ANNUAL DISTRICT REPORTS

FOREST INSECT AND DISEASE SURVEY

MARITIMES REGION

1966

by

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1.0 INTRODUCTION

(G. V. Moran)

Changes in Survey organization having a direct bearing on the activities of field technicians in 1966 included the centralization of regional identification and rearing operations at Fredericton, the provision of a third ranger position in Nova Scotia, and the establishment of a seasonal ranger headquarters for western New Brunswick in a trailer at the New Brunswick Forest Service ranger headquarters at Plaster Rock. The ranger position was filled by D. B. Marks who came to the field staff with 17 years experience in insectary and related work. He was made responsible for the seven counties of western Nova Scotia. W. Harrington, appointed as supervisor for Nova Scotia, was responsible for the four central counties of Cumberland, Colchester, Halifax and Hants, and L. J. Coady was responsible for the eastern counties. In New Brunswick, where district boundaries remained the same as in 1965, G. F. Estabrooks, responsible for notheastern N. B., transferred late in the season to other Survey activities and was replaced by C. L. Burlock who came to the Survey from the New Brunswick Forest Service.

The five-month period March through July of 1965 was reported as one of the driest on record. However, 1966 to the end of August saw below normal rainfall set all time records for dryness for some parts of the Region. This was followed in September by above normal rainfall in most areas.

Numerous requests for assistance by persons associated with other projects, both intra-, and extra- Regional, were handled by the Survey field staff during 1966. As in previous years, assistance was given the Aerial Spraying Project with surveys for spruce budworm egg masses and defoliation in parts of New Brunswick. The maps shown as Figures 1 and 2 were supplied by D. R. Macdonald of the Aerial Spraying Project. Budworm surveys in Nova Scotia and Prince Edward Island were carried out by Survey field staff.

We wish to acknowledge the high degree of co-operation maintained by provincial forest services, National Parks and woods industries. Collections submitted by these agencies account for a high percentage of the total received by the Survey (Table 1), and much information of mutual interest was exchanged. District technicians try to contact all co-operating personnel at least once during the field season (Table 2).

Light traps were operated at a total of 29 locations in 1966. The majority of these were in operation during July and August. Traps at six new locations, two in Nova Scotia and four in New Brunswick, and one trap at each of Fredericton and Debert were operated over longer periods of time.

There was little change in the numbers and types of sampling stations and plots maintained during 1966 (Section 1, Table 3).

Infestations of the spruce budworm, Choristoneura fumiferana Clem., continued over sizeable areas of central New Brunswick although defoliation was less than in recent previous years. Scattered defoliation occurred in Fundy National Park and in parts of eastern Nova Scotia. Defoliation by the larch sawfly, Pristiphora erichsonii Htg. increased in intensity and extent in New Brunswick and Nova Scotia (Section 1, Figure 3). Infestations of the balsam gall midge, Dasineura balsamicola (Lint.), occurred more commonly than in 1965 (Section 1, Figure 4). Infestations of jack pine sawfly, Neodiprion virginianus complex, near Newcastle, N.B., continued on a reduced scale. There were no large scale outbreaks of the forest tent caterpillar, Malacosoma disstria Hbn., but pockets of defoliation occurred at widely separated locations. The winter moth, Operophtera brumata L., found within the same areas as in 1965, was less numerous in western Nova Scotia where infestations of the fall cankerworm, Alsophila pometaria Harr., were widespread. A small outbreak of the fall cankerworm occurred also on an island in the lower reaches of the St. John River. An easterly extension in the known area of distribution of the Dutch elm disease, Ceratocystis ulmi (Buism.) C. Moreau, occurred when the infection was found for the first time in Sussex and Moncton.

Insects collected in the Region in 1966 are listed by districts in Table 4 of this Introduction.

Section 1, Table 1

Sources of Insect and Tree Disease Collection in 1966

District	Forest Research Laboratory					Prov. Forest Service		
	Dist. Insect	Tech. Path.	Others Insect	Others Path.	Others Total		Others	Total
N.B. (W.) (Dobson)	372	81	250	65	768	205	53	994
N.B. (N.E.) (Estabrooks)	325	63	6	18	412	192	3	607
N.B. (S.) & P.E.I. (MacCall)	395	142	4	19	560	161	7	728
Total N.B. & P.E.I.	1,092	286	260	102	1,740	558	31	2,329
N.S. (W.) (Marks)	580	179	14	28	801	195	2	998
N.S. (C.) (Harrington)	729	215	104	10	1,058	159	20	1,237
N.S. (E.) (Coady)	653	203	2	32	861	182	0	1,043
Total N.S.	1,962	597	120	41	2,720	536	22	3,278
Total N.B., P.E.I. & N. S.	3,054	883	380	143	4,460	1,094	53	5,607

Section 1, Table 2

Numbers of Co-operators Contacted in Maritimes Region in 1966

District	Special co-operators No. in district	Special co-operators No. contacted	Other co-operators contacted Provincial	Other co-operators contacted Other	Total co-operators contacted
N. B. (W.)	13	13	6	4	23
N. B. (N.E.)	21	21	9	6	36
N.B. (S.) & P.E.I.	10	10	12	15	37
N. S. (W.)	16	14	5	1	20
N. S. (C.)	16	15	7	0	22
N. S. (E.)	19	11	5	5	21
Totals	95	84	44	31	159

Section 1, Table 3

Plots and Sampling Stations Maintained in Maritimes Region in 1966

(Changes from 1965 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	21	43	-	2	1	1	3
N.B.(N.E.)	25	14	7	-	1	1	-	-
N.B.(S.) & P.E.I.	10	13	4	-	-	2	-	-
N.S.(W.)	20	15	-	9	2	2	-	-
N.S.(C.)	47	13	-	3	2	3	1	-
N.S.(E.)	42	13	-	-	-	3	-	-
Totals.	170(-1)	89(+8)	54	12	7	12(-1)	2	3

Section 1, Table 4.

Insects Collected in the Maritimes Region in 1966
(By Districts)

Species	Collected from	Collected in district (1) 1.	2.	3.	4.	5.	6.
Abbottana clemataria A. & S.	wB, rM					*	
Acleris variana Fern.	wS, rS, bF, tL	T	T	T	*	T	**
Acleris sp.	Al, wB, wiB	*			*		
Acrobasis betulella Hlst.	wB, wiB			*	*	*	*
Acrobasis rubrifasciella Pack.	Al				*		
Acrobasis sp.	Al	*					
Acronicta americanum Harr.	rM				*		
Acronicta dactylina Grote	W						*
Acronicta grisea Wlk.	cCh						*
Acronicta sp.	wB, Al					*	*
Adalia bipunctata Linn.	wE, Ba			*	*		
Adalia frigida Schn.	wE					*	
Adelges abietis Linn.	wS, rS	*			**	**	*
Adelges lariciatus (Patch)	rS, wS			*			
Adelges piceae (Ratz.)	bF	T	T	T	T	T	T
Adelges strobilobius (Kalt.)	rS, bS, tL		*	*	*		*
Agriotes limosus Lec.	bF					*	
Agromyza aristata Malloch	wE	*			*	*	*
Agromyza sp.	cPo				*		
Agrotis sp.	rS, wS, bS	*					
Alsophila pometaria Harr.	rM, sM, mM, Ap, wE, rO, Ba, cCh, sPo	T	*	T	T	T	T
Altica ambiens alni Harr.	Al	T	*	T	*	*	
Altica corni Woods	Do		*				
Altica populi Brown	tA				*		*
Amorbia humerosana Clem.	rS, wS, tL, bF	*			*	*	*
Amphibolips cookii (Gill)	rO				*		
Anacampsis innocuella Zell.	sPo, W, tA, lA		*	*			*
Anacamptodes sp.	wS	*					
Anatis sp.	wS				*		
Anavitrinella pampinaria Guen.	wS, bF				*		
Andricus singularis (Bass)	rO	*			*		
Andricus sp.	rO				*		
Anomogyna elimata Guen.	bF, wP, wS				*		*
Anomogyna perquiritata Morr.	bF					*	
Anomogyna sp.	wS	*					
Anoplonyx canadensis Hgtn.	bF, tL					*	*
Anoplonyx luteipes (Cress.)	tL				*	**	*
Aphrophora parallela Say.	scP				*	*	
Aphrophora saratogensis Fitch	jP			*			
Aphidae	tA, wE, wS, tL	*					
Archips argyrospilus Wlk.	wE, Ap, cCh, Ba, rO, tA	*	*	**	*	*	*

Section 1, Table 4 (Cont'd.)

Species	Collected from	Collected in district (1) 1.	2.	3.	4.	5.	6.
Archips cerasivoranus Fitch	cCh	T	T	T	*	T	T
Archips fervidanus Clem.	rO	*					
Archips rosanus Linn.	rM	*					
Archips sp.	tA, wB, rO, wB wAs, Al, wiB, sPo, Ap, Haw, Sweet fern, rM	*			*		*
Archippus packardianus Fern.	wS, bF				*	*	*
Arge sp.	wiB	*					
Arge pectoralis (Leach)	Al			*			*
Argyresthia aureoargentella Brower	eC	*	T				
Argyresthia freyella Wlshm.	eC	*	T	*			
Argyresthia laricella Kft.	tL	*					*
Argyresthia pygmacella Hbn.	W		*				
Argyresthia thuiella Pack.	eC		T	*			
Argyresthia sp.	eC	*					
Argyrotaenia lutosana Clem.	wS				*		
Argyrotaenia occultana Free.	eH, wS, bF				*	*	*
Argyrotaenia pinatubana Kft.	wP			*	*		
Argyrotaenia velutinana Wlk.	tL, wS			*	*	*	*
Argyrotaenia sp.	wS, rS, tL, eH, bF				*		
Aspidiotus ithacae (Ferris)	rP, Y			*	*		
Asteromyia carbonifera Felt.	Goldenrod				*		
Badebecia urticana Hbn.	Ap		*	*	*		
Biston cognataria (Guen.)	ltA				*		
Bucculatrix canadensisella Cham.	wiB, wB	T		T	T	T	T
Caliroa sp.	wB				*		
Caliroa quercus - alba (Cress.)	rO, Irish Oak	*					*
Calligrapha amelia confluens Schffr.	S					*	
Calligrapha scalaris Lec.	bF					*	
Callirhytis lanata Gill	rO				*		
Callirhytis sp.	rO					*	
Callirhytis seminator (Harr.)	rO	*			*		
Calocalpe sp.	cCh				*		
Campaea perlata Gn.	Haw, Ap			*			*
Caripeta divisata Wlk.	wS, bF, wP, tL eH, rS	*		*	**	**	**
Caripeta sp.	rP					*	
Cecidomyia sp.	rO, ltA, W, bF				*		
Cenopis pettitana Rob.	sM	T	T	T			T
Chilocorus stigma (Say.)	Be, wS				*		
Choristoneura conflictana Wlk.	wE, sPo, Ap tA, Ba	*		*	*		*
Choristoneura fumiferana Clem.	bF, wS, rS	T	T	T	T	T	T
Choristoneura rosaceana Hart.	rO, Ap, tA, wE, wB rM, sM, Ap, Wi	*	*	*		*	*
Chrysididae	Ap				*		

Section 1, Table 4 (Cont'd.)

Species	Collected from	Collected in district (1) 1.	2.	3.	4.	5.	6.
Chrysopa sp.	wP				*		
Cimbex americana Leach	wB, tA				*	*	
Cincticornia sp.	rO				*		
Cingilia canosaria Wlk.	bS				*		
Clepsis persicana Fitch	wS, tA, Ap, mM, wE	*	*	*		*	
Coccinella monticola (Muls.)	tL	*					
Coccinella novemnotata Hbst.	wP				*		
Coccinella sp.	wP, bF, tL				*		
Coleophora fuscedinella Zell.	wiB, wB	T	T	T	T	T	T
Coleophora innotabilis Brown	tL			*		*	
Coleophora laricella Hbn.	tL	T	T	T	T	T	T
Coleophora malivorella Riley	wB					*	*
Coleophora querciella Clem.	rO	*					
Coleophora serratella Linn.	Haw, Ap			*	*	*	*
Coleophora tiliaefoliella Clem.	Ba	*					
Coleophora sp.	Al, yB, wB, jP	*			*		
Colopha ulmicola (Fitch)	wE				*	*	
Compsolechia niveopulvella Chamb.	Ap, tA		*	*		*	
Conothorus sp.	rP					*	
Corythucha elegans Drake	W				*		
Corythucha heidemanni Drake	Al				*		
Corythuca pallipes Parsh.	W				*		
Cosymbia pendulinaria Guen.	wB					*	
Crepidodera	tA				*		
Croesia semipurpurana (Kft.)	rO			*	*	*	
Croesus latitarsus Nort.	wB						*
Cryptococcus fagi (Baer.)	Be				*		
Cryptorhunchus lapathi (L.)	W	*					
Ctenicera aratus Lec.	wS					*	
Ctenicera triangulata Rand	rS				*	*	
Cynips sp.	rO				*	*	
Dasineura balsamicola (Lint.)	bF	T	T	T	T	T	T
Dasineura communis Felt	sM					*	
Dasineura ocellaris (O.S.)	rM	*			*	*	*
Dasineura ulmea Felt.	wE					*	
Depressaria betulella Busck.	Al, wB, wiB				**	*	*
Depressaria sp.	Al						
Dermaptera	wS						
Dichelonyx sp.	wS	*					
Dimorphopteryx pinquis (Nort.)	wiB, Al, wB	*			*		*
Dimorphopteryx sp.	yB				*	*	
Dioryctria reniculella Grote	wS, bF, rS	*		*	*	*	*
Dioryctria sp.	jP, bS, wS,	*			*		
Diprion hercyniae (Htg.)	wS, rS	T	T	T	T	T	T
Dryophanta sp.	rO				*		
Ectropis crepuscularia Schiff.	rS, wS, tL, wB, Po rM, Haw, bF		*		*	**	*

Section 1, Table 4 (Cont'd.)

Species	Collected from	Collected in district (1) 1.	2.	3.	4.	5.	6.
Elaphria versicolor Grote	rS, wS, tL, bF	*	*	*	**	*	*
Empira sp.	wS	*					
Epinotia aceriella (Clem.)	rM				*	*	
Epinotia sp.	rO				*		
Epirrita autumnata henshawi Swett.	wS, tL, bF					*	**
Espisimus argutanus Clem.	Al, wB, W				*		
Eriophyes sp.	sM, rO, Al, bCh suM, wB, wiB, wE, W ltA, yB, Be, rM, tA	*			**		
Eriophyes major Hodgk.	rM				*		
Eriophyes padi Nal	cCh					*	
Eriophyes tiliae Pag. var. liosoma Nal.	Ba				*		
Erisoma americanum (Riley)	wE					*	
Erisoma lanigerum (Hausm.)	wE				*	*	
Eucordylea atrupictella Dietz.	wS, bF		*	*			
Eufidonia notataria Wlk.	tL, bF, wP					*	*
Eufidonia sp.	bF				*		
Eulecanium nigrofasciatum Perg.	mM	*					
Eupithecia filmata Pears.	bF, wS, rS, eH	*		*	*	**	**
Eupithecia fletcherata Tayl.	tL					*	
Eupithecia gelidata Moesch.	wiB	*				*	
Eupithecia luteata Pack.	eH, bF, rS, wS tL, Be	*			**	**	**
Eupithecia sp.	wiB, wS, rS, bF eH, rP, wP	*			**		
Eupithecia transcanadata (MacKay)	wS, rS, bF, tL, eH, wP	*	*		**	**	**
Euura atra Jur.	W			*			
Fenusa dohrnii (Tischb.)	Al					*	*
Fenusa pusilla (Lep.)	wiB	T	T	T	T	T	T
Fenusini	rO	*					
Fenusa ulmi Sund.	wE	*			T	*	
Feralia jocosa Gn.	wS, rS, bF, tL, eH	*			*	*	*
Geometridae	wS, bF	*					
Georgiaphis ulmi Wilson	wE					*	
Gossypara spuria Modeer	wE, Acacia	*	*		*	*	
Griselda radicana Wlshm.	wS, bF	*		*	*	*	*
Halisidota maculata (Harr.)	wB, wS			*	*		
Halisidota sp.	W				*		
Hamamelistes spinosus Shim.	yB					*	
Hemichroa crocea (Fourc)	Al				*		
Herculia thymetusalis (Wlk.)	bF, wS		*			*	*
Heterarthrus nemoratus (Fall.)	wB						*
Heterocampa sp.	Al, wB				*		
Hyalophora cecropia L.	rM					*	
Hydriomena divisaria Wlk.	wS, rS, bF, tL, eH	*	*	*	*	**	**

Section 1, Table 4 (Cont'd.)

Species	Collected from	Collected in district (1) 1.	2.	3.	4.	5.	6.
Hydriomena furcata Thun	W		*				
Hydriomena sp.	Al, ltA, wB	*			*		
Hylobius sp.	scP, wP	*		*			
Hypagyrtis piniata Pack.	bF, wS, tL, wP, rS, eH	*	*	*	*	*	
Hypagyrtis sp.	eH				*		
Hyphantria cunea (Drury)	W, mM, Al, pCh, Sweet fern	T		T	*	T	T
Hyppa xylinoides Gn.	rS				*		
Ipimorpha pleonectusa Grt.	tA, ltA	*	*	*	*		
Itame anataria Swett	wB					*	
Itame pustularia (Gn.)	rM					*	
Lambdina fiscellaria fiscellaria Gn.	bF, wS, rM, eH, rS, tL, wP, wB, sM			*	**	**	**
Lecanium sp.	rO	*					
Lepidosaphes ulmi (L.)	wE					*	
Limonius aeger Lec.	wS, bF, Ap				*	*	
Lithocolletis aceriella Clem.	rM				*	*	*
Lithocolletis sp.	wiB, tA				*		
Lithophane sp.	rM, rO, wE, aMo, Ap wB, wiB, Al, tL, yB	*			*	*	
Lithophane antennata (Wlk.)	Ap, wE	*		*		*	
Lithophane thaxteri Grt.	tL					*	
Lucidota sp.	wS, wP, eH				*		
Ludius propola Brown	wS					*	
Machimia tentoriferella Clem.	wB				*		
Malacosoma americanum F.	Ap, pCh, Haw, rO	*		*	*	*	
Malacosoma disstria Hbn.	rO, wE, wAs, suM, bCh wB, aMo, A, pCh, rM	T	*	T	*	T	*
Melanolophia sp.	bF				*		
Melanolophia signataria Wlk.	wS, tL					*	
Meroptera sp.	tA					*	
Messa populifoliella Townsend	tA, cBo	*					
Messa sp.	tA	*					
Metallus rohweri MacG.	Blackberry						*
Mindarus abietinus Koch.	bF	T		*	**	T	
Mulsantina hudsonica Csy.	rS, wS, tL, bF wP, tA	*		**	*	**	**
Nabis sp.	bF	*					
Nematocampa filamentaria Gn.	bF				*	*	
Nematus sp.	tA, wiB	*			*		
Nematus limbatus (Cress.)	W					*	
Nematus ribesii (Scop)	Gooseberry						*
Nematus robustus (Marl.)	tA, bPo		*		*	*	
Nematus ventralis Say.	W						*
Nemoria mimosaria Guen.	tA, bF, eH				*	*	

Section 1, Table 4 (Cont'd.)

Species	Collected from	Collected in district (1) 1.	2.	3.	4.	5.	6.
Neodiprion sp.	jP, scP, rP				*	*	*
Neodiprion abietis (Harr.)	bF, bS, rS, wS				*	T	**
Neodiprion nanulus Schedl.	jP			*			
Neodiprion pinetum (Nort.)	wP						*
Neodiprion swainei Midd.	jP					*	
Neodiprion virginianus complex	jP	*	T	*			*
Nepytia canosaria Wlk.	rS, bF, eH				*	*	*
Neuroterus sp.	rO				*		
Noctuidae	wB	*					
Nyctobia limitaria Wlk.	bF, wS, rS, tL		*		*	**	*
Nymphalis antiopa L.	wE, tA, W	*	*			**	*
Nymphalidae	Thistle				*		
Oecophoridae	Be				*		
Olethreutidae	wiB	*					
Oligotrophus salicifolus Felt.	W				*		
Oncopsis sp.	wB, wiB	*			*		
Operophtera bruceata Hlst.	rO, Be			T		T	T
Operophtera brumata L.	Ap, wE, rO, Ba, rM, sM, cCh, mM, sPo			T	T	T	T
Operophtera sp.	Ap	*					
Orgyia antigua L.	wE, sM, tL, bF	*		*		*	*
Orgyia leucostigma J.E. Smith	tL						*
Orthosia sp.	tA, wiB, Po, wS	*			*		
Orthosia hibisci Guen.	rM, Ap, bF		*	*		*	
Orthosia revicta Morr.	wS, tL, Be, Ap	*	*		*	*	
Paleacrita vernata Peck.	wE	T			T		
Palthis angulalis Hbn.	wS, bF, rS	*	**	*	*	*	
Pamphiliidae	rP, wP, jP, bF, wS	*	*	*	*		*
Pandemis canadana (Kft.)	Ap, W, tA, rO, Po	*	*	*	*	*	*
Pandemis sp.	wB, wiB	*			*		
Panthea acronyctoides Wlk.	wP				*	*	
Paonias excaecata J.E. Smith	wiB				*		
Papilio ajax L	Parsley				*		
Papilio glaucus canadensis R.&J..	tA				*		
Parorgyia plagiata Wlk.	wS		*		*	*	
Pentatomidae		*					
Periclista sp.	rO	*			*		
Pero morrisonarius Hy. Edw.	tL, wP				*		*
Petrova albicapitana Busck.	jP, scP	*	*	*	*	*	*
Phenacaspis pinifoliae Fitch	rS, scP, wS, bS, jP	*	*	*	*	*	
Phenacoccus acericla King	suM						
Phigalia titea Cram.	Ap, rO, wE	*		*	*		
Phyllocoptes minutissimus Hodgk.	rM				*		
Phyllocnistis populiella Chamb.	tA, bPo, sPo, tA CPo, ltA	*	*	*	*	*	*
Phyllocnistis sp.	ltA, D	*			*		

Section 1, Table 4 (Cont'd.)

Species	Collected from	Collected in district 1.	2.	3.	4.	5.	6.
Phylogephora iris (Guen.)	rS				*		
Physokermes piceae (Schr.)	bS, rS, wS, rP			*		*	
Pikonema alaskensis (Roh.)	rS, wS	T		*	**	**	**
Pikonema dimmockii (Cress.)	rS, wS	*		*	**	**	**
Pineus sp.	ScP	*					
Pineus coloradensis (Gill.)	rP, jP	*			*	*	
Pineus floccus Patch	wS			*	*	*	
Pineus pinifoliae (Fitch)	rS, bS, wS	T			*	*	
Pineus similis (Gill.)	rS, bS, wS			*	**	*	
Pineus strobi (Htg.)	wP	*		*	*	*	
Piriclista Group	bA		*				
Pissodes strobi (Peck.)	wP		T		**	*	**
Pissodes sp.	bS						*
Plecoptera	wE	*					
Pleroneura borealis Felt.	bF	T	T	*	*	*	*
Polia sp.	bF	*					
Pontania sp.	W				*		
Pontania monile Marl.	W					*	
Pristiphora erichsonii (Htg.)	tL	T	T	T	T	T	T
Pristiphora geniculata (Htg.)	Mo, aMo, sMo	*	T	*	*	*	*
Prochoerodes transversata Drury	wB				*		
Prociphilus tessellatus (Fitch)	Al				*	*	
Profenusa alumna (MacG.)	wB, wiB				*		*
Profenusa mainensis, n.s.p.	rO	*					
Profenusa thompsonii (Konow.)	wB	*	T	*		*	*
Protoboarmia porcelaria indicataria Wlk.	tL, bF, wS, rS, eH, rP, wP	*	**	*	**	*	**
Pseudexentera sp.	rO	*					
Pseudexentera cressoniana Clem.	rO				*		
Pseudococcus sp.	eC	*					
Psilocorsis faginella (Cham.)	Be, yB, wB, wiB				**		*
Psilocorsis fletcherella (Gibs.)	tA				*		
Psilocorsis quercicella (Clem.)	rO				*		
Psilocorsis sp.	wB, rO, tA				**		
Psylla trimaculata (Craw.)	Al				*		
Pulicalvaria thujaella Kft.	C, eC	*	T	*			
Pulicalvaria sp.	bF	*				*	
Retinodiplosis resincola (O.S.)	jP		*				
Rhabdophaga swainei Felt.	rS, wS	T	T	T	*	T	T
Rhabdophaga sp.	W				*		
Rhopalomyia lobata Felt.	Goldenrod				*		
Rhyaciona bouliana Schiff.	jP, rP	*	*	T	T		T
Schizoneura americana Riley	wE					*	
Schizura ipomoeae Dbldy.	rM, Al, bF				*	*	
Sciaphilia duplex Wlshm.	tA	*	*	*			
Scoliopteryx libatrix Linn.	sM					*	

Section 1, Table 4 (Cont'd.)

Species	Collected from	Collected in district (1) 1.	2.	3.	4.	5.	6.
Scolytidae	rP, wP, bS, rS bF, wS	*	*		*		
Semiothisa bisignata Wlk.	wP, rP				*		
Semiothisa dispuncta complex	wS, rS, wP, eH tL, bF, rM	**		*	**	**	
Semiothisa minorata Pack.	wP				*		
Semiothisa oweni Swett	tL	*			*	*	*
Semiothisa sexmaculata Pack.	tL, rS, wS				**		*
Semiothisa sp.	wS, wP, rP, tL bF, rS	*			**		
Serica tristis (Lec.)	wiB	T				*	
Solenobia walshella Clem.	wS, rS, bF, tL, eH				**	*	
Spilonota ocellana Denis & Schiff	Ap, Haw				*	*	*
Stilpnotia salicis (L.)	sPo, tA, bPo	T	T	T	*	*	T
Strongylogaster sp.	wS				*		
Syngrapha alias Ottol.	bF		*				
Syngrapha rectangula Kby.	bF				*		
Syngrapha selecta Wlk.	rS, wS, wP				*	*	
Syngrapha sp.	rS, wS, wP, tL, bF				*		
Syrphidae	rP, wS	*					
Taniva albolineana Kft.	wS, bF, rS, tL		*		*	*	*
Tenthredinidae	rO, rM, wB				*		
Tetralopha asperatella Clem.	Be, ltA, wiB, rO				*		
Tetralopha sp.	Labrador Tea				*		
Tirrhabda virgata Lec.	tA					*	
Tolype laricis Fitch	bF, tL				*	*	
Tortricidoe	Ap, Al, wiB	*					
Toumeyella numismaticum (P. & M.)	rP				*		
Trichiocampus irregularis (Dyar)	W				*	*	*
Trichiosoma triangularum Kby.	wB				*		
Undetermined Lep.	Ap, W, tA, wS, wB, wP						
Vasates quadripes (Schimer)	rM, sM		*		*	*	*
Xylococculus betulae Pergande	yB, Be, wB	*		*		*	*
Zale sp.	Ap, rS, wP, jP	*			**	*	
Zeiraphera sp.	wS, tL	*			*	*	T
Zeiraphera diniana Gn.	tL					*	*
Zeiraphera ratzeburgiana Ratz.	wS, rS	*			**	*	T
Zenobia pleonectusa Grote	tA	*					

(1)
1 - Western New Brunswick
2 - Northeastern New Brunswick
3 - Southeastern New Brunswick and Prince Edward Island
4 - Western Nova Scotia
5 - Central Nova Scotia
6 - Eastern Nova Scotia

* - Less than 10 collections take
** - 10 collections or more
T - Discussed in text of report

Section 1, Appendix A

Classifications of Trees Used on Plots

Balsam Woolly Aphid Plots

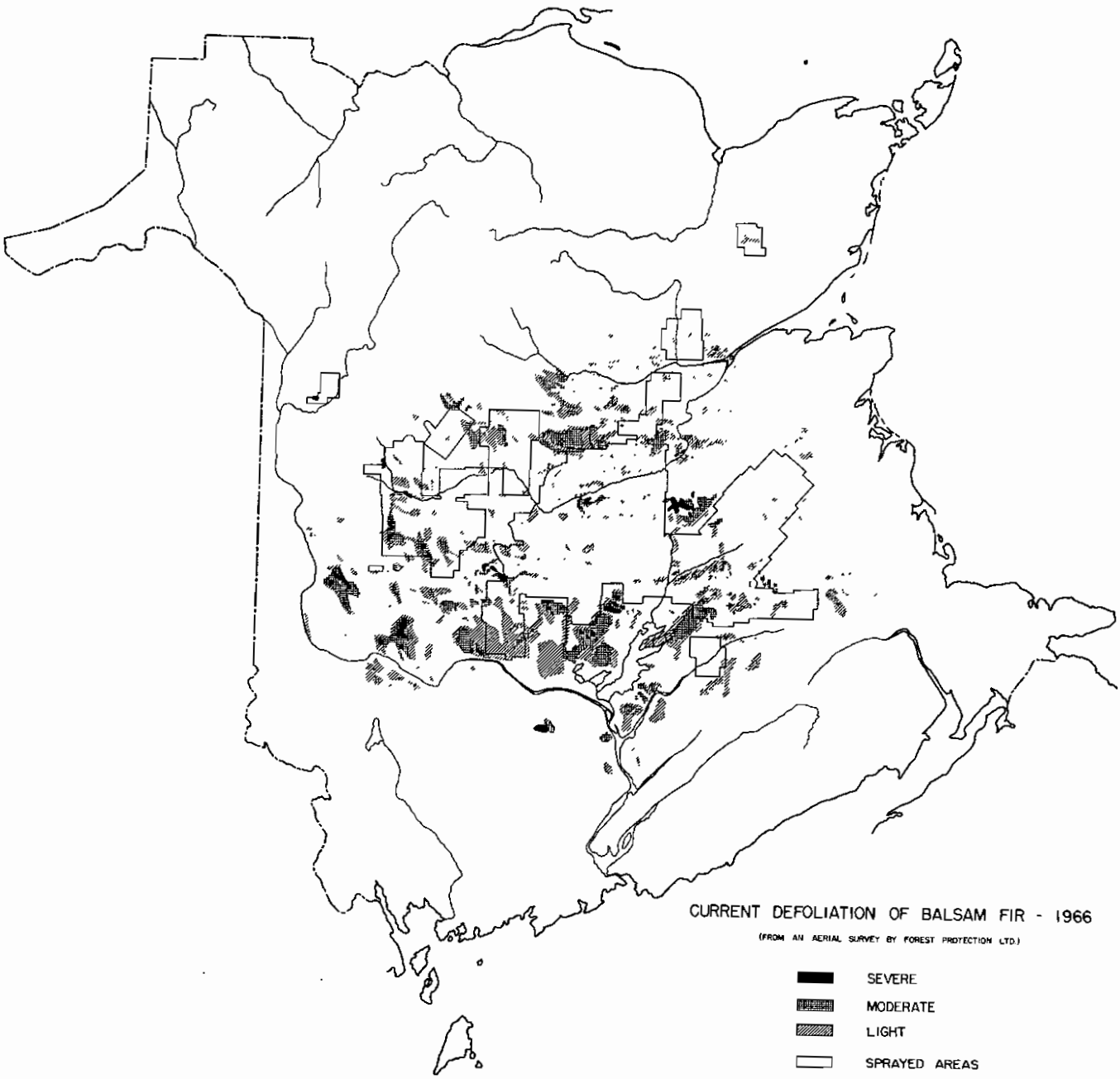
1. Uninfested.
2A. New stem attack, light.
2B. New stem attack, medium.
2C. New stem attack, severe.
3A. Dead from stem attack, red foliage.
3B. Dead from stem attack, bare branches.
4A. Twig attack, distinct but light
4B. Twig attack, some dying branches.
4C. Twig attack, many dead branches.
5. Dead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

