Status of Insects in the Kapuskasing District

Baker, J.A.

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INFORMATION REPORTS - INSECT AND DISEASE SURVEYS

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FOREWORD

The Forest Insect and Disease Survey maintains a continuing interest in improving existing sampling methods and in developing new techniques for rating forest pests and appraising damage. In 1968, a new approach for evaluating incidence and levels of infection of a number of tree diseases was explored. This involved determining degrees of damage in random and non-random plots in relation to the basal area of infected stands, the ultimate objective being to provide information on the impact of the organisms on forest stands in Ontario. Studies during the winter to test the accuracy of the new sampling system will be useful for planning field work in 1969. Improvement of insect survey methods in 1968 was largely directed toward jack-pine budworm sampling with emphasis on egg population studies. To this end, the distribution of egg masses on individual branches and at various crown levels of sample trees was investigated as a basis for determining the nature and size of samples required to assess population levels. The value of these new approaches in disease and insect sampling will be proven with use in forthcoming field seasons.

Marked changes in insect and disease conditions were recorded in large areas of the Province in 1968. A sharp increase in population levels of the spruce budworm and jack-pine budworm occurred in many parts of Ontario. The largest areas of infestation of the spruce budworm were located in the Burchell Lake area in the Port Arthur District, in parts of the Chapleau, Kapuskasing and Swastika districts and in southeastern Ontario. Localized infestations were centered in Parkinson Township in the Sault Ste. Marie District and in Fairbanks Township west of Sudbury. Egg surveys in most of the above areas except Burchell Lake, indicated that infestations will increase in extent in 1969.

The chemical control operation undertaken by the Ontario Department of Lands and Forests against the spruce budworm in the Burchell Lake area dominated insect surveys in western Ontario during several periods from May until September. Technicians were involved in intensive sampling to delineate the area to be treated, to time the spray applications and to assess spruce budworm numbers before and after the control operation.

Infestations of the jack-pine budworm abated somewhat in the Kenora and Fort Frances districts but several years of severe defoliation, particularly on rocky sites, caused considerable crown damage. In parts of the Sault Ste. Marie and Pembroke districts very severe defoliation of both jack pine and red pine was reported. Other insects occurring in particularly high numbers in 1968 included the saddled prominent, larch casebearer and several species of cedar leaf miners.

Devastation of elm by Dutch elm disease continued in southern Ontario and numerous new centers of infection were found throughout a large part of the range of elm in central Ontario. A vector of Dutch elm disease, the smaller European elm bark beetle extended its range eastward along the north shore of Lake Ontario and St. Lawrence River. Hypoxylon canker of poplar proved to be a serious problem in many parts of Ontario. Evaluations revealed particularly high levels of infection in aspen stands in the Sault Ste. Marie and Sudbury districts. Scleroderris canker of pine again caused considerable

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mortality in young red pine and jack pine plantations in parts of central and northeastern Ontario. Fomes root rot usually associated with thinning operations, caused varying amounts of mortality in red pine plantations in southern Ontario. Four new centers of infection of this disease were found in Larose forest in the Kemptville District in 1968. Details on the above and other noteworthy insect and disease problems are contained in the report that follows.

J. E. MacDonald

STATUS OF INSECTS IN THE KAPUSKASING DISTRICT

J. A. Baker

Birch Skeletonizer, Bucculatrix canadensisella Cham.

Counts at sample points in 1968 showed a marked increase in numbers of this insect over 1967 when all counts were negative (Table 9). A light infestation occurred in Studholme Township with trace infestations at six other sample points.

TABLE 9

Summary of Quantitative Counts of the Birch Skeletonizer in the Kapuskasing District in 1968

Note: Based on the examination of 100 leaves taken at random from three white birch trees at each location.

Location (township)	Av. height of sample trees in feet	Per cent of leaves infested 1968
Studholme	30	40
Gill	15	12
Wicksteed	45	8
Seaton	15	7
McMillan	15	1
Stoddart	30	1

Spruce Budworm, Choristoneura fumiferana (Clem.)

A marked increase in population levels of this pest occurred along the southern boundary of the district. Aerial and ground reconnaissance in the latter part of August and during September disclosed four general areas of defoliation extending south into the Chapleau District. Accurate delineation from the air of areas of defoliation was difficult because of the presence of cone spikes of balsam fir, an abundance of cones on white spruce and the lack of red foliage, which had been washed off by heavy rainstorms in midsummer.

