and Pleasant Valley, Pictou County.

Anthracnose of Maple, Gloeosporium apocryptum Ell. & Ev.

Leaf browning on sugar maple and red maple trees was observed in 15 localized areas, but the incidence of infected trees was low and damage was no more than light.

Cherry Blight

Leaf browning was moderate on a few pin cherry trees at Middle Cape, Cape Breton County, and a trace at Gaspereaux Lake, Antigonish County, Brookland and Pictou Island, Pictou County. The intensity and incidence of this disease was less than in 1964.

White Pine Needle Blight

Severe browning of the current needles of a few white pine trees occurred at Broadway, Pictou County. Browning was moderate near Beaver Lake, Halifax County, and light at Gaspereaux Lake, Antigonish County and Tony River and Eden Lake, Pictou County.

Eastern Dwarf Mistletoe, Arceuthobium pusillum Peck

This parasitic plant caused "brooming" on spruce trees at numerous locations in eastern Nova Scotia. The highest incidence of infection was observed in coastal areas from Troy to Creignish, at Pillar Rock, Belle Cote and Glendale, Inverness County; at Neil's Harbour and Morrison Brook, Victoria County, and at Doctors Brook, Antigonish County.

Needle Casts

Bifusella faullii Darker caused moderate foliage browning on occasional balsam fir trees at Glenville, Inverness County, and Liscomb Mills Guysborough County. Light infections occurred on individual trees at College Lake, Halifax County, and Trafalgar, Guysborough County.

Hypodermella mirabilis Darker caused severe discoloration of the two and three year old needles on one balsam fir tree near Glengarry, Pictou County, and light discoloration of a few trees at Forest Glen and Piper Glen, Inverness County.

Hypodermella nervata Darker, a needle cast of balsam fir, was light in intensity and incidence at Tangier, Halifax County, Brookville, Pictou County, Kemptown, Colchester County and Gaspereaux Lake, Antigonish County.

Hypodermella ampla (Davis) Dearn. caused a trace of foliage browning on three young jack pine trees at Scotsburn, Pictou County.

Lophodermium filiforme Darker infections were very light on red spruce at Trafalgar, Guysborough County, and near Glengarry and Lansdowne Station, Pictou County.

Needle Rusts

There was a significant decrease in the intensity and incidence of needle rusts throughout the district in 1964.

Chrysomyxa ledi DBy. caused very light discoloration of a few new needles on 15 ornamental blue spruce trees at Guysborough.

Chrysomyxa ledicola Lagh. infections were moderate on the current needles of 60% of the red spruce reproduction from Northeast Margaree to Lakes O'Law, Inverness County. Similar conditions were found on most black spruce reproduction from Middle River to Westside Middle River, Victoria County. Elsewhere, infections were common but of very light intensity.

Coleosporium asterum (Diet.) Syd. caused very light infections of occasional Scots pine trees in plantations at Stewarts Hill and near Middle Stewiacke, Colchester County, and on jack pine at Glengarry, Pictou County.

Pucciniastrum epilobii Otth. caused infections which were very light on the new needles of occasional balsam fir trees at Stewarts Hill, Halifax County, and Debert, Colchester County.

Red Flag of Balsam Fir, Fusicoccum abietinum (Hartig) Prill. & Delacr.

Dead branch tips were widespread throughout eastern Nova Scotia. Flagging was most conspicuous along Route #16 from Monastery to Boylston, Guysborough County, where infections of light intensity occurred on 70% of the balsam fir trees. Moderate flagging occurred on occasional trees at points near the Barachois Brook on the central Victoria County plateau.

Tip Blight of Balsam Fir, Rehmiellopsis balsameae Waterman

Damage to the current foliage was moderate on occasional balsam fir trees at Crowdis Mountain, Victoria County, and light at scattered points in Cape Breton, Inverness, Pictou and Halifax counties.

Yellow Witches' Broom of Balsam Fir, Melampsorella caryophyllacearum Schroet.

This disease was widespread in eastern Nova Scotia. Brooming was light except at Piper Glen, Inverness County, where a few balsam fir trees supported up to 22 brooms.

Beech Bark Disease, Cryptococcus fagi (Baer.)
and Nectria coccinea var. faginata Lohm., Wats. & Ayers

No noticeable change occurred in the status of the beech bark disease in 1965. Most trees are heavily cankered and support light current attacks of the scale (Class 5B).