Beech Scale Plots

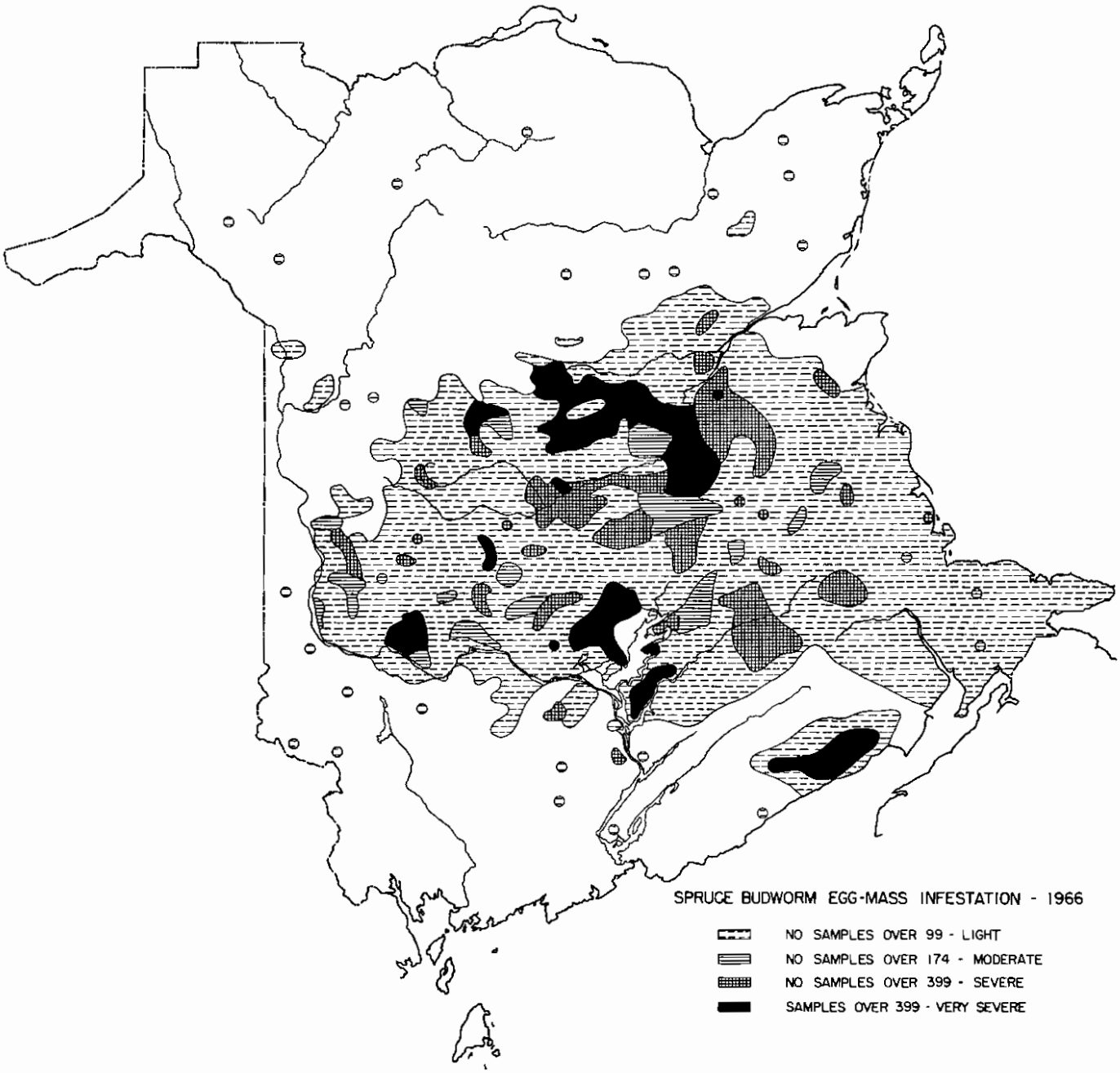
1. Uninfested.
2. Trees with dots or streaks of white wool only.
3. Trees with most of streaked or covered with wool but not dying.
4. Trees apparently dying (considerable patches of dead bark and yellowish foliage)
5A. Living trees with cankers, uninfested.
5B. Living trees with cankers, lightly infested.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

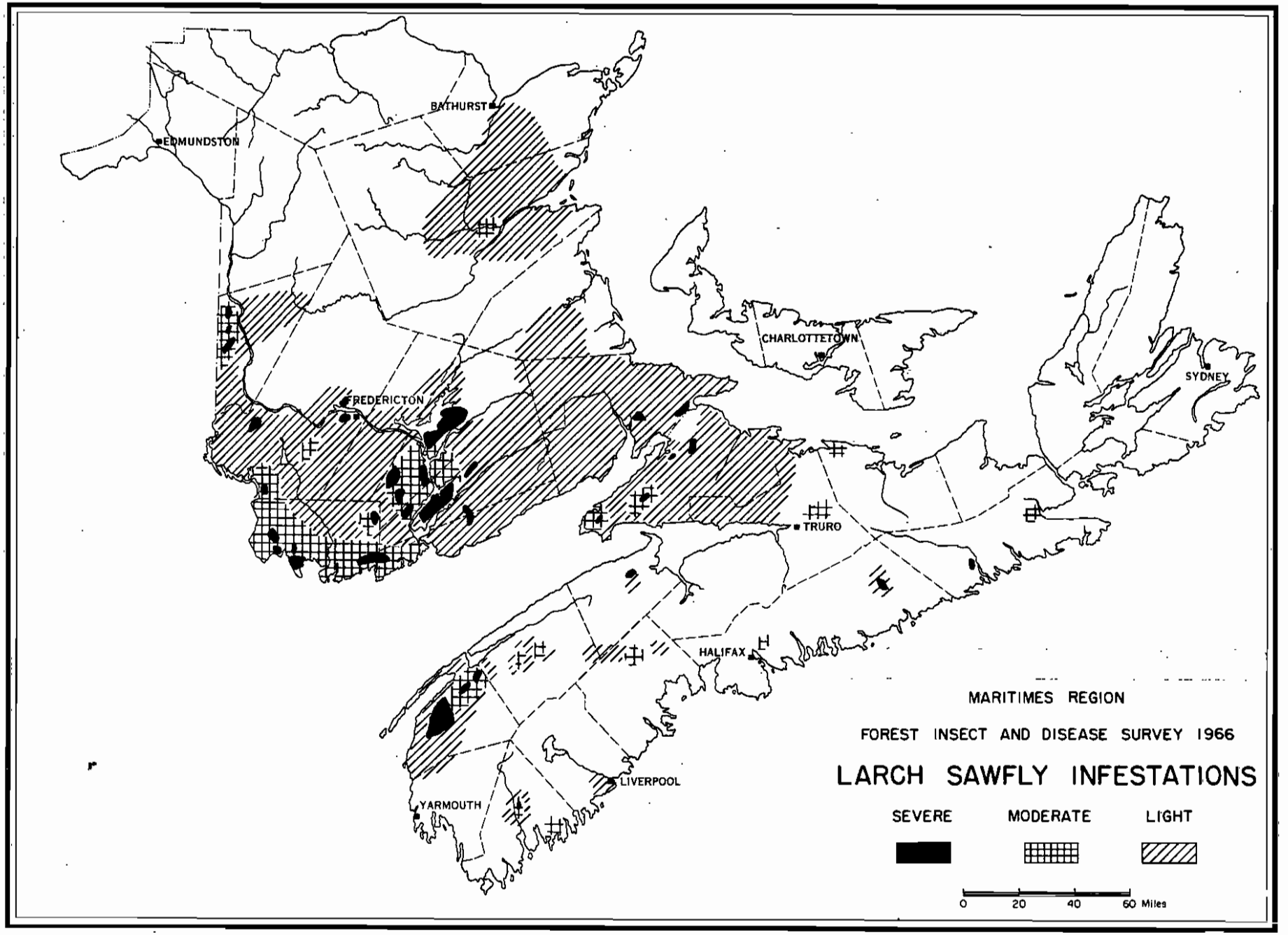
Trace	- up to 5%
Light	- 10 to 20%
Moderate	- 30 to 60%
Severe	- 70 to100%



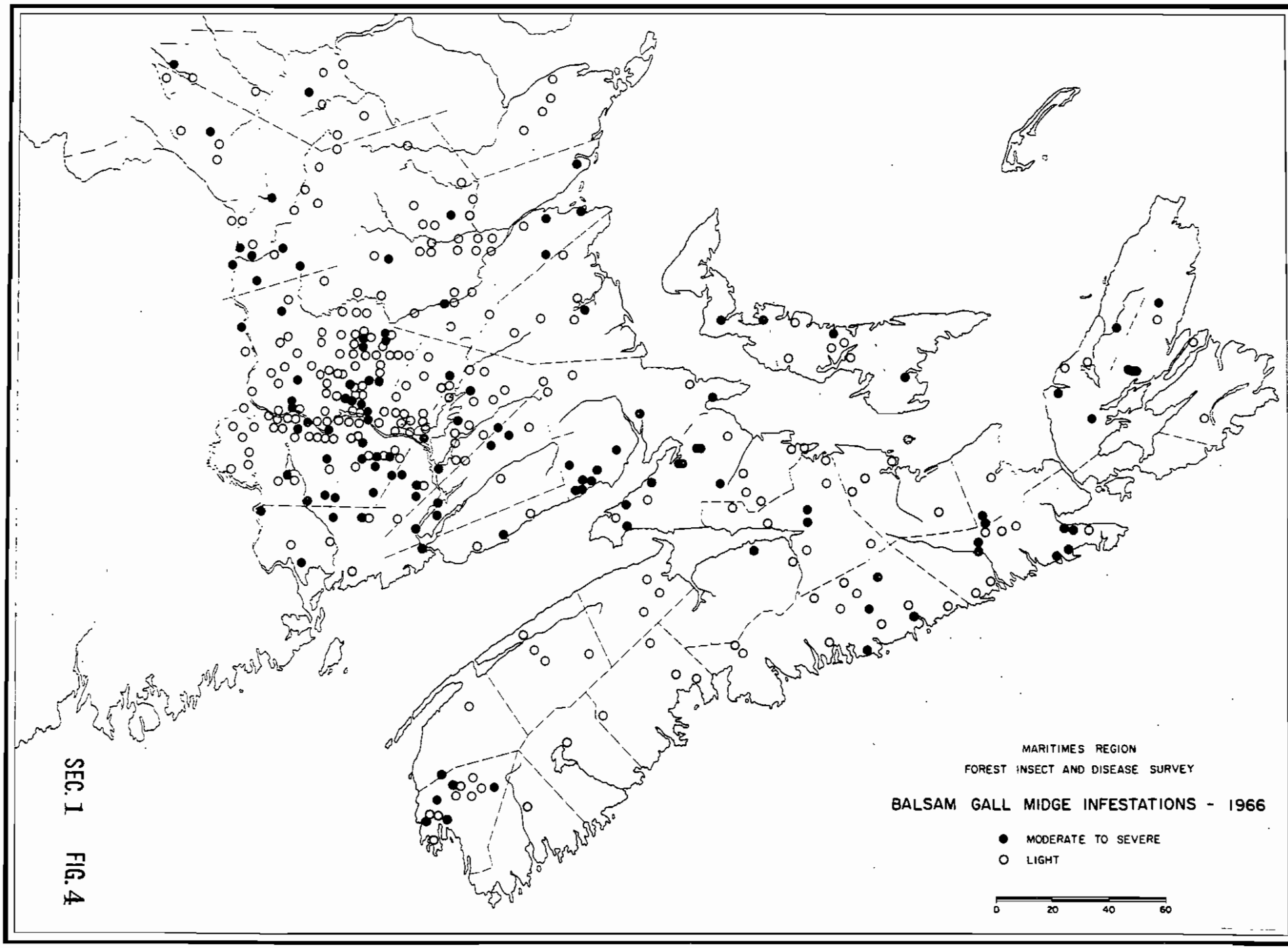
MAP PROVIDED BY D. R. MACDONALD



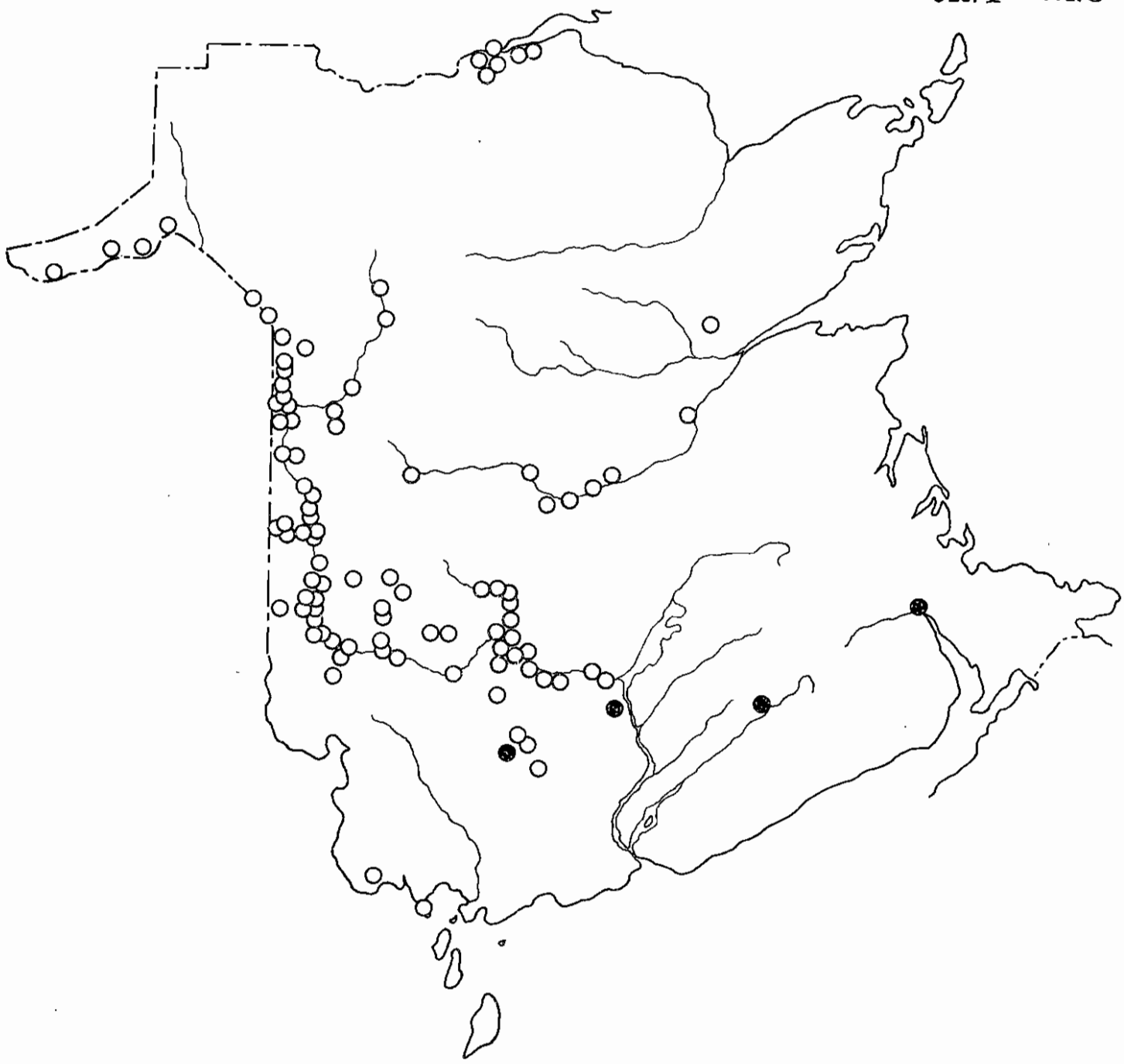
MAP PROVIDED BY D. R. MACDONALD


BATHURST
EDMUNDSTON
CHARLOTTETOWN
SYDNEY
FREDERICTON
TRURO
HALIFAX
LIVERPOOL
YARMOUTH
MARITIMES REGION
FOREST INSECT AND DISEASE SURVEY 1966
LARCH SAWFLY INFESTATIONS
SEVERE
MODERATE
LIGHT
0 20 40 60 Miles

SEC. 1 FIG. 3


MARITIMES REGION
FOREST INSECT AND DISEASE SURVEY
BALSAM GALL MIDGE INFESTATIONS - 1966
MODERATE TO SEVERE
LIGHT
0
20
40
60

SEC. 1 FIG. 4



KNOWN DISTRIBUTION OF DUTCH ELM DISEASE

IN

NEW BRUNSWICK

○ 1957 to 1965

● New locations 1966

Scale: 1 inch = 34 miles (approx.)

ANNUAL DISTRICT REPORT

FOREST INSECT AND DISEASE SURVEY

WESTERN NEW BRUNSWICK

1966

by

C. M. B. Dobson

FOREST RESEARCH LABORATORY

FREDERICTON, N.B.

FORESTRY BRANCH

May, 1967

2.0 WESTERN NEW BRUNSWICK

(C. Dobson)

Introduction

The spruce budworm, larch sawfly and Dutch elm disease were again major problems in western New Brunswick in 1966. The budworm was found over much the same areas as in 1965, the sawfly continued to increase in intensity and extent and more white elm trees died following infection by Ceratocystis ulmi (Buism.) C. Moreau.

Totals of 372 insect and 81 disease samples were submitted by the district technician.

Insect Conditions

Spruce Budworm, Choristoneura fumiferana Clem.

Twenty-one spruce budworm larval collections were submitted from western New Brunswick. Larval numbers were lower than in 1965 at eight permanent sampling stations, and slightly higher at four others. The greatest decreases occurred on balsam fir at Juniper, Carleton County and Zealand, York County down 14.3 and 25.7 larvae per tree sampled respectively. The greatest increase occurred on balsam fir at Ripples, Sunbury County, up 13.3 larvae per tree sampled (Section 2, Table 1).

Of 1435 pupal cases examined 848 were males and 587 were females.

Egg mass numbers were negligible in Charlotte, northern Victoria and Madawaska counties (see map, Section 1, Figure 2). Summaries of egg sampling results in remaining countries follow:

Carleton County.--Egg-mass numbers were high from Coldstream southward along the Becaguimec Game Refuge, and along McKiel Brook for approximately 3 miles to the York County line. Numbers were moderate from Stickney east to Windsor, from Grafton south to Northampton, and east of Newburg Junction through the southern part of the Becaguimec Game Refuge.

Victoria County.-- Egg-mass numbers were moderate in a 10-square-mile area along the Right Hand River de Chute near the Carleton County line. Low numbers occurred at Lampedo Lake, along the Odell River, west of the Tobique River from Rowena to the Anderson Road, in an area from Gillespie Settlement eastward to Salmonhurst and in the southeastern part of the County from the Plaster Rock-Renous highway southward to the York-Carleton County line.

York County.-- Numbers were high along the St. John River from Cullerton to Bear Island and north to Lower Hainesville, in the Stanley to Cross Creek area, along McKiel Brook from the Southwest Miramichi River to the Carleton County line and along the Penniac Stream north to Fork Brook. Numbers were moderate west of Scotch Lake, from Nashwaaksis northwest to Burtts Corner, approximately eight miles along the Royal Road to Seymour Brook, at Covered Bridge, southeast of McGivney and at Durham Bridge. Numbers were negligible south of the St. John River.

Sunbury County.-- Egg numbers were high in the north central part of the County from Acadia Forest Experiment Station through Minto to the C. N. Railway line, along Fork Brook to the York County line, and east of Geary to Rockwell Stream.

Queens County.-- Numbers were high in a 2-square-mile area at Hampstead, and in a small area west from Princess Park to the Sunbury County line.

A summary by counties of the current defoliation of balsam fir follows:

In Victoria County patches of severe and moderate defoliation were observed at Picadilly and south of the Plaster Rock-Renous highway near the York-Carleton County line (See Map, Section 1, Figure 1, and Table 2, Section 2).

In Carleton County severe and moderate defoliation occurred in the Becaguimec Game Refuge, along the Juniper to Nashwaak Narrows Road near the York County line, three miles east of Juniper to the York County line, and north of Juniper near the junction of West Brook and the Southwest Miramichi River. Moderate defoliation covering approximately 2 square miles occurred at Stickney.

In York County moderate and severe defoliation occurred in patches at Douglas, from Mouth of Keswick to Burtts Corner, at Penniac, Fork Brook near the Sunbury County line, from Taymouth through Cross Creek to Stanley and north of Williamsburg, along the Napadogan Brook to the Carleton County line, in an area from Lower Hainesville south through Springfield and west to Pinder, and in small areas near Prince William and Pokiok.

In Sunbury County severe defoliation occurred east of Geary and from Acadia Station to Hardwood Ridge.

In Queens County moderate defoliation occurred at Otnabog south of Gagetown.

Defoliation was negligible in Madawaska, Charlotte and northern Victoria counties.

European Spruce Sawfly, Diprion hercyniae (Htg.)

Spruce sawfly larval numbers were low in all areas of western New Brunswick. The average number per tree sampled was 0.70 compared with 2.1 in 1965. The largest collection was taken at L'Eglise, Madawaska County, where 2.8 larvae per tree sampled were collected, and the greatest decrease occurred at Hanwell Road, York County, down from 7.3 in 1965 to nil in 1966 (Section 2, Table 3)

Balsam Woolly Aphid, Adelges piceae (Ratz.)

The incidence of stem attacks on balsam fir trees was low in the district. No further extensions to the known boundaries of distribution were found.

Classification of balsam fir trees on plot 3-5 in the Fredericton City woodlot showed further deterioration of infested trees and a marked decrease in the number of uninfested trees, down from 32.9% in 1964 to 19.8% in 1966 (Section 2, Table 4)

Balsam Gall Midge, Dasineura balsamicola (Lint.)

Population levels of this insect increased greatly in the district in 1966 (Section 1, Figure 4).

Severe infestations occurred: at Carlingford, Aroostook Jct. and Bon Accord, Victoria County; Green Mountain, Madawaska County; at Fredericton, along the Royal Road through North Tay to Stanley, in the Millville area, and at Long Creek, Harvey Station and Oromocto Lake in York County. Moderate infestations occurred: at Summit Depot, Restigouche County; Burgess Settlement, Tilley, Arthurette and on the Odell River road, Victoria County; at Florenceville and Biggar Ridge, Carleton County; at Pinder, Temperance Vale McAdam and Brockway, York County; at Geary, Hoyt Station, Tracy, Rusagonis and near Peltoma Lake, Sunbury County; at Gagetown, Hampstead, Welsford and Fowlers Corner, Queens County; and at Canoose Lake, Mount Pleasant, South Oromocto Lake and Bartlett, Charlotte County. Light infestations occurred at 90 other locations representing all counties in the district.

Balsam Shoot-boring Sawfly, Pleuroneura borealis Felt

This small sawfly was common in the new shoots of balsam fir. One tree was severely infested at Oldham Settlement, York County. Moderate infestations occurred on one tree at Tobique Narrows, and on six trees on the Odell River Road, Victoria County. Trace to light infestations occurred at Upper Hainesville, Nortondale and Stanley, York County.

Larch Sawfly, Pristiphora erichsonii (Htg.)

Larch sawfly infestations increased in intensity and extent in the southern two-thirds of the district in 1966 (Section 1, Figure 3). Infestations by counties were as follows:

Carleton County.--Severe defoliation occurred in patches at Lindsay, Bloomfield, Weston, Deerville, Carvel, Digby Corner and Long Settlement. Light defoliation of individual trees, or small groups of trees occurred elsewhere throughout much of the remainder of the county.

Charlotte County.-- Patches of severe and moderate defoliation occurred at Lepreau and St. Andrews, on Grand Manan and Campobello Islands, and near St. Stephen, Old Ridge, Maxwell and Moores Mills. Scattered colonies caused light defoliation throughout the County.

York County.-- Severe defoliation occurred at Fredericton, Blaney Ridge and St. Croix. Small areas of moderate defoliation occurred east of McAdam and near Harvey Station. Scattered colonies causing light and trace defoliation occurred throughout the remainder of the County.

Sunbury County.--Defoliation was generally light except near Waasis, where trees in a small stand were severely defoliated, and along the Otnabog River near the Lawfield road where moderate defoliation occurred.

Queens County.-- Except for small scattered areas, severe and moderate defoliation was common west of the St. John river.

Kings County.-- Patches of moderate and severe defoliation occurred west of the St. John river.

St. John County.-- Severe and moderate defoliation occurred in patches near the Charlotte County line.

Defoliation did not exceed a trace in Madawaska or Victoria counties.

Larch Casebearer, Coleophora laricella Hbn.

Populations of overwintering larch casebearers were generally lower in 1966 than in 1965. Numbers were lower at ten sample stations, five of which produced negative counts, and were slightly higher at six. Defoliation, in tamarack stands examined following the feeding period, did not exceed trace (Section 2, Table 5).

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

This sawfly was common in the southern part of the district and caused severe defoliation of a few small open-growing white spruce trees at Welsford, Queens County, Lower Woodstock, Carleton County, St. David Ridge and Moores Mills, Charlotte County, and at Blaney Ridge near Magaguadavic Lake where approximately 50 trees were severely defoliated.

Defoliation was light on one red spruce tree at Blissville, Sunbury County, and trace on small scattered white spruce trees at Charters Settlement and Cork, York County.

Black-headed Budworm, Acleris variana Fern.

Larval numbers remained low, averaging 0.75 per tree sampled, down slightly from 1965. Host trees were white spruce and balsam fir.

Balsam Twig Aphid, Mindarus abietinus Koch.

Severe attacks of balsam twig aphid occurred in the Zionville-Covered Bridge - Stanley area of York County. Elsewhere infestations on the new shoots of balsam fir were more common than in 1965 but were no more than trace to light.

Spruce Bud Midge, Rhabdophaga swainei Felt

This bud midge was common on white spruce and red spruce in the district. Counts taken in a plantation near Black Brook, Victoria County showed that galled buds per 100 square feet of foliage averaged 235.

Pine Leaf Chermes, Pineus pinifoliae (Fitch)

Galled buds, usually scarce during even numbered years, were collected from red spruce trees at Ripples, Sunbury County and Woodlands, York County. Approximately two dozen galls were observed at each location. A small number of larvae and adults were collected from small ornamental white pine trees at Iroquois, Madawaska County.

Fall Cankerworm, Alsophila pometaria Harr.

Severe defoliation of hardwoods occurred in an area covering 8 to 10 acres on the Isle of Pines near Oak Point, Kings County. Tree species defoliated included trembling aspen, white birch, wire birch, alder, red oak, wild plum, ash and hawthorne.

Moderate defoliation of a few white elm trees occurred at McGowans Corner, Sunbury County.

No more than a trace of defoliation was observed in other parts of the district.

Spring Cankerworm, Paleacrita vernata Peck.

Fifteen spring cankerworm larvae were found in association with fall cankerworm collected from two white elm trees at McGowans Corner, Sunbury County.

Birch Leaf Miner, Fenusa pusilla (Lep.)

Moderate to severe browning of the foliage of wire birch and occasionally white birch occurred in patches throughout the southern half of the district. Severe browning occurred at Nackawic and Southampton, from Longs Creek to Harvey, and from Fredericton to Fredericton Junction. Moderate browning occurred in the Ripples area of Sunbury County.

Birch Casebearer, Coleophora fuscedinella Zell.

Moderate defoliation of white birch occurred at Bath, Carleton County, and in the Perth-Andover area of Victoria County. Trace to light defoliation of white and yellow birch was observed in most other areas.

Birch Skeletonizer, Bucculatrix canadensisella Cham.

Birch skeletonizer population levels were very low in 1966. Areas in Queen's, Kings and Sunbury counties where moderate and severe defoliation occurred in 1965 sustained no more than a trace of defoliation in 1966.

Forest Tent Caterpillar, Malacosoma disstria Hbn.

Population levels of the forest tent caterpillar remained low in 1966. Small numbers were collected at four locations in the southern part of the district, the largest collection being from trembling aspen at Porter Settlement, Carleton County, where a few colonies caused 10% defoliation over approximately one-quarter acre. No further outbreaks have occurred in the Tobique Narrows area of Victoria County where a severe outbreak occurred in 1963 and 1964.

Moths trapped at the Green River field station and Harvey Mountain Tower totaled 2780 and 342 respectively, an increase from the 1139 and 129 taken in 1965. Intensive scouting and egg sampling

was carried out in the Summit Depot area of Madawaska and Restigouche counties but no egg masses were found. The large moth flight in this area was thought to have originated west in the Province of Quebec.

Satin Moth, Stilpnotia salicis L.

Severe defoliation of small groups of Carolina poplars occurred at Jacksonville, Carleton County, Drummond, Victoria County and Minto, Sunbury County. Two trembling aspens were severely defoliated at Lower Caverhill, York County.

A Leaf Roller on Maple, Cenopis pettitana Rob.

This leaf roller was common but light in the southern half of the district except where small areas of light to moderate defoliation of red maples occurred in the Southampton and Scotch Lake areas of York County.

An Oak Leaf Roller, Croesia semipurpurana (Kft.)

This leaf roller caused moderate defoliation of red oaks at Nackawic, York County and light defoliation at Dow Settlement, York County, and Aroostook Junction, Victoria County.

Ugly-nest Caterpillar, Archips cerasivoranus Fitch

Fewer nests were observed on roadside cherry bushes in 1966 than in recent previous years. A special count taken near Tracy, Sunbury County, showed 55 nests in 1000 square feet.

Fall Webworm, Hyphantria cunea Drury

Population levels of fall webworm were low in the district. One collection containing 67 larvae was taken from an apple tree at Coldstream Carleton County.

Small Leaf Beetle, Serica tristis (Lec.)

Severe defoliation of numerous open growing alders and trembling aspen trees occurred in 20 to 30 acre field at Long Settlement, Madawaska County. Adults were also seen feeding on white birch, red maple, willow and pin cherry trees and raspberry bushes, and were reported feeding in gardens in the area.

Alder Flea Beetle, Altica ambiens alni Harris

Severe browning of alder foliage occurred in southwestern Charlotte and southern York counties, at Hampstead, Queens County, and at Oak Mountain and Tapley Mills, Carleton County. Light browning occurred at Cloverdale, Carleton County.

Additional Species Collected

Insects collected in 1966 but not mentioned in the text are listed in Section 1, Table 4.

Common insects collected at permanent sample stations are listed in Section 2, Table 6.

Tree Diseases

Winter Drying of Conifers

Winter drying resulted in light browning of white pine foliage in a hedge at Iroquois, Madawaska County, and of approximately 10% of the red pine trees in a plantation at Nictau Lake.

Frost Damage

Severe frost damage of light incidence occurred to the new shoots of balsam fir trees at Zionville, York County. Damage of light intensity and moderate incidence occurred at Charters Settlement and Covered Bridge, York County.

Animal Damage

Porcupines and squirrels caused light damage in the form of broken branches and cut twigs on aspen trees at numerous points in the district.

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

Eighteen diseased elm trees were found in Fredericton in 1966, an increase of seven over the number found in 1965. Diseased trees were found also at Gagetown, Queens County, Central Blissville and Maugerville, Sunbury County, and dead trees are becoming more common elsewhere within the known range of the disease.

Number of suspect trees sampled 30

Number of positive cultures 26

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

Cankered and light scale infested trees were common in most beech stands examined in the southern part of the district. Scale infested bark was collected at Fredericksburg, Tay Settlement Road, Upper Hainesville and Hayne, York County.

Trees on plot 3-6 at Fredericton continued to deteriorate with more than 80% cankered or lightly infested with scale or both. Fourteen trees on plot 1-6, Nashwaak Narrows, were cut in a lumbering operation making it difficult to make meaningful comparisons. Comparisons of the percentages of trees in each infestation class on the two plots for 1964 to 1966 inclusive are made in the following table.

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
		1966	9.0	1.1	-	11.3	-	70.6	-	2.3	5.7
Nashwaak	1-6	1964	-	7.7	5.8	17.3	-	55.7	-	13.5	-
		1965	-	7.7	-	9.7	-	63.4	-	19.2	-**
		1966	-	1.9	-	-	7.7	38.4	-	19.2	32.7

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

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

Browning of willow foliage was common but generally of light intensity in the district. Moderate infections of light incidence occurred on the Isle of Pines, Kings County. Trace infections occurred along the St. John River from Fredericton to Jemseg.