Areas of light to moderate defoliation occurred in an area of approximately 100 square miles, including parts of Hook, Hayward, Champlain, Mons, Buchan, Lisgar and Watson townships. On the basis of egg counts moderate to severe defoliation is forecast in Lisgar Township. Light to moderate defoliation is forecast in the other townships named above (Table 10).

The infested stands generally contain mature white spruce and balsam fir except in Buchan and Lisgar townships where scattered over-mature white spruce and young co-dominant balsam fir are co-dominant with aspen.

In the remainder of the district, a light infestation reported in 1967 in Gill Township declined to a trace level in 1968. Low populations occurred in Arnott, Bourinot, Fergus, Parnell and Harmon townships.

The most likely area for spread of this insect from presently infested stands in the southern part of the district, would be to the northwest where stands of mature white spruce and balsam fir are most common.

TABLE 10

Defoliation of the Current Year's Growth of Balsam Fir Trees in the Kapuskasing District and Infestation Forecasts for 1969 Based on Egg Mass Density

Location (township)	No. of branch samples	Per cent defoliation in 1968	Cumulative no. of egg masses per 100 sq. feet	Forecast for 1969
Champlain	6	13	181	L-M
Mons	6	20	364	M
Mons	2	18	77	L-M
Buchan	6	21	137	L
Lisgar	2	28	187	M-H

L ..... Light; M ..... Medium; H .... Heavy

Aspen Blotch Miner, Lithocolletis salicifoliella (Cham.)

A decrease in population levels of this insect occurred at all but one sample point where counts were made in 1967 (Table 11). In general the western part of the district had the highest populations.