The results of the reclassification of beech trees on Plot 2-14, typical of the condition of beech trees throughout the district, are summarized in the following table:

Year	No. of trees tallied	Per cent Trees in Class								Dead from other causes
		1	2	3	4	5A	5B	5C	6	
1965	88	0	0	0	5.7	6.8	65.9	2.3	11.3	8.0
1964	88	0	0	0	4.5	6.8	68.2	2.3	10.2	8.0

Fruiting bodies of the fungus were severe on two trees at Saunders Cove and moderate on one tree at Albert Bridge, Cape Breton County, and trace to light on occasional trees at Glenville and Grand Anse River, Inverness County, James River, Antigonish County, Newton Mills and near McCallum Settlement, Colchester County, and Crowdis Mountain and Timber Brook, Victoria County.

Black Knot of Cherry, Dibotryon morbosum Theiss. & Syd.

Infections were common but of light intensity on pin cherry branches throughout eastern Nova Scotia.

Other Noteworthy Diseases

Organism	Host	Location	Remarks
Armillaria mellea (Vahl. ex Fr.) Kummer	Ground	Black Brook, Vict. Co.	New herbarium record from N.S.
Chrysomyxa arcto-staphyli Diet.	Spruce, black	Liscomb Sanctuary, Halifax Co.	One broom. First herbarium record from Guys. Co.
Coccomyces hiemalis Higgins	Cherry, pin	Widespread in district.	Trace to light infections common.
Cytospora sp.	Maple, sugar	Mabou, Inv. Co.	Light infection on two trees.
Erysiphe aggregata (Peck) Farl.	Alder, speckled	Col., Inv., Pict., and Vict. counties	Light infections scattered.
Hypoxylon pruinatum (Klot.) Cke.	Aspen, trembling	Ingonish, Vict. Co.	Light infections scattered throughout eastern Nova Scotia.

Other Noteworthy Diseases (cont'd)

Organism	Host	Location	Remarks
Microspaera penicillata (Wallr. ex Fr.) Lev.	Beech	Glenville, N. S.	New herbarium host record.
Phaeostoma sphaerophila (Peck) Barr.	Cherry, pin	Central Victoria Co. Plateau.	New herbarium record.
Phleospora aceris (Lib.) Sacc.	Maple, sugar, mountain, striped	Ant., C.B., Guys., and Pict. counties	Light infections common. New herbarium host record on mountain maple.
Phyllosticta minima (Berk. & Curt.) Underw. & Earle	Maple, red	Liscomb Sanctuary and Trafalgar, Guys. Co.	Trace infection on few trees.
Rhytisma acerinum (Pers. ex St. Amans) Fr.	Maple, red	Throughout district	Infections common but very light
Rhytisma punctatum Pers. ex Fr.	Maple, red, mountain, sugar, striped	Ant., Col., Inv., and Vict. counties	Infections light. New herbarium host record on striped maple and red maple from N.S.
Taphrina carnea Johanson	Birch, yellow	Ant., Col., C.B., Inv., Pict., and Vict. counties.	Trace of infection common.
Taphrina wiesneri (Rathay) Mix	Cherry, pin	Ant., Pict., and Vict. counties.	Light infections found at scattered locations

Section 6, Table 1

Spruce Budworm Larval Sampling Records at Permanent Sampling Stations in Eastern Nova Scotia in 1965*

County and location	Station no.	Tree sp.	No. specimens	Av. per tree sample	Deviation from 1964
Antigonish Co.					
Malignant Cove	2-10	wS	1	0.3	+0.3
Glen Alpine	2- 8	wS	1	0.3	+0.3
Antigonish	2-39	wS	3	1.0	+0.7
Fairmont	**	wS	2	0.6	-
Pinevale	**	bF	1	0.3	-
Cape Breton Co.					
Beaver Cove	2-43	wS	1	0.3	0.0
Balls Creek	**	bF	1	0.3	-
Woodbine	**	wS	1	0.3	-
Guysborough Co.					
Aspen	2-13	wS	1	0.3	+0.3
Inverness Co.					
MacGregor Brook	2-49	bF	6	2.0	-0.6
Strathlorne	2-36	wS	2	0.6	-0.4
Port Hood	2-55	wS	1	0.3	+0.3
Creignish	2-57	wS	1	0.3	+0.3
Port Hastings	2-22	wS	1	0.3	+0.3
Frizzleton	**	bF	1	0.3	-
Frizzleton	**	wS	8	2.6	-
Pictou Co.					
New Lairg	2-33	wS	1	0.3	+0.3
Pleasant Valley	2-21	rS	1	0.3	+0.3
Scotsburn	2- 9	wS	1	0.3	+0.3
Richmond Co.					
George River	2-38	wS	2	0.6	+0.6

Section 6, Table 1 (cont'd)

County and location	Station no.	Tree sp.	No. specimens	Av. per tree sample	Deviation from 1964
Victoria Co.					
Little River	2-47	wS	2	0.6	-0.7
Ingonish	2- 1	wS	3	1.0	-2.6
Barachois Brook	2-59	bF	2	0.6	+0.3
North Aspy	2-48	wS	1	0.3	-0.7

*In addition to these stations, 90 trees at 30 additional stations were sampled, but produced negative results. Each station consisted of three trees and was sampled once.