Cherry Blight - Cause Unknown

Infections of light intensity and incidence occurred on the Pemouet road east of Summit Depot, Restigouche County.

Anthracnose of Ash, Gloeosporium aridum Ell. & Hollw.

Browning of moderate intensity occurred on one white ash tree at Keswick Ridge, York County. Light browning of trace incidence occurred at Morna, St. John County, and trace browning of light incidence at Hampstead, Queens County.

Anthracnose of Maple, Gloeosporium apocryptum Ell. & Ev.

Severe browning of sugar maple foliage occurred on one tree on the U. N. B. Campus. Infections of light incidence and intensity occurred on sugar maples at Tweedside, York County, and of trace incidence and intensity at St. Andrews, Acadia Station and Keswick Ridge.

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

Infections of moderate intensity and light incidence occurred on aspen along the Drummond Road in Sunbury and Queens counties and between Fredericton Junction and Central Blissville, Sunbury County.

Infections of light intensity and incidence occurred at Wooler Settlement, York County and along the Webb road, Sunbury County. Elsewhere infections of trace intensity and light incidence occurred throuout the district.

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

Tar spot infections on red maple were common but of light intensity

in the district.

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

This organism caused infections of light intensity and trace incidence on balsam fir trees in Charlotte, Victoria, Madawaska and Restigouche counties.

Needle Casts

Bifusella faullii Darker caused infections of moderate intensity and trace incidence on balsam fir reproduction at Stewart Plains, Victoria County, and of trace intensity and incidence at Fredericton, Acadia Forest Experiment Station, Keswick Ridge and St. Andrews.

Hypodermella nervata Darker caused infections of moderate intensity and trace incidence on balsam fir at Mile 26 on the Burma Road, and of trace intensity and moderate incidence at Two Brooks, both in Victoria County.

Hypodermella mirabilis Darker infections caused browning of light intensity and incidence on balsam fir foliage 15 miles east of Summit Depot Restigouche County and of one tree 7 miles north of Plaster Rock, Victoria County.

Needle Rusts

Pucciniastrum epilobii Otth. caused infections of light intensity and moderate incidence on balsam fir at Nasonworth, York County.

Infections of Coleosporium asterum (Diet.) Syd. resulted in a trace of needle rust on a few red pines at Nasonworth, York County.

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

More than 25% of the white pine trees were infected by blister rust at Woodlands, Maguadavic Lake and Meductic, York County, and at Glazier Lake, Madawaska County. Cankered trees were found throughout the district.

Other Noteworthy Diseases

Organism	Host(s)	Location	Remarks
Adelopus balsamicola (Peck) Theiss.	Fir, balsam	Burma Rd. Mi. 26 Victoria County	Moderate, one tree.
Arceuthobium pusillum Peck	Spruce, black	Brockway and Hayne, York County.	Light incidence.
Cephalosporium sp.	Elm, white	Fredericton and St. Andrews.	
Chrysomyxa sp.	Spruce, black	St. Jacques, Mad. County.	Trace
Chrysomyxa pirolata Wint.	Spruce, white	Gulquac River Victoria County.	Cone rust.

Other Noteworthy Diseases (continued)

Organism	Host(s)	Location	Remarks
Ciborinia whetzelii (Seav.) Seav	Aspen, trembling	Throughout district.	Common.
Cladosporium herbarum (Pers.) Link	Aspen, largetooth Aspen, trembling	Didgeguash River Rte 41, Charlotte County.	Trace.
Cladosporium sp.	Plum		
Coccomyces hiemalis Higgins	Cherry, pin	District.	Common but of light intensity.
Cronartium quercuum (Berk.) Miyabe ex Shirai	Pine, jack	Gunters and upper Gagetown Queens County.	Light intensity.
Cytospora sp	Maple, sugar	Fredericton.	
Dasyscypha agassizii (Berk & Curt) Sacc	Pine, white	Woodlands, York County.	
Dermea balsamea (Peck) Seav.	Fir, balsam	Summit Depot.	Common, light incidence.
Didymascella thujina (Durand) Maire	Cedar	Central Hampstead Queens Co. and St. Andrews.	Trace intensity and incidence.
Erysiphe aggregata (Peck) Farl.	Alder	Digdeguash River Rt. 41 Charlotte County.	
Fusarium sp.	Maple, Norway	Lancaster.	
Gnomoniella coryli (Batch. ex Fr.) Sacc.	Hazelnut	Digdeguash River Road.	Trace.
Hypoxylon mammatum (Wahl.) Miller	Aspen	4 collections.	Common.
Lophodermium juniperinum de Not. (Fr.)	Juniper	Fredericton.	
Lophodermium sp.	Spruce, red & black	Geary and Acadia Station, Sunbury County.	Light intensity and incidence.
Melampsorella caryophyllacearum Schroet.	Fir, balsam	St. Andrews.	

Other Noteworthy Diseases

Organism	Host(s)	Location	Remarks
Melampsora epitea Thuem.	Willow	Juniper, Carleton County.	
Marasmius rotula (Scop. ex Fr.)Fr.	Aspen, trembling	Manzer Brook, York County.	
Marssonina sp.	Aspen,	Keswick, Juniper, Digdeguash River at Rte 41.	
Nectria cinnabarina (Tode ex Fr.) Fr.	Maple, sugar Maple, Norway	Lancaster, St. John County, Fredericton.	
Phleospora aceris (Lib.) Sacc.	Maple, red	Keswick.	Trace.
Pholiota sp.		Fredericton.	Fungus growth.
Phragmidium rubi-ideae (D. C.) Karst	Raspberry	Nashwaaksis.	A rust.
Phyllosticia minima (Berk. & Curt.) Ell. & Ev.	Maple	Acadia Station and Tracy, Sunbury Co. Keswick Ridge, York County.	Trace.
Pleurotus sapidus (Schulzer in Kalchbr.) Sacc.	Aspen, trembling	Acadia Station.	
Pollaccia radiosa (Lib.) Bald. & Clif.	Aspen, trembling		Common but light in district.
Polyporus conchifer (Schw.) Fr.	Elm, white	Fredericton.	
Polyporus dryophilus Berk. var vulpinus (Fr.) Overh.	Aspen, trembling	Acadia Station	Wood decay fungus.
Polyporus squamosus Mich. ex Fr.	Elm, white	Fredericton	
Pucciniastrum goeppertianum (Kuehn.)Kleb.			
Sarcotrochila balsameae (Davis) Korf	Fir, balsam	St. Andrews.	
Septobasidium pinicola Snell.	Pine, white	Marysville.	Brown felt fungus.

Other Noteworthy Diseases

Organism	Host(s)	Location	Remarks
Stegonosporium ovatum (Pers. ex Merat) Hughes	Maple, sugar	Fredericton.	Twig canker.
Taphrina caerulescens (Desm.) Tul.	Oak, red	Upper Gagetown, Queens County.	Trace.
Taphrina carnea Johanson	Birch, yellow	St. Andrews.	
Taphrina communis (Sadeb.) Gies.	Plum	Fredericton.	
Taphrina robinsoniana Gies.	Alder	Digdeguash River Rte 41.	Moderate.
White pine needle blight	Pine, white	Iroquois, Madawaska County.	Light browning.

Spruce Budworm Larval Sampling Records at Permanent Sampling Stations in Western New Brunswick in 1966

County and Location	Station no.	Tree* sp.	No. specimens	Av. per tree sample	Deviation from 1965
Carleton					
Glassville	1-5	wS	1	0.3	-2.7
Biggar Ridge	1-6	bF	2	0.6	-4.0
Juniper	1-7	wS	5	1.6	-7.0
	1-8	bF	0	0	-14.3
Ashland	1-44	wS	2**	0.6	-36.0
		bF	-	-	
Kirkland	1-46	wS	-	-	
Charlotte					
Waweig	3-45	wS	-	-	
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
Sunbury					
Ripples	3-24	wS	31	10.3	+2.0
		bF	125	41.3	+13.3
Victoria					
Salmonhurst	1-16	wS	3	1.0	+0.7
South Tilley	1-17	wS	0	0	-3.0
Riley Brook	1-18	wS	0	0	0
Three Brooks	1-23	wS	0	0	-0.6
	1-23	bF	0	0	0
Jardine Brook	1-28	wS	0	0	0
	1-28	bF	0	0	0

Section 2, Table 1 (cont'd)

County and location	Station no.	Tree* sp.	No. specimens	Av. per tree sample	Deviation from 1965
York					
Maplewood	1-4	wS	0	0	0
Hainesville	1-20	wS	109	36.3	0
	1-21	bF	71	23.6	0
Hanwell Road	3-23	wS	0	0	-2.3
	3-23	bF	0	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.

** Sampled late.

Section 2, Table 2

Estimates of Spruce Budworm Defoliation of Balsam Fir by Counties in Western New Brunswick in 1965 and 1966

County	No. observation pts. 1965	1966	Av. per cent defoliation* Current 1965	1966	Previous 1965	1966	Mortality
Carleton	78	75	15	15	L	L	0
Charlotte	13	13	T	T	L	L	0
Kings	2	5	T	T	M	L	0
Madawaska	32	32	0	0	0	0	0
Northumberland	2	2	0	0	0	0	0
Queens	23	26	T-L	25	0-L	L	0
Restigouche	7	11	0	T	0	0	0
St. John	-	1	-	0	-	0	0
Sunbury	58	61	15	15	L	L	0
Victoria	65	72	T-L	5	T	T	0
York	229	231	25	15	L	L	0

* T = Trace L = Light M = Moderate

Section 2, Table 3

Numbers of European Spruce Sawfly Collected in Random Samples and from Permanent Sample Stations in Western New Brunswick in 1966
(All collections from white spruce)

Location	Sample station	No. trees	No. of sawfly larvae* June 27-July 11 1st sample	No. of sawfly larvae* Aug. 25-Sept. 9 2nd sample
Random Samples				
Charlotte County	-	2	-	7
York County		5	1	7 (14)
Permanent Sample Stations				
Carleton County				
Glassville	1-5	6	1 (7)	2 (8)
Juniper	1-7	6	0 (0)	0 (0)
Ashland	1-44	6	2 (1)	0 (11)
Kirkland	1-46	6	3 (16)	0 (1)
Charlotte County				
Waweig	3-45	3	- (28)	11 (23)
Madawaska County				
Baker Brook	1-14	6	0 (1)	4 (9)
Connors	1-15	6	0 (1)	1 (6)
Glazier Lake	1-22	6	0 (3)	1 (1)
Upper Siegas	1-47	3	- (0)	2 (0)
L'Eglise	1-48	6	0 (0)	17 (1)
Restigouche County				
Mamozekel Road	1-24	6	0 (0)	1 (0)
Sunbury County				
Ripples	3-24	6	1 (1)	0 (0)
Victoria County				
Salmonhurst	1-16	6	1 (0)	4 (4)
South Tilley	1-17	6	0 (0)	0 (0)
Riley Brook	1-18	6	3 (2)	2 (0)
Three Brooks	1-23	6	1 (2)	1 (1)
Jardine Brook	1-28	6	0 (2)	0 (0)
		103	13	60

Section 2, Table 3 (cont'd)

Location	Sample station	No. trees	No. of sawfly larvae* June 27-July 11 1st sample	Aug. 25-Sept. 9 2nd sample
York County				
Maplewood	1-4	3	- (0)	0 (3)
Hainsville	1-20	6	2 (2)	2 (2)
Hanwell Road	3-23	6	0 (0)	0 (22)
Thomaston Corner	3-31	6	2 (0)	11 (17)
Warren	3-29	6	0 (0)	0 (13)
		27	4	13

* 1965 numbers in brackets

Section 2, Table 4

Condition of Trees on Balsam Woolly Aphid Plot No. 3-5
O'Dell Park, Fredericton, in 1961, 1962, 1963, 1965 and 1966

Year	No. trees	Per cent trees in each class*										Dead other causes & cut
		1	2A	2B	2C	3A	3B	4A	4B	4C	5	
1961	146	17.8	26.9	-	-	-	4.8	10.9	10.2	0.7	3.4	25.3
1962	146	24.7	7.5	-	-	-	4.1	15.9	8.9	2.1	4.1	30.1
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
1966	146	19.8	14.2	-	-	-	-	8.2	2.1	0	0.7	54.8

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

Larch Casebearer Numbers and Defoliation Estimates
at Sampling Stations in Western New Brunswick
in 1965 and 1966

Sampling station No.	Location	Casebearer/100 fascicles 1965	1966	Defoliation* 1965	1966
	Carleton County				
1-32	Carlisle	0	0	0	T
1-43	Holmesville	1.30	0.33	-	T
	Charlotte County				
3-39	Oak Bay	11.24	1.49	T	T
	Madawaska County				
1-38	St. Jacques	0	0	0	0
1-39	Green River	0.33	0	0	0
1-51	Stewart Highway	0	0	0	0
	Queens County				
3-17	Welsford	1.48	0.24	T	T
	Sunbury County				
3-13	Waasis	2.11	1.62	T	T
3-16	Blissville	0.96	0.57	0	T
3-20	Acadia Station	0.31	0.86	T	-
	Victoria County				
1-40	Gillespie Settlement	0	0	0	T
1-41	McLaughlin	0	0.33	T	-
1-42	Burntland Brook	0.27	0.29	0	T
1-45	Dover Hill	0.30	0.48	T	-
	York County				
1-33	Canterbury	0.31	0	0	-
1-34	Pinder	0.94	0.23	-	-
1-35	Woodlands	0.65	0	0	T
1-36	McGivney	0	0.22	0	T
3-11	Hanwell	0.31	0	-	-
3-19	St. Croix	4.47	0.58	T	T
3-49	Nevilles Field, F'ton	6.43	0.85	-	-

* T = Trace L = Light

Section 2, Table 6.

Numbers of Common Insects Collected from Permanent Sampling Stations in Western New Brunswick in 1966.

Species	No. and type of stations producing larvae	Av. no larvae per tree sample	Deviation from 1965
Acleris variana Fern.	3 wS, 3 bF	0.3	-1.2
Caripeta divisata Wlk.	9 wS, 3 bF	0.8	-
Choristoneura fumiferana Clem.	18 wS, 9 bF	12.9	+0.4
Diprion hercyniac (Htg.)	16 wS	1.2	-1.1
Eupithecia filmata Pears.	3 wS, 3 bF	0.5	-
Pikonema dimmockii (Cress.)	15 wS	0.9	+0.4
Semiothisa dispuncta complex	24 wS, 3 bF	0.7	-0.1

ANNUAL DISTRICT REPORT

FOREST INSECT AND DISEASE SURVEY

NORTHEASTERN NEW BRUNSWICK

1966

by

G. F. Estabrooks

FOREST RESEARCH LABORATORY

FREDERICTON, N. B.

FORESTRY BRANCH

May, 1967

3.0 NORTHEASTERN NEW BRUNSWICK

(G. F. Estabrooks)

Introduction

Forest pests of concern in the district in 1966 included the spruce budworm with infestations extending over most of the Southwest and Little Southwest Miramichi rivers, the red-headed jack-pine sawfly in the Bartibog area, the larch sawfly, and the balsam gall midge.

Insect Conditions

Spruce Budworm, Choristoneura fumiferana Clem.

Larval numbers were moderate to high at most sample stations along the Miramichi River west of Parker Station. Beating samples from white spruce at Blackville and Renous and from balsam fir at Park showed increases over 1965 of 35, 38 and 71 larvae per tree respectively. No specimens were collected at sampling locations in Gloucester and Restigouche counties.

Of 1054 budworm pupal cases examined 644 were males and 410 were females.

Spruce budworm egg masses were collected at 249 of 401 locations sampled. A summary by counties of egg-mass records in 1966 follows:

Northumberland County.— One hundred and seventy nine positive and 55 negative egg samples were taken. Numbers ranged from low to high over most of the County south of a line between Russellville, Wayerton and the Plaster Rock-Renous road at the County line. Numbers were high: over most of the Renous and Dungarvon river watersheds, east of a north to south line through Kennedy Lake, and extended south to the Miramichi River at Arbeau and Gray Rapids; south of the Miramichi River west of Lower Barnaby and Rogersville to Muzroll and East Six Mile brooks with a band extending over the lower half of Muzroll Brook, to Doaktown and Boiestown; between the Miramichi River and an east to west line from Doaktown to Hayesville; along the Sunbury-Northumberland County line between the Cains and the Gaspereau rivers; over small areas one each west of Millerton, along the Northwest Millstream and in the southern most tip of the County. Numbers were moderate: along the Gaspereau River and Meadow Brook extending to north of the Cains River; between Bettsburg and the Northumberland-York County line; and west from Upper Blackville including all of the Otter Brook drainage and a 6-to 8-mile stretch of the Bartholomew River drainage.

York County.— Numbers were high: along Route #8 south to Astle extending northward to Parker Ridge and Hayesville; over about a 5-mile stretch of the upper half of Clearwater Brook extending westward to Rocky Brook and the County line. Numbers were moderate: along 5 miles of Clearwater Brook; along 6 miles of Rocky Brook north of Young Dam; and over about a 15-square-mile area south of Boiestown along the York-Northumberland County line.

Numbers were low elsewhere in the County.

Gloucester County.-- Numbers were low west of Route #8 along the Tabusintac River and at three additional sampling locations in the County.

Restigouche County.-- Numbers were low at two sampling locations, one each at Oxford Brook and along the Little Southeast Upsalquitch River.

A summary account by counties of defoliation of balsam fir in 1966 follows:

Northumberland County.-- Moderate to severe defoliation occurred between Muzroll Brook and the Northumberland-Kent County line along Six Mile Brook; between Betts Mill Brook and the Miramichi River; along the Miramichi River at Arbeau and Howard settlement, and over small areas along the Renous River at McGraw Brook and at the head of Nicholson Brook. A large area of moderate defoliation with scattered small patches of severe occurred between the Renous and Dungarvon rivers extending 10 to 12 miles east from the mouth of the Little Dungarvon River. Moderate defoliation occurred in a narrow band along the North Renous River between Rocky and Lake brooks; between the North Renous and the Little Southwest Miramichi rivers north of McKendrick Lake, in a small patch south of Derby Junction and at South Esk.

Light defoliation with a patch of moderate to severe occurred over about an 8-square-mile area between Newcastle and Maple Glen. Scattered patches of light defoliation occurred throughout the County south of the Renous River, north of Sillikers and along the Little Sevogle River.

York County.-- A band of moderate defoliation with patches of severe along Rocky Brook extended 4 to 6 miles north of Youngs Dam with light defoliation extending westward to a band of moderate along Clearwater and Rocky brooks, along Hayes Brook, along the North Cains River and at Taxis River.

Gloucester County.-- Light defoliation with traces of moderate occurred over a 4-square-mile area east of Route #8 along the Tabusintac River, and in three small patches between Pisiquit and North brooks. Defoliation was negligible elsewhere in the County.

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

Red-headed Jack-pine Sawfly, Neodiprion virginianus complex

The red-headed jack pine sawfly occurred in varying intensities in Northumberland County between Green Brook and the Bartibog River east of the C. N. Railroad. Moderate to severe defoliation of jack pine trees occurred over about a 4-square-mile area west of Lower Green Brook. Defoliation was mostly light on mature jack pine in stands and on reproduction throughout the remainder of the infested area. However, moderate to severe defoliation of residuals was common in cut over areas in the eastern half of the area. Light defoliation occurred along Route #8, 2 miles south of Bartibog where no defoliation

was evident in 1965.

Larch Casebearer, Coleophora laricella Hbn.

Numbers of overwintering larch casebearer larvae determined by sequential sampling, were low at seven sample stations and nil at six (Section 3, Table 3). Traces of casebearer feeding were found at most sample stations in the district.

Larch Sawfly, Pristiphora erichsonii (Htg.)

This sawfly was collected at widely separated locations throughout the district. Moderate defoliation of tamarack trees occurred east of the C. N. Railroad at Derby Junction, Northumberland County, and light defoliation occurred at Russellville, Lyttleton and Derby. Only traces of defoliation occurred at other points in the district.

European Spruce Sawfly, Diprion hercyniae (Htg.)

Small numbers of larvae occurred in 25 beating samples from white spruce trees. Numbers averaged 1.4 per tree sampled at permanent sample stations compared with 2.3 per tree in 1965. The results of larval sampling are shown in Section 3, Table 2.

Balsam Shoot-boring Sawfly, Pleroneura borealis Felt.

Trace to light infestations of this sawfly were found on young balsam fir trees throughout the district. Moderate infestations occurred at a location near Wedgemine and two miles south of Upper Blackville, Northumberland County.

Balsam Woolly Aphid, Adelges piceae (Ratz.)

The known limits of the balsam woolly aphid remained unchanged in 1966. The analysis of balsam fir bark samples taken within the range of the insect showed numbers on balsam fir stems to be low or nil.

Balsam Gall Midge, Dasineura balsamicola (Lint.)

Trace to light infestations of balsam gall midge occurred on the new needles of young balsam fir trees throughout the district (See map, Section 1, Figure 4). Moderate attacks occurred at Tabusintac; along the Plaster Rock-Renous road at Monaghan Brook; at Renous and Ashton Hill, Northumberland County and on occasional trees at Neguac, Gloucester County.

Spruce Bud Midge, Rhabdophaga swainei Felt.

Small numbers of buds killed by this midge were found on white spruce trees throughout the district. Counts of dead buds per 100 square feet of foliage showed 70 at Flatlands and 86 at Blackland, Restigouche County, and 61 at Blackville, Northumberland County.

White-pine Weevil, Pissodes strobi (Peck)

Infested shoots of young white pine trees were found throughout

Northumberland and Gloucester counties and at Blacklands, Restigouche County. Numbers were highest at Russellville, Northumberland County, where 25% of the trees had infested shoots.

Black-headed Budworm, Acleris variana Fern.

This budworm was collected from white spruce and balsam fir trees in small numbers throughout the district. Beating samples from white spruce yielded an average of 0.6 larvae per tree compared with 1.9 in 1965 and from balsam fir 0.7 larvae per tree compared with 0.9 in 1965.

Cedar Leaf Miners, Pulicalvaria thujaella Kft., Argyresthia thuiella (Pack.),

Argyresthia freyella Wlshm., and

Argyresthia aureoargentalla Brower

A trace of browning of cedar foliage was found at widely separately locations throughout the district. Light browning occurred only at Derby, Northumberland County. Pulicalvaria thujaella was widespread throughout the district, the other species not common. Locations where the various species were collected and the degree of browning are listed below.

Location	Pulicalvaria thujaella	Argyresthia thuiella	Argyresthia freyella	Argyresthia aureoargentella	Degree of browning
Gloucester County					
Black Rock	*				T
Tetagouche Falls	*				T
West Bathurst	*	*	*		T
Northumberland County					
Derby Jct.	*				L
Bryenton	*				T
4 mi.E.of Bay du Vin	*				T
Village St. Laurent	*				T
10 mi.W.of Renous	*				T
Quarryville	*	*			T
Restigouche County					
Charlo	*				T
Kedgwick River	*	*			T
St. Quentin F.tower	*			*	T
Glenlevit			*		T
York County					
Parkers Ridge	*				T

A Leaf Roller on Maple, Cenopsis pettitana Rob.

This leaf roller was common on maples throughout Northumberland and York counties. Light leaf rolling occurred at Carrolls Crossing and at Mile 1 Hazelton Settlement Road, Northumberland County. Infestations were no more than trace at other locations in these counties and at one location in each of Restigouche and Goucester counties.

Birch Casebearer, Coleophora fuscedinella Zell.

Varying degrees of foliage browning caused by this casebearer occurred on white birch trees throughout the district. The intensity reached severe on 10% of the trees at Derby Junction, Northumberland County and at a location 7 miles northwest of Bathurst, Gloucester County. Light to moderate browning occurred at Tetagouche Falls, Gloucester County and in the Popple Depot area of Northumberland County. Elsewhere browning was trace or light.

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

Moderate browning by Fenusa pusilla occurred on wire birch trees along Route #11 between Redmondville and Black River; along Route #8 between Derby and Upper Blackville, Northumberland County, and at McGivney, York County. Light to moderate browning of white birch foliage occurred between Kedgwick Forks and Mile 3 Belle Kedgwick Road, Restigouche County, where Profenusa thompsonii was collected. Elsewhere in the district browning was trace to light (Section 3, Table 4).

Ugly-nest Caterpillar, Archips cerasivoranus Fitch

Scattered infestations occurred on choke cherry trees throughout Gloucester and Northumberland counties. Populations were highest at Parkers Ridge, York County where patches of continuous webbing occurred. The results of roadside counts of webs in 1000 square-foot areas follow:

Location	No. nests per 1000 sq. ft. 1965	1966
York County		
Parkers Ridge	-	103
Northumberland County		
Derby	49	14
Chatham to Newcastle	104	6
Gloucester County		
Youghall Beach	98	35

Satin Moth, Stipnotia salicis L.

This caterpillar caused moderate to severe defoliation of a few Carolina poplar trees at Nordin and moderate defoliation at Millerton, Northumberland County. Light defoliation of a few Lombardy poplar trees occurred at Belledune, Gloucester County.

Mountain Ash Sawfly, Pristiphora geniculata (Htg.)

Moderate infestations of this sawfly occurred on mountain ash trees at Bathurst. Small numbers were found at widely separated locations throughout the district.

Additional Species Collected

Numbers of common insects collected at permanent sample stations are listed in Section 3, Table 5.

All insects collected in the district in 1966 are included in Table 4 of Section 1.

Tree Diseases

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

The beech scale and cankers on beech trees are widespread throughout Northumberland, Gloucester and York Counties. The fungus was collected at St. George and Black Rock, Gloucester County. Beech bark samples were taken at the following locations where counts were also made of cankered stems.

Location	No. stems examined	No. stems cankered	Remarks
Northumberland County			
Village St. Laurent	4	4	Severe cankers.
Gloucester County			
St. George	30	25	Moderate dieback.
4 mi.S.W.Brunswick Mines	25	19	
Black Rock	30	25	Severe cankers and light dieback.
York County			
Rocky Brook Portage	35	32	Light to severe cankers.
Restigouche County			
3 mi.S.W.St. Maure Gate	30	0	No beech scale found.
Glenwood	20	0	No beech scale found.

Dutch Elm Disease Ceratocystis ulmi (buism.) C. Moreau

No extensions in the known distribution of the Dutch elm disease occurred in the district in 1966 (See map, Section 1, Figure 5). Diseased trees have not yet been found in Bathurst, Chatham or Newcastle.

Hail Damage

A hail storm caused moderate defoliation of trembling aspen trees along a 2.5-mile stretch of the Stewart Highway northeast of St. Jean Baptiste. Hailstone lesions were numerous on branches and main stems of trembling aspen and young jack pine trees. Injury was trace to light on white spruce, balsam fir, pin cherry and willow.

Frost Damage

Late spring frost caused trace to light shoot damage on young balsam fir and white spruce trees at Grog Brook and 3 miles north of

St. Quentin; and on balsam fir at Menneval and 6 miles east of Berry Brook Gate, Restigouche County. Traces of frost damage occurred on balsam fir at Legresly, Gloucester County.

Balsam Fir Tip Blight, Rehmiellopsis balsameae Waterman

Trace symptoms of tip blight were observed on ten balsam fir trees of reproduction size at Belledune, Gloucester County, and on a few along the Northwest Upsalquitch River at Craven Gulch, Restigouche County.

Needle Casts, Hypodermella nervata Darker

Hypodermella mirabilis Darker

Adelopus balsamicola (Peck) Thesis

Browning of balsam fir foliage resulting from infections of needle casts was severe on the 1964 and earlier foliage of one tree at Kedgwick River, Restigouche County, moderate on a few trees at 3.5 miles Rocky Brook Road, York County and on five trees at Sillikers, Northumberland County. Trace to light infections occurred at Craven Gulch, Restigouche County where Hypodermella nervata and Adelopus balsamicola were collected.

Needle Rust of Balsam Fir, Pucciniastrum epilobii Otth.

Trace infections of this rust were found on a few balsam fir trees of reproduction size at Boiestown; along Route #9 at Monaghan Brook, Northumberland County and at Jacquet Head, Restigouche County. Trace infections occurred on most balsam fir trees at Bass River, Gloucester County and at Tabusintac, Northumberland County.

Eastern Gall Rust, Cronartium quercuum (Berk.) Miyabe ex Shirai

Trace infections of this rust were found on jack pine trees at Wayerton, Gray Rapids and Indian Falls, Northumberland County.

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

An estimated 20% of the balsam fir trees along Fogs Brook, and a few trees at Jacquet Head, Restigouche County had cankered branches caused by infections of this fungus.

Cherry Blight

Browning of pin cherry foliage caused by infections of this fungus was light at Mile 28 southeast Upsalquitch road and 2 miles south of Flying Eddy. Light to moderate infections occurred five miles south of Flying Eddy, Restigouche County. A trace of browning was found on pin cherry trees along the Bathurst Paper Company road at Middle Brook.

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

Cankers caused by this rust were collected at widely separated locations in Northumberland County and at Red Rock, Beresford, Bass River and Belledune, Gloucester County. The incidence was highest at Red Rock, Gloucester County where 23% of the young white pine trees were infected.

Anthracnose of Maple, Gloeosporium apocryptum Ell. & Ev.

Trace symptoms of this infection were found on the foliage of sugar maple regeneration at Rocky Brook, York County, and on red maple at Blackland, Restigouche County.

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

This fungus was collected from over-mature willows with severely browned foliage at South Nelson, Northumberland County. Light browning of foliage occurred on a few willows along the Bathurst Paper Company road at the Caribou Depot road, Gloucester County, where symptoms of the fungus were found.

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

Symptoms of infections by this fungus were not common in 1966. Traces of twig injury were found of trembling aspen at Jacquet Head, Oliver Siding, Blackland, Craven Gulch and Grog Brook, Restigouche County, along the Bathurst Paper Company Road at Middle Brook, Gloucester County, and at Derby, Kirkwood and Weaver Siding, Northumberland County. One infected Lombardy poplar twig was found at West Bathurst.

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

Trace infections of ink spot were found on aspen at widely separated locations east of the Stewart Highway in Restigouche County, along the Bathurst Paper Company Road at Middle Brook, Gloucester County, and on Lombardy poplar at West Bathurst. Light infection occurred 6 miles east of Flying Eddy and 2 miles south of St. Maure Gate, Restigouche County.

Other Noteworthy Diseases

Organism	Host(s)	Location	Remarks
Arceuthobium pusillum Peck	Spruce, black	S. Dungarvon R	Individual brooms on occasional trees.
Armillaria mellea (Vahl.ex Fr.)	Fir, balsam	6 mi.S. of Berry Bk. Gate	One dead tree.
Aureobasidium pullulans (dBy.) Arnaud	Pine, red	8 mi.Kedgwick Portage	A secondary fungus.
Coccomyces hiemalis Higgins	Cherry, pin	Oliver Siding	Symptoms only.
Cronartium coleosporioides Arth.	Pine, jack	Indian Falls	Less than 1% infection.

Other Noteworthy Diseases ..cont'd.