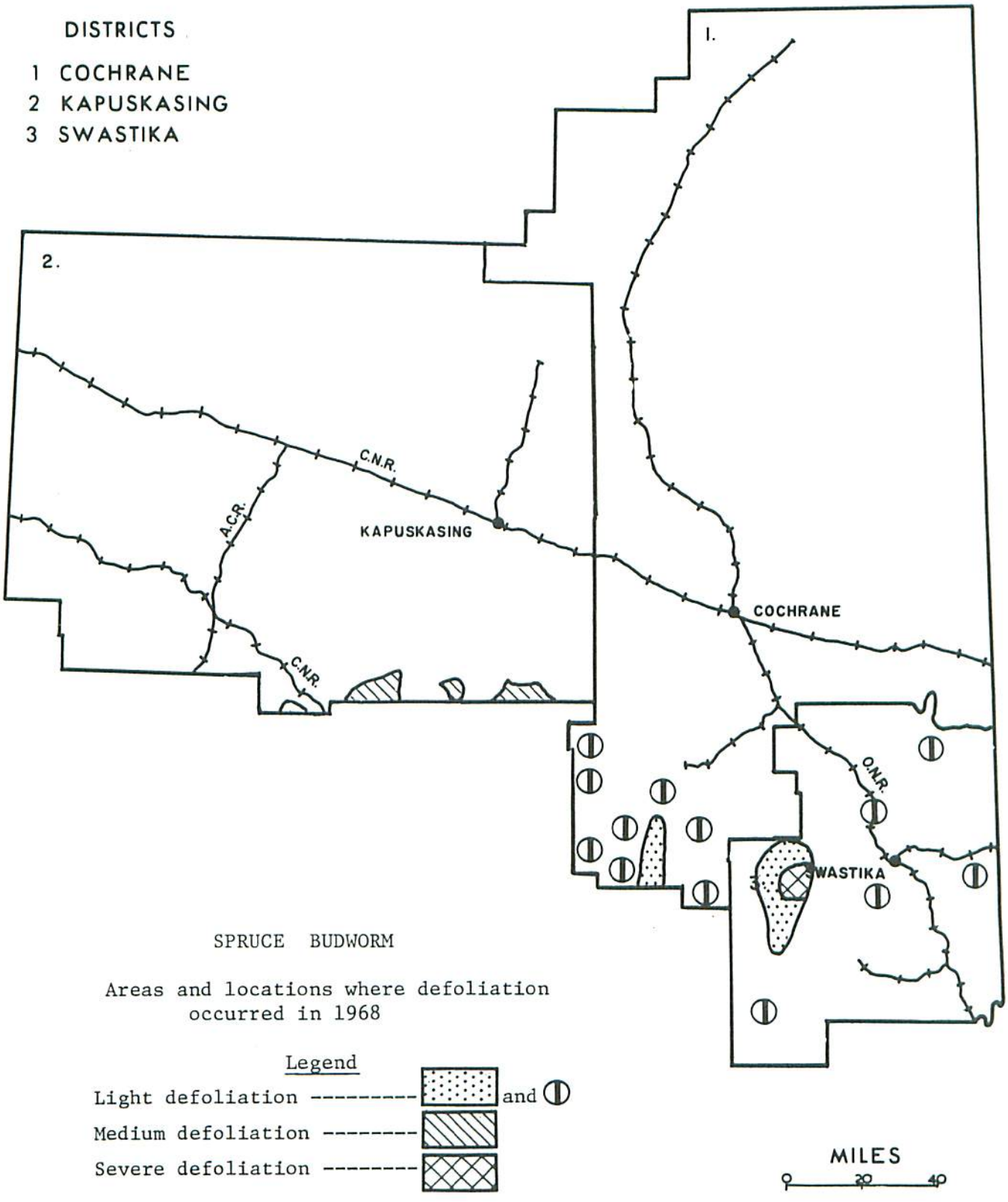
TABLE 11

Summary of Aspen Blotch Miner Counts in the Kapuskasing District from 1966 to 1968

Note: Based on the examination of 100 leaves taken at random from three trembling aspen trees at each location.

Location (township)	Per cent of leaves mined		
	1966	1967	1968
Wicksteed	7	2	10
O'Brien	12	1	0
Gurney	9	2	0
Torrance	8	11	0
Gill	7	0	0

NORTHERN FOREST REGION



Pitch Nodule Moth, Petrova albicapitana (Busck)

Observations in 1968 revealed that population levels of this insect were about the same as in 1967. A heavy infestation persisted in a jack pine plantation at Mile 7 on the Gurney road. Branch-tip mortality continued in 1968. A light infestation was observed on shelterbelt trees in the Spruce Falls Nursery.

A Leaf-folding Sawfly on Balsam Poplar, Phyllocolpa sp.

Quantitative sampling showed a marked decline in population levels of this insect in 1968 (Table 12). Low numbers occurred on open-grown regeneration in Seaton, McCrea and McMillan townships.

TABLE 12

Summary of Leaf-folding Sawfly Counts on Balsam Poplar in the Kapuskasing District from 1966 to 1968

Note: Based on the examination of all leaves from one branch on each of three trees.

Location (township)	Total no. of leaves counted			No. of leaves curled			Per cent of leaves curled		
	1966	1967	1968	1966	1967	1968	1966	1967	1968
Fauquier	268	292	388	73	17	0	27.2	5.8	0.0
McCrea	234	295	113	77	20	2	32.8	6.8	1.7
McMillan	296	189	100	97	16	1	32.8	8.5	1.0
Seaton	327	---	158	94	---	25	28.7	---	16.1

A leaf-folding Sawfly on Trembling Aspen, Phyllocolpa sp.

Infestations of this insect continued to subside in 1968. Counts were negative for the first time since sample plots were established in 1960 (Table 13).

TABLE 13

Summary of Leaf-folding Sawfly Counts on Trembling Aspen in the Kapuskasing District from 1966 to 1968

Note: Based on the examination of 100 leaves taken at random from three trees at each location.

Location (township)	Av. height of sample trees in feet	Per cent of leaves infested		
		1966	1967	1968
Gill	15	12	1	0
Wicksteed	45	17	1.5	0
Gurney	45	99	9	0
Parnell	30	11	2	0
Torrance	15	7	2	0

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

Population levels of this insect decreased in 1968 compared with 1967. A medium to heavy infestation occurred on ornamentals in the town of Kapuskasing. Populations were light on roadside and open-grown trees but only trace levels occurred in spruce stands in the district.

White-pine Weevil, Pissodes strobi (Peck)

Observations and counts indicate a further decline in numbers of this insect on white and black spruce trees across the district in 1968. Medium population levels were observed in a mixed white spruce and white pine plantation in Studholme Township and a white pine plantation in Wicksteed Township. Counts at sample points showed negative results (Table 14).