**Special co-operator's sampling stations.

- Area not sampled in 1964.

Section 6, Table 2

Spruce Budworm Egg-Mass Counts per 100 Square Feet
of White Spruce and Balsam Fir Foliage
in Eastern Nova Scotia in 1965
(Two trees sampled at each location)

County and location	Tree sp.	No. sq. ft. foliage examined 1965	Sound egg masses per 100 sq. ft. 1964	1965
Antigonish Co.				
Malignant Cove	wS	3.4	0	0
Aulds Cove	wS	8.9	0	0
Inverness Co.				
2.3 mi. N. of Frizzleton	bF	5.8	0	0
Northeast Margaree	wS	5.0	0	0
Margaree Forks	wS	7.3	0	0
Southwest Margaree	wS	5.0	16	0
Scotsville	wS	6.4	0	0
Strathlorne	wS	6.9	0	0
Port Hastings	wS	5.5	0	22
Creignish	wS	4.4	0	0
Judique	wS	4.5	0	0
Port Hood	wS	8.0	0	0
Whycocomagh	wS	5.2	0	33
Forest Glen	bF	7.4	0	10
Grand Etang	wS	3.9	0	0
Cheticamp River	wS	5.1	0	0
Presquile	wS	2.8	0	0
French Mountain	bF	6.8	0	0
MacKenzie Mountain	bF	6.4	0	0
McGregor Brook	bF	5.8	16	0
Victoria Co.				
Middle River	wS	4.9	0	0
Gairlock Mountain	bF	6.8	0	0
Crowdis Mountain	bF	6.8	0	0
New Campbellton	wS	6.2	0	0
Clyburn Brook	wS	5.6	0	0
Keltic Lodge	wS	4.8	0	0
Ingonish Beach	wS	5.8	0	0
Ingonish Centre	wS	5.4	0	0
Warren Lake	wS	4.2	0	0

Section 6, Table 2 (cont'd)

County and location	Tree sp.	No. sq. ft. foliage examined 1965	Sound egg masses per 100 sq. ft. 1964	1965
Victoria Co. (cont'd)				
Mary Ann Falls	wS	4.0	0	0
Mary Ann Falls	bF	6.5	41	0
South Ingonish	wS	6.3	0	0
North Aspy	wS	6.4	0	0
Cape North	wS	4.9	0	0
0.8 mi. S. of Bay St. Lawrence	wS	5.7	0	0
4 mi. N. of Warren Brook	wS	3.8	0	0
Wreck Cove	wS	4.2	0	0
Little River	wS	6.5	0	0
Barachois River	wS	4.1	0	0
*6 mi. N.W. of North River Bridge	bF	5.6	0	19
*12 mi. N.W. of North River Bridge	bF	7.4	0	0
*15 mi. N.W. of North River Bridge	bF	8.1	0	0
*0.75 mi. E. of Barachois Brook	bF	5.8	0	0
*10 mi. E. of Frizzleton	bF	8.2	0	14
*0.6 mi. N. of Middle Branch North River	bF	9.6	0	0
*1 mi. E. of Mariana Road on old Oxford Road	bF	6.5	0	0
*North River	bF	6.1	0	0
*2 mi. E. of North River	bF	5.5	0	0
*1 mi. S. of Middle Branch, North River	bF	8.0	0	0
*4 mi. N. main highway on east side of North River	bF	7.3	Not sampled	0

* Located in plateau area, Central Inverness and Victoria counties.