Organism			
Cryptodiaporthe salicina (Curr.) Wehm.	Willow	South Nelson	A canker on willow.
Dibotryon morbosum (Schw.) Theiss. and Syd.	Cherry, pin	St. Jean Baptiste	Trace infections.
Didymascella thujina (Durand) Maire	Cedar, eastern white	10 mi.W. on Rte. 109 Kedgwick R.	Light infections.
Fusicoccum sp.	Tamarack	Bartibog Bridge	Moderate branch cankers on one tree.
Fusicoccum abietinum (Hartig) Prill. & Delacri	Fir, balsam	Craven Gulch N.W. Upsalquitch	One branch canker.
Gloeosporium sp.	Lilac	South Nelson	Shoot blight.
Gnomoniella coryli (Batsch. ex Fr.) Sacc.	Hazel	Jacquet Head, Bathurst Paper Co. Road at Middle Bk, 2 mi. N. St. Arthur	Trace to light infections.
Heterosporium sp	Lilac	South Nelson	Shoot blight.
Hypodermella ampla (Davis) Dearn	Pine, jack	7 mi.W. of Bathurst Mines	Light infections.
Hypoxylon mammatum (Wahl.) Miller	Aspen, trembling	Indian Falls	Trace infections.
Lophodermium pinastri (Schrad. ex Fr.) Chev.	Pine, jack	12 mi.W. on Rte. 109	Trace
Pestalotia funerea Desm. (symptoms)	Cedar, eastern white	Charlo, 4 mi. E. of Bay du Vin	Trace infections.
Phleospora aceris (Lib.)	Maple, sugar, red, striped, mountain	4 mi. Kedgwick Portage, 3 mi. W.McGraw Bk. Blackland, St. Arthur	Trace infections.
Phyllosticta minima (Berk. & Curt.) Underw. and Earle	Maple, sugar, red	3 mi.W.McGraw Bk., 4 mi.Kedgwick Portage, South Nelson, Blackland	Trace infections.

Other Noteworthy Diseases cont'd.

Organism	Host(s)	Location	Remarks
Pollaccia elegans Serv.	Poplar, balsam	Craven Gulch	Moderate infections on reproduction.
Polyporus schweinitzii Fr.	Cedar, eastern white	Craven Gulch at N. W. Upsalquitch	A conk.
Rhytisma salicinum Pers. ex Fr.	Willow	Bathurst Paper Co.Road at Middle Bk.	Trace infections.
Sarcoscypha coccinea (Jacq.) Pers.	Maple	Boiestown	One dead branch.
Septoria caricus Pass	Carex vaginata	2 mi. N.W. Upsalquitch Forks	Trace infection.
Taphrina dearnessii Jenkins	Maple, red	Glenwood	Trace infections.
Uredinopsis sp	Fir, balsam	4 mi. Kedgwick Portage	Trace,

Section 3, Table 1

Spruce Budworm Larval Sampling Records at Permanent Sampling Stations in Northeastern New Brunswick in 1966

County and Location	Station no.	Tree* sp.	No. specimens	Av. per tree sample	Deviation from 1965
Gloucester					
Bass River Road	2-2	wS	0	0	0
Bathurst	2-3	wS	0	0	-0.3
Northumberland					
Park	2-6	wS	130	43.3	+7.3
		bF	213	71.0	+71.0
Blackville	2-16	wS	111	37.0	+35.3
Parker Station	2-18	wS	53	17.7	+2.4
Renous	2-26	wS	143	47.7	+37.7
Little Bartibog	2-27	wS	3	1.0	-0.7
Carrolls	2-32	wS	139	46.3	+8.6
Trout Brook	2-33	wS	8	2.7	0
Redmondville	2-38	wS	32	10.7	-2.0
Restigouche					
Blackland	2-1	bF	0	0	-0.7
Flatlands	2-5	wS	0	0	0
Simpson Field	2-20	wS	0	0	0
		bF	0	0	0
5 mi. S.E. Upsalquitch Road	2-35	bF	0	0	0
		wS	0	0	0
Kedgwick Forks	1-11	wS	0	0	0
Kedgwick River	1-49	wS	0	0	0
Union Brook	1-52	wS	0	0	0
		bF	0	0	0
York					
Norrad Bridge	1-3	wS	94	31.3	-2.7
McGivney	1-29	wS	77	25.7	-16.0
		bF	15	5.0	+5.0

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

Section 3, Table 2

Numbers of European Spruce Sawfly Collected from Permanent Sample Stations in Northeastern New Brunswick in 1966
(All collections from white spruce)

Location	Sample station	No. of sawfly larvae* June 28-July 14 1st sample	No. of sawfly larvae* Sept. 8-Sept. 16 2nd sample
Gloucester County			
Bass River Road	2-2	5	4
Bathurst	2-3	7	4
Northumberland County			
Park	2-6	0	4
Blackville	2-16	0	2
Parker Station	2-18	4	4
Little Bartibog	2-27	0	2
Carrolls	2-32	0	0
Trout Brook	2-33	0	0
Redmondville	2-38	7	1
Renous	2-26	1	3
Restigouche County			
Blacklands	2-1	1	13
Flatlands	2-5	3	12
Simpson Field	2-20	1	-
Dalhousie Jct.	3-34	5	8
5 mi. S. E. Upsalquitch Rd.	2-35	0	-
Union Brook	1-52	2	-
Kedgwick River	1-49	5	0
Kedgwick Forks	1-11	2	1
York County			
Norrad Bridge	1-3	-	0
McGivney	1-29	-	1
		43	59

* Three trees sampled each time

Section 3, Table 3

Larch Casebearer Numbers and Defoliation Estimates at Sampling Stations in Northeastern New Brunswick in 1965 and 1966

Sampling station No.	Location	Casebearer/100 fascicles 1965	1966	Defoliation* 1965	1966
	Gloucester County				
2-9	Six Roads	1.90	1.72	T	T
2-15	Tracadie	0.66	1.22	T	T
2-24	Pokeshaw	0.67	0	0	T
2-30	7 mi. S. of Bathurst	0.94	0.33	T	T
	Northumberland County				
2-8	Bartibog Bridge	0.99	0	T	T
2-11	Redmondville	0.33	0.31	T	T
2-14	Little Bartibog	0.32	0.99	0	T
2-21	Weaver Station	0	0	0	0
2-23	Derby Junction	0.30	0.99	T	T
2-28	Carrolls	0	0.27	0	0
	Restigouche County				
2-12	Glenlevit	0	0	0	0
2-25	Little Belledune Point	0.94	0	T	T
1-50	St. Quentin	0	0	T	T

* T = Trace L = Light

Section 3, Table 4

Classification of Browning of Birch Foliage by the Birch Leaf Miner in Northeastern New Brunswick in 1965 and 1966

Location	Degree of defoliation*			
	White birch		Wire birch	
	1965	1966	1965	1966
Gloucester County				
Allardville	-	T	-	-
Bass River	-	T	-	-
Belledune	-	T	-	-
Tracadie	-	T	-	L-M
Northumberland County				
Renous	T	T	L-M	L-M
Blackville	T	T	M	L
Redmondville	T	T	L	M
Black River	L	T	M	M
Derby	T	T	L	M
Carrolls	T	T	L	L
Restigouche County				
Kedgwick Forks	L	L	-	-
Hornes Gulch	L	L	-	-
3 mi. Belle Kedgwick Road	-	M	-	-
Whites Brook	-	T	-	-
Jacquet Head	-	T-L	-	-
Craven Gulch	-	T	-	-
York County				
McGivney	-	-	-	L-M
Astle	-	T	-	-

* T = Trace; L - Light; M = Moderate

Section 3, Table 5.

Numbers of Common Insects Collected from Permanent Sampling Stations in Northeastern New Brunswick in 1966.

Species	No. and type of stations producing larvae	Av. no larvae per tree sample	Deviation from 1965
Acleris variana Fern.	9 wS, 2 bF	1.6	+0.3
Caripeta divisata Wlk.	6 wS	0.7	+0.1
Choristoneura fumiferana Clem.	10 wS, 2 bF	28.0	+13.9
Dioryctria reniculella Grote	7 wS	2.2	+1.8
Diprion hercyniae (Htg.)	19 wS	1.3	-1.9
Eupithecia filmata Pears.	6 wS, 1 bF	0.6	-0.1
Feralia jocosa Gn.	1 wS	0.3	-
Griselda radicana Wlshm.	9 wS, 2 bF	1.6	+0.3
Lambdina fiscellaria fiscellaria Gn.	3 wS, 1 bF	0.3	-0.2
Neodiprion abietis complex	1 bF	0.6	-0.1
Pikonema alaskensis (Roh.)	7 wS	0.9	+0.5
Pikonema dimmockii (Cress.)	8 wS	0.7	-0.6
Semiothisa dispuncta complex	16 wS	1.4	-0.9

ANNUAL DISTRICT REPORT
FOREST INSECT AND DISEASE SURVEY
SOUTHEASTERN NEW BRUNSWICK
AND
PRINCE EDWARD ISLAND
1966

by

C. D. MacCall

FOREST RESEARCH LABORATORY

FREDERICTON, N. B.

FORESTRY BRANCH

May, 1967.

4.0 SOUTHEASTERN NEW BRUNSWICK AND PRINCE EDWARD ISLAND

(C. D. MacCall)

Introduction

The spruce budworm and larch sawfly continued as major insect problems in the district and the Dutch elm disease was found for the first time at two locations.

A total of 537 insect and disease samples were submitted by the district technician and 161 by New Brunswick Forest Service co-operators. Insects collected in this district and of which no mention is made in the following text are listed in Table 4 of Section 1.

Insect Conditions

Spruce Budworm, Choristoneura fumiferana Clem.

A total of 16 larval collections were taken in the district. Larval numbers increased at permanent sample stations in Albert and Kings counties and decreased in Kent, Queens and Sunbury counties (Section 4, Table 1).

Spruce budworm egg masses were found at 160 of the 225 locations sampled in southeastern New Brunswick (see map, Section 1, Figure 2) and at 9 of 31 points in Prince Edward Island. A summary of the results of egg-mass counts by counties follows:

Kent County.--Egg-mass numbers were high in an area extending west of the Rogersville-Kent Junction road to include Marcelville, and South Forks brook, and in small patches at Laketon, Brest, Breau Village, Adamsville, east of Cameron's Mills, from Cails Mills to Molus River, and at Trout brook. Low numbers were found in other areas.

Queens County.--Egg-mass numbers were high from north of Gaspereau Forks to the Kent County line; from Cranberry Lake east to Alward extending south to the County line; in an area south of Bronson Settlement between Hector Brook and Cumberland Bay; and in most of the peninsula southwest of Youngs Cove Road. Elsewhere numbers were low.

Kings County.-- Egg masses were numerous from East Canaan to Head of Millstream, and between Londonderry and McMannus fire towers. Low numbers occurred in an area northeast of Stewarton to Head of Millstream and between Jeffries Corner and Mechanic Settlement.

St. John County.-- Egg-mass numbers were high from East Point Wolfe River to Teahans Corner and Lake brook. Numbers were low north of Shepody to the County line.

Westmorland County.-- High egg counts were made on foliage from an area between North Branch and Berry Mills. Numbers were low in other areas.

Defoliation estimates were taken at egg sampling locations and at numerous other points (see map, Section 1, Figure 1). A summary of results as they apply to this district follows:

In Kent County patches of light or moderate defoliation occurred at Big Forks, Cherry and Ryan brooks, Centre Acadia and Camerons Mills. Defoliation averaged 20% at 66 locations.

In Queens County light and moderate defoliation extended south of Bronson Settlement to Cumberland Bay, between Cherry brook and Gaspereau Forks and in small patches at Forks, Youngs Cove and Narrows, and near Cambridge and Waterborough. Current defoliation averaged 20% at 65 points.

In Sunbury County moderate and severe defoliation occurred west of Hardwood Ridge. Current defoliation averaged 30% at 10 locations.

In Kings, Albert and Westmorland counties the loss of new foliage was light at scattered points.

In St. John County defoliation did not exceed a trace.

Balsam Woolly Aphid, Adelges piceae (Ratz.)

Plot #3-21 at Point Wolfe Road remained uninfested. Sixty of the original 97 trees on the plot have been recorded as dead from other causes or cut.

The condition of the 104 trees on plot #3-20, Old Shepody Road, Albert County, changed little from that found in the two previous years as indicated below.

	Percent of trees in class *										Dead of
Year	1.	2a	2b	2c	3a	3b	4a	4b	4c	5	other causes
1964	75.0	-	-	-	-	-	4.8	-	-	-	20.2
1965	75.0	-	-	-	-	-	2.8	-	-	-	22.2
1966	75.0	1.0	-	-	-	-	-	-	-	-	24.0

* 1= Uninfested, 2a= Light stem wool, 4a= Light twig attack.

European Spruce Sawfly, Diprion hercyniae (Htg.)

Spruce sawfly larvae were taken in small numbers from white spruce beating samples at 13 locations. The largest collection was submitted from Schoales Dam where three trees yielded 28 larvae (Section 4, Table 4). The average numbers of larvae per tree sample for 1965 and 1966 were 3.7 and 1.5 respectively.

Spruce Bud Midge, Rhabdophaga swainei Felt.

Infestations of this midge were light but common. Counts of killed buds on white spruce trees at five locations show slight reductions in average numbers from 1965.

Location.	No. of galled buds per 100 ft. of foliage 1964	1965	1966
New Brunswick			
Lutz Mountain, Westmorland Co.	166	85	45
Schoales Dam, Kings Co.	152	56	0
Cumberland Bay, Queens Co.	62	21	49
Prince Edward Island.			
Hartsville, Queens Co.	111	82	43
Harrington, Queens Co.	69	62	74
Georgetown, Kings Co.	30	20	21

Balsam Gall Midge, Dasineura balsamicola (Lint.)

Infestations of this gall midge on balsam fir have increased in intensity and extent since 1964. The map (Figure 4 of Section 1) shows that the insect was widespread in the district in 1966. Locations where gall midge attacks were most common are listed below.

Infestation	
Severe	Moderate
New Brunswick	
N. of Gibbons, Kings Co.	The Range, Queens Co.
Coal Creek, Queens Co.	West. St. Nicholas, Kent Co.
Melrose, West Co.	Kierstead Mtn., Kings Co.
Chester, Albert Co.	Milkish, Kings Co.
E. of Alma, Albert Co.	Gibbon, Kings Co.
Pt. Wolfe Rd., Albert Co.	St. Martins, St. John Co.
Church Cor. Albert Co.	
Germantown, Albert Co.	
Prince Edward Island	
West Devon, Prince Co.	Burlington, Prince Co.
	Covehead, Queens Co.

Black-headed Budworm, Acleris variana Fern.

Population levels of this budworm have been low since the last outbreak subsided in 1950. The following table shows small fluctuations in larval numbers from beating stations in the district since 1964.

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
1966	9	24	57	2.3

Larch Sawfly, Pristiphora erichsonii (Htg.)

Larch sawfly numbers have increased annually since 1960. Areas of moderate and severe infestations in central Queens, Kings and St. John counties have about doubled in size from 1965. Patches of moderate and severe defoliation continued in Westmorland County. Defoliation was light but common elsewhere in the district (Section 1, Figure 3).

Larch Casebearer, Coleophora laricella Hbn.

The status of this insect remained much the same as in 1965. Sequential counts of overwintering larvae at 13 sample stations showed a small increase in casebearer numbers at five locations (Section 4, Tables 5 and 6).

European Pine Shoot Moth, Rhyacionia buoliana Schiff.

A gradual increase in shoot moth damage has occurred in a red pine plantation near Souris, P.E.I., since 1963. Examination of these trees in 1966 showed that few shoots were left uninfested. Infestations were moderate on red pine trees near Charlottetown and Fundy Park. Elsewhere numbers were light at scattered locations.

Fall Cankerworm, Alsophila pometaria Harr.

The 61 larval collections taken in the district in 1966 are listed by counties as follows: Albert (6), Kent (1), Kings (6), Queens (3), and Westmorland (20) in New Brunswick and in Kings (8), Prince (7), and Queens (10) in Prince Edward Island. Defoliation was trace except near Gaspereau Forks Queens County where a number of elm trees along the Salmon River were lightly defoliated.

Bruce Spanworm, Operophtera bruceata Hulst.

Light defoliation of sugar maple, beech and trembling aspen reproduction was observed at Church Hill and Caledonia Settlement, Albert County. Larval numbers were low in other areas. Larval mortality was high at Church Hill.

Winter Moth, Operophtera brumata L.

Winter moth larvae collected at North Tryon represents an extension of its known boundary in Prince Edward Island to approximately 20 miles west of Charlottetown. One larval collection was taken at Upper Point de Butte, Westmorland County. Hosts were apple and basswood. Defoliation was very light.

Operophtera sp.

Eighteen collections contained larvae determined as Operophtera sp. (N. B. 13, P.E.I. 5,).

Fall Webworm, Hyphantria cunea Drury

Low population levels of this webworm continued in southeastern New Brunswick. In Prince Edward Island nests were common from Wood Island to Wood Island East. Scattered nests occurred from St. Peters West to St. Peters Bay, and at Margate, Cavendish, and Hunter River. The results of nest counts taken along roadsides at two locations are as follows:

Location	Distance in miles	No of nests per mile 1964	1965	1966
Sussex By-pass, N.B.	4.8	1.3	0.8	0.2
Tignish to Elmsdale, P.E.I.	11.0	2.5	4.5	1.0

Birch Leaf Miner, Fenusa pusilla (Lep.)

Moderate and severe leaf miner damage again occurred on wire birch and white birch trees in eastern Queens and western Westmorland counties. Leaf mining was light but common elsewhere in the district.

Birch Casebearer, Coleophora fuscedinella Zell.

Casebearer infestation were moderate at East Canaan, Kings County, N. B. and near Charlottetown, P.E.I. Defoliation was light but widespread on wire birch and white birch in other areas.

Birch Skeletonizer, Bucculatrix canadensisella Cham.

Population levels of this skeletonizer were very low in areas where severe infestations occurred in 1965. Only a trace of defoliation was found on wire birch and white birch. No defoliation occurred in Prince Edward Island.

A Leaf Roller on Maple, Cenopsis pettitana Rob.

Leaf roller damage was light to moderate on red maple and sugar maple trees in central Kent County and light in western Westmorland County. Rolled leaves were found in small numbers in

other parts of the district. A collection taken at Murray River constituted a new record of occurrence for Kings County, P.E.I.

Ugly-nest Caterpillar, Archips cerasivoranus Fitch.

Nests of this caterpillar occurred individually or were found in small groups on roadside cherry bushes at Richibucto, Moncton West, Chipman, and Second North River, N. B., and at Hunter River, Marchfield and New Perth, P. E. I. The results of nest counts taken at three locations follow:

	No of nests per 100 sq. feet.	
Location	1965	1966
Shediac Cape, N. B.	130	100
Moncton West, N. B.	Too numerous to count.	Scattered nests.
Wellington, P. E. I.	110	115

Alder Flea Beetle, Altica ambiens alni (Harris)

Moderate and severe defoliation occurred in small patches on alder bushes at Long Creek, Sussex and Cocagne, N. B.

Satin Moth, Stilpnotia salicis L.

Satin moth defoliation was severe on willow, silver poplar and Carolina poplar shade trees at Shediac Bridge and St. John, N. B., and at St. Peters Bay, P.E.I. Cocoons of a braconid parasite were numerous on the stems of infested trees at the latter location.

Forest Tent Caterpillar, Malacosoma disstria Hbn.

Small numbers of this caterpillar were submitted from aspen stands near Parkindale, Albert County, and Mill Cove, Queens County.

Additional Species Collected.

Insects collected in 1966 in addition to those mentioned in the text are listed in Section 1, Table 4.

Common insects collected at permanent sample stations are listed in Section 4, Table 6.

Tree Diseases

Winter Drying

The foliage of several black spruce trees near Berwick was moderately browned and light browning occurred near Loch Lomond.

Frost Damage

Late frost caused moderate damage to new shoots of balsam fir and white spruce trees at Center Millstream, N. B., and light

leaf browning on black ash at Charlottetown, P. E. I.

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

The discovery of this disease in Sussex and Moncton represents an easterly extension of the known area of infection of about 75 miles. Scouting was carried out in other areas of the district but no diseased trees were found.

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

and Physalospora miyabeana Fukushi

This disease caused infections which resulted in light browning of the foliage of willow at Surrey, Sackville, Codys, Buctouche and Moncton.

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

Light infestations of the scale were common in beech stands in the district and many of the tree stems are cankered from repeated attacks of the scale and the Nectria fungus associated with it.

Light infestations of the fungus was observed near Schoales Dam and infections of trace intensity occurred at Kierstead Mountain and Mechanic Settlement.

Hypoxylon Canker of Poplar, Hypoxylon mammatum (Wahl.) Miller

Aspen stands at four locations were examined for the incidence of hypoxylon canker. The results were as follows:

Location	Number of Trees		
	Uninfected	Living Cankered	Dead Cankered
Youngs Cove, Queens Co. N.B.	94	3	3
Kierstead Mtn., Kings Co. N. B.	98	2	0
Dunstaffnage, Queens Co. P.E.I.	90	4	6
New Perth, Kings Co. P.E.I.	98	2	0

Anthracnose of Hardwoods

Gloeosporium apocryptum Ell. & Ev. caused infections resulting in browning of light intensity and incidence on the foliage of sugar maple and red maple shade trees in Westmorland, Kings, Queens, Albert and Kent Counties, N. B. and in Queens County, P. E. I.

Infections of Gloeosporium aridum Ell. & Holw. were of light intensity and incidence on ash trees at Shale Hill.

Gloeosporium fagicola Pass. caused infections of light intensity on beech trees near Centre Norton.

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

Light infections of this disease occurred on ornamental trees at Baie Verte and Surrey.

Leaf Blisters

Infections of Taphrina caerulescens (Desm.) Tul. caused light blistering and curling of red oak foliage at Hillsborough and Narrows.

Infections of Taphrina wiesnerii (Rathay) Mix were of light intensity on pin cherry at Stoney Creek, Fundy Park and east of Loch Lomond.

Catkin Hypertrophy, Taphrina robinsoniana Gies.

Light infections of Taphrina robinsoniana Gies. were common on alder catkins in the district. Specimens were submitted from six locations in southeastern New Brunswick and two in Prince Edward Island.

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

Infections of light intensity occurred on trembling aspen at Salmon Creek and Steeves Mountain, N. B., and Milton Station P. E. I.

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

Ink spot infections were of light intensity on aspens near Gaspereau Forks, Parkingdale, The Glades and Brick Sliding, N. B., and at Carleton and Dundee, P.E.I.

Black Knot of Cherry, Dibotryon morbosum (Schw.) Theiss. & Syd.

This disease was common but of light intensity on pin cherry in the district.

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

Examinations of white pine stands at seven locations for the incidence of blister rust produced the following results:

Location.	No. trees examined	Percent of trees infected
Narrows Road, Queens Co.	100	2
Mill Cove, Queens Co.	81	12
Gaspereau Forks, Queens Co.	20	10
Riverview, Albert Co.	35	2
Picadilly Rd., Kings Co.	10	30
Birch Ridge, West Co.	113	5
Molus River, Kent Co.	20	15

White Pine Needle Blight

Light browning of the new needles of white pine trees occurred at Springfield, Waterboro and Coal Creek.

Eastern Dwarf Mistletoe, Arceuthobium pusillum Peck.

Infections of light intensity and incidence occurred on red spruce trees near Salmon River, N. B. and on white spruce at South Pinette, P.E.I. Brooms were numerous on white spruce west of Fairfield, N. B.

Yellow Witches' Broom

Infections caused by Melampsorella caryophyllacearum Schroet. were found on balsam fir in all counties of the district but were mainly of light intensity and incidence. One witches' broom caused by infections of Chrysomyxa arctostaphyli Deit. was found on black spruce at Memramcook.

Needle Rusts

Red spruce needles infected by Chrysomyxa weirii Jacks. were submitted from Fundy Park. This was a new distribution record for New Brunswick.

Infections caused by Pucciniastrum epilobii Otth. were common but of light intensity on the new foliage of balsam fir trees in the district.

Hypodermella nervata Darker infections caused moderate browning of the 1963 and 1964 foliage on balsam fir trees at Bass River, Youngs Cove Road and Fundy Park in New Brunswick, and at Milton Station, Prince Edward Island. Trace infections occurred at eleven other locations in southeastern New Brunswick.

Tip Blight of Balsam Fir, Rehmiellopsis balsameae (Waterm.)

Tip blight was light on a few balsam fir trees at Long Creek and Youngs Cove Road.

Other Noteworthy Diseases.

Organism	Host(s)	Locality	Remarks
Adelopus balsamicola (Peck) Theiss.	Fir, balsam	Milton Station, P.E.I. Cap Pele,N.B.	Needle cast light.
Apiognomonia errabunda (Rob.) Hoehn.	Oak, red.	Waterborough, Queens Co.& Harewood, West. Co.N.B.	Light infections.
Bifusella faullii Darker	Fir, balsam	Head of Millstream, N. B.	Trace infection.
Caliciopsis pinea Peck.	Pine, white	Hopewell Cape,N.B.	New record for county.
Cephalosporium sp.	Elm, white	Petitcodiac, Memramcook, Shediac Cape, & Cody's N.B. and Charlottetown,P.E.I.	Trace and light browning.

Other Noteworthy Diseases continued.

Organism	Host(s)	Locality	Remarks
Cherry Blight	Cherry, pin	Brudenell River, P.E.I.	Light infections.
Chrysomyxa sp.	Spruce, white	Lutz Mtn.West.Co.	Light browning.
Cladosporium sp.	Elm, chinese	Moncton	
Coccomyces hiemalis Higgins	Cherry, pin	Second North River West.Co.Gaspereau Forks, Queens Co.N.B., Milton Station P.E.I.	Trace and light.
Coccomyces strobi Reid. & Cain.	Pine, white	Kierstead Mtn., N.B.	Twig canker.
Cronartium quercuum (Berk) Miyabe ex Shirai	Pine, jack	Canaan Sta., Chipman, and Five Points, N.B.	Light infections.
Cryptodiaporthe salicina (Curr.) Wehm.	Willow	Lewisville, West Co., Bass River, Kent Co.	Cankers
Cytospora sp.	Elm, chinese	Lewisville & Moncton, West.Co., Buctouche, Kent Co.	Light infections.
Didymascella thujiana (Durand) Maire	Cedar, eastern white	New Canaan and St. John, N.B.	Light browning.
Dothichiza populea Sacc.& Briard	Poplar	Alberton, P.E.I.	Cankers common.
Elytoderma deformans (Weir) Darker	Pine, jack	New Canaan	Light infections.
Eriosphaeria vermicularia (Nees ex Fr.) Sacc.	Spruce, white	Shale Hill, Albert Co.	Light needle damage.
Erysiphe aggregata (Peck) Farl.	Alder	Long Creek, Salmon Creek, & Stoney Creek N.B. Dalvay, P.E.I.	Light infections common.
Gnomonia ulmea (Schw.) Thuem.	Elm, white	Lower Coverdale and Sussex.	Light leaf spot.
Gnomoniella corylii (Batsch. ex Fr.) Sacc.	Hazelnut	Bass River and Petitcodiac.	Light leaf spot.
Hypodermella sp.	Fir, balsam	Wood Island, P.E.I.	Light infections.

Other Noteworthy Diseases cont'd.

Organism	Host(s)	Locality	Remarks
Hypodermella ampla (Davis) Dearn.	Pine, jack	Shale Hill, N.B.	Trace infections.
Hypodermella mirabilis Darker	Fir, balsam	Pt. Wolfe Rd., Albert Co.	Trace needle cast
Lophodermium sp.	Spruce, white	Calhoun and Shale Hill N.B., Dalvay, P.E.I.	Trace and light infections.
Melampsora sp.	Larch	Wood Corner, Kent Co., Cap Pele, West Co., Centre Millstream, Kings Co.	Light infections.
Nectria cinnabarina (Tode ex Fr.) Fr.	Elm, chinese	Alma, N. B.	Light infections.
Phyllostinia sp.	Fir, balsam	Milton Station, P.E.I.	Trace infections.
Polyporus sulphureus Bull ex Fr.	Oak, red	Woodmans Point, Kings Co.	Light infections.
Pucciniastrum goeppertianum (Kuhn.) Kleb.	Blueberry	Foshay Lake, Queens Co., Salmon River, St. John Co.	Light rust.
Puccinia sparganioides Ell. & Barth.	Ash, black	Foshay Lake, Queens Co.	New record of County.
Taphrina confusa (A+K) Gies.	Cherry, choke	Molus River, Kent Co.	Light infections.
Trematosphaeria melina (Berk. & Br.) Sacc.	Beech	Shepody Rd., Kings Co.	Bark fungus light.
Valsa friesii (Duby) Fuckl.	Fir, balsam	Milton Station, P.E.I.	Needle fungus.
Valsa pini Alb. Schw. ex Fr.	Pine, white	Kierstead Mtn., N.B.	Dieback.

Section 4, Table 1

Spruce Budworm Larval Sampling Records at Permanent Sampling Stations in Southeastern New Brunswick in 1966

County and location	Station no.	Tree* sp.	No. specimens	Av. per tree sample	Deviation from 1965
Albert					
Bennett Lake	3-4	wS	35	11.7	+5.0
Shale Hill	3-28	wS	9	3.0	-1.3
Hillside	3-38	wS	42	14.0	+10.3
Kent					
Little Forks Cache	3-36	bF	11	3.7	-26.0
Kings					
Berwick	3-2	wS	13	4.3	+1.6
Schoales Dam	3-32	wS	50	16.7	+14.0
Queens					
Gaspereau Forks	3-3	bF	11	3.7	-5.0
Robertson Point	3-37	wS	5	1.7	-4.0
Narrows	3-46	wS	2	0.7	-1.3
Sunbury					
Salmon Creek	3-1	wS	108	36.0	-3.7

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

Section 4, Table 2

Estimates of Spruce Budworm Defoliation of Balsam Fir and White Spruce by Counties in Southeastern New Brunswick and Prince Edward Island in 1965 and 1966

County	Tree sp.	No. observation pts. 1965	1966	Av. per cent defoliation* Current 1965	1966	Previous 1965	1966	Mortality
New Brunswick								
Albert	bF	15	24	T	T	0	0	0
Kent	bF	95	66	30	15	L	L	0
Kings	bF	17	28	T	T	0	L	0
Queens	bF	101	65	T	20	L	L	0
St. John	bF	7	10	0	10	0	0	0
Sunbury	bF	20	10	40	30	L	L	0
Westmorland	bF	19	20	30	20	0	L	0
Prince Edward Island								
Kings	bF	8	8	0	10	0	L	0
Prince	bF	7	7	0	T	0	L	0
Queens	bF	14	14	0	T	0	0	0
	wS	3	2	T	T	0	0	0

* T = Trace L = Light

Section 4, Table 3

Numbers of European Spruce Sawfly Collected in Random Samples and from Permanent Sample Stations in Southeastern New Brunswick and Prince Edward Island in 1966

Location	Sample station	No. trees	No. of sawfly larvae: June 23-July 19 1st sample	No. of sawfly larvae: Aug. 29-Sept. 20 2nd sample
Random Sample				
Kings County	-	3	3	-
Prince County	-	3	5	-
Permanent Sample Station				
Albert County				
Bennett Lake	3-4	3	0	0
Shale Hill	3-28	6	2	1
Hillside	3-38	6	1	3
Kings County				
Berwick	3-2	6	0	0
Schoales Dam	3-32	6	1	28
Queens County				
Gaspereau Forks	3-3	6	0	0
Robertson Point	3-37	6	4	4
Narrows	3-46	6	0	1
Sunbury County				
Salmon Creek	3-1	6	0	4
		57	16	41

Section 4, Table 4

Larch Casebearer Numbers and Defoliation Estimates at Sampling Stations in Southeastern New Brunswick in 1965 and 1966

Sampling station No.	Location	Casebearer/100 fascicles 1965	1966	Defoliation * 1965	1966
	Kent County				
3-8	Cocagne	0.30	0.98	0	T
	Kings County				
3-6	Folkins	0.91	9.10	T	T
3-10	Hatfield Point	4.49	1.87	T	T
	Queens County				
3-5	Coles Island	1.73	5.24	T	T
3-7	Goshen	1.86	6.56	T	T
3-9	New Canaan	11.28	6.90	T	T
3-37	Robertson Point	0.97	0.92	T	T
	St. John County				
3-44	Garnet Settlement	0	0	0	0
	Westmorland County				
3-40	Frosty Hollow	3.91	0.60	0	0

* T = Trace

Section 4, Table 5

Larch Casebearer Numbers and Defoliation Estimates at Sampling Stations in Prince Edward Island in 1965 and 1966

Sampling station No.	Location	Casebearer/100 fascicles 1965	1966	Defoliation* 1965	1966
	Kings County				
3-43	Pooles Corner	1.46	1.59	0	0
	Prince County				
3-41	Miscouche	6.93	3.52	T	0
3-48	O'Leary	2.70	1.46	T	0
	Queens County				
3-42	Milton	1.92	1.88	T	T

* T = Trace

Section 4, Table 6.