TABLE 14

Summary of Damage by the White-pine Weevil in the Kapuskasing District from 1966 to 1968

Note: Based on the examination of 100 trees at each location.

Location (township)	Host	Per cent of trees infested 1966	1967	1968
Shearer	wS	6	6	0
Kohler	bS	13	2	0
Parnell	wS	11	4	0
Clavet	bS	7	2	0
Gurney	bS	4	4	0

Balsam Shoot-boring Sawfly, Pleroneura borealis Felt

Compared with 1967, damage by this insect was lower at two quantitative sample points and increased slightly at another in 1968 (Table 15).

TABLE 15

Summary of Damage by the Balsam Shoot-boring Sawfly in the Kapuskasing District from 1966 to 1968

Note: Based on the examination of all buds on twenty branch tips, four from each of five trees at each location.

Location (township)	Number of buds infested 1966	1967	1968	Per cent of buds infested 1966	1967	1968
Shackelton	0	15	5	0.0	3.5	3.6
Fergus	0	19	1	0.0	4.8	0.8
Clavet	0	0	3	0.0	0.0	0.9

Larch Sawfly, Pristiphora erichsonii (Htg.)

This insect was observed throughout the district in 1968. Population levels were about the same as in 1967 with light defoliation in most larch stands in the district. Moderate to heavy defoliation occurred on individual open-grown trees. The accompanying map shows sample points in 1968.

Amber-marked Birch Leaf Miner, Profenusa thomsoni (Konow)

Quantitative samples showed a slight increase in population levels in 1968 compared with 1967 (Table 16). Observations from the air and later confirmed from the ground revealed a heavy infestation along the Kabinagami River for a distance of about ten miles. A second area of heavy infestation comprising about forty acres occurred along Highway 11 in Gill Township.

TABLE 16

Summary of Damage by the Amber-marked Birch Leaf Miner in the Kapuskasing District in 1967 and 1968

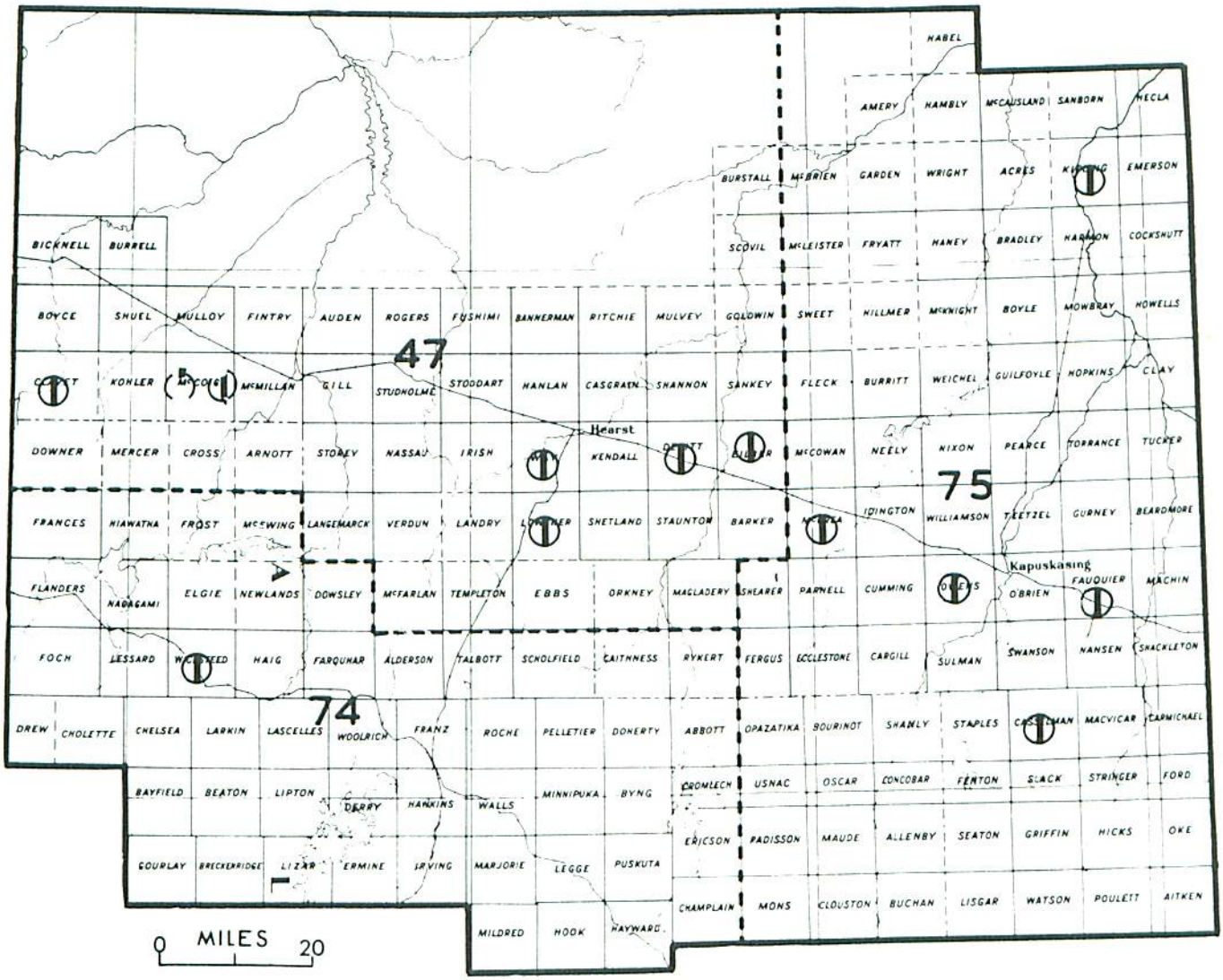
Note: Based on the examination of 100 white birch leaves taken at random from three trees at each location.

