FOREST INSECT CONDITIONS

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Spruce Budworm, *Choristoneura fumiferana* (Clem.)—Populations of the spruce budworm continued to decline in the Province of Quebec and the insect is now active in only a few local areas. In the Shipshaw River infestation reported in 1961, numbers were reduced to extremely low levels and practically no defoliation was recorded. In the Ha Ha River area, parasites were very abundant and contributed to a marked decline in the infestation. Low budworm populations were also recorded in the Kedgwick-Mistigougèche-Patapédia infestation area where approximately 30 square miles of balsam forest were sprayed this summer. Egg counts in the sprayed area and in the Ha Ha River infestation indicate that a further decline in budworm numbers can be expected in 1963. Outside these areas, the provincial organization reports two small foci of infestation in Saguenay County, but no detailed information is available.

Swaine Jack Pine Sawfly, *Neodiprion swainei* Midd.—This sawfly remains an insect of primary importance in Quebec although numbers have been generally low in recent years. In 1962, surveys were conducted at 20 stations in the St. Maurice watershed. There were no signs of sawfly activity in the Upper St. Maurice (north of La Tuque, Laviolette County), but in the Lower St. Maurice, the insect was found at all sampling stations; it was particularly abundant in Dupuis and Picard townships. A maximum count of seven colonies per tree were found at Lake Gagnon, which is relatively low compared with counts made during heavy infestations.

According to outside reports, the insect was generally rare in other regions of the Province. However, one infestation centre was reported on Rivière-à-Mars, Chicoutimi County, and another one west of the Ouiatchouanish River in Roberval County.

Larch Sawfly, *Pristiphora erichsonii* (Htg.)—The larch sawfly continued to be the most numerous and widespread forest insect for the third consecutive year. It was particularly abundant in central and eastern Quebec where the general situation was comparable to that of last year. In several localities tamarack was completely defoliated and larval mortality was high due to starvation. Sawfly numbers continued to decline in western Quebec, but trees are still showing signs of previous attack. Foliage production was sparse and

there was evidence of stand decadence with up to 30 per cent mortality in areas which have been under continual attack for several years. The decline in sawfly through western Quebec is attributed mainly to the present unhealthy condition of the host trees.

Infestation ratings based on sequential sampling at 23 localities in the Province are given in the following table:

Region	Number localities sampled	Degree of infestation			Trend 1962
		Light	*Moderate*	*Severe*	
Abitibi	2	2			Decrease
LaVérendrye Park	4	4			Decrease
North of Montreal	5	5			Decrease
Lake St. John Area	3	2		1	No change
Laurentide Park and Charlevoix County	4	1	2	1	No change
Quebec Area	2			2	No change
Southern Quebec	4	2		2	Increase

European Spruce Sawfly, *Diprion hercyniae* (Htg.)—Sampling for the spruce sawfly was again carried out at five permanent sampling stations following procedures outlined in the 1961 Report. This survey together with an insectary rearing program was initiated some years ago to follow the effectiveness of disease and parasites in controlling this pest. The sawfly was recorded at all locations but at very low levels. Dead larvae were observed on trees but examination failed to reveal the presence of any disease. Field collected larvae reared in the insectary were also free of disease organisms, but up to 4 per cent were parasitized by *Drino bohemica* Mesn.

Basswood Looper, *Erannis tiliaria* (Harr.)—This species occurred in outbreak numbers in many sugar maple stands through southern Quebec. It was usually found in association with the Bruce spanworm and the fall canker-worm. The moderate to severe infestation zone reported in 1961 extended eastward during the past season and now includes the Plaine de Québec, St.-François, Chaudière, Plateaux et Plaine de la Rive Sud regions. In areas outside this zone defoliation of sugar maple was light to moderate.

In areas of severe defoliation in 1961, populations of the basswood looper were substantially reduced by a larval virus disease and defoliation was generally light in 1962. On the other hand a substantial increase in looper numbers was evident in areas where the infestation was light in 1961 and the virus disease was not active.

In 1962, the emergence of adults was suddenly terminated by a heavy snowfall in late October. Relatively few eggs were laid and a marked reduction is expected in 1963.

Bruce Spanworm, *Operophtera bruceata* (Hulst)—This defoliator was found together with the basswood looper in the maple areas referred to above but generally in lower numbers. The one exception was at St. Fabien, Rimouski County, where the Bruce spanworm was mainly responsible for severe defoliation of sugar maple.

Adult emergence was also affected by the heavy snowfall in late October and a substantial reduction is forecast.

Fall Cankerworm, *Alsophila pometaria* Harr.—The fall cankerworm was found together with the basswood looper and Bruce spanworm in all sugar maple regions but was abundant mainly in areas of mixed hardwoods where elm, basswood, and hazel were major components. Cankerworms occurred in highest numbers at Duchesnay, Portneuf County, and at St. Henri, Lévis County. Abnormally heavy snowfall at the time of adult emergence probably killed many of the wingless females.