Section 6, Table 3

Condition of Trees on Balsam Woolly Aphid Plots
in Eastern Nova Scotia in 1965

Plot no.	Location	Year	No. trees	Per cent trees in class* 1	2A	2B	2C	3A	3B	4A	4B	4C	5	Dead** other causes
	Colchester Co.													
2-12	Riversdale	1964	68	-	10.3	-	-	-	-	5.9	7.3	11.8	42.6	22.1
		1965	68	1.5	10.3					5.9	4.4	8.8	45.6	23.5
	Halifax Co.													
2-38	Sheet Harbour	1964	158	3.2	-	-	-	-0.6		5.7	7.0	13.9	24.7	44.9
		1965	158	3.2				0.6		4.4	7.6	14.6	24.7	44.9
	Pictou Co.													
2-22	Trafalgar	1964	100	34.0	10.0	-	-	-7.0		14.0	12.0	10.0	2.0	11.0
		1965	100	36.0	9.0			7.0		12.0	14.0	8.0	3.0	11.0
	Victoria Co.													
2-18	Gairlook Mtn.	1964	107	10.3	-	-	-	-	-	14.0	17.7	21.5	19.7	16.8
		1965	107	13.1						12.1	18.7	16.8	20.6	18.7
2-21	North River	1964	107	83.2	2.8	-	-	-	-	-	0.9	-	-	13.1
		1965	107	62.6	9.7					0.9	0.9			15.9

*See Section 1, Appendix A for explanation of classes.

**Includes: wind blown, suppressed, mechanical damage, etc.

Section 6, Table 4

Numbers of European Spruce Sawfly Collected from Permanent Sampling Stations in Eastern Nova Scotia in 1965

Location	Sampling station	No. of sawfly larvae* July 5 - July 16 1st sampling	Sept. 7 - Sept. 21 2nd sampling
Antigonish Co.			
Glen Alpine	2-8	5	0
Malignant Cove	2-10	12	3
Monastery	2-12	1	2
2.5 mi. W. of Antigonish	2-39	17	25
Cape Breton Co.			
East Bay	2-25	3	8
Albert Bridge	2-42	3	3
Beaver Cove	2-43	37	23
George River	2-45	5	6
Colchester Co.			
Greenfield	2- 2	10	10
3.7 mi. S.E. of Upper Stewiacke	2-44	13	9
Kemptown	2-11	8	21
Eastville	2- 6	-	3
Guysborough Co.			
Aspen	2-13	9	5
Trafalgar	2-32	6	5
Halifax Co.			
2.3 mi. S. of Burke Lake	2-30 (rS)	2	3
Anti Dam	2-31 (rS)	-	12
Inverness Co.			
Grand Etang	2-51	15	8
Margaree Forks	2-24	12	1
Ainslie Glen	2-23	4	12
Scotsville	2- 5	3	16

Section 6, Table 4 (cont'd)

Location	Sampling Station	No. of sawfly larvae* July 5 - July 16 1st sampling	Sept. 7 - Sept. 21 2nd sampling
Inverness Co. (cont'd)			
Strathlorne	2-36	2	24
Port Hood	2-55	16	13
Creignish	2-57	10	7
Port Hastings	2-22	8	11
Pictou Co.			
French River	2-27	16	2
Brookland	2- 3	7	24
New Lairg	2-33	27	12
Pleasant Valley	2-16	18	8
Pleasant Valley	2-21 (rS)	0	14
Scotsburn	2- 9	3	8
Moose River	2- 7	1	15
Richmond Co.			
Lynch River	2-37	1	0
Grand River	2-38	17	1
Drummondville	2-40	0	1
Victoria Co.			
Little River	2-47	1	7
Ingonish Centre	2- 1	5	0
North Aspy	2-48	1	2
Kelly Mountain	2-46	7	19
Baddeck	2-52	1	8

*Three white spruce trees sampled during each period except red spruce where indicated.

- Area not sampled.

Section 6, Table 5

Larch Casebearer Numbers and Defoliation Estimates at Sampling Stations in Eastern Nova Scotia in 1964 and 1965

Sampling station No.	Location	Casebearers/100 fascicles 1964	1965	Defoliation* 1964	1965
	Antigonish Co.				
2-103	Antigonish	1.8	0.7	T	T
2-113	Heatherton	0.9	0.7	0	0
	Cape Breton Co.				
2-117	East Bay	37.0	23.9	M	T
	Colchester Co.				
2-115	Upper Stewiacke	4.0	3.1	0	0
2-116	Kemptown	35.7	1.9	M	0
2-112	Greenfield	5.6	1.5	T	0
	Guysborough Co.				
2-104	Guysborough	1.3	0.3	0	0
2-105	Gegogan	2.8	0.6	0	0
	Inverness Co.				
2-114	Port Hawkesbury	5.7	4.8	T	0
2-110	Northeast Margaree	0.3	8.6	0	0
2-118	Judique	1.2	2.1	0	0
	Pictou Co.				
2-101	Mt. Thom	9.9	1.4	M	0
2-102	Eden Lake	6.8	3.1	M	T
	Richmond Co.				
2-119	Barra Head	6.5	51.9	T	T
	Victoria Co.				
2-108	Big Bras d'Or	3.7	2.7	M	L
2-109	Baddeck	46.1	8.1	M	T