Location (township)	Per cent of leaves mined	
	1967	1968
Frost	48	92
Fauquier	65	74
Casselman	4	0
Seaton	-	2

Spruce Bud Midge, Rhabdophaga swainei Felt

General observations and quantitative sampling showed that population levels of this midge were slightly higher on white spruce and slightly lower on black spruce than in 1967 (Table 17). The highest count was made in McCrea Township where 6.4 per cent of the buds were infested and the lowest was in McMillan where only 1.5 per cent of the buds were infested. A heavy infestation was observed in a small black spruce plantation in Gurney Township.

KAPUSKASING DISTRICT



LARCH SAWFLY

Locations where
infestations occurred
in 1968

Legend

Light infestation--

TABLE 17

Summary of Damage by the Spruce Bud Midge in the Kapuskasing District from 1966 to 1968

Note: Based on the examination of five branch tips from each of ten trees at each location.

Location (township)	Host	Per cent of buds infested 1966	1967	1968
McCrea	wS	3.8	1.3	6.4
McCrea	bS	7.9	10.6	0.6
Parnell	wS	2.5	1.3	6.4
Macvicar	wS	2.7	2.0	2.0
McEwing	wS	1.5	0.6	1.6
McMillan	wS	0.0	0.0	1.5
McMillan	bS	2.5	2.0	1.7

TABLE 18

Summary of Miscellaneous Insects Collected in the Kapuskasing District in 1967

Insect	Host(s)	Remarks
Acleris variana Fern.	wS	Trace populations in divisions 75 and 47
Adelges lariciatus (Patch)	wS	Trace in Owens and Kohler twps.
Anomogyna elimata Gn.	wS	One larva collected in Gill Twp.
Aphania sp.	tA	High on one tree in Nansen Twp.
Archippus packardianus Fern.	wS	A trace population in Owens Twp.
Archippus strianus Fern.	bF,wS	Trace on bF in Shackelton Twp.
Badebecia urticana Hbn.	bPo,tA	One collection from Nansen, O'Brien and Gurney twps.
Cecidomyia sp.	Se	High population at one point in Frost Twp.
Choristoneura conflictana Wlk.	tA	Light infestations in Stoddart, Fergus, and Shearer twps.