Birch Skeletonizer, *Bucculatrix canadensisella* Cham.—This pest of birches reached outbreak proportions throughout the range of the hosts in 1962, and was frequently in association with the birch leaf miner, *Fenusa pusilla* (Lep.). White Birch, yellow birch, and grey birch were affected, and the insects also occurred on alder. The foliage of severely infected stands turned brown in August, and dropped prematurely. Many inquiries were received from private cottage owners in resort areas and an extensive survey was carried out in late August to assess this problem. The degree of infestation was determined by counting the number of moulting cocoons on the underside of birch leaves and assessing the proportion of leaves already fallen. Cocoon counts were made in 47 different localities of central Quebec and on the basis of these, infestations were rated in the various regions visited. The area between LaVérendrye Park in the west and Lake St. John in the east was classified as moderately to severely infested. South of the St. Lawrence River, the infestation varied from light to severe with the main infestation centred in the vicinity of Thetford Mines, Frontenac County, and Rimouski in the Lower St. Lawrence region. Counts and infestation ratings for five different regions of the Province are given in the following table. Extremely high populations are again expected through the birch range in 1963.

Region	% Premature leaf fall	Number of moulting cocoons per 100 standing leaves	Degree of Infestation
North of Montreal and LaVérendrye Park	25	121	Moderate
St. Maurice	20	207	Severe
Lake St. John and Saguenay	50	243	Severe
Southern Quebec	5	26	Light
Lower St. Lawrence and Gaspé	Unrecorded	Unrecorded	Light to moderate

Gypsy Moth, *Porthetria dispar* (L.)—Gypsy moth infestations centred at Clarenceville, St. Chrysostome, Huntingdon, and Stanbridge Station and totalling 1,600 acres were sprayed in late May with a water-emulsifiable concentrate of Sevin 80S under the direction of the Plant Protection Division, Canada Department of Agriculture. Checks made in treated areas on June 4 revealed a very noticeable decrease in all insect activity and no living larvae of the gypsy moth were found.

Male moths were found at only a few locations this summer, but this was presumably due to inclement weather during the period of moth flight. Egg surveys made in the fall revealed six new areas of infestation covering approximately 2,000 acres in Huntingdon, Châteauguay and Missisquoi counties, and spraying of these areas is proposed for 1963.

Fall Webworm, *Hyphantria cunea* (Drury)—Populations of the fall webworm were at unusually low levels. Counts of roadside nests in southern Quebec showed a maximum of three nests per mile compared with counts of 119 per mile in 1961. Counts in 1962 represent the lowest numbers ever recorded by the Survey in this region.

Ugly-Nest Caterpillar, *Archips cerasivoranus* (Fitch)—Numbers of this roadside pest also showed an appreciable decline in southern Quebec. In Mégantic County the average number of nests per mile was reduced from 131 in 1961 to 42 in 1962. The maximum average of 52 nests was found in Portneuf County.

Forest Tent Caterpillar, *Malacosoma disstria* Hbn.—Populations of this insect have been extremely low since the decline of the last infestation in 1953. However, in 1962 it was fairly common in many regions of Quebec. Several colonies of larvae were collected on red oak in the Ste. Foy and Sillery area; elsewhere collections consisted of one or two larvae. This species will be kept under close surveillance as it now occurs in outbreak numbers over extensive areas of central and western Canada.

Maple Leaf Cutter, *Paraclemensia acerifoliella* Fitch—Larvae were collected in six of 17 sugar maple stands sampled in the Eastern Townships. Conspicuous defoliation was limited to a stand at Actonvale, Bagot County.

Red-headed Pine Sawfly, *Neodiprion lecontei* (Fitch)—A severe infestation of this sawfly was found in a mixed plantation of pine, spruce and balsam fir at L'Avenir, Drummond County. Three species of pines including red pine, jack pine, and Scots pine were present in the plantation, but red pine was the only species seriously affected. At the end of the season most of the red pine trees were classified as 1 to 15 per cent defoliated but some trees were completely stripped and will probably die.

Yellow-headed Spruce Sawfly, *Pikonema alaskensis* (Roh.)—Every year small infestations of this sawfly are reported in southern Quebec. This year a severe infestation was found at Weedon, Richmond County, where white spruce trees were completely stripped of their foliage. Small pockets of light to moderate infestation were also recorded in Lotbinière County and in the Quebec City area.

Satin Moth, *Stilpnotia salicis* (L.) Small numbers of larvae of the satin moth are collected every year on Lombardy poplar at Ste. Foy and Sillery in the Quebec area. In 1962 the insect was found on Carolina poplar at Baie St. Paul, Charlevoix County, and the average defoliation was estimated at 20 per cent. It was also reported on poplar near Philippsburg in Missisquoi County.

Poplar Sawfly, *Trichiocampus viminalis* (Fall.)—Sampling for this sawfly was again carried out throughout the greater Quebec area. The insect occurred in practically all previously infested areas, but generally in very low numbers. In one locality, Ste. Foy, several colonies were found, but defoliation was negligible.