*T = Trace L = Light M = Moderate

Section 6, Table 6

Proportions of Winter Moth, Fall Cankerworm, and Bruce Spanworm Larvae Present in Random Hand-picked Samples in Eastern Nova Scotia in 1965

Location	Hosts	Percentage of species present			Defoliation*
		Winter moth	Fall cankerworm	Bruce spanworm	
Antigonish Co.					
Browns Mountain	sM, Be, moM	0	0	100	L-M
Antigonish	Ap, Ba, wAs	100	0	0	M
"	wE	90	10	0	L
West River	Ap	100	0	0	M-S
"	cCh	100	0	0	L-M
"	wE	100	0	0	L
Lower South River	cCh, Ap	100	0	0	S
Cape Breton Co.					
Sydney	Ap	0	100	0	0
Balls Creek	wB	0	100	0	0
Colchester Co.					
Upper Stewiacke	wE	100	0	0	L
1 mi. W. of Upper Stewiacke	Ap	100	0	0	S
"	wE	100	0	0	L
North River	wE	0	100	0	L
"	cCh	100	0	0	L
Truro	wE	100	0	0	L
"	sM, Ba	96.8	3.2	0	T
Nuttby	sM	0	0	100	T
Guysborough Co.					
Boylston	Ap	100	0	0	L
"	wAs, Ba	100	0	0	T
Guysborough	Ap	100	0	0	T
Halifax Co.					
Sheet Harbour	Be	0	100	0	0

Section 6, Table 6 (cont'd)

Location	Hosts	Percentage of species present: Winter moth	Fall cankerworm	Bruce spanworm	Defoliation*
Inverness Co.					
Glenora Falls	sM, Be	0	0	100	L-M
River Denys Mountain	sM, Be	0	0	100	T-L
Whycocomagh	Ap	0	0	100	0
"	bFo	100	0	0	0
"	sM	0	100	0	0
Margaree Forks	wE	0	100	0	0
Pictou Co.					
River John	Ap, wE, wAs	100	0	0	T
Pictou	Ap	100	0	0	S
"	wE, Ba	100	0	0	L-M
"	rO	100	0	0	T
Central West River	Ap	6.8	93.2	0	S
" " "	wE	100	0	0	M
New Glasgow	wE	52.5	47.5	0	0
" "	Ba	42.5	57.5	0	0
Stellarton	wE	100	0	0	M
"	Ap	77.8	22.2	0	M
Plymouth	wE, Ap	100	0	0	M
Victoria Co.					
Baddeck	Be	0	100	0	0

*T - Trace, up to 5 per cent
L - Light, 10-20 per cent
M - Moderate, 30-60 per cent
S - Severe, 70-100 per cent.

Section 6, Table 7

Fall Webworm Nest Census Eastern
Nova Scotia, 1965

Location	No. miles	Average number of nests per mile 1962	1963	1964	1965
Antigonish Co.					
Havre Boucher Bridge - Monastery	8.2	0.7	0.2	0	0
Afton - Monastery	6.5	0	0	0	0
Cape Breton Co.					
Little Bras d'Or - Point Aconi	4.5	*	*	0.4	0.8
Colchester Co.					
Tatamagouche - Nuttby Mtn.	18.7	0.4	0	0	0
Tatamagouche - Brule	6.3	2	0	0	0
Upper Stewiacke - Brookfield	17.3	*	*	0.1	0
Guysborough Co.					
Stormont - Country Hbr. Cross Roads	8.5	*	*	0.7	0
Milford Haven Bd. - Guysborough Village	2.5	*	*	8.0	0.8
Halifax Co.					
Sheet Harbour - Spry Bay	7.4	5	0	0	0
Inverness Co.					
MacKenzie River - Top of MacKenzie Mtn.	2.8	0	0	0	0
Margaree Hbr. - Margaree Forks	7.9	0.2	0	0	0
Margaree Forks - Northeast Margaree	5.6	0	0	0	0
Pictou Co.					
Tony River - River John	10.0	1	0	0	0

* No count made.