Numbers of Common Insects Collected from Permanent Sampling Stations in Southeastern New Brunswick in 1966.

Species	No. and type of stations producing larvae	Av. no larvae per tree sample	Deviation from 1965
Acleris variana Fern.	4 wS	2.7	-1.0
Caripeta divisata Wlk.	1 wS	0.3	-0.6
Choristoneura fumiferana Clem.	8 wS, 2 bF	9.2	-20.3
Dioryctria reniculella Grote.	1 wS	1.3	-4.2
Diprion hercyniae (Htg.)	7 wS	1.5	-2.1
Elaphria versicolor Grote.	2 wS	0.6	+0.6
Eupithecia filmata Pears.	2 wS	0.3	-0.4
Griselda radicana Wlshm.	2 wS, 2 bF	0.4	-0.2
Hydriomena divisaria Wlk.	4 wS	0.7	+0.4
Lambdina fiscellaria fiscellaria Gn.	1 wS	0.3	-
Pikonema alaskensis (Roh.)	1 wS	0.3	-0.2
Pikonema dimmockii (Cress.)	2 wS	0.3	-0.4
Protoboarmia porcelaria indicitaria Wlk.	5 wS	0.5	+0.2
Semiothisa dispuncta complex	6 wS	0.8	-0.7

ANNUAL DISTRICT REPORT

FOREST INSECT AND DISEASE SURVEY

CENTRAL NOVA SCOTIA

1966

by

W. Harrington

FOREST RESEARCH LABORATORY
FREDERICTON, NEW BRUNSWICK

FORESTRY BRANCH
May, 1967.

5.0 CENTRAL NOVA SCOTIA

(W. Harrington)

Introduction

Major insect problems in central Nova Scotia in 1966 included the balsam woolly aphid, beech scale, larch sawfly, balsam fir sawfly, spring cankerworm and fall cankerworm. Insect collections totaled 736 and tree disease samples 211.

Insect Conditions

Balsam Woolly Aphid, Adelges piceae (Ratz.)

The trees on three balsam woolly aphid plots were reclassified and the results compared with those for 1965. Little change was noted in the status of this aphid as indicated in the table below.

At plot #5-1, McCallums Settlement, as a result of light recovery in some trees, there was a slight increase in the number of trees uninfested, and in those supporting light twig attacks. Corresponding decreases occurred in the percentages of trees with moderate and severe twig damage.

Recovery from aphid attacks was light at plots #5-2, Sheet Harbour, and #5-12 Riversdale. Mortality attributed to twig attacks increased slightly on plot #5-2 but remained unchanged at the other two.

Location	Plot no.	Year	Per cent in class*									Dead** other causes
			1	2a	2b	2c	3a	3b	4a	4b	4c	5	
Colchester County													
McCallum's Settlement	5-1	1965	24.3	1.4					28.6	14.3	5.7	10.0	15.7
		1966	28.6	1.4					32.9	7.1	4.3	10.0	15.7
Riversdale	5-12	1965	1.5	10.3					5.9	4.4	8.8	45.6	23.5
		1966	2.9	7.4					4.4	5.9	10.3	45.6	23.5
Halifax County													
Sheet Harbour	5-2	1965	3.2					0.6	4.4	7.6	14.6	24.7	44.9
		1966	3.2	1.9				0.6	4.4	7.6	10.6	25.4	46.2

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

** Includes trees which were cut, windblown, suppressed, etc.

Spruce Budworm, Choristoneura fumiferana Clem.

Population levels of this budworm increased slightly but remained low. Larvae were collected at eight of the 46 sampling stations examined and at seven random locations. No larvae were collected in Halifax or Hants counties.

Of the 51 locations sampled, egg masses were found only at Tidnish Bridge, Cumberland County (28 per 100 sq. ft.), and Ardoise, Hants County (16 per 100 sq. ft.).

Balsam-fir Sawfly, Neodiprion abietis complex

Loss of old foliage of balsam fir, and to a lesser extent of spruce, increased along the eastern shore of Halifax County between Musquodoboit Harbour and Ecum Secum, reaching epidemic proportions north of Tangier near Third Lake.

Numbers of this sawfly remained low in Colchester, Cumberland and Hants counties.

European Spruce Sawfly, Diprion hercyniae (Htg.)

Small numbers of this sawfly were taken in all counties and sampling indicated lower larval population levels than in 1965. This was most noticeable in Cumberland County where collections from sampling stations showed a larval decrease of 87%.

Collections taken at permanent sampling stations by Survey personnel totalled 47, and contained 165 larvae (Section 5, Tables 1 and 9).

Twenty-seven collections submitted by co-operators contained a total of 54 sawflies.

Larch Casebearer, Coleophora laricella Hbn.

The results of sampling overwintering casebearers indicate considerable reductions from the previous season (Section 5, Table 2).

The only area where defoliation of any extent occurred was near Burke Lake, Halifax County, where scattered tamarack trees were severely defoliated.

Larch Sawfly, Pristiphora erichsonii (Htg.)

Numbers of this sawfly continued to increase in Cumberland and northern Colchester counties, and in some areas infestations reached severe (see map, Section 1, Figure 3).

Little change occurred in the intensity or extent of defoliation in other areas (Section 5, Table 3). Conditions by counties were as follows:

Colchester County.--Moderate defoliation of scattered tamarack trees occurred near Kemptown and East Mountain. In the remainder of the County population levels were low and damage was light.

Cumberland County.--Light defoliation, intermixed with patches of moderate and severe occurred along the Allen Hill Road south of Apple River, through much of the Chignecto Game Sanctuary, at Halfway River and Nappan and between Warren and Hastings. Scattered colonies were present in other areas.

Halifax County.--Heavy concentrations of larvae were recorded in areas bordering Highway #24, from 4 miles to 5 miles north of Beaver Lakes. Moderate defoliation occurred again on a few mature tamarack trees at Little Salmon River, where repeated attacks by this sawfly have caused some twig and branch mortality. Occasional light feeding occurred elsewhere.

Hants County.--Population levels were low and damage was light in scattered tamarack stands.

Spruce Bud Midge, Rhabdophaga swainei Felt.

Damage to spruce buds by this insect was less prevalent than in 1965. Counts of infested buds per 100 square feet of foliage were carried out on three trees at each of three locations as follows:

Location	No. sq. ft. of foliage examined	No. galled buds per 100 sq. ft. of foliage
Colchester County		
Nuttby	4.1	48.8
West Earltown	3.9	103.4
Halifax County		
Pleasant Harbour	2.5	70.2

Black-headed Budworm, Acleris variana Fern.

Larvae of this species were taken in samples throughout the district, but were not numerous enough to cause noticeable defoliation. A total of 24 collections were submitted.

Balsam Twig Aphid, Mindarus abietinus Koch.

This aphid was present in varying degrees of intensity throughout

the majority of balsam fir stands in the district (Section 5, Table 4).

One collection was taken from white spruce at Noel, Hants County.

Balsam Gall Midge, Dasineura balsamicola (Lint.)

There was an increase in the prevalence of this gall midge on the new needles of balsam fir. Infestations were patchy, and moderate or severe damage generally occurred on scattered trees. Observations indicated that this insect was less prevalent in Hants County than elsewhere (Section 1, Figure 4 and Section 5, Table 5).

Birch Skeletonizer, Bucculatrix canadensisella Cham.

Light leaf damage by this skeletonizer occurred commonly in Colchester and Cumberland counties, and to a lesser degree in Halifax and Hants counties.

Moderate to severe defoliation of wire birch foliage was observed at North River and Alton, Colchester County.

Soil samples were taken at North River, Colchester County and Wallace Ridge and Victoria, Cumberland County, for the purpose of collecting skeletonizer pupae.

Condition of Birch

The following table shows that the condition of yellow birch trees on plot #17 at East Folly Mountain, Colchester County, has changed little in the five years up to and including 1965.

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
1966	33.3	33.3	10.6	5.3				16.7

* See Section 1, Appendix A for explanation of classes

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

Distribution of these two species remained nearly static in central Nova Scotia.

Severe defoliation by the fall cankerworm occurred between Windsor Forks and Smith's Corner on the west side of the Avon River. Red oak trees in this area have been stripped of foliage annually for several years with resultant patchy mortality of trees near the height of land.

Red oak trees in an area of approximately 50 acres near Walkerville, Hants County, were almost completely denuded. No larvae were present when this stand was examined but defoliation was attributed to the fall cankerworm.

Moderate defoliation by winter moth was localized 4 miles south of Hantsport, Hants County, and at North River, Colchester County. Mixed populations of the winter moth and the fall cankerworm occurred at Upper Stewiacke, Colchester County (see map).

The fall cankerworm outbreaks at Grand Lake, Beaverbank Lake and Bedford, Halifax County, and near Ellershouse, Hants County, have subsided. Larvae were still present in these areas but no noticeable feeding occurred.

Random sampling to establish proportions of winter moth and fall cankerworm, and where applicable the spring cankerworm, showed that the two former species were present in endemic numbers throughout the remainder of the district, except in areas between Musquodoboit Harbour and the Halifax-Guysborough county line where no larvae were taken (Section 5, Table 6).

Sequential sampling of winter moth and fall cankerworm larvae was carried out on red oak trees at three sampling stations (Section 5, Table 7).

Fall cankerworm egg masses were collected at Wellington Station, Halifax County, and 4 miles south of Windsor Forks, Hants County.

Spring Cankerworm, Paleacrita vernata Peck.

Larvae of this insect were responsible for the severe defoliation of white elm trees at Smiley's Camp Grounds at St. Croix as well as at Summerville and on the Haliburton Museum grounds at Windsor, Hants County. At the latter location larvae of this species occurred in association with those of the winter moth and the fall cankerworm. Mass larval collections were made in these areas and the proportions of spring cankerworm to winter moth are shown in Section 5, Table 6.

Bruce Spanworm, Operophtera bruceata Hulst.

Aerial and ground surveys were carried out in areas of Colchester and Cumberland counties where high concentrations of this insect have persisted since 1963. Light to moderate feeding occurred in small areas 1 mile west of Sutherlands Lake and 3 miles south of Sugar Loaf Mountain, Cumberland County. No larvae were taken elsewhere.

Ugly-nest Caterpillar, Archips cerasivoranus Fitch.

The distribution pattern of this insect on roadside cherry bushes showed little change from 1965. Nest counts per 1,000 square feet were made at Maccan (16 nests), River Philip (52), Southampton (Nil), and Mapleton (Nil), Cumberland County, and at Lower Onslow (86), Colchester County.

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

Birch Leaf Miner, Fenusa pusilla (Lep.)

Mining of leaves by this species caused considerable leaf discoloration in the majority of wire birch stands examined in Colchester, Cumberland, Hants and western Halifax counties.

Estimates of degrees of browning at random locations are shown in Section 5, Table 8.

Birch Casebearer, Coleophora fuscedinella Zell.

Larval populations and the extent of distribution both showed slight increases over 1965. The following infestation levels were recorded in central Nova Scotia:

Severe.--Salem and Tidnish Bridge, Cumberland County.

Moderate.--Upper Economy, Upper Stewiacke and Glenholme, Colchester County, and at Prince's Lodge and Cole Harbour East, Halifax County.

Light.--North River, Economy and Fort Ellis, Colchester County, Joggins, Shulie, Fraserville, Sand River, Allen Hill Rd., Apple River, Oxford and Harrison Settlement, Cumberland County, Head of St. Margarets Bay and Tufts Cove, Halifax County, and Newport Corner, Hants County.

Fall Webworm, Hyphantria cunea Drury

Roadside nest census were made at the following locations:

Cumberland County.--Kirkhill to 5 miles west - 1 nest.

Colchester County.--Middle Stewiacke to 5 miles west - 3 nests.
East Village to Glenholme (3 miles) - 1 nest.

Halifax County.--Beaver Lakes to 3 miles north - 1 nest.

Elsewhere nests were recorded only at North River and McCallum's Settlement, Colchester County.

Forest Tent Caterpillar, Malacosoma disstria Hbn.

Larvae of this insect caused severe defoliation of red oak trees on the grounds of the Nappan Experimental Station, Cumberland County.

A few larvae were collected from red oak and apple trees at Hantsport, Hants County, and at Truro, Colchester County. Consumption of foliage in these areas was negligible.

Additional Species Collected

Common insects collected at sampling stations in 1966 are listed in Section 5, Table 9. The names of all insects collected during 1966 are listed in Table 4 of Section 1.

Tree Diseases

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

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

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

Moderate to severe attacks by the beech scale were recorded at permanent plots at East Folly Mountain and Greenfield, Colchester County (Section 5, Table 10). In the remainder of the district attacks were generally light.

Cankers resulting from earlier attacks of both the insect and the fungus were common in all beech stands examined.

Hypoxylon Canker of Poplar, Hypoxylon mammatum (Wahl.) Miller

Counts were made in aspen stands at Debert, Colchester County, and Gore, Hants County, to determine the prevalence of this disease. Respective results were: free from attack, 80% and 99%; living with active cankers, 16% and nil; dead from cankers, 4% and 1%.

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

The foliage of young trembling aspen trees on approximately 20 acres, near Debert, Colchester County, was severely infected.

A few leaves supporting ink spots were noted at Rose, Head of Amherst and Lower River Hebert, Cumberland County, and at Admiral Rock, Hants County.

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

This disease was present and common on trembling aspen and largetooth aspen reproduction in all counties. Infections were generally light, except at Ship Harbour, Halifax County, where blight was severe on small groups of largetooth aspen.

Cherry Blight

Blighting of pin cherry foliage in central Nova Scotia was severe at Debert, Colchester County, Lower Ship Harbour East and Bayside, Halifax County; moderate at Ardoise, Hants County, Riversdale, Colchester County, and Spry Bay, Harrigan Cove and Elderbank, Halifax County; and

light at McCallum's Settlement, Colchester County. Moderate browning of black cherry foliage occurred at Amherst Point, Cumberland County.

Anthracnose of Hardwoods

Gloeosporium apocrytum Ell. & Ev. Repeated attacks of this fungus have been followed by mortality of scattered sugar maple trees in most villages from Glenholme to Parrsboro. Other infected trees have thin crowns and dead branches.

Gloeosporium ardium Ell. & Howl. Infections were severe on white ash trees at Maitland, Hants County, and Sheet Harbour, Halifax County, moderate at Waverley, Halifax County, and Upper Rawdon, Hants County, and trace to light at Enfield and Lily Lake, Hants County.

Gloeosporium fagicola Pass. Infections caused severe discoloration of beech leaves near Nuttby Fire Tower, Colchester County, moderate discoloration at Admiral Rock, Hants County, and light at Burnside, Colchester County, and Marinette, Halifax County.

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

The following observations were made on the severity of black knot infections on cherry bushes at several locations in central Nova Scotia:

Colchester County--Simpson Lake, current and previous severe.
Riversdale, current nil, previous severe.

Cumberland County--Moose River, current and previous severe.

Halifax County--Spry Bay, current severe, previous light.
East River Sheet Harbour, current and previous severe.
Mosers River, current moderate, previous light.
Harrigan Cove, current moderate, previous light.

Eastern Dwarf Mistletoe, Arceuthobium pusillum Peck.

Observations on the incidence of this disease were carried out as follows:

Lucasville Rd., Halifax County--Mistletoe occurred in black spruce swamps, for a distance of 0.3 miles.

Near Big Indian Lake, Halifax County--Approximately 70% of the black spruce trees in an area of ½ acre were attacked.

Riversdale to Burnside, Colchester County--Infected areas adjacent to the road totalled ½ mile in length in a distance of 7 miles.

Needle Rusts

Chrysomyxa ledicola Lagh. was found only at Tangier and Jeddore Oyster Pond, Halifax County, where infections were a trace to light.

Pucciniastrum epilobii Otth. appeared quite commonly on balsam fir foliage in Colchester and Halifax counties. Two collections were taken in Cumberland County and none in Hants County.

One collection was taken from Epilobium sp. at Victoria Park, Colchester County. This constitutes a new host record for Nova Scotia.

Needle Casts

Bifusella faullii Darker infections resulted in moderate to severe needle cast of balsam fir at Mosers River and West Newdy Quoddy, Halifax County, light at three other locations in Halifax County, and at one location in Colchester County.

Hypodermella nervata Darker was collected only at one location in Colchester, Halifax and Hants counties.

Lophodermium pinastri (Schrad. ex Fr.) Chev. was common in a red pine plantation near Upper Stewiacke, Colchester County, and light on jack pine at Peggy's Cove, Halifax County.

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

Leaf discoloration caused by this blight was severe at Salem, Cumberland County, Middle Musquodoboit and Upper Musquodoboit, Halifax County, and Garland Crossing, Hants County. Moderate infections occurred at Halifax City and light at Kemptown, Colchester County, and Marinette and French Village, Halifax County.

Tar Spots, Rhytisma acerinum (Pers. ex St. Amans) Fr. and
Rhytisma punctatum Pers. ex Fr.

Common on maple throughout the district, nine samples of the former species and one of the latter were collected.

Other Noteworthy Diseases

Organism	Host	Location	Remarks
Adelopus balsamicola (Peck.) Theiss.	Fir, balsam	McCallum's Sett., Col. Co.	Needle cast, trace.

Other Noteworthy Diseases (cont'd)

Organism	Host	Location	Remarks
Aureobasidium pullulans (deBy) Berkh.	Pine, red	Debert, Col. Co.	Red flagging, severe.
Chrysomyxa arctostaphyli Diet.	Spruce, red	St. Margarets Bay, Indian Harbour, Hfx. Co., Gore, Hants Co.	Yellow witches brooms. A total of five brooms noted.
Chrysomyxa pirolata Wint.	Spruce, white	Glenholme, Col. Co.	Cone rust. first herbarium specimen from Col. Co.
Coccomyces hiemalis Higgins	Cherry, pin Cherry, choke	Halifax and Hants counties	Common but light.
Coleosporium asterum (Diet.) Syd.	Pine, red	Lower Onslow, Col. Co.	Light in N.S.L.F. plantation.
Cronartium coleosporioides Arth.	Pine, jack	Chignecto, Cumb. Co., Tatamagouche, Col. Co.	Stem rust, light.
Cronartium quercuum (Berk.) Miyabe	Pine, scotch Pine, jack	Lantz, Hants Co., Hubbards Beach, Hfx. Co.	Generally light, severe on two trees at Hubbards Beach.
Cronartium ribicola J. C. Fischer	Pine, white Ribes	Birch Cove, Cumb. Co., Eastville, Col. Co.	On two white pine.
Cryptodiaporthe salicina (Curr.) Wehm.	Willow	Masstown, Col. Co.	Some dead branches.
Erysiphe aggregata (Peck.) Farl.	Alder	Lower River Hebert, Shinimicas, Head of Amherst, Oxford, Cumb. Co., Bayside, Scrabble Lake, Hfx. Co.	Common throughout central Nova Scotia.

Other Noteworthy Diseases (cont'd)

Organism	Host	Location	Remarks
Frost Damage	Spruce, black	Harrigan Cove, Hfx. Co.	Severe on three trees.
Fume Damage	Aspen, largetooth	Bedford, Hfx. Co.	Light in one localized area.
Gymnoconia peckiana (Howe) Trotter	Briar	Two Rivers, Harrison Sett., Cumb. Co., East Quoddy, Hfx. Co.	Leaf rust, common in all counties.
Gymnosporangium clavariiforme (Pers.) DC	Amelanchier sp.	Sutherlands Lake,	Light.
		River Hebert East,	Light.
		Amherst Point,	Trace.
		Lakelands, Cumb. Co.,	Light.
		Laurie Park,	On one leaf.
		Sandy Lake,	Trace on all clumps.
		Myers Point, Hfx. Co.,	Trace.
		Walkerville, Hants Co.	Light on one bush.
Gymnosporangium clavipes (Cke. & Pk.) Cke. & Pk.	Amelanchier sp.	Pentz Lake, Hants Co.	Light on several clumps.
Gymnosporangium cornutum Arth. ex Kern.	Ash, mountain	West Newdy Quoddy, Mosers River, Bayside, Hfx. Co.	Light, found only in Halifax County.
Hypodermella laricis Tub.	Tamarack	Riversdale, Col. Co.	First herbarium record for N.S., moderate on the lower branches of one tree.
Hypodermella mirabilis Darker	Fir, balsam	Mosers River, Halifax Co.	Light infections.

Other Noteworthy Diseases (cont'd)

Organism	Host	Location	Remarks
Kabatiella balsameae (Davis) v. Arx.	Fir, balsam	McCallum's Sett., Col. Co.	Incidence and intensity light.
Melampsora epitea Thuem.	Willow	Great Village, Col. Co.	On most willow foliage in one clump.
Melampsora medusae Thuem.	Tamarack	Great Village, Col. Co.	Incidence and intensity light.
Melampsorella carophyllacearum Schroet.	Fir, balsam	Central Nova Scotia	Commonly collected in all counties; 18 collections taken.
Microsphaera penicillata (Wallr. ex Fr.)	Oak, red	Seven mi. N. of Stanley, Hants Co.	First herbarium sample from Hants Co. Severe on one clump of sucker growth.
Physalospora miyabeana Fukushi	Willow	French Village, Hfx. Co., Debert, Col.Co.	Willow blight, light incidence and intensity.
Pollaccia elegans Serv.	Poplar, silver	Waverley, Hfx. Co. East Noel, Hants Co.	Leaf and twig blight light.
Puccinia sparganioides Ell. & Barth	Ash, white	South Maitland, Hants Co., Rose, Cumb. Co.	Severe on three mature trees. Trace.
Pucciniastrum goeppertianum (Kihn.) Kleb.	Blueberry	Victoria Park, Truro, Col. Co.	Incidence and intensity trace.
Rehmiellopsis balsameae Waterm.	Fir, balsam	Riversdale, Burnside, Col. Co.	Symptoms only.

Other Noteworthy Diseases (cont'd)

Organism	Host	Location	Remarks
Rhytisma salicinum Fr.	Willow	Two Rivers, Sand River, Shulie, Cumb. Co.	Light to moderate infections of this tar spot. Found only in Cumb. Co.
Sarcotrochila balsameae (Davis) Korf.	Fir, balsam	McCallum's Sett., Greenfield, Col. Co.	Snow blight, on bottom branches of several trees.
Septobasidium pinicola Snell.	Pine, white	Portapique, Col. Co.	Common on stems of several mature trees.
Septoria corylina Peck.	Hazel, witch	Riversdale, Kemptown, Col. Co.	Leaf spot, light.
Sooty mold	Pine, white	Stanley, Hants Co.	Severe on two small trees.
Stegonosporium ovatum (Pers. ex Merat) Hughes	Maple, sugar	Economy, Col. Co., Sutherlands Lake, Cumb. Co.	On dead branches.
Taphrina carnea Johanson	Birch, yellow	Victoria Park, Col. Co., Lake Charlotte, Hfx. Co.	Leaf blister, not common.
Taphrina robinsoniana Gies.	Alder, speckled	Central Nova Scotia	Common in all counties.
Taphrina wiesnerii (Rathay) Mix.	Cherry, pin	Ship Harbour, Hfx. Co.	Not common.
Valsa sordida Nits.	Aspen, trembling	Oxford, Cumb. Co.	Not found elsewhere.
White Pine Needle Blight	Pine, white	Withrow Lake, Beaverbank Stn., Upper Beaverbank, Hants Co.	Moderate on one tree. Moderate on two trees. Several on one tree.
Winter Drying	Pine, Scots	Stanley,	Light to moderate on 10% of trees in ¼-acre plantation.

Section 5, Table 1

Numbers of European Spruce Sawfly Collected
from Permanent Sampling Stations
in Central Nova Scotia in 1966

Location	Sampling station	Tree sp.	No. of sawfly larvae* June 22-July 13 1st sample	Aug. 10-Sept. 28 2nd sample
Colchester County				
Masstown	5-1	rS	0	2
Great Village	5-2	wS	0	0
Greenfield	5-10	rS	0	2
Portapique Mtn.	5-3	wS	2	0
Lr. Five Islands	5-4	wS	0	1
Tatamagouche Mtn.	5-17	wS	3	3
Nuttby	5-22	wS	12	3
Kemptown	5-30	wS	5	2
Up. Stewiacke	5-31	wS	1	1
Portapique	5-35	wS	0	0
Cumberland County				
Allen Hill Rd.	5-5	rS	0	0
Harrison Sett.	5-8	wS	0	1
Joggins	5-9	wS	0	0
Truemanville	5-11	wS	8	1
Moose River	5-20	rS	0	1
Mapleton	5-21	wS	1	0
Lr. River Hebert	5-24	wS	0	4
Salem	5-28	wS	0	0
Fraserville	5-23	rS	0	3
Tidnish Bridge	5-47	wS	0	2
Lakelands	5-62	rS	4	2
Lakelands	5-63	wS	2	1
Wallace Ridge	5-65	wS	1	3
Halifax County				
Myers Point	5-32	wS	8	1
Necum Teuch	5-37	wS	7	11
West Newdy Quoddy	5-38	wS	4	3
Tangier	5-39	wS	4	0
Spry Bay	5-40	wS	3	3
Clam Harbour	5-41	wS	0	9
Chezzetcook	5-59	rS	4	0
Moose River	5-61	rS	0	0

No trees and species

Section 5, Table 1 (cont'd)

Location	Sampling station	Tree sp.	No. of sawfly larvae* June 22-July 13 1st sample	No. of sawfly larvae* Aug. 10-Sept. 28 2nd sample
Hants County				
Admiral Rock	5-7	wS	9	5
Ardoise	5-15	wS	1	1
Gore	5-19	wS	1	3
Noel	5-25	wS	8	2
Pentz Lake	5-29	wS	5	2

* Three trees sampled each time

Section 5, Table 2

Larch Casebearer Numbers and Defoliation Estimates
at Sampling Stations in Central Nova Scotia
in 1965 and 1966

Sampling station No.	Location	Casebearer/100 fascicles 1965	1966	Defoliation* 1965	1966
	Colchester County				
5-101	Greenfield	1.5	0	Nil	Nil
5-102	Kemptown	1.9	0	Nil	Nil
5-103	Great Village	9.2	0.3	T	T
5-104	Upper Stewiacke	3.1	0	Nil	Nil
5-109	Belmont	26.8	1.7	T	T
5-111	Debert	5.6	0.6	Nil	T
5-112	Beaverbrook	4.1	1.9	T	L
5-113	Bass River	9.5	0.3	T	T
5-114	Five Islands	3.0	0.6	Nil	Nil
5-116	Fort Ellis	1.3	0.7	T	T
	Cumberland County				
5-115	East Branch	3.8	0	T	Nil
	Halifax County				
5-110	Hubley	5.9	0.6	T	Nil

*T = Trace, up to 5%
L = Light, 10%-20%

Section 5, Table 3

Larch Sawfly Defoliation Records Based on Ocular Estimates in Central Nova Scotia in 1966

Location	Defoliation*
Colchester County	
Lower Economy	L
Glenholme	L
East Village	L
Lower Five Islands	Mostly L but S on several small trees
Five Islands	L
Carrs Brook	L
Economy	L
Upper Economy	L
Earltown	L
Kemptown	L-M from East Mtn. to Kemptown
Central North River	L
East Mtn.	L
Denmark	L
Stewiacke East	L
Wittenburg	T
Eastville	T
Cumberland County	
Chignecto Game Sanctuary	
Forty Puzzle Lake Brook	L
1.5 mi. E. of Kelly River	L
4 mi. S. W. of Kelly River	L
3 mi. W. of Jenks Meadow	S-M
Welton Lake Rd. Jct.	S-M along road from Kelly River 12 mile to Kelly River 16 mile.
River Hebert East	L
2 mi. E. of Lower River Hebert	L
Head of Amherst	Generally L but M on a few trees
Truemanville	L
Warren	S from Warren to Hastings
Ripley Loop Rd. (S. of Truemanville)	M
Nappan	S on one mature European larch
2 mi. N. E. of Shulie	L
Tidnish Bridge	L
Tidnish Crossroads	L
East Linden	L
2 mi. E. of Long Lake	L
River Philip	L
Amherst Shore	L
Lorneville	L
3 mi. S. W. of Tidnish Bridge	L

Section 5, Table 3 (cont'd)

Location	Defoliation*
Cumberland Co. cont'd	
Roslin	T
Port Philip	L
Amherst	L
Maccan	L
1 mi. S. E. of Axford	L
Shinimicas	L
Northport	L
Little Forks	L
Wharton	L
Sutherlands Lake	L
Parrsboro	Av. L, few trees M
Springhill Jct.	L
Diligent River	L
Fox River	L
3 mi. N. on Allen Hill Rd.	M
Halfway River	S
3 mi. S. of Apple River to 5 mi. S.	S
2 mi. N. E. of Apple River	Av. L, few trees M
2 mi. S. E. of Sand River	L
3 mi. S. W. of Sand River	L
Halifax County	
2 mi. S. of Kelly Lake Airport	L
Little Salmon River	M. Some mortality
West Petpeswick	T
Lucasville	T
Goff	T
Tantallon	T
Beechville	T
Upper Lakeville	T
Jeddore Oyster Pond	L
Beaver Lakes	L
4 mi. N. of Beaver Lakes to 4.5 mi. N.	S
4.5 mi. N. of Beaver Lakes to 5.5 mi. N.	L
S. end of River Lake (Sheet Harbour Rd.)	L
Sheet Harbour	L
Moose River	T
West Newdy Quoddy	L
Lindsay Lake	T

Section 5, Table 3 (cont'd)

Location	Defoliation*
Hants County	
2 mi. S. E. of Oland	T
Herbert River	T
8 mi. N. E. of Stanley	Scattered colonies from Stanley to Noel Rd.
East Walton	L
Noel to Walton	L
Urbania	T
Tennycape	L
Minasville	L
East Uniacke	T
Ardoise	T

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

Section 5, Table 4

Balsam Twig Aphid Infestations
in Central Nova Scotia in 1966

Location	Intensity*
Colchester County	
Debert	S
Greenfield	S
Kemptown (2.5 mi. E.)	S
Logan Brook	L
Masstown	M
Pleasant Valley	S
Riversdale	M
Cumberland County	
Allen Hill Rd.	S
Birchwood	L
Harrison Settlement	S
Lakelands	S
Malagash Mines	S
Tidnish Bridge	L
Westchester	M
Windham Hill	L
Halifax County	
Clam Harbour	L
Ecum Secum Bridge	M
Lindsay Lake	L
Marinette	L
Mosers River	L
Reid	L
Wellington Station	M
Hants County	
Admiral Rock	M
Ardoise	M
Gore	M
Noel	M

* L = Light; M = Moderate; S = Severe

Section 5, Table 5

Intensities of Balsam Gall Midge Attacks
in Central Nova Scotia in 1966
(Based on Ocular Estimates)

Location	Intensity*
Colchester County	
Brule	L
Eastville	L
Eastville (2 mi. N.)	L
Great Village	L
Great Village (3 mi. N.)	L
Lily Lake	L
McCallums Sett. (3 mi. N.)	S
North River	M on a few trees
Pleasant Valley	L
Summit	L
Cumberland County	
Allen Hill Rd. (5.9 mi. N.)	L
Allen Hill Rd. (1.7 mi. N.)	S
Birchwood	L
Isaac's Lake	L
Lower River Hebert (2 mi. E.)	S
Malagash Mines	L
River Philip	S on scattered trees
Sand River	S on scattered trees
Shinimicas	L
Shulie Village	S on scattered trees
Shulie Village (1 mi. S. W.)	M
Shulie River (Chegnecto Sanct. Rd.)	L
Wallace Ridge	L
Warren	S
Twin Bridges	L
Halifax County	
Beaver Lakes	S on scattered trees
Big Ass Lake (3 mi. N.)	L
Black Point	L
Chaswood	L
Clam Harbour	S on several small trees
East Quoddy	S on several trees
Island Lake	L
Lindsay Lake	L
Marinette	L
Mooseland	L
Mooseland Road	M
Pace Lake	L

Section 5, Table 5 (cont'd)

Location	Intensity*
Halifax County (cont'd)	
Reid	L
Sandy Lake	L
Sheet Harbour	M
West Newdy Quoddy	S on one small tree
Hants County	
Noel	M on several trees
Urbania	L

* L = Light; M - Moderate; S - Severe

Section 5, Table 6

Proportions of Winter Moth, Fall Cankerworm and Spring Cankerworm Larvae Present in Random Hand-picked Samples in Central Nova Scotia in 1966

Location	Hosts	Percentage of species present: Winter moth	Fall cankerworm	Spring cankerworm	Defoliation*
Colchester County					
Bass River	wE	100	0	0	T
Brookfield	wE	71	29	0	L
Central North River	wE	100	0	0	T
Earltown	wE	0	100	0	T
Economy	wE	100	0	0	T
Five Islands	Ba	100	0	0	L
Middle Stewiacke	wE	100	0	0	T
Newton Mills	wE	100	0	0	L
North River	wE, lilac	100	0	0	M
Portapique	wE	100	0	0	L
Shubenacadie (N. side)	wE, cCh, Haw	100	0	0	L
Stewiacke	wAs, wE	40	60	0	L
Truro (Brunswick St.)	wE	100	0	0	L
Upper Stewiacke	wE, wB	73	27	0	M
Cumberland County					
Amherst	wE, Ba	0	100	0	L
Fort Lawrence	wE	0	100	0	T
Lakelands	wE	100	0	0	T
Nappan	wE	33	67	0	L
Parrsboro	wE	100	0	0	L
River Hebert	wE	0	100	0	T
Southampton	wE	0	100	0	L
Halifax County					
Dartmouth	wE	100	0	0	T
Halifax City (Beaufort Ave.)	wB, Ap	100	0	0	L
Halifax City (Jubilee Rd.)	wE, Haw	93	7	0	L
Head of St. Margarets Bay	rO	0	100	0	L
Reynolds	wE	0	100	0	L
Timberlea	rO	100	0	0	L
Tufts Cove	rO	100	0	0	T
Upper Musquodoboit	Ap	0	100	0	T
Waverley	rO	100	0	0	L
Wellington	rO	0	100	0	L

Section 5, Table 6 (cont'd)

Location	Hosts	Percentage of species present: Winter moth	Fall cankerworm	Spring cankerworm	Defoliation*
Hants County					
Brooklyn	wE	62	0	38	L
Burlington	wE	50	0	50	T
Elmsdale	wE	66	0	34	T
Hantsport	rO, Ap, wE	66	34	0	L
Hantsport (4 mi. S)	rO, Ap, wE	40	60	0	M
Hartville	rO	100	0	0	L
Lantz	Ap	75	25	0	T
Maitland	wE	100	0	0	T
Milford	Ap	100	0	0	T
Mount Denson	wE	30	70	0	L
Newport	wE	75	25	0	L
Newport Corner	Ap	100	0	0	L
Scotch Village	wE	0	100	0	T
Smileys Camp Grounds	wE	3	0	97	S
St. Croix	wE	0	0	100	S
Summerville	wE	1	0	99	S
Upper Burlington	wE	0	100	0	T
Upper Falmouth	wE	0	100	0	L
Walton	wE	100	0	0	T
Windsor	wE	34	7	59	S
Windsor Forks	rO, Be	50	50	0	L

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

Section 5, Table 7

Infestation Intensities of Winter Moth and Fall Cankerworm at Red Oak Sampling Stations in Halifax County in 1966

Location	Per cent by species: Winter moth	Per cent by species: Fall cankerworm	Infestation class: 1960	1961	1962	1963	1964	1965	1966
Waverley	100	0	S	S	S	S	S	**	L
Timberlea	100	0	S	S	M	M	L	**	L
Head St. Margarets Bay	0	100	S	S	M	M	L	**	L

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

** Not sampled in 1965

Section 5, Table 8

Classification of Browning of Wire Birch Foliage by the Birch Leaf Miner in Central Nova Scotia in 1966

Location	Infestation class*
Colchester County	
Greenfield	S
Debert	S
Tatamagouche Mtn.	L
Cumberland County	
Joggins	S
Allen Hill Rd.	S
Mapleton	S
Lower River Hebert	S
Harrison Settlement	S
3 mi. S. W. of Tidnish Bridge	L
Shulie	M
Halifax County	
Stillwater Lake	L
Lake Echo	L
Porters Lake	L
Ship Harbour	L
Lr. Ship Harbour East	L
Mooselands	L
Westphal	M
Sandy Lake	S
Necum Teuch	L
Hants County	
South Maitland	S
Ardoise	S
Noel	M

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

Section 5, Table 9.