OTHER NOTEWORTHY INSECTS

Insect	Host(s)	Locality	Remarks
Abbottana clemataria J. E. Smith	Cherry, choke	St. Sylvestre, Lotbinière	Rare
Amphipyra pyramidoides Gn...	Miscellaneous hardwoods	Plaine de Québec	Low incidence
Anacamptodes ephyraria Wlk..	Maple, sugar, red and mountain Ash Basswood Ironwood	Plaine de Québec	Commonly found in this area.

OTHER NOTEWORTHY INSECTS—Continued

Insect	Host(s)	Locality	Remarks
Anisota rubicunda Fabr.....	Maple, sugar and red	Quebec and Lotbinière counties	Few colonies found in sugar bushes
Archips fervidanus Clem.....	Oak, red	Ste. Foy, Quebec Co.	Population at low level; rare in Survey records.
Arge pectoralis (Leach).....	Birch, white and grey	Ste. Foy, Quebec Co. St. Patrice, Riv. du Loup Co.	Low incidence.
Argyrotaenia quercifoliana Fitch.	Oak, red	Ste. Foy, Quebec Co.	Light infestation for second consecutive year
Argyrotoza semipurpurana Kft.	Oak, red	Ste. Foy, Quebec Co.	Severe infestation for several years; still on the increase.
Choristoneura fractivittana Clem.	Oak, red Maple, sugar	Quebec area	Relatively abundant but less common than in 1961.
Choristoneura rosaceana Harr..	Miscellaneous hardwoods; more common on sugar maple and oak	Plaine de Québec	Common throughout the area.
Dioryctria zimmermani Grt....	Pine, red	Montreal	Second Survey record; first recorded in this area.
Ennomos magnarius Gn.....	Elm, Maple, sugar Oak, red	Quebec area	Low counts; rare in Survey records.
Epinotia aceriella Clem.....	Maple, sugar	Eastern Townships	Common in several localities.
Eriosoma lanigerum (Hausm.).	Elm	Quebec area	Common in recent years. Counts lower than in 1961.
Fenusa pusilla (Lep.).....	Birch, white and wire	Southern Quebec in general	Very abundant. Second and third generations in competition with *B. canadensisella.*
Fenusa ulmi Sund.....	Elm	Montreal area	Low incidence.
Itame pustularia Gn.....	Maple, sugar and red	Plaine de Québec, Plateaux et Plaine de la Rive Sud	Common in several localities.
Lapara bombycoides Wlk.....	Pine, pitch	St. Chrysostome Châteauguay Co.	First Survey record on this tree species.
Lambdina fiscellaria fiscellaria Gn.	Hemlock fir, balsam Maples Birch, white	Lotbinière Lévis Beauce and L'Islet counties	Relatively common compared to recent years.
Lithophane innominata Sm....	Maple, sugar Ash Hemlock Oak, red	Plaine de Québec	Relatively abundant; rare in Survey records.
Macrobotys thestealis Wlk.....	Ash	Ste. Foy, Quebec Co.	First Survey record.
Neodiprion pratti banksianae Roh.	Pine, jack	St. Urbain, Charlevoix Co.	First record east of Quebec City.
Neodiprion virginianus complex	Pine, jack	St. André, Kamouraska Co. Lake Matagami Road, Abitibi Est Co.	First record south of St. Lawrence River and most northern limit known
Ormenis pruinosa Say.....	Elm, white	Montreal	First Survey record.
Ortholepis pasadamia Dyar....	Birch, white	Quebec area, Tadoussac, Saguenay Co.	Abundant in 1961 and common in 1962.
Pandemis lamprosana Rob.....	Miscellaneous deciduous hosts	Plaine de Québec	Quite common this year; rare in previous Survey records.
Pikonema dimmockii (Cress.)..	Spruce, white	Lotbinière Co.	Common in white spruce stands.
Phigalia titea Cram.....	Oak, red	Ste. Foy, Quebec Co.	Numerous on this tree species.
Proteoteras moffatiana Fern....	Maple, sugar	Southern Quebec	Low incidence in sugar bushes.
Rhyacionia buoliana Schiff....	Pine, mugho	Quebec area	Population remaining at low level; five per cent of mugho pines attacked.
Schizura ipomoeae Dbldy.....	Maple, sugar	Ste. Foy, Quebec Co.	Rare.

OTHER NOTEWORTHY INSECTS—Concluded

Insect	Host(s)	Locality	Remarks
Cenopis pettitana (Rob.).....	Miscellaneous hardwoods, particularly sugar maple	Southern Quebec	Relatively abundant throughout the area.
Strymon falacer Godt.....	Oak, red	Ste. Foy, Quebec Co.	Population at low level; first Survey record in 1961.
Symmerista leucitys Francl.....	Oak, red Maple, red	Ste. Ferdinand, Mégantic Co.	First Survey Record.
Vasates quadripedes (Shim.)...	Maple, silver	Central Quebec	Abundant for a number of years; complaints less numerous in 1962.