Section 6, Table 8

Insects Collected in Eastern Nova Scotia in 1965
(In addition to those mentioned in text)

Species	Collected from	Collections	Remarks
Acleris variana (Fern.)	wS, bF, bS	54	Populations continue at low levels at widely separated points in the district
Acronicta americana Harr.	yB	1	Two larvae at New Harbour, Guysborough Co.
Adelges abietis (L.)	wS	13	Common. Galls collected for G. R. Underwood
Adelges strobilobius (Kalt.)	tL	2	Five small trees heavily infested at Hay Cove, Richmond Co., and one moderately infested at Trafalgar, Guysborough Co.
Amorbia humerosana Clem.	wS, bF, rS	5	Low numbers found in Colchester, Guysborough and Halifax counties
Anatis mali (Say.)	wS	1	One adult from Greenvale, Pictou Co.
Anomogyna elimata (Gn.)	bF, wS, tL, eH	11	Thirteen larvae
Anomogyna perquiritata (Morr.)	wS, bF, tL	3	Collected in Cape Breton, Inverness and Guysboro counties
Anoplonyx luteipes (Cress.)	tL	7	Low numbers in beating samples
Archips argyrospila (Walker)	Ap, cCh, Haw	6	Eighteen larvae
Archippus packardianus Fern.	wS, bF	28	Occasional larvae in beating samples from all counties except Colchester
Argyrotaenia lutosana Clem.	wS, bF	4	One larva in each collection
Argyrotaenia velutinana Walker	Ap	1	One larva from River John, Pictou Co.
Calligrapha bigsbyana (Kby.)	wS, bF	2	Two larvae in beaten samples at Pleasant Valley, Colchester Co.
Caripeta divisata Wlk.	wS, bF, tL, rS	26	Low numbers throughout district
Cecidomyia ocellaris (O.S.)	rM	1	Three larvae from Scotsburn, Pictou Co.
Charadra deridens (Guen)	Be	1	One larva from Pinevale, Antigonish Co.
Chrysomela scripta (F)	tA	1	Twenty-five larvae from Big Hill, Victoria Co.
Dimorphopteryx sp.	wild pear	1	Six larvae from Northeast Margaree, Inverness Co.

Section 6, Table 8 (cont'd)

Species	Collected from	Collections	Remarks
Dimorphopteryx pinquis (Nort)	wB	1	Five larvae
Ectropis crepuscularia (Schiff)	wS, tL, bF, rS	18	Low numbers found at widely separated locations in the district
Elaphria versicolor (Grote)	wS, bF, tL	8	Low numbers collected in Cape Breton, Inverness, Pictou and Colchester counties
Epirrita autumnata henshawii Swett.	bF, wS	8	Ten larvae
Eucordylea atrupictella Dietz.	wS	1	One larva
Eufidonia notataria Wlk.	tL, bF	4	Halifax Co. (1); Inverness Co. (1) and Guysborough Co. (2)
Eulype hastata (L)	yB, wB	2	Two larvae, Pictou Co. One larva Guysboro Co.
Eupithecia filmata Pears	wS	1	Three larvae
Eupithecia luteata Pack.	wS, bF, rS, tL, eH, bS	63	Low numbers throughout district
Eupithecia palpata Pack.	bF, tL, wS	8	Small numbers in most counties
Fenusa dohrnii (Tisch.)	Al	4	Light leaf mining of few alder bushes at Lakes O'Law and Aberdeen, Inverness Co.
Feralia jocosa Gn.	bF	1	Two larvae collected in Richmond Co.
Feralia sp.	bF, wS, rS	9	Low numbers present in most counties
Griselda radicana Wlshm.	wS	19	Found in small numbers in all but Halifax and Guysborough counties
Hemichroa crocea (Fourc.)	Al	1	Few larvae at Kempt Road, Richmond Co.
Heterarthrus nemoratus (Fall.)	wB, wiB	5	Light browning of white birch foliage at one point each in Guysborough, Inverness and Victoria counties
Heterocampa manteo (Dbldy.)	yB	1	One larva from Cape Breton Co.
Hydriomena divisaria (Wlk.)	wS, bF	6	Low numbers collected in Colchester, Cape Breton and Inverness counties
Hypagyrtis piniata (Pack.)	bF, eH	3	Six larvae

Section 6, Table 8 (cont'd)