Numbers of Common Insects Collected from 46 Permanent Sampling Stations in Central Nova Scotia in 1966.

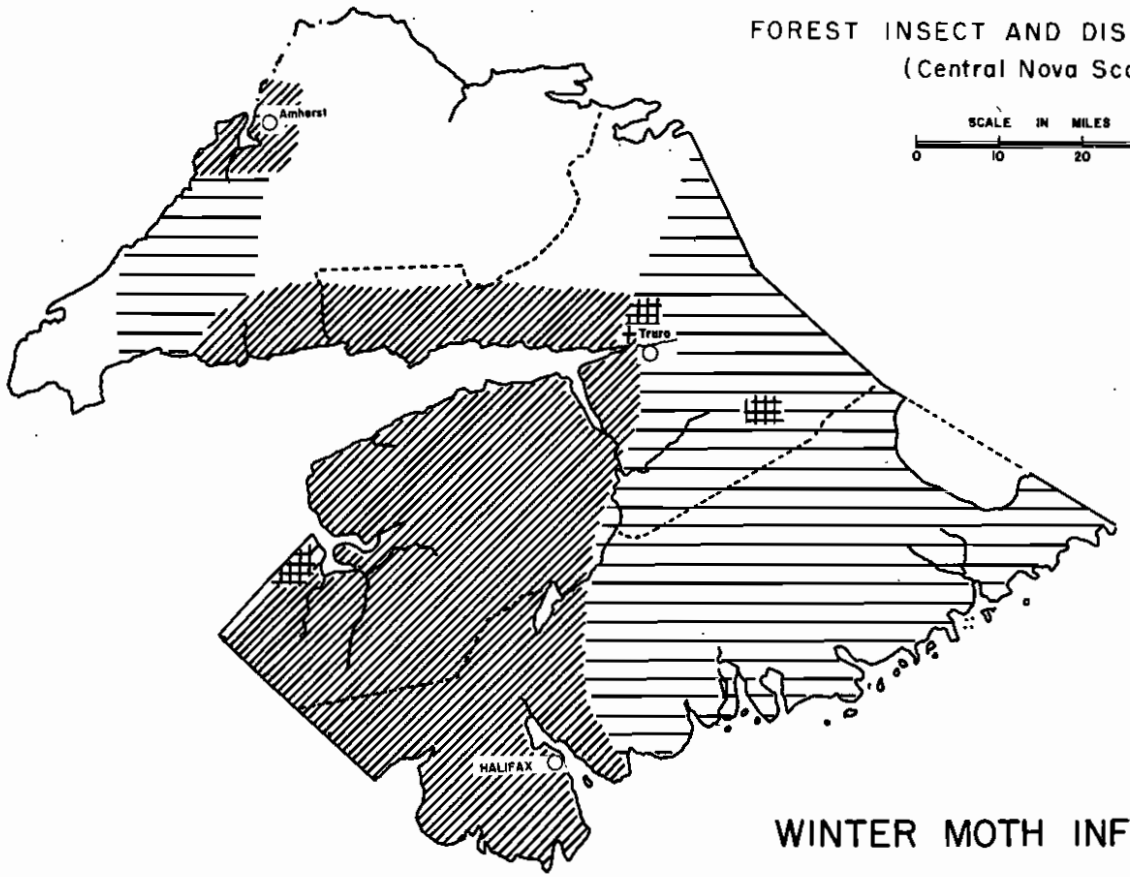
Species	No. and type of stations producing larvae	Total larvae collected
Lepidoptera		
Acleris variana Fern.	12 wS	19
	2 bF	4
	1 rS	1
Amorbia humerosana Clem.	4 wS	4
	1 bF	2
	1 rS	1
Caripeta divisata Wlk.	11 wS	28
	4 rS	6
	3 bF	4
Choristoneura fumiferana Clem.	5 wS	10
	1 bF	2
	2 rS	2
Dioryctria reniculella Grote	4 wS	4
Eupithecia filmata Pears.	4 wS	4
	1 bF	1
Eupithecia luteata Pack.	3 bF	9
	2 wS	2
	2 rS	2
Eupithecia palpata Pack.	4 wS	6
	1 rS	2
Eupithecia transcanadata MacKay.	13 wS	29
	2 bF	7
	2 rS	2
Hydriomena divisaria Wlk.	9 wS	17
	3 rS	6
Lambdina fiscellaria fiscellaria Gn.	3 bF	11
	3 rS	8
	2 wS	7
	1 tL	1
Protoboarmia porcelaria indicitaria Wlk.	5 wS	10
Semiothisa dispuncta complex	17 wS	44
	4 bF	20
	2 rS	2
	1 tL	1
Hymenoptera		
Diprion hercyniae (Htg.)	24 wS	147
	6 rS	18
Pikonema alaskensis (Roh.)	12 wS	22
Pikonema dimmockii (Cress.)	12 wS	28
	1 rS	3

Section 5, Table 10

Condition of Trees on Beech Bark Disease Plots
in Central Nova Scotia in 1966

Location	Plot no.	Year	Per cent of trees in class*								Dead other causes
			1	2	3	4	5a	5b	5c	6	
Colchester County											
East Folly Mtn.	5-20	1962	0	4.2	0	4.2	0	69.3	8.6	10.5	3.2
		1963	0	4.2	0	5.3	0	69.5	5.3	12.6	3.1
		1964	0	4.2	0	5.3	0	65.3	4.2	17.9	3.1
		1965	0	3.2	0	7.4	0	61.0	4.2	21.1	3.1
		1966	0	2.0	0	7.3	0	57.3	7.3	22.9	3.2
Greenfield	5-14	1962	0	0	0	9.1	0	71.6	8.0	4.5	6.8
		1963	0	0	0	1.1	0	77.3	9.1	5.7	6.8
		1964	0	0	0	4.5	6.8	68.2	2.3	10.2	8.0
		1965	0	0	0	5.7	6.8	65.9	2.3	11.3	8.0
		1966	0	0	0	10.2	0	69.3	1.1	12.5	6.9

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



FOREST INSECT AND DISEASE SURVEY
(Central Nova Scotia)

SCALE IN MILES
0 10 20 30

WINTER MOTH INFESTATIONS
1966

LIGHT
MODERATE
ADDITIONAL KNOWN RANGE

ANNUAL DISTRICT REPORT

FOREST INSECT AND DISEASE SURVEY

WESTERN NOVA SCOTIA

1966

by

D. B. Marks

FOREST RESEARCH LABORATORY
FREDERICTON, NEW BRUNSWICK

FORESTRY BRANCH

May, 1967

6.0 WESTERN NOVA SCOTIA

(D. B. Marks)

Introduction

The same major problems that existed in this district in 1965 were still present and the status of most remained virtually unchanged in 1966. The larch sawfly, balsam woolly aphid, beech bark disease, winter moth and the fall cankerworm again caused serious damage. Insect collections totaled 580 and tree disease samples 179.

Insect Conditions

Balsam Woolly Aphid, Adelges piceae (Ratz.)

Light stem wool and twig attacks of the balsam woolly aphid occurred in balsam fir stands throughout the district. Moderate to severe stem wool was noted on several trees in the Islands Park at Shelburne and at Ten Mile Lake, Queens County. A severe stem attack also occurred on one tree at Carleton, Yarmouth County. The results of the reclassification of trees on two balsam fir plots are contained in the following table. Little change from the two preceding years occurred in the condition of the trees.

Location	Plot no.	Year	Per cent of trees in class* 1	2a	2b	2c	3a	3b	4a	4b	4c	5	Dead other causes
Annapolis County													
Medway River	4-18	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
		1966	53.1						4.5	4.5	10.6	9.1	18.2
Queens County													
Rossignol Lake	4-19	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
		1966	43.3						8.3	4.1	4.1	10.3	28.9

* See Section 1 Appendix A for explanation of classes.

European Spruce Sawfly, Diprion hercyniae (Htg.)

Little change occurred in the status of the spruce sawfly in Western Nova Scotia in 1966 (Section 6, Tables 1 and 2). The highest average numbers of sawfly larvae per tree sample occurred at Round Hill (6.3) and East Dalhousie (4.0), Annapolis County, at Lake George (5.3), Kings County and at Pleasant River (4.6), Queens County.

Larch Casebearer, Coleophora laricella Hbn.

This casebearer caused patches of moderate to severe defoliation of tamarack trees in Yarmouth and Shelburne counties. Results of sampling overwintering populations at seven sampling stations along with defoliation estimates taken in June are shown in Section 6, Table 3.

Larch Sawfly, Pristiphora erichsonii (Htg.)

This sawfly persisted in tamarack stands throughout the seven western counties at much the same infestation levels as in 1965 (Section 1, Figure 3 and Section 6, Table 4). Conditions by counties were as follows:

Annapolis County.--Colonies were commly found causing trace to light defoliation, except at Perotte Settlement and Dalhousie West where moderate defoliation was recorded.

Digby County.--Severe defoliation occurred at Hassett, Weymouth North and New France, moderate 2 miles South of Weymouth and very light elsewhere. In the Doyle Lake Brook, Hassett and Weymouth North sections of the County localized areas of dead and dying tamarack trees have occurred in stands infested with this sawfly since 1958.

Kings County.--Severe defoliation of European larch trees occurred again on the grounds of the Kentville Research Station. Scattered colonies were found throughout the remainder of the County.

Lunenburg County.--Moderate defoliation occurred at New Russel, on the Windsor Road at the Hants County line and on scattered trees in the Sherwood Fire Tower area. Other tamarack stands in the County sustained only trace to light defoliation.

Queens County.--Collections of the sawfly were made only at Port Le Hebert and 2 miles East of White Point. Defoliation at both points was light. No larvae were found in other tamarack stands in the County.

Shelburne County.--A localized infestation of moderate intensity occurred in an area 2 miles West of the Upper Clyde and Lower Ohio cross-roads. On the fringe of this infestation at Upper Clyde, defoliation was light. Two miles West of Sable River on the Nine Mile Road one tree was found severely defoliated.

Yarmouth County.--Larch sawfly colonies were common throughout the County, but no moderate or severe defoliation was observed.

Spruce Budworm, Choristoneura fumiferana Clem.

Spruce budworm populations remained low and no defoliation was observed. Two collections containing a total of three budworm larvae were taken. Five foliage samples from each of the seven western counties were examined for egg masses. One egg mass found at Goat Lake, Lunenburg County, where two budworm larvae were beaten from three white spruce trees.

Balsam Gall Midge, Dasineura balsamicola (Lint.)

Moderate infestations of this midge on the new needles of balsam fir occurred at several locations in Yarmouth County. Trace to light infestations occurred at scattered locations in the six other counties. (See map, Section 1, Figure 4).

A total of 32 collections was submitted; fourteen from Yarmouth County, five each from Annapolis and Lunenburg, three each from Kings and Digby, and one each from Queens and Shelburne.

European Pine Shoot Moth, Rhyacionia buoliana Schiff.

Population levels of this species were high in practically all Scots pine stands from Kentville to Digby in the Annapolis Valley. Light infestations occurred at Mahone Bay and Chester. Elsewhere in the district examinations of Scots pine trees produced negative results.

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

Aerial surveys and ground observations were both used to determine the extent and intensity of infestations. The percentage of each species found on red oak sampling stations is shown in Section 6, Table 6, and at random locations in Table 7.

Winter moth population levels remained low in the district except at Indian Gardens and Liverpool, Queens County, where predominantly winter moth populations caused moderate to severe defoliation, and in a small area at Habitant, Kings County, where winter moth caused moderate defoliation (Section 6, Figure 1). A summary of conditions by counties follows:

Annapolis County.--Severe defoliation was again observed in the area bounded by Trout, Paradise and Eel Weir Lakes. New areas of severe defoliation occurred South of Dargie Lake, East of Milford from Upper Gull Lake to Boat Lake, from Milford South to Big Dam Lake and westward to Frozen Ocean Lake, between Frozen Ocean, Liberty and Luxion lakes, and in two small areas at

the South end of Lake Mulgrave. Moderate to severe defoliation in the Munroe Lake area was caused by fall cankerworm. Sampling in or near other infested areas observed from the air indicated that the fall cankerworm was the major species involved.

Digby County.--Moderate to severe defoliation by the fall cankerworm occurred in the Peskawa Lake - Poplar Lake region and along the west bank of the Bear River. Elsewhere in the County endemic numbers of this species were found causing minor defoliation at widely separated locations.

Kings County.--A severe infestation of fall cankerworm occurred on red oak near Gaspereau Lake. Elsewhere in the County winter moth and fall cankerworm were found in association or separately at low population levels except at Habitant where a moderate infestation of winter moth occurred.

Lunenburg County.--Populations were frequently mixed but in areas of severe infestations fall cankerworm was the predominant species. A broad series of sporadic patches of moderate to severe defoliation of red oak occurred from Molega Lake East to the Canaan Road. In the above general area the heaviest infestations were located near Shingle and Molega Lakes, New Elm, 3 miles West of Forties Settlement, between Seffernville and Chester Grant and in several pockets on the Gold River watershed. Elsewhere in the County both species existed in small numbers causing no appreciable defoliation.

Queens County.--Conditions in this county were much the same as in Lunenburg with mixed populations common. In areas where both species occurred, fall cankerworm was relatively more abundant except at Indian Gardens and Liverpool where the winter moth predominated.

The fall cankerworm outbreak to the West and Southwest of Liverpool expanded beyond the 1965 boundaries and although comparatively small in size was of severe intensity. Moderate to severe defoliation of red oak trees also occurred 2 miles North of Townsite on Old Garden Road, at Indian Gardens, from Pleasantfield to the Hibernia Road on the Annapolis Highway, 4 miles West of Caledonia on the Rossignol Lake Road. Red oak and red maple was severely defoliated 1 mile East of Granite Village on the North Shore of Port Hebert Harbour.

Shelburne County.--From the air severe defoliation of red oak trees was noted between Sable River and Wilkin Lake, North of Jordan Falls between Veitch, Wentworth and George Lakes, and between Moose and Mink lakes. The above areas were relatively inaccessible from the ground and could not be checked for species involved. However, samples from surrounding areas indicated that larval populations were mainly fall cankerworm.

Moderate to severe defoliation was attributed to fall cankerworm in the area from Green Harbour Lake West to Jordan Falls and extending North 3 to 4 miles.

Fall cankerworm caused trace defoliation of apple trees at Sable River Village and Middle Ohio. At Shelburne and Clyde River trace defoliation of shade trees was caused by winter moth.

Yarmouth County.--Red oak trees were stripped of foliage on the east side of the Tusket River between Pearl, Nepsedek and Soloman lakes; also from Quinnan East to Rushy Lake, Davis River, Clam Lake and to Ryer Lake in Shelburne County. This feeding was attributed to the fall cankerworm.

Fall cankerworm caused light defoliation of apple trees at Carleton and Richfield. One collection of winter moth was taken at Hebron near Yarmouth. Many points were checked elsewhere in the County with negative results.

Elm Leaf Miner, Fenusa ulmi Sund.

Severe infestations of this leaf miner on elm occurred again at Wolfville, Port Williams and Church Street, Kings County, where foliage was completely browned. Infestation boundaries in the Wolfville area have been expanding East and West since 1964. The eastern boundary now includes a few trees in Grand Pre and on the West several infested elms occurred on Acadia University campus. At Port Williams and Church Street the leaf miner was prevalent in varying degrees of intensity on practically all elm trees.

Birch Skeletonizer, Bucculatrix canadensisella Cham.

This skeletonizer was common throughout the district. Defoliation ranging from moderate to severe was observed from the air in almost all wire birch and white birch stands in Kings County. Severe defoliation occurred on roadside stands of wire birch in Annapolis County from the Kings County line West to Brickton but did not exceed moderate elsewhere. Severe attacks occurred on wire birch at Blysteiner Lake and Baker Settlement in Lunenburg County but defoliation was light through the remainder of the County. The skeletonizer was present also in Digby, Yarmouth, Shelburne and Queens counties but infestations were generally light.

Birch Leaf Miner, Fenusa pusilla (Lep.)

Severe browning by this leaf miner was prevalent on wire birch foliage in all seven counties (Section 6, Table 5). There was, however, a small area near Point Prim on Digby Neck where host trees were comparatively free of leaf damage. A new distribution record was established for this species on Brier Island, Digby County.

Birch Casebearer, Coleophora fuscedinella Zell.

This casebearer severely defoliated alder at Centerville on Digby Neck and caused moderate to severe defoliation of white birch at Smith's Cove. Elsewhere in the district endemic numbers occurred at scattered locations.

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.

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

This disease caused foliage browning of moderate intensity and incidence on willows from Kentville to Bridgetown in the Annapolis Valley and of moderate intensity and trace incidence from Karsdale to Lower Granville, Annapolis County. First herbarium specimens were collected in Digby County at Smith's Cove and in Shelburne County at Barrington.

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

Classification of beech trees on two permanent plots indicated little change from 1965. The most common class of beech tree encountered in 1966 was again one which was cankered as a result of previous infections by the fungus and supported light infestations of the scale. Due to highway construction on the Point Prim Road, 18 trees were removed from the Bayview, Digby County, plot.

Severe attacks of the scale were common on the stems of beech trees at South Milford, Annapolis County and 10 Mile Lake, Queens County but only old Nectria was found at three locations. Lighter attacks of the scale were observed in many beech stands scattered throughout the western district.

Anthracnose of Hardwoods

Gloeosporium apocryptum Ell. & Ev. infections were common on sugar maple shade trees throughout the Annapolis Valley. Some mortality of this tree species occurred in Kentville and Annapolis Royal where the condition of the trees ranged from unthrifty crowns, with some dead branches, to mortality of a few trees in each town. Severe infections of Anthracnose have occurred in these locations for several years.

Symptoms of this disease were observed at widespread locations in the remainder of the district but infections were generally light. Host trees included sugar maple, red maple and mountain maple. Collections were taken in Kings, Annapolis and Lunenburg counties. A first herbarium specimen from Lunenburg County was collected from sugar maple at Bridgewater.

Gloeosporium aridum Ell. & Holw. infections caused trace browning of white ash foliage from Broad Cove to Point Prim, Digby County and were of moderate intensity and severe incidence on the same host at Sunken Lake, Kings County. Light infections occurred on black ash at Lequille, New Albany, Yarmouth, and Mahone Bay.

First herbarium specimens were collected from light infections on white ash foliage at Twin Oaks ski hill, Annapolis County and at Shelburne.

Gloeosporium fagicola Pass. A first herbarium specimen for Annapolis County was collected from beech foliage at South Milford, where trace infections of the disease occurred. A first herbarium specimen for Digby County was taken at Bear River Bridge where the foliage of 15 beech trees was severely browned.

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

Symptoms of this disease were common on the foliage of all horse chestnut trees but infections were generally light. One exception was Annapolis Royal, where a severe infection had caused an estimated 60% leaf drop from one tree. Collections were taken in Annapolis, Kings and Yarmouth counties. A first herbarium specimen from Kings County was taken at Canning.

Ash Rust, Puccinia sparganioides Ell. & Barth.

This disease caused infections of severe intensity on several white ash shade trees along both sides of Route #1 East from Wolfville, Kings County. At Canaan, Kings County, the foliage of one tree was all browned and moderate to severe infections occurred on other white ash trees in the area. Light infections were noted in Annapolis and Queens counties and in the remainder of Kings County.

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

Ink spots were found on the leaves of one Carolina poplar tree at Lawrencetown. This was a first herbarium host record for Annapolis County.

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

This disease was common on trembling aspen and largetooth aspen reproduction but only light infections were found. Collections were taken in Annapolis, Lunenburg, Kings and Shelburne counties. First herbarium specimens for Kings County were taken on both hosts and for Shelburne County on trembling aspen.

Black Knot of Cherry, Dibotryon morbosum Theiss & Syd.

This disease was widespread in the district on all species of cherry.

New infections, however, were generally light. Collections were taken in Annapolis, Kings, Lunenburg and Shelburne counties. A first herbarium specimen from Annapolis County was collected at Paradise on Prunus pensylvanica.

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

Symptoms of this disease were observed in scattered locations throughout the district. Collections were taken on white pine at Paradise, Annapolis County and infected Ribes (alternate host) were found at Forties Settlement in Lunenburg County.

Eastern Dwarf Mistletoe, Arceuthobium pusillum Peck.

Numerous deformed trees and witches brooms were evident in spruce stands growing in exposed coastal areas (Brier Island, Digby County) and on poor inland sites (Indian Fields area, Yarmouth County).

Roadside counts of brooms caused by mistletoe infections were taken in black spruce stands in Shelburne and Yarmouth counties. At Lower Ohio 1 mile of infected trees occurred to 10 miles of highway and pockets averaged 50 infected trees with one to six brooms per tree. From Clyde River to Barrington, 10 miles along North side of highway was surveyed and seven mistletoe pockets of approximately one-half acre each were observed. An estimated 10% of the trees were infected and supported one or more brooms per tree. A similar count in the Indian Fields area of Yarmouth County showed that 20% of the trees were infected in one pocket of approximately 25 acres with one or more brooms per tree.

Collections taken in Annapolis and Queens counties were first herbarium specimens on white spruce from these areas. A new herbarium host record for the Maritimes was taken on tamarack at Middle Ohio, Shelburne County.

Needle Casts

Bifusella linearis (Peck.) Hoehn. caused needle cast of light intensity on white pine in Annapolis, Lunenburg, Queens and Shelburne counties. A first herbarium specimen from Annapolis County was taken on white pine at Paradise. The disease was also taken on the same host at Upper Ohio, Shelburne County constituting a new record on white pine for that county.

Hypodermella ampla (Davis) Dearn. was of trace incidence and intensity on balsam fir needles at Aylesford Lake, Kings County and Alpena, Annapolis County.

Lophodermium sp. Collections of this disease were taken on red spruce, white spruce and ground juniper in Annapolis and Kings counties but infections were generally light.

Adelopus balsamicola (Peck.) Theiss. caused infections of trace intensity and incidence on suppressed balsam fir reproduction in a sugar maple stand at Aylesford Lake, Kings County.

Needle Rusts

Pucciniastrum epilobii Otth. infections were light at two locations. The first herbarium specimens from Shelburne and Annapolis counties were collected from balsam fir at Middle Ohio and Albany Cross.

Pucciniastrum goeppertianum (Kuhn) Kleb. was collected from blueberry bushes in Yarmouth, Shelburne and Queens counties. Witches brooms taken on blueberry at Middle Ohio, Shelburne County, and Milton, Queens County, were first herbarium specimens from this host plant in these counties.

Pucciniastrum vaccinii (Wint.) Jorst. specimens were collected at South Milford, Annapolis County, the first in the herbarium from that County.

Chrysomyxa arctostaphyli Diet. occurred at widespread locations on red, white and black spruce and the alternate host bear berry. Collections were taken in all counties except Digby and Annapolis. A new herbarium host record was established with a collection from white spruce at Martins River, Lunenburg County and a first herbarium specimen from Kings County was taken on white spruce at Canaan.

Chrysomyxa ledicola Lagh. was collected from red spruce at Martins River, Lunenburg County, and from the alternate host, Labrador tea, at Upper Ohio, Shelburne County.

Chrysomyxa pirolata Wint. First herbarium specimens were collected, for Shelburne County on black spruce in the Indian Fields area near the Roseway River, and for Annapolis County on white spruce at Round Hill. Intensity and incidence were light at both locations.

Melampsorella caryophyllacearum Schroet. causing yellow witches brooms on balsam fir was observed at scattered locations throughout the district. Infections were light, usually with only one broom per location, with the exception of Coldbrook, Kings County, where a few brooms were found along a one-half mile stretch of woods road.

Hypoxylon Canker of Poplar, Hypoxylon mammatum (Wahl.) Miller

Trembling aspen trees were examined for Hypoxylon canker at two locations in Kings County and one in Annapolis. The results were as follows:

Location	Number of trees			
	Examined	Uninfected	Living cankered	Dead cankered
Coldbrook, Kings Co.	105	54	32	19
Sunken Lake Rd., Kings Co.	100	57	26	17
Middleton, Annapolis Co.	113	84	8	21

A collection taken at Middleton represented a first herbarium specimen from Annapolis County.

Sooty Mold

The fungus causing sooty mold was collected at East Kemptville, Yarmouth County where white spruce foliage was severely affected along the roadside for a distance of one-half mile. The same disease occurred sporadically on the Yarmouth Barrens Road from the fire tower at East Kemptville to the Department of Lands and Forests' gate, a distance of approximately 4 miles.

Other Noteworthy Diseases

Organism	Host	Location	Remarks
Apiognomonia errabunda (Rob.) Hochn.	Oak, red	Shannon River, Ann. Co.	Found on two trees only.
Cephalosporium sp.	Elm, white	Lawrencetown, Ann. Co.	Wilt fungus.
Cladosporium sp.	Aspen, large-tooth	Martins River, Lun. Co.	Leaf mold.
Cronartium coleosporioides Arth.	Pine, lodge-pole	Paradise, Ann. Co.	Stem rust, 85 trees investigated, 53 infected with rust.
	Pine, short leaf	Indian Fields, Yar. Co.	
Cronartium componiae Arth.	Sweet fern	Paradise, Ann. Co.	Stem rust, new herbarium record from Nova Scotia.
	Sweet gale	Paradise, Ann. Co.	New herbarium host record.

Other Noteworthy Diseases (cont'd)

Organism	Host	Location	Remarks
Cytospora sp.	Aspen, trembling	Birchtown, Shel. Co.	Dieback - no Hypoxylon mammatum in area. Inspected 25 trees, found 15 infected.
Dothichiza populea Sacc. & Briard	Aspen, trembling	Lawrencetown, Ann. Co.	New herbarium host record and first herbarium specimen from Ann. Co.
	Poplar, Carolina	Indian Fields, Yar. Co.	New herbarium host record and first herbarium specimen from Yar. Co.
Erysiphe aggregata (Peck.) Farl.	Alder	Sunken Lake, Kings Co.	Commonly associated with Taphrina robinsoniana Gies.
Fusicoccum abietinum (Hartig) Prill & Delacr.	Fir, balsam	Burke Lake, Kings Co. Lake Rossignol Rd., Queens Co.	Red flag - balsam fir, symptoms only.
Gnomonia ulmea (Schw.) Thuem.	Elm, white	Lawrencetown, Ann. Co.	Leaf spot, light on three trees.
		Annapolis Royal, Ann. Co.	Trace incidence and light intensity.
	Ash, white	Gaspereau Village, Kings Co.	Trace incidence and trace intensity.
Gonabotrym appiculatum (Peck.) Hughes	Hazel, witch	Shannon River, Ann. Co.	First herbarium specimen from Nova Scotia.
Gymnoconia peckiana (Howe) Trotter	Blackberry	Broad Cove, Digby Co.	Leaf rust, severe on roadside bushes.