TABLE 18 (continued)

Insect	Host(s)	Remarks
Choristoneura rosaceana Harr.	Ha	Trace in Casselman Twp.
Clepsis persicana Fitch	bPo	One collection each in Gurney and Nansen twps.
Coleophora laricella Hbn.	tL	Trace population in Fauquier Twp.
Compsolechia niveopulvella Cham.	tA	Low populations in Parnell and Shearer twps.
Corythucha pallipes Parsh.	wB,Al	Light population on one tree in Clavet Twp.
Dasineura balsamicola Lintn.	bF	Light infestation in Fauquier Twp.
Depressaria groteella Rob.	Ha	Trace in Casselman Twp.
Dioryctria reniculella Grt.	wS	A rise in distribution in 1968 with trace to light population levels throughout the district
Diprion hercyniae (Htg.)	wS	Quantitative counts in Gill and Eilber twps. were negative. Observed in Studholme and O'Brien twps. as trace populations
Ectropis crepuscularia Schiff.	Al	Trace populations in Studholme Twp.
Enargia infumata Grt.	wB	High on one open-grown tree in Nansen Twp. and trace on a few trees in Wicksteed Twp.
Epinotia albangulana Wlshm.	Al	Trace populations found in Owens, Shearer and Parnell twps.
Epinotia solandriana Linn.	tA,wB	Wicksteed, Shearer and Kohler twps. had trace populations
Eriophyes laevis Nalepa	Al	Trace in Torrance Twp.
Eupithecia filmata Pears.	wS	Low populations in Casselman and Eilber twps.

TABLE 18 (continued)

Insect	Host(s)	Remarks
Fenusa dohrnii Tischb.	Al	Trace in Parnell, light in Harmon and Owens twps.
Fenusa pusilla Lep.	wB	Trace populations on ornamentals in the town of Kapuskasing
Feralia jocosa Gn.	wS	Trace in Clavet, Casselman and Fauquier twps.
Griselda radicana Wlshm.	wS	Trace in Casselman Twp.
Hydriomena furcata Thun.	Al	Found in Shearer Twp.
Hypagyrtis piniata Pack.	wS	Trace in Casselman Twp.
Hylobius sp.	bS	Considerable damage occurred in a black spruce swamp in Stoddart Twp.
Lexis bicolor Grt.	wS	One larva found in Gill Twp.
Limenitis archippus Cram.	tA	One larva found in Kohler Twp.
Lithocolletis aceriella Clem.	Stm.	Trace in Frost Twp.
Lithocolletis betulivora Wlshm.	wB,bPo	Trace populations in Harmon, Puskuta and Sheldon twps.
Malacosoma disstria Hbn.	-	Eight collections of adults made in light trap operated at Remi Lake during the month of July
Neodiprion abietis complex	wS	Trace levels occurred in all divisions
Neodiprion virginianus complex	jP	Trace population in Studholme, Wicksteed, Harmon, Clavet and McMillan twps.
Neodiprion pratti banksianae Roh.	jP	Light on one tree at Kipling Dam
Nepytia canosaria Wlk.	bF,wS	Collected in Larkin, Fergus, Williamson and Casselman twps.
Nycteola frigidana Wlk.	wS	Light infestation in Opazatika Twp.

TABLE 18 (concluded)

Insect	Host(s)	Remarks
Phlyctaenia sambucalis Schiff.	Elderberry	Light infestation in Fauquier Twp.
Phyllocnistis populiella Cham.	tA	Trace in Torrance Twp.
Pikonema dimmockii Cress.	wS	Trace populations in Gill, Owens and O'Brien twps.
Pontania proxima (Lep.)	W	Medium on a few trees in Parnell Twp.
Pristiphora lena Kinc.	wS	Trace in Wicksteed and Nassau twps.
Pseudexentera oregonana Wlshm.	tA	Light infestation in Parnell Twp.
Psilocorsis sp.	bPo	Light infestation on a few trees in Puskuta Twp.
Pulicalvaria piceaella Kft.	wS	Trace on one tree in Parnell Twp.
Pyrrhia experimens Wlk.	bPo	Trace in McMillan Twp.
Saperda populnea moesta Lec.	tA	Trace in Harmon Twp.
Sciaphila duplex Wlshm.	tA	Trace populations were found in all divisions
Stenoma algidella Wlk.	bPo	Trace in McMillan Twp.
Telphusa sp.	Al	Trace populations in Owens and Parnell twps.
Tenthredinidae # 43	tA	Light in Harmon Twp.
Xylomyges dolosa Grt.	tA	Trace populations in Nansen, Opazatika and Parnell twps.
Zeiraphera destitutana Walker	wS	Trace in Eilber and Parnell twps.
Zeugophora sp.	tA	Light infestation in Frost Twp.