Species	Collected from	Collections	Remarks
Lambdina fiscellaria fiscellaria Gn.	bF, wS, tL, wB, eH	36	Low numbers in beaten samples from all counties of the district
Lithophane antennata (Wlk.)	Be	1	Two larvae
Machimia tentoriferella Clem.	pCh	1	Few larvae in Victoria Co.
Malacosoma americanum (F.)	Ap, cCh	4	Common throughout Antigonish, Colchester and Pictou counties
Malacosoma disstria Hbn.	tA	1	Small numbers from West River, Antigonish County
Mulsantina hudsonica Csy.	wS, bF, tL	15	Adults collected for S. G. Smith
Nematus pisum Walsh.	W	4	Heavy galling of a few trees at Knoydart, Antigonish Co.
Nematus populi (Marl.)	lA	1	Seven larvae
Nematus robustus (Marl.)	tA	1	Light leaf folding common in district
Nematocampa limbata Harr.	bF, eH	4	One larva each from Colchester and Halifax counties, three larvae from Pictou Co.
Nemoria mimosaria Guen.	wS	1	One larva
Neodiprion pratti paradoxicus Ross.	jP, scP	2	Light defoliation of young jack pine at Scotsburn, Pictou Co.
Neodiprion pinetum Nort.	wP	1	Light defoliation of white pine at Northeast Margaree, Inverness Co.
Nepytia canosaria Wlk.	bF, eH, bS	10	Low numbers in beaten samples at scattered locations in the district
Nyctobia limitaria Wlk.	bF, eH, tL	11	Found in small numbers in most counties
Nymphalis antiopa L.	W, wE, puW, tA	6	Few colonies found at widely separated locations
Orgyia antiqua L.	Be, tL	2	Two larvae
Orgyia leucostigma (J.E. Smith)	Al	1	One larva
Palthis angulalis Hbn.	bF	2	Larvae in beaten samples from Colchester and Victoria counties

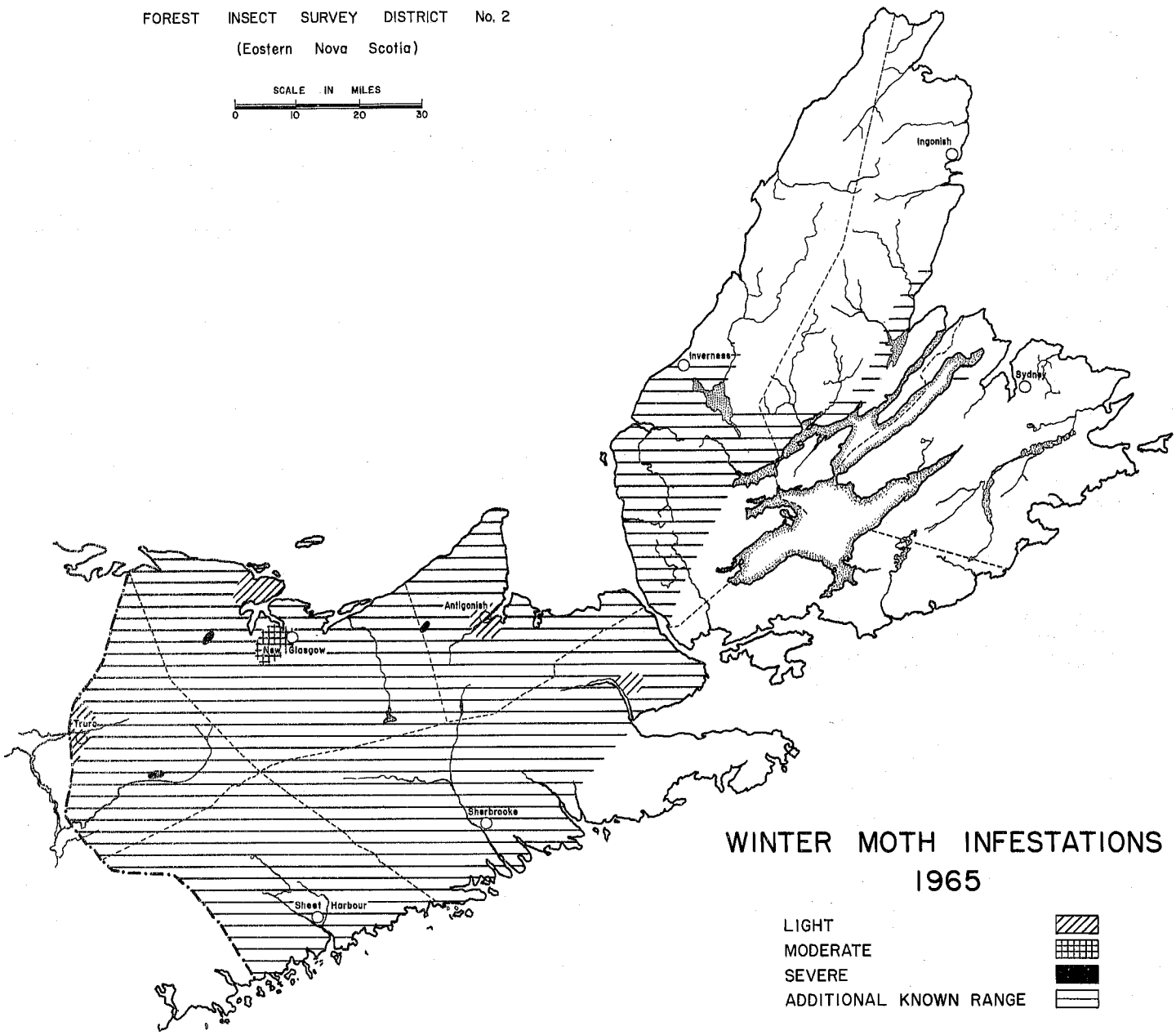
Section 6, Table 8 (cont'd)