Other Noteworthy Diseases (cont'd)

Organism	Host	Location	Remarks
Gymnosporangium clavariiforme (Pers.) D.C.	Service-berry	Brickton, Ann. Co.	Rust on Service-berry, moderate.
		Birchtown, Shel. Co.	First herbarium specimen from Shel. Co. Trace incidence and intensity.
		Bridgewater, Lun. Co.	Light in area.
		Coldbrook, Kings Co.	Moderate on one clump.
		Grand Pre, Kings Co.	Severe on one tree.
		Berwick, Kings Co.	Light in area.
Gymnosporangium clavipes (Cke. & Pk.) Cke. & Pk.	Service-berry	Bridgewater, Lun. Co.	First herbarium specimen from Lun. Co. on Serviceberry.
		Coldbrook, Kings Co.	Moderate on 1 clump.
		Berwick, Kings Co.	First herbarium specimen from Kings Co.
		Smith's Cove, Digby Co.	Trace incidence and intensity.
	Hawthorn	Coldbrook East, Kings Co.	Trace incidence and intensity.
		Smith's Cove, Digby Co.	First herbarium specimen from Digby Co. on hawthorn.

Other Noteworthy Diseases (cont'd)

Organism	Host	Location	Remarks
Gymnosporangium cornutum Arth. ex Kern.	Mountain ash, American	Lake Paul, Kings Co.	First herbarium specimen from Kings Co.
		Halls Harbour, Kings Co.	Light intensity on 1 tree.
		Bear River Bridge, Digby Co.	Severe on 2 trees.
Hypodermella nervata Darker	Fir, balsam	Sunken Lake, Kings Co.	Light on 1 tree.
Marssonina sp.	Aspen, largetooth	Martins River, Lun. Co. Sunken Lake Rd., Kings Co.	Leaf spot, light in area. Severe intensity on 10 trees.
	Aspen, trembling	Smith's Cove, Digby Co.	Severe intensity on 1 tree.
Melampsora epitea Thuem.	Willow	Canaan, Kings Co.	First herbarium specimen from Kings Co.
Phyllachora graminis (Pers) Nitscke	Grass (Agronpyron repens)	Paradise, Ann. Co.	New herbarium record.
Phyllosticta sp.	Alder	Bear River, Ann. Co.	Trace incidence and moderate intensity.
Pleurotus sapidus (Schulzer in Kalchbr.) Sacc.	Aspen, largetooth	Kejimkujik National Park, Queens Co.	First herbarium specimen from Queens Co.
Pollaccia elegans Serv.	Poplar, balsam	Mahone Bay, Lun. Co.	First herbarium specimen from Lun. Co. Light intensity on 2 trees.

Other Noteworthy Diseases (cont'd)

Organism	Host	Location	Remarks
Physalospora miyabeana Fukushi	Willow	Lawrencetown, Ann. Co.	Moderate incidence and intensity Kentville to Bridgetown.
Puccinia malvacearum Bert.	Holly-hock	Paradise, Ann. Co.	Leaf rust, new herbarium record for Nova Scotia.
Rhytisma acerinum (Pers. ex St. Amans) Fr.	Maple, red	Forest Home, Kings Co.	Tar spot, moderate incidence and intensity in area examined.
Stegonosporium ovatum (Pers. ex Merat) Hughes	Maple, sugar	Bridgewater, Lun. Co.	First herbarium specimen from Lun. Co.
Taphrina caerulescens (Mont. & Desm.) Tul.	Oak, red	Shannon River, Ann. Co.	First herbarium specimen from Ann. Co.
		Kentville, Kings Co.	Light intensity on trees examined.
		White Rock, Kings Co.	Severe on one tree.
		Country Home woodlot, Kings Co.	Light incidence and moderate intensity.
Taphrina carnea Johanson.	Birch, yellow	New Albany, Ann. Co.	Trace infection on one tree.
		Halls Harbour, Kings Co.	First herbarium specimen from Kings Co.
Taphrina dearnessii Jenkins.	Maple, red	Brier Island, Digby Co.	Not common on the Island.

Other Noteworthy Diseases (cont'd)

Organism	Host	Location	Remarks
Taphrina robinsoniana Gies.	Alder	Sunken Lake Road, Kings Co.	First herbarium specimen from Kings Co.
		Indian Fields, near Roseway River, Shel. Co.	Light incidence and intensity.
Taphrina tosquinetii (Westend.) Magn.	Alder	Brier Island, Digby Co.	New herbarium record.
Uredinopsis osmundae Magn.	Fern, interrupted (Osmunda claytoniana L.)	Albany Cross, Ann. Co.	New herbarium host record from Nova Scotia.
Valsa sordida Nits.	Aspen, trembling	Lawrencetown, Ann. Co.	First herbarium specimen from Ann. Co. Four cankers on one tree.
Valsa salicina Fr.	Willow	Lawrencetown, Ann. Co.	Canker on willow.

Section 6, Table 1

Numbers of European Spruce Sawfly Collected
from Permanent Sampling Stations
in Western Nova Scotia in 1966

Location	Sampling station	Tree sp.	No. of sawfly larvae* June 23-July 24 1st sample	No. of sawfly larvae* Aug. 25-Aug. 30 2nd sample
Annapolis County				
Lequille	4-19	wS	6	5
Round Hill	4-37	wS	2	19
Digby County				
Barton	4-31	rS	0	0
Landsdowne	4-38	wS	10	11
Tibideau Rd.	4-41	rS	0	3
Lunenburg County				
East River	4-16	wS	0	0
East River	4-55	rS	0	1
Windsor Road	4-56	wS	1	2
Queens County				
Pleasant River	4-10	wS	5	14
Beech Hill	4-49	rS	0	0
Brooklyn	4-50	rS	1	1
Tobeatic Rd.	4-51	rS	0	0
Yarmouth County				
Bloomfield	4-43	wS	1	7
Carleton	4-44	rS	0	6
			84	26 69

* Three trees sampled each time

Section 6, Table 2

Numbers of European Spruce Sawfly Collected
from Random Sampling Areas
in Western Nova Scotia in 1966

Location	Tree sp.	No. trees	No. of sawfly larvae June 22-July 13 1st sample	No. of sawfly larvae July 25-Nov. 6 2nd sample
Annapolis County				
Mosher's Corner	wS	6	1	4
2 mi. S. of Lawrencetown	wS	3	7	0
Squirreltown	wS	6	4	2
West Inglisville	wS	12	19	2
East Dalhousie	wS	3	12	0
2 mi. W. of pavement on Douglas Rd.	wS	3	0	9
Digby County				
New France	rS	15	5	14
Lake Jolly	wS	9	6	3
Corberrie	rS	3	0	7
Kings County				
Lake George	wS	9	4	17
½ mi. N. of Oak Lake	rS	3	4	0
Coldbrook East	rS	3	0	2
Lunenburg County				
Chester Grant	rS	3	6	0
Chester Grant	wS	6	3	0
Toad Brook	rS	3	0	1
Burnt Bridge Brook	wS	3	0	1
Queens County				
West Caledonia	rS	3	1	0
New Grafton	rS	3	0	1
Shelburne County				
Little Tobeatic Lake	rS	3	0	4
Yarmouth County				
Kemptville	wS	3	2	0
Salmon Lake	wS	3	1	0
Hebron	wS	Hedge	0	2
		105	75	69

Section 6, Table 2 (cont'd)

Location	Tree sp.	No. trees	No. of sawfly larvae June 22-July 13 1st sample	No. of sawfly larvae July 25-Nov. 6 2nd sample
Yarmouth County (cont'd)				
Upper Wedgeport	wS	3	0	1
Brenton	wS	3	0	4
East Kemptville	wS	3	0	1
Great Pubnico Lake	wS	3	0	6
				12

12

Section 6, Table 3

Larch Casebearer Numbers and Defoliation Estimates at Sampling Stations in Western Nova Scotia in 1965 and 1966

Sampling station No.	Location	Casebearer/100 fascicles 1965	Casebearer/100 fascicles 1966	Defoliation* 1965	Defoliation* 1966
	Digby County				
4-101	Bloomfield	19.6	5.1	L	L
4-102	Springdale	106.0	14.0	L	L
	Lunenburg County				
4-107	Bridgewater	1.6	-	T	T
4-108	East River	71.3	0.3	0	0
4-117	Danesville	5.1	0.6	0	T
	Shelburne County				
4-119	Allandale	1.9	0	T	T
	Yarmouth County				
4-104	Chebogue	1.3	0	T	T

* T = Trace L = Light

- No count made in 1966

Section 6, Table 4

Larch Sawfly Defoliation Records Based on Ocular Estimates in Western Nova Scotia in 1966

Location	Defoliation*
Annapolis County	
Cady Lake	T
Forest Glade	T
Mersey Rd. - Kempt 4 mi. N. of Gate	T on 1 tree
South Milford	M on 2 trees
Lake La Rose	L
Perotte Settlement	M - Severe on scattered trees
Spurr Rd.&W. Dalhousie x Rds.	L
Dalhousie West	M
Durling Lake	T
1 mi. W. of Albany Cross	L - Severe on 2 trees
Dalhousie East	L
Digby County	
2 mi. E. of Little River Cove	L
Rossway	T
Morganville	T
Landsdowne	T
South Range	T
Weymouth, 2 mi. South	M
Weaver Settlement	T
Mersey Gate at New France	T
Hassett	S
New Tusket	T
Corberrie	T
Weymouth North	S
New France	S
Kings County	
Kentville Research Station	S
North Kingston	T
Brow Mtn. Rd. near Dempsey Corner	T
Garland	T
Ross Corner	T
Blomidon Look Off	M on 2 trees
2 mi. S. of Coldbrook	M on 5 trees
Lake George & Dalhousie x Rds.	T
Kentville, West End	T
Kentville, Country Home Woodlot	T
Forest Hill	L
Evangeline Beach	L

Section 6, Table 4 (cont'd)

Location	Defoliation*
Lunenburg County	
East Chester	T
Bezanson Lake	T
Sherwood Fire Tower	M on scattered trees
Windsor Rd. at Hants Co. Line	M
Danesville	T
Forties Settlement	T
New Ross	L
Middlewood	T
New Russel	M
Harriston	L
Queens County	
Port Le Hebert	L
White Point, 2 mi. East	L
Shelburne County	
Upper Clyde River	L
2 mi. W. of Upper Clyde & Lower Ohio x Rds.	M - severe in small area
Sable River, 2 mi. W. on Nine Mile Rd.	S on 1 tree
Yarmouth County	
Lake George near Fish Hatchery	T
Bloomfield	T
Carleton	T
East Kemptville	T

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

Section 6, Table 5

Classification of Browning of Wire Birch Foliage by the Birch Leaf Miner in Western Nova Scotia in 1966

Location	Infestation class*
Annapolis County	
Lawrencetown	M
Waterloo Brook	M
Mt. Hanley	L
Victoria Beach	M
Digby County	
Brier Island, West Light Rd.	L
Smiths Cove	M
Kings County	
Aylesford	S
2 mi. South of Coldbrook	S
Kentville	M
2 mi. West of Kentville	M
Harborville	S
Lunenburg County	
Windsor Rd. at Hants Line	S
Robinson's Corner	S
Chester Grant	M
Chester Basin	M
Gold River, Mahone Bay By Pass	S
Dayspring	S
Riverport	S
Shelburne County	
Middle Ohio Fire Tower	M

* L = Light M = Moderate S = Severe

Section 6, Table 6

Infestation Intensities of Winter Moth and Fall Cankerworm at Red Oak Sampling Stations in Western Nova Scotia in 1966

Sampling Station Location	No.	Per cent by species: Winter Moth	Per cent by species: Fall cankerworm	Infestation class* 1960	1961	1962	1963	1964	1965	1966
Lunenburg County										
Cookville	4-122	0	100	M	M	L	Nil	Nil	L	L
New Germany	4-120	0	100	L	M	L	L	Nil	L	L
West Northfield	4-131	100	0	L	M	L	L	Nil	L	L
Chester Basin	4-135	0	100	M	M	L	L	Nil	L	L
Queens County										
Mill Village Rd.	4-123	0	100	M	L	L	L	Nil	L	L
Mill Village	4-134	0	100	M	M	M	L	Nil	L	L
Pleasant River	4-106	0	0	M	M	L	Nil	Nil	L	Nil
3 mi. N. of Middledale	4-100	5	95	L	M	L	L	-	L	M

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

Section 6, Table 7

Proportions of Winter Moth and Fall Cankerworm Larvae Present in Random Hand-picked Samples in Western Nova Scotia in 1966

Location	Hosts	Percentage of species present: Winter moth	Fall cankerworm	Defoliation*
Annapolis County				
Torbrook East	Ap	100	0	L
Annapolis Royal Town	wE	40	60	T
Bridgetown	wE	100	0	T
3 mi. S. of Munroe Lake	rO	0	100	S
Digby County				
Weymouth	Ba, bA, wB	0	100	T
Barton Salvary Park	Ap	0	100	T
Digby Town	Ap	0	100	T
Bear River Village	rO	0	100	M
Kings County				
Habitant	rO	100	0	M
Blomidon Look Off	Ap	100	0	T
Grand Pre	wE	90	10	L
Hantsport	wE	89	11	T
½ mi. N. of Oak Lake	wB	0	100	T
Lunenburg County				
Simm's Settlement	Ap	0	100	T
East River	Ap	80	20	T
East Chester	Ap	75	25	L
Mill Pond - Windsor Rd.	Ap	67	33	T
Canaan Rd.	Ap	24	76	M
North Canoe Lake	Ap	0	100	T
New Ross	Ap	0	100	T
Seffrenville	rO	6	94	S
Mahone Bay	rO	0	100	T
Lunenburg Golf Club	Ap	100	0	T
2 mi. S. of New Elm	rO	10	90	S
Italy Cross	Ap	0	100	T
3 mi. W. of Forties Settlement	rO	0	100	M
Chester Grant	wiB	0	100	T
Queens County				
1 mi. S. W. of Liverpool	rO, rM	2	98	S
Indian Gardens	rO	74	26	S

Section 6, Table 7 (cont'd)

Location	Hosts	Percentage of species present: Winter moth	Fall cankerworm	Defoliation*
Queens County				
2 mi. N. of Townsite on Garden Rd.	rO	7	93	S
Pleasantfield	rO	14	86	M
Rossignol Rd., 4 mi. W. of Caledonia	rO	7	93	S
Great Hill	rO	0	100	M
Milton, Entrance Townsite Rd.	Ap	11	89	T
Dodge City - Ponderosa Lot	SuM	44	66	M
South Brookfield	Ap	100	0	T
Kejimkijik Bridge, Mersey Rd.	rM	53	47	L
Fort Point - Liverpool	wE	67	33	M
3 mi. W. of Liverpool	rO	0	100	T
White Point	Ap	0	100	T
Port Mouton	Ap	80	20	T
Port Joli	Ap	40	60	T
1 mi. E. of Granite Village	rM	3	97	S
McGowan Lake	rO	0	100	T
Shelburne County				
Sable River	Ap	0	100	T
9 mi. Rd., N. of Green Harbor Lake	rO	0	100	S
Shelburne Town	wE	100	0	T
Middle Ohio Poultry Farm	Ap	0	100	T
Clyde River	Ap	100	0	T
2 mi. N. E. of Clamshell Lake (Barrens)	rO	0	100	T
Yarmouth County				
Carleton	Ap	0	100	L
Richfield	Ap	0	100	T
Hebron	Ap	100	0	T

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

Section 6, Table 8.

Numbers of Common Insects Collected from 56 Permanent Sampling Stations in Western Nova Scotia in 1966.

Species	No. and type of stations producing larvae	Total larvae collected
Lepidoptera		
Amorbia humerosana Clem.	1 rS	1
	4 wS	4
Caripeta divisata Wlk.	4 rS	5
	2 eH	6
	3 wS	3
	1 wP	1
Elaphria versicolor Grote	1 rS	1
	2 wS	2
Eupithecia filmata Pears.	3 wS	4
Eupithecia luteata Pack.	1 eH	4
Eupithecia palpata Pack.	2 wS	4
Eupithecia transcanadata MacKay.	1 rS	1
	2 wS	4
Hydriomena divisaria Wlk.	1 rS	1
	1 eH	1
Lambdina fiscellaria fiscellaria Gn.	1 wS	1
	2 eH	4
	1 rS	1
Protoboarmia porcelaria indicataria Wlk.	1 wS	1
	1 eH	1
	1 rP	1
	1 rS	1
Semiothisa dispuncta complex	1 rS	1
	4 wS	11
	2 eH	5
Semiothisa minorata Pack.	1 wP	7
Hymenoptera		
Diprion hercyniae (Htg.)	12 wS	83
	5 rS	12
Pikonema alaskensis (Roh.)	2 wS	2
	4 rS	4
Pikonema dimmockii (Cress.)	4 wS	7
	2 rS	3

Section 6, Table 9.

Condition of Trees on Beech Bark Disease Plots
in Western Nova Scotia in 1966

Location	Plot No.	Year	Per cent of trees in class* 1	2	3	4	5a	5b	5c	6	Dead other causes
Queens County											
Annis Lake	4-12	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
		1966				11.2		58.6	6.0	21.6	2.6
Digby County											
Bayview		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	
		1966		6.3		6.3		61.2		3.7	22.5**

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

** 18 trees cut

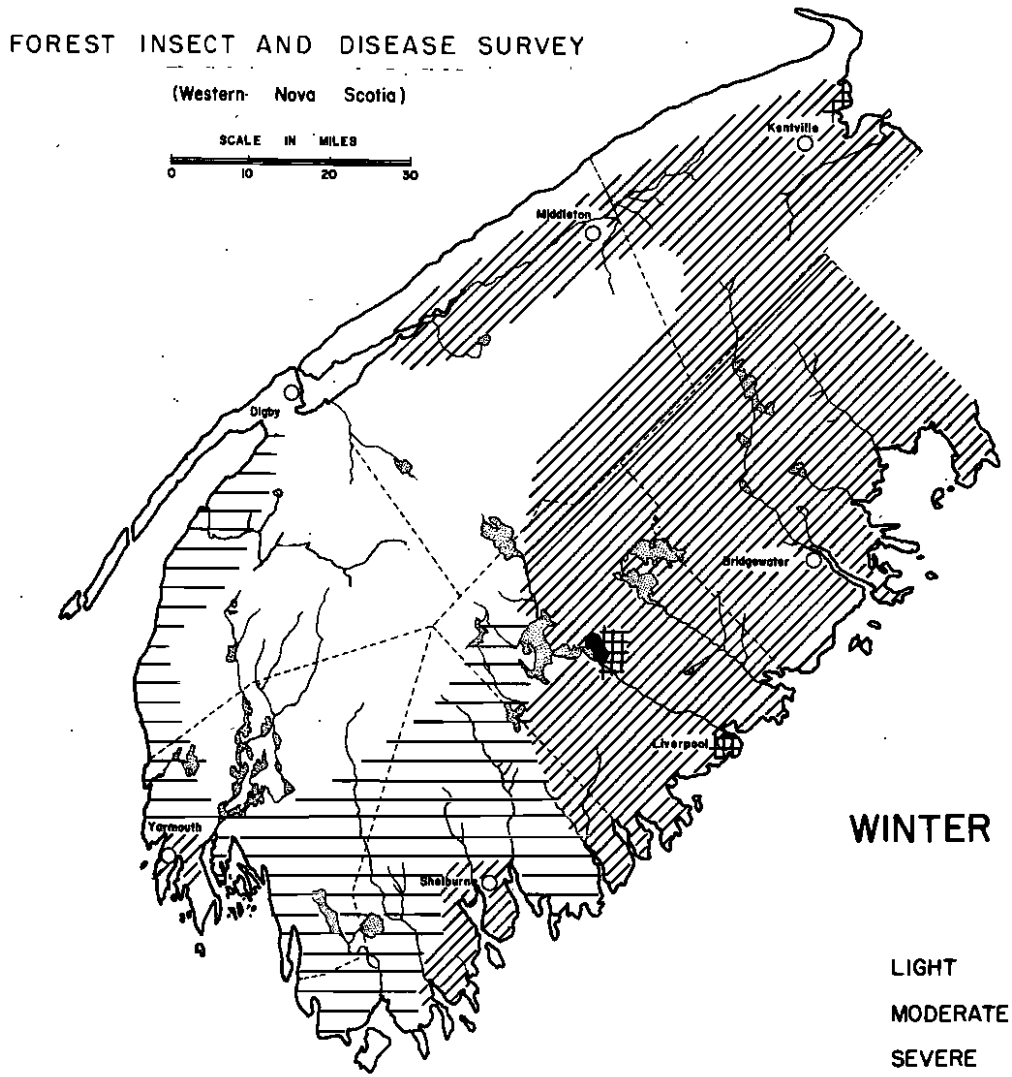

FOREST INSECT AND DISEASE SURVEY
(Western Nova Scotia)
SCALE IN MILES
0 10 20 30
Kentville
Middleton
Digby
Bridgewater
Liverpool
Yarmouth
Shelburne
WINTER MOTH INFESTATIONS
1966
LIGHT
MODERATE
SEVERE
ADDITIONAL KNOWN RANGE

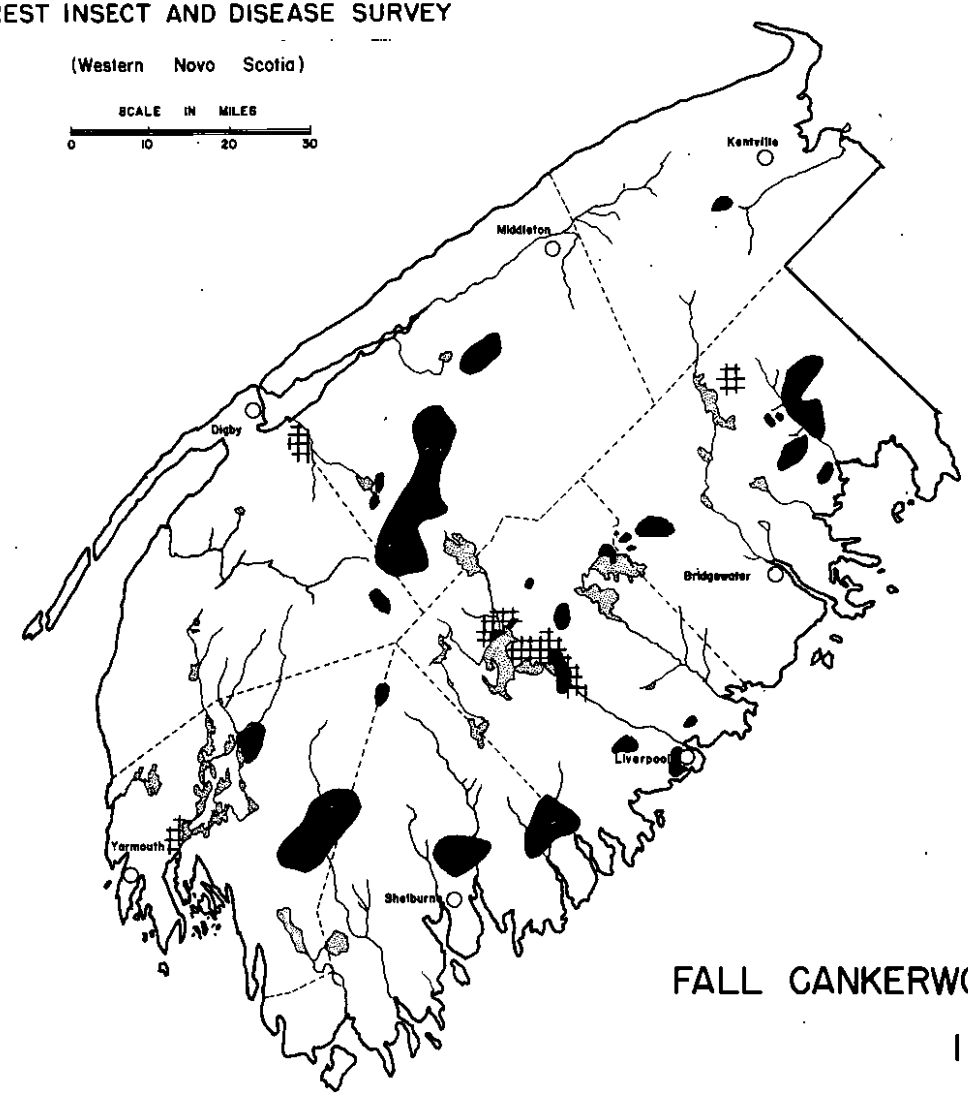
FIG. 1

FOREST INSECT AND DISEASE SURVEY

(Western Novo Scotia)

SCALE IN MILES

0 10 20 30



FALL CANKERWORM INFESTATIONS

1966

MODERATE

SEVERE

SEC.6 FIG.2

ANNUAL DISTRICT REPORT

FOREST INSECT AND DISEASE SURVEY

EASTERN NOVA SCOTIA

1966

by

L. J. Coady

FOREST RESEARCH LABORATORY
FREDERICTON, NEW BRUNSWICK

FORESTRY BRANCH
May, 1967

7.0 EASTERN NOVA SCOTIA

(L. J. Coady)

Introduction

Apart from one week of sampling for overwintering larch casebearer in March, the field season in 1966 in eastern Nova Scotia extended from late May to early December. The winter moth, fall cankerworm, birch sawfly and larch sawfly were the principal defoliators in the district. Totals of 652 insect collections and 203 tree disease samples were submitted.

Insect Conditions

Spruce Budworm, Choristoneura fumiferana Clem.

Significant increases in larval numbers, and light defoliation, occurred in old-field white spruce stands on the west coast of Inverness County between Port Hastings and Margaree Forks, and on the northeast coast of Antigonish County between Malignant Cove and Ballantyne Cove.

Thirty-nine larval collections representing all counties except Guysborough were taken by the beating method. Twenty-nine were taken at permanent sampling stations and ten at random points (Section 7, Tables 1 and 2). Spruce budworm egg masses were collected at 18 of 66 locations sampled in 1966 compared with 5 of the 50 locations sampled in 1965 (Section 7, Table 3). The egg-mass survey indicates that infestations in 1967 will be light but more widespread than in 1966.

Balsam Woolly Aphid, Adelges piceae (Ratz.)

There was no appreciable change in the status of this aphid in 1966. Twig attacks are still more common than stem attacks and have caused a gradual deterioration of older balsam fir stands throughout the eastern mainland and in the coastal areas of Cape Breton Island. Light stem attacks were common throughout the eastern mainland but on Cape Breton Island were observed only on the central Victoria County plateau where they were first detected in 1956 and have steadily spread.

The results of the reclassification of 314 trees on three balsam fir mortality plots are summarized and compared with 1965 in Section 7, Table 4. These figures indicate a slight increase on one plot in the number of trees supporting light stem attacks, no change on one and a decrease on one. Also the number of trees showing twig injury increased on one plot, remained unchanged on one and decreased on one. The increase in the incidence of twig injury occurred on plot #21 on the North River plateau, Victoria County, where deterioration of balsam fir trees first became evident in 1963.

Balsam Gall Midge, Dasineura balsamicola (Lint.)

Numbers of this insect increased noticeably from 1965 (see map, Section 1, Figure 4). Galled needles, common on the new shoots on young balsam fir trees throughout the district, were most numerous 6 miles northeast of Frizzleton, Inverness County, where a severe infestation occurred. An examination of 200 infested trees averaging 7 feet in height was made at Crowdis Mountain, Victoria County. The results showed that 10% of the trees were severely infested, while the remaining 90% were equally divided between the light and moderate categories.

Larch Sawfly, Pristiphora erichsonii (Htg.)

A general increase in the abundance of larch sawfly occurred in eastern Nova Scotia in 1966 (see map, Section 1, Figure 3). The greatest numbers were found at Gegogan Brook, Guysborough County, where severe defoliation of tamarack trees occurred in an area of 3 square miles. Light infestations occurred on small groups of tamarack trees on the outskirts of Guysborough Village, and in a one-tenth-acre area of Seafoam, Pictou County. Elsewhere shoots curled as a result of egg laying were common but defoliation was negligible.

European Spruce Sawfly, Diprion hercyniae (Htg.)

Small numbers of this sawfly occurred in 42 collections from white spruce or red spruce from all counties of eastern Nova Scotia compared with seven collections in 1965. The greatest number of larvae (11.3 per tree sampled) was taken during the second sampling at Scotsville, Inverness County (Section 7, Table 5).

Larch Casebearer, Coleophora laricella Hbn.

The general decline in casebearer numbers reported in 1965 continued in 1966. Defoliation was noticeable only at East Bay, Cape Breton County, and Big Bras d'Or, Victoria County, where up to 60% defoliation of a few tamarack trees occurred.

The results of sampling overwintering casebearers at 13 sampling stations are shown in Section 7, Table 6. Defoliation estimates taken in June are included.

European Pine Shoot Moth, Rhyacionia buoliana Schiff.

There was little change in the extent and intensity of infestations of this shoot moth in eastern Nova Scotia. Light shoot damage to young red pine trees was restricted to Blue Mountain, Pictou County, while a trace of shoot damage was observed for the first time on a few young red pine trees at Dryden Lake and on a few young Scots pine trees at Caribou Harbour, Pictou County.

Spruce Bud Moth, Zeiraphera ratzeburgiana Ratz. and other species of Zeiraphera on spruce

These species were frequently found together on current shoots of open-growing white spruce trees, causing damage resembling that of Choristoneura fumiferana Clem. Infestations were generally light, but pockets of moderate damage occurred between Malignant Cove and Ballantyne Cove, Antigonish County, and between Port Hastings and Margaree Forks, Inverness County.

Spruce Bud Midge, Rhabdophaga swainei Felt.

This bud midge occurred in small numbers throughout the district. Counts were made on three white spruce trees at each of three locations to determine numbers of killed buds per 100 square feet of foliage. The results were as follows:

Location	No. sq. ft. foliage examined	No. galled buds per 100 sq.ft. of foliage
Inverness Co.		
4 mi. N.W. of Glenora Falls	4.4	113
Pictou Co.		
Mt. Thom	15.8	57
Central West River	8.4	35

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

The known distribution of the winter moth remained unchanged in 1966. Excepting in Pictou town, there was a general decline in numbers in all areas of old infestations (see map).

A summary of conditions in each outbreak area follows:

At Pictou, where populations were mainly winter moth, defoliation was most severe on apple trees, many of which were stripped of their foliage, but which averaged 70%. Defoliation of white elm and basswood occasionally reached 70%, but averaged 20%. Red maple and sugar maple were defoliated a trace.

At Boylston, Guysborough County, light to moderate defoliation attributed entirely to winter moth, occurred on apple trees in an area of approximately 2 square miles. Other hosts, including basswood, white ash and white birch averaged a trace. The infestation reported in the East River, Pictou County area

in 1965 increased in extent but decreased in intensity in 1966. It now covers approximately 2 square miles, extending from Plymouth to a point just beyond the New Glasgow town limits, a northerly extension of approximately one-half mile. Although the average defoliation within this area was moderate, occasional trees lost 80% of their foliage to combined infestations of winter moth and fall cankerworm with the winter moth slightly more prevalent. Host trees included apple, oak and cherry.

At Antigonish winter moth infestations continued to decline. Defoliation of apple trees averaged 30% with some individuals 80%. Other host trees including white elm and linden averaged 20%. Fall cankerworm was present in small numbers (Section 7, Table 7).

The winter moth infestation at Central West River, Pictou County, decreased in both intensity and extent in 1966. Defoliation was restricted mainly to apple trees at Durham, where defoliation averaged 30% and reached 80% on occasional trees. Other host trees, including elm, red oak and white birch averaged 20%. The fall cankerworm was present in small numbers (Section 6, Table 7).

The localized but severe infestation reported at West River, Antigonish County, in 1965, declined to a light to moderate level in 1966. Defoliation was most conspicuous on apple trees, which occasionally lost 80% of their foliage but averaged 30%. White elm trees and cherry bushes were lightly defoliated. Fall cankerworm have been frequently found in the Sydney area in past years but loss of foliage has been of little consequence. However in 1966, moderate defoliation occurred on one apple tree and light on a few silver poplar and red maple trees and choke cherry bushes.

The localized but severe infestation of winter moth which, in 1965, resulted in severe defoliation of apple trees and white elm trees at James River Station, Antigonish County, subsided in 1966.

Bruce Spanworm, Operophtera bruceata Hulst.

The severe infestations of Bruce spanworm which occurred in eastern Nova Scotia from 1962 to 1965 collapsed in 1966, and only very small numbers were found at Glenora Falls, Inverness County and Browns Mountain, Antigonish County.

Birch Leaf Miner, Fenusa pusilla (Lep.)

This species of leaf miner was again abundant in the New Glasgow, Stellarton, Thorburn, Westville and Pictou areas, where 90% of wire birch and 20% of white birch foliage was browned. Elsewhere leaf miner injury was common but light.

Birch Casebearer, Coleophora fuscedinella Zell.

Population levels of this insect increased appreciably in 1966,

particularly on Cape Breton Island. Patchy but severe browning was most conspicuous between Sydney River, Cape Breton County, and Seal Island, Victoria County, on the west coast of Inverness County between Port Hastings and Margaree Forks and between Middle River and Baddeck Bay via Nyanza and Baddeck, Victoria County. Elsewhere browning of white birch foliage occurred in many small scattered areas. Population levels were low on the eastern mainland.

Forest Tent Caterpillar, Malacosoma disstria Hbn.

There was a general increase in the abundance of this caterpillar. The greatest numbers were found at New Glasgow, where 140 larvae were hand picked from an apple tree which was lightly defoliated. Small numbers were collected at Antigonish, Pictou, Caribou Harbour and Greenhill.

Satin Moth, Stilpnotia salicis L.

Satin moth larvae caused severe defoliation of silver poplar shade trees at Front Lake, Cape Breton County, and just south of Mabou, Inverness County. These trees refoliated after feeding ended.

Moderate to severe branch mortality of silver poplar at West Bay Road and Judique, Inverness County, has followed complete defoliation in 1965, severe bud damage by over-wintering larvae and light defoliation in 1966.

A Leaf Roller on Maple, Cenopis pettitana Rob.

A localized infestation of this leaf roller continued at Northeast Margaree, Inverness County, where light damage occurred on 35 sugar maple shade trees. Small numbers of larvae were taken from red maple at Sydney, and at Greenhill, Pictou County.

Birch Skeletonizer, Bucculatrix canadensisella Cham.

There was a noticeable increase in the prevalence of this insect in 1966. Pockets of moderate to severe leaf skeletonizing, mostly of young white birch trees, occurred at numerous locations from Caribou Island, Pictou County, eastward through Pictou, Antigonish, Richmond, Inverness and Cape Breton counties to a line extending from Mabou, Inverness County to Albert Bridge, Cape Breton County. Elsewhere attacks were common but light.

Ugly-nest Caterpillar, Archips cerasivoranus Fitch

This insect was again common, the largest numbers being recorded on roadside cherry bushes in parts of Antigonish County. The results of nest counts in 1,000 square feet areas at 10 locations follow:

Location	No. of nests per 1,000 sq. ft. 1965	1966
Antigonish Co.		
Just east of Antigonish town	*	*
Monastery	8	*
North Grant	121	*
Inverness Co.		
3 mi. S. of Port Hood	21	10
Margaree Valley	23	0
Creignish	**	53
Pictou Co.		
Mount Thom	0	26
Salt Springs	64	66
River John	**	5
Egerton	**	26

* Too numerous to count.
** No count made.

Fall Webworm, Hyphantria cunea Drury

An increase in the number of fall webworm nests was evident in 1966. Sixteen nests were collected at 15 locations, compared with three nests at two locations in 1965. A nest census was carried out along roadsides in 12 areas, four of which showed increases from 1965 (Section 7, Table 8).

Birch Sawfly, Arge pectoralis Leach.

Population levels increased and defoliation was noted in Nova Scotia for the first time since 1946. The greatest increases occurred in the Pleasant Bay and MacKenzie River areas of Inverness County, where approximately 3,200 acres of young white birch were severely defoliated.

Elsewhere low numbers of larvae were collected at Pinetree, Pictou County, Barra Head, Richmond County, and Beaver Cove, Cape Breton County.

Additional Species Collected

The numbers of common insects collected from sampling stations are listed in Section 7, Table 9. Other insects collected in 1966 but not mentioned in the text are listed in Section 1, Table 4.

Tree Diseases

Frost Injury

Late frost caused severe injury to current shoots of approximately 90% of open-growing black spruce in a one-quarter acre area at Port Felix, Guysborough County. Moderate injury to occasional balsam fir trees was observed at Barachois Brook, Victoria County, and along Route #19 between Dunvegan and Southwest Margaree, Inverness County.

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

Little change occurred in the status of the beech bark disease in eastern Nova Scotia, where most of the beech trees are cankered as a result of chronic attacks by both the insect and the fungus.

Hypoxylon Canker of Poplar, Hypoxylon mammatum (Wahl) Miller

This disease was found in most trembling aspen stands in eastern Nova Scotia. The results of counts taken in immature aspen stands to determine canker incidence were as follows:

Location	Total trees	No. of trees		
		Unifected	Dead cankered	Living cankered
Antigonish Co.				
3 mi. S. of Malignant Cove	100	66	19	15
Pictou Co.				
Durham	100	80	3	17
Lower Barney River	104	67	13	24
Caribou River	100	71	11	18

Anthracnose of Hardwoods

Gloeosporium apocryptum Ell. & Ev. infections resulted in severe foliage browning of sugar maple trees in a one-half square mile area in the Rigwash Valley, and of most sugar maple shade trees at Frizzleton, Inverness County. Light browning of the foliage of individual sugar maple trees occurred at Mt. Thom and Blue Mountain, Pictou County.

Gloeosporium aridum Ell. & Holw. infections were severe on individual white ash trees at Durham, Pictou County, and Boylston, Guysborough County.

Browning of white ash foliage was light on a few trees at Churchville, Pictou County, at Guysborough, and in the Rigwash Valley. Very light browning of foliage occurred between Moose River and Eden Lake and between Alma and Durham, Pictou County.

Gloeosporium fagicola Pass infections resulted in lightly browned foliage on three beech trees at Cheticamp River, Inverness County.

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

Leaf browning of horsechestnut was severe on occasional trees at Whycocomagh and Baddeck, and light on individual trees at Mill Creek, Cape Breton County, and at Port Hastings and St. Peters.

Ash Rust, Puccinia sparganioides Ell. & Barth.

Damage to young white ash leaves was light in a 1-acre stand at Durham, and on one tree at Greenhill, Pictou County.

Ink Spot, Ciborinia whetzelii (Seav.) Seav.

This disease was not common in eastern Nova Scotia. The foliage of a few young trembling aspen trees was lightly infected near Malignant Cove, Antigonish County, Bras d'Or and Barachois Harbour, Cape Breton County, Cole Point and Alma, Pictou County, and between Neil Harbour and South Mountain, Victoria County.

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

Infections by Pollaccia radiosa were common but of light intensity on trembling aspen and largetooth aspen throughout the district. Pollaccia elegans caused infections of light intensity on a few balsam poplar trees at Lower South River, Antigonish County, the only location where symptoms were observed.

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

Severe browning of willow leaves occurred on a few trees near Strathlorne, Inverness County, Stellarton, Pictou County, and Tracadie, Antigonish County. Infections of moderate intensity occurred on single trees at South Lochaber, Guysborough County and Afton, Antigonish County. Elsewhere light browning was common.

Cherry Blight

This blight of pin cherry was found throughout most of eastern Nova

Scotia. Damage was light except at McPherson Mills (between Caribou and Pictou), Pictou County, at Margaree Forks, Inverness County, and at West River and Lanark, Antigonish County, where moderate blighting of shoots occurred on occasional pin cherry trees.

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

This blister rust was observed at several locations but the incidence of infected trees and the resultant damage were low. Counts were made in immature white pine stands at 10 locations to determine blister rust incidence. The results are contained in Section 7, Table 10.

White Pine Needle Blight

Blighting of white pine needles by this non-parasitic disease occurred on individual trees at Trafalgar and Caledonia, Guysborough County, and at Glencoe, Pictou County.

Needle Casts

Bifusella faullii Darker caused infections of moderate intensity on one balsam fir tree at Sherbrooke, Guysborough County, and very light on a few balsam fir trees at Frizzleton, Inverness County.

Hypodermella nervata Darker infections resulted in light needle cast on one balsam fir tree near Denver, Guysborough County.

Needle Rusts

The incidence of needle rusts continued low in eastern Nova Scotia.

Chrysomyxa ledicola Lagh. caused infections of severe intensity on the new needles of occasional young black spruce trees at Creignish, Inverness County. Light damage occurred on 80% of the red spruce trees between Caribou and Marshville, Pictou County.

Chrysomyxa ledi dBy. infections were responsible for light discoloration of new needles on ornamental blue spruce trees at Guysborough. Infections were of light intensity on occasional black spruce trees at Barra Head, Richmond County and Jigging Cove Lake, Victoria County. Similar conditions were found on white spruce at Glen Alpine, Antigonish County.

Coleosporium asterum (Diet.) Syd. infections were light on occasional red pine trees in a 2-acre plantation at Blue Mountain, Pictou County and on a few jack pine trees at Eden Lake, Pictou County.

Pucciniastrum epilobii Otth. was common but of light intensity on new needles of balsam fir throughout Guysborough County and at a few locations in Richmond County.

Eastern Dwarf Mistletoe, Arceuthobium pusillum Peck.

This parasitic seed plant continued to cause severe "brooming" and some mortality of spruce trees between Troy and Creignish, Inverness County, and at Doctors Brook, Antigonish County. Elsewhere in the district damage was common, particularly in coastal areas.

Tip Blight of Balsam Fir, Rehmiellopsis balsameae Waterm.

Light browning of the new needles of balsam fir was observed on individual trees near Glenora Falls, Inverness County, and Coddle Harbour, Guysborough County.

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

Dead branch tips on balsam fir, resulting from branch cankers caused by Fusicoccum abietinum occurred on approximately 10% of the trees in a localized area on the Eden Lake Barrens road, Pictou County.

Other Noteworthy Diseases

Organism	Host	Location	Remarks
Adelopus balsamicola (Pk.) Theiss.	Bir, balsam	Frizzelton, Inv. Co.	Very light infections on occasional trees.
Chrysomyxa pirolata Wint.	Spruce, white	Throughout district	Infections common but light.
Delphinella balsameae (Waterman) E. Miller	Fir, balsam	Coddle Hbr. Guys. Co.	New herbarium record.
Gloeosporium betulae-luteae Sacc. & Dearn.	Birch, yellow	Rigwash Valley, Inv. Co.	New herbarium record.
Gymnoconia peckiana (Howe) Trotter	Black-berry	Guys. Co.	Light infections at two locations.
Gymnosporangium spp.	Wild pear	Eastern mainland, N.S.	Light infections common.
Lophodermium sp.	Spruce, red	Barra Head, Rich. Co.	Light infections on four trees.
Melampsora abietis canadensis C. A. Ludwig ex Arth.	Aspen, trembling	Pictou and Victoria counties.	New herbarium host record.

Organism	Host	Location	Remarks
Melampsora epitea Thuem.	Willow	Aspen, Guys. Co.	Light infection on a few bushes.
Phleospora aceris (Lib) Sacc.	Maple, red	Trafalgar, Guys. Co.	Light infections scattered throughout district.
Phyllosticta minima (Berk. & Curt.) Underw.	Maple, red	Guys. & Vict. counties	Very light infections on a few trees.
Rhytisma acerinum (Pers. ex St. Amans) Fr.	Maple, red Maple, silver	Throughout district	Infections light and scattered.
Rhytisma ilicis-canadensis Schw.	False holly	South Fishing Cove River, Inv. Co.	New herbarium record.
Sarcotrochila piniperda (Rehm) Korf.	Spruce, white	Sutherland River, Pict. Co.	New herbarium record.
Taphrina dearnessii Jenkins	Maple, red	French River, Pict. Co.	Light infections in localized area.
Taphrina robinsoniana Gies.	Alder, speckled	Throughout district	Common.
Taphrina wiesneriі (Rathay) Mix	Cherry, pin	Blue Mountain, Pict. Co.	Light infections at scattered locations.

Section 7, Table 1

Spruce Budworm Larval Sampling Records at Permanent Sampling Stations in Eastern Nova Scotia in 1966*

County and location	Station no.	Tree sp.	No. specimens	Av. per tree sample	Deviation from 1965
Antigonish					
Glen Alpine	8	wS	5	1.6	+1.3
Malignant Cove	10	wS	49	16.3	+16.0
Antigonish	39	wS	13	4.3	+3.3
Monastery	12	wS	8	2.6	+2.6
Cape Breton					
George River	45	wS	2	0.6	+0.6
East Bay	25	wS	3	1.0	+1.0
Grand Mira	**	bF	1	0.3	-
Inverness					
Grand Etang	51	wS	7	2.3	+2.3
Margaree Forks	24	wS	45	15.0	+15.0
Scotsville	5	wS	32	10.7	+10.7
Strathlorne	36	wS	108	36.0	+35.4
Port Hood	55	wS	45	15.0	+14.7
Creignish	57	wS	28	9.3	+9.0
Port Hastings	22	wS	11	3.6	+3.3
Pictou					
Moose River	7	wS	2	0.6	+0.6
French River	27	wS	3	1.0	+1.0
Scotsburn	9	wS	2	0.6	+0.3
Churchville	**	wS	7	1.1	-
Iron Ore	**	bF	1	0.3	-
Greenvale	**	wS	1	0.5	-
Greenvale	**	bF	1	0.5	-
Richmond					
Drummondville	40	wS	2	0.6	+0.6
Grand River	38	wS	1	0.3	-0.3
Lynch River	37	wS	1	0.3	+0.3

Section 7, Table 1 (cont'd)

County and location	Station no.	Tree sp.	No. specimens	Av. per tree sample	Deviation from 1965
Victoria					
Baddeck	52	wS	28	9.3	+9.3
North Aspy	48	wS	1	0.3	0.0
Ingonish	1	wS	2	0.6	-0.4
Barachois Brook	59	bF	0	0.0	-0.6

* In addition to these stations, 51 trees at 17 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 1965

Section 7, Table 2

Spruce Budworm Larvae Collected by Counties in Eastern Nova Scotia by Random Sampling in 1966

County	Tree sp.	No. of colls.	Total trees	No. specimens
Antigonish	wS	3	3	71+
Inverness	bF	2	4	25
	wS	2	5	340+

Section 7, Table 3

Spruce Budworm Egg-Mass Counts per 100 Square Feet
of White Spruce and Balsam Fir Foliage
in Eastern Nova Scotia in 1966

County and location	Tree sp.	No. sq. ft. foliage examined 1966	Sound egg masses per 100 sq. ft. 1965	1966
Antigonish				
Malignant Cove	wS	13.4	0	63
Aulds Cove	wS	7.1	0	0
Morristown	wS	5.1	**	0
Ballantyne Cove	wS	11.3	**	42
Cape George	wS	10.2	**	56
3 mi. W. of Cape George	wS	14.8	**	11
Doctors Brook	wS	14.5	**	102
Inverness				
2.3 mi. N. of Frizzleton	bF	9.3	0	0
Northeast Margaree	wS	4.3	0	0
Margaree Forks	wS	9.4	0	23
Southwest Margaree	wS	5.2	0	0
Scotsville	wS	5.7	0	0
Strathlorne	wS	12.4	0	91
Port Hastings	wS	6.2	22	16
Creignish	wS	4.3	0	0
Judique	wS	2.8	0	0
Port Hood	wS	5.1	0	0
Whycocomagh	wS	13.1	33	20
Forest Glen	bF	8.5	10	0
Grand Etang	wS	3.7	0	0
Cheticamp River	wS	6.2	0	34
Presquile	wS	5.0	0	0
French Mountain	bF	8.1	0	0
MacKenzie Mountain	bF	8.2	0	0
McGregor Brook	bF	9.8	0	7
4 mi. E. of Strathlorne Sta.	bF	11.6	**	20
4 mi. N. of Inverness Town	wS	8.8	**	0
Margaree Harbour	wS	6.0	**	0
*5 mi. N.E. of Frizzleton	bF	6.5	**	0
2 mi. W. of Melford	bF	14.6	**	8
3 mi. E. of Denystown	bF	9.9	**	7
2 mi. W. of Melford	wS	6.3	**	0
Pictou				
Lismore	wS	7.7	**	10
Sea Point, Pictou Island	wS	8.7	**	0
West End, Pictou Island	bF	6.3	**	0

Section 7, Table 3 (cont'd)

County and location	Tree sp.	No. sq. ft. foliage examined 1966	Sound egg masses per 100 sq. ft. 1965	1966
Victoria				
Middle River	wS	5.4	0	0
Gairlock Mountain	bF	10.5	0	0
Crowdis Mountain	bF	11.8	0	0
New Campbellton	wS	6.1	0	0
Clyburn Brook	wS	4.3	0	0
Keltic Lodge	wS	9.0	0	0
Ingonish Beach	wS	7.2	0	0
Ingonish Centre	wS	4.8	0	0
Warren Lake	wS	5.8	0	0
Mary Ann Falls	wS	5.4	0	0
Mary Ann Falls	bF	6.9	0	0
South Ingonish	wS	6.1	0	18
North Aspy	wS	6.6	0	0
Cape North	wS	3.4	0	0
0.8 mi. S. of Bay St. Lawrence	wS	6.8	0	0
4 mi. N. of Warren Brook	wS	5.8	0	0
Wreck Cove	wS	10.3	0	0
Little River	wS	5.7	0	0
Barachois River	wS	5.2	0	0
Hunters Mountain	wS	6.8	**	18
*6 mi. Northwest of North River Bridge	bF	11.6	19	0
*1 mi. E. of Mariana Road on Oxford Road	bF	5.9	0	0
*4 mi. N. of main highway on on east side of North River	bF	8.6	0	0
*2 mi. E. of North River	bF	7.8	0	0
*0.75 mi. E. of Barachois Bk.	bF	10.6	0	0
*15 mi. Northwest of North River Bridge	bF	6.9	0	16
*12 mi. Northwest of North River Bridge	bF	10.4	0	0
*North River	bF	7.6	0	0
*3 mi. N. of Middle Branch North River	bF	7.8	**	0
*0.6 mi. N. of Middle Branch North River	bF	6.3	0	0
*10 mi. E. of Frizzleton	bF	13.0	14	0

* Located in plateau area, central Inverness and Victoria counties.
** Area not sampled.

Section 7, Table 4

Condition of Trees on Balsam Woolly Aphid Plots
in Eastern Nova Scotia in 1966

Plot no.	Location	Year	No. trees	Per cent trees in class* 1	2A	2B	2C	3A	3B	4A	4B	4C	5	Dead** other causes
	Pictou County													
22	Trafalgar	1965	100	36.0	9.0	-	-	-	7.0	12.0	14.0	8.0	3.0	11.0
		1966	100	32.0	12.0	-	-	-	7.0	16.0	11.0	7.0	3.0	12.0
	Victoria County													
18	Gairlock Mtn.	1965	107	13.1	-	-	-	-	-	12.1	18.7	16.8	20.6	18.7
		1966	107	13.1	-	-	-	-	-	13.1	18.7	14.0	20.6	20.5
21	North River	1965	107	62.6	19.7	-	-	-	-	0.9	0.9	-	-	15.9
		1966	107	61.7	18.7	-	-	-	-	1.9	0.9	-	-	16.8

* See Appendix A, Section 1, for explanation of classes
** Includes: windblown, suppressed, mechanical damage, etc.

Section 7, Table 5

Numbers of European Spruce Sawfly Collected
from Permanent Sampling Stations
in Eastern Nova Scotia in 1966

Location	Sampling station	No. of sawfly larvae* June 21-July 14 1st sample	Aug. 29-Sept. 17 2nd sample
Antigonish County			
Glen Alpine	8	4	0
Antigonish	39	5	8
Malignant Cove	10	0	1
Monastery	12	0	2
Cape Breton County			
East Bay	25	2	2
Beaver Cove	43	6	7
George River Sta.	45	0	4
2 mi. N. W. of Albert Bridge	42	4	0
Guysborough County			
Aspen	13	0	1
Trafalgar	32	5	0
Halifax County			
Anti Dam	31	2	0
Inverness County			
Margaree Forks	24	2	5
Scotsville	5	1	34
Cregnish	57	18	4
Grand Etang	51	1	0
Port Hastings	22	0	3
Ainslie Glen	23	-	11
Strathlorne	36	0	1
Port Hood	55	0	6
Pictou County			
Brooklyn	3	2	1
Moose River	7	1	3
Pleasant Valley	16	1	1
Pleasant Valley	21 rS	4	0
New Lairg	33	1	0
		141 59	94

Section 7, Table 5 (cont'd)

Location	Sampling station	No. of sawfly larvae* June 21-July 14 1st sample	Aug. 29-Sept. 17 2nd sample
Richmond County			
Drummondville	40	4	0
Grand River	38	3	4
Lynch River	37	1	7
Victoria County			
Ingonish Centre	1	0	9
Kelly Mountain	46	0	9
Little River	47	0	10
North Aspy	48	5	1
Baddeck	52	0	12
		48 13	52

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

\- Area not sampled.

Section 7, Table 6

Larch Casebearer Numbers and Defoliation Estimates at Sampling Stations in Eastern Nova Scotia in 1965 and 1966

Sampling station No.	Location	Casebearer/100 fascicles 1965	1966	Defoliation* 1965	1966
	Antigonish County				
103	Antigonish	0.7	1.2	T	0
113	Heatherton	0.7	0.6	0	0
	Cape Breton County				
117	East Bay	23.9	6.4	T	T
	Guysborough County				
104	Guysborough	0.3	1.6	0	0
105	Gegogan	0.6	0.3	0	0
	Inverness County				
114	Port Hawkesbury	4.8	2.5	0	0
110	Northeast Margaree	8.6	2.4	0	0
118	Judique	2.1	1.7	0	0
	Pictou County				
101	Mt. Thom	1.4	0.3	0	0
102	Eden Lake	3.1	4.3	T	0
	Richmond County				
119	Barra Head	51.9	98.0	T	T
	Victoria County				
108	Big Bras d'or	2.7	33.3	L	L
109	Baddeck	8.1	0.6	T	0

* T = Trace L = Light

Section 7, Table 7

Proportions of Winter Moth and Fall Cankerworm Larvae Present in Random Hand-picked Samples in Eastern Nova Scotia in 1966

Location	Hosts	Percentage of species present: Winter moth	Fall cankerworm	Defoliation*
Antigonish County				
Antigonish	wE	43.3	56.7	L
"	Ap	87.7	12.2	L-M
"	sM	100	0.0	T
"	Ba	65.7	34.3	L
"	cCh	100	0.0	L
Purlbrook	Ap	97.3	2.7	S
West River	wE	100	0.0	L
" "	Ap	97.8	2.2	L
Lower South River	Ap	100	0.0	S
" " "	cCh, mM	97.8	2.2	L
Lanark	Ap, cCh, Haw	100	0.0	L
Heatherton	Ap	100	0.0	M
"	wE	100	0.0	T
Cape Breton County				
Sydney	Ap	0.0	100	M
"	cCh	0.0	100	L
"	rM, sPo, +A	0.0	100	T
Guysborough County				
Boylston	Ap, cCh, Ba, wB	100	0.0	L
South Lochaber	aP	0.0	100	T
Inverness County				
Ross Section	sM	0.0	100	0
Margaree Forks	Ap, wE	0.0	100	0
Southwest Margaree	Ap	0.0	100	0
Pictou County				
Pictou	Ap	100	0.0	S
"	wE, Ba	93.5	6.5	L-M
"	Haw, wAs	40.0	60.0	L
Central West River	rO	100	0.0	L
" " "	wE	78.9	21.1	L
" " "	Ap	94.6	5.4	L-M
River John	wE	69.6	30.4	T-L
" "	Ap	50.0	50.0	T

Section 7, Table 7 (cont'd)

Location	Hosts	Percentage of species present: Winter moth	Fall cankerworm	Defoliation*
Pictou County				
Stellarton	Ap	50.0	50.0	S
"	rO	37.5	62.5	S
"	wE	83.8	16.2	L
"	cCh	50.0	50.0	L
New Glasgow	rO	4.8	95.2	T
" "	wE	12.0	88.0	L
" "	Ba	7.7	92.3	T
" "	rM	0.0	100	T
" "	Ap	33.3	66.7	T
Durham	Ap	91.7	8.3	M
"	wE	94.1	5.9	L
"	wB	100	0.0	L
"	Ba	75.0	25.0	L
"	sM	100	0.0	T
Victoria County				
Baddeck	aP	0.0	100	0

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

Section 7, Table 8

Fall Webworm Nest Census in Eastern Nova Scotia
in 1966

Location	No. miles	Average number of nests per mile 1963	1964	1965	1966
Antigonish County					
Havre Boucher Bridge - Monastery	8.2	0.2	0	0	0.5
Afton - Monastery	6.5	0	0	0	0.6
Afton - Lower South River	10.3	*	*	*	0.2
Cape Breton County					
Little Bras d'Or	4.5	*	0.4	0.8	0.8
Guysborough County					
Milford Haven Bridge - Guysborough Village	2.5	*	8.0	0.8	0
Stormont - Country Hbr. Cross Roads	8.5	*	0.7	0	0.2
Inverness County					
MacKenzie River - Top of MacKenzie Mtn.	2.8	0	0	0	0.7
Margaree Forks - Northeast Margaree	5.6	0	0	0	0
Margaree Forks - Cheticamp	23.4	0	0	0	0.6
Pictou County					
Central West River - Alma	6.2	*	*	*	2.3
Tony River - River John	10.0	0	0	0	0
Victoria County					
North River Bridge - St. Ann	11.5	*	*	*	0.5

* No count made

Section 7, Table 9.

Numbers of Common Insects Collected from 46 Permanent Sampling Stations in Eastern Nova Scotia in 1966.

Species	No. and type of stations producing larvae	Av. no. larvae per tree sample	Deviation from 1965
Acleris variana Fern.	18 wS	0.9	-1.6
	2 bF	0.3	-0.2
Amorbia humerosana Clem.	1 wS	0.3	-0.3
Archippus packardianus Fern.	2 wS	0.7	-0.5
Caripeta divisata Wlk.	15 wS	0.5	-0.1
	1 eH	1.0	+1.0
	1 rS	0.3	+0.3
	1 bF	0.3	-0.5
Choristoneura fumiferana Clem.	22 wS	6.0	+5.5
	1 bF	0.3	-1.0
Dioryctria reniculella Grt.	5 wS	0.4	+0.4
Diprion hercyniae (Htg.)	29 wS	2.4	-0.6
	2 rS	1.0	-2.4
Epirrita autumnata henshawii Swett.	4 bF	0.3	+0.3
	2 wS	0.3	-0.3
	1 rS	0.3	+0.3
Eupithecia filmata Pears.	7 wS	0.4	+0.4
	1 rS	0.3	+0.3
	1 eH	0.3	+0.3
Eupithecia palpata Pack.	4 wS	0.3	+0.3
	1 eH	0.3	+0.3
Hydriomena divisaria Wlk.	14 wS	0.6	+0.1
Pikonema alaskensis (Roh.)	12 wS	0.4	-0.2
Pikonema dimmockii (Cress.)	8 wS	0.9	+0.2
Protoboarmia porcelaria indicataria Wlk.	6 wS	0.4	-0.1
Semiothisa dispuncta complex	20 wS	1.7	+0.4
	1 eH	2.3	+2.0

Section 7, Table 10.

Numbers of White Pine Trees Infected by White Pine Blister at Locations in Eastern Nova Scotia in 1966.

Location	No. of white pine trees			Degree * of rust infections on ribes
	Uninfected	Living-cankered	Dead-cankered	
Guysborough County				
Country Harbour Mines	10	1	0	-
Sherbrooke	15	1	0	T
Caledonia, 3 mi. N.W.	97	3	2	-
Halifax County				
Round Lake, 1 mi. W.	91	9	3	-
Inverness County				
Northeast Margaree	5	1	0	L
Pictou County				
Sunny Brae	5	1	0	T
Eden Lake Barrens	99	1	0	-
Lyons Brook	75	7	4	M
Cole Point	40	1	1	-
Victoria County				
Ingonish	91	9	0	L
Barachois Brook	No white pine trees in area			L

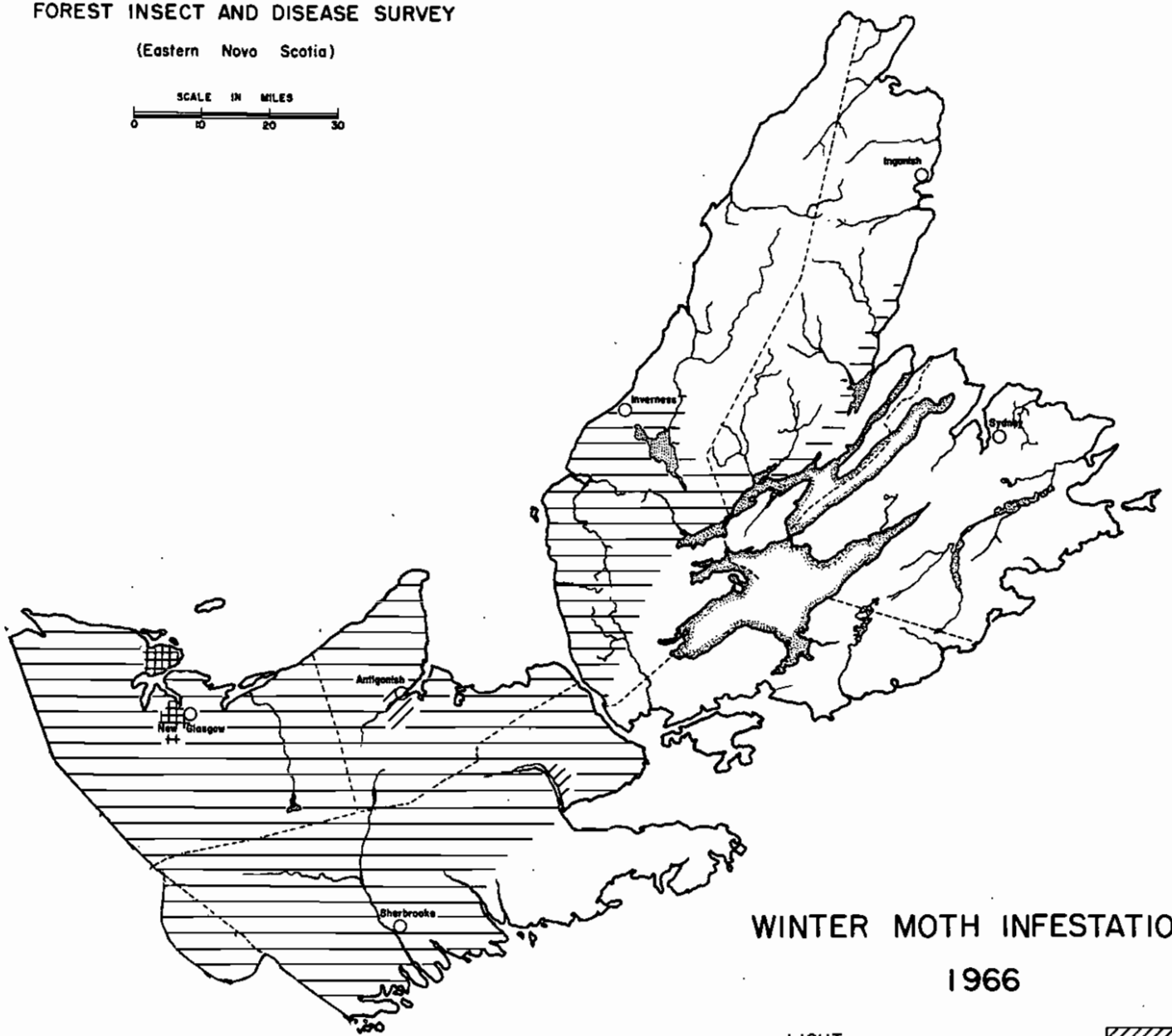
* - No ribes found. L - light infections. M - moderate infections. T - Trace infections.

FOREST INSECT AND DISEASE SURVEY

(Eastern Novo Scotia)

SCALE IN MILES

0 10 20 30



WINTER MOTH INFESTATIONS

1966

LIGHT

MODERATE

ADDITIONAL KNOWN RANGE