Species	Collected from	Collections	Remarks
Pamphilidae sp.	bF, rP, wS	5	Few larvae collected from Colchester, Guysborough, Pictou and Victoria counties
Pero morrisonarius Hy. Edw.	bF, wS, tL	3	Five larvae
Petrova albicapitana Busck.	jP	3	Populations continued low in jack pine plantations in Colchester and Pictou counties
Phyllocnistis populiella Cham.	tA, bPo	7	Low numbers on aspen reproduction in Antigonish, Pictou and Victoria counties
Pikonema alaskensis (Roh.)	wS, bS, rS	39	Common. Moderate to severe defoliation of red and white spruce reproduction at points in Cape Breton and Guysboro counties
Pikonema dimmockii (Cress.)	wS, bS	25	Low numbers throughout district
Pristiphora geniculata (Htg.)	Mo	1	Scattered throughout district
Profenusa thomsoni (Konow)	wB	1	One larva Inverness Co.
Proteoteras aesculana Riley	mM	1	Light mining of twigs at New Glasgow, Pictou Co.
Protoboarmia porcelaria indicataria Wlk.	wS, bF	20	Found in small numbers
Psilocorsis faginella (Cham.)	Be	1	One larva
Semiothisa dispuncta complex	wS, bF, tL, eH	42	Found in small numbers throughout the district
Semiothisa sexmaculata (Pack.)	tL	8	Low numbers collected
Spilonota ocellana (D. & S.)	Ap	5	Twelve larvae
Tetracis lorata Grote	eH	1	One larva, Colchester Co.
Xylococculus betulae Pergande	Be, wB, yB, wiB	16	Low numbers found widespread
Zeiraphera sp.	wS	16	Few
Zeiraphera diniana Guen.	tL	4	Not common

Section 6, Table 9

Numbers of Common Insects Collected from Permanent Sampling Stations in Eastern Nova Scotia in 1965

Species	No. and type of stations producing larvae	Av. no. larvae per tree sample
Lepidoptera		
Acleris variana (Fern.)	24 wS	2.5
	4 bF	0.5
Amorbia humerosana Clem.	1 wS	0.3
	1 rS	0.6
	1 bF	0.6
Archippus packardianus Fern.	11 wS	1.2
	2 bF	0.3
Caripeta divisata Wlk.	9 wS	0.6
	3 bF	0.8
Choristoneura fumiferana (Clem.)	15 wS	0.5
	2 bF	1.3
Elaphria versicolor Grt.	1 wS	0.3
Epirrita autumnata henshawii Swett.	1 wS	0.6
Eupithecia luteata Pack.	20 wS	0.7
	4 bF	0.8
	1 rS	2.3
	1 eH	0.3
Feralia sp.	1 bF	0.3
	1 rS	0.3
Griselda radicana Wlshm.	11 wS	0.7
Lambdina fiscellaria fiscellaria Gn.	7 wS	0.6
	1 bF	0.3
	1 eH	2.3
Protoboarmia porcelaria indicataria Wlk.	10 wS	0.5
Semiothisa disputa complex	17 wS	1.3
	6 bF	3.8
	1 eH	0.3
Hymenoptera		
Diprion hercyniae (Htg.)	31 wS	3.0
	3 rS	3.4
Neodiprion abietis complex	3 wS	0.9
	1 bF	20.6
Pikonema alaskensis (Roh)	16 wS	0.6
	2 rS	1.0
Pikonema dimmockii (Cress)	13 wS	0.7


FOREST INSECT SURVEY DISTRICT No. 2
(Eastern Nova Scotia)
SCALE IN MILES
0 10 20 30
Ingonish
Inverness
Sydney
Antigonish
New Glasgow
Truro
Sherbrooke
Sheet Harbour
WINTER MOTH INFESTATIONS
1965
LIGHT
MODERATE
SEVERE
ADDITIONAL KNOWN RANGE

Section 6, Figures 2 and 3.

Silver poplar trees before and after defoliation by the satin moth. Judique, Inverness Co., N.S. June 23 and July 13, 1965.

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Section 6, Figure 4.

Damage to softwood stand by freezing precipitation during winter of 1964-65. Gairlock Mountain, Victoria Co., N.S.

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INSECT CONDITIONS