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*(Final issue this year)

FOREST INSECT AND DISEASE CONDITIONS IN ONTARIO



Sporophore of *Polyporus tomentosus* Fr., causal agent
of an important root rot of spruce in parts of Ontario.

*Beginning with this issue the name and masthead of this
publication has been changed. Formerly it was known as
the Survey Bulletin.

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FOREST INSECTS

Spruce Budworm, *Choristoneura fumiferana* (Clem.)

Counts have been made of hatched egg masses on representative samples of fir and spruce from across the Province, but the final steps of the egg survey, namely the preparation of individual forecasts and the final analysis, remain incomplete. It is possible, then, to outline only preliminary findings at this time. Complete results will appear later in a separate Information Report.

In northwestern Ontario where a protection strategy has been developed and implemented by the Ontario Ministry of Natural Resources in close cooperation with the Canadian Forestry Service, the current picture remains bright. Egg counts were extremely low around Burchell Lake which was treated in 1968 and 1969. In the Quetico Provincial Park where aerial spraying has been carried out annually since 1970 to prevent an expanding outbreak from spreading towards the Burchell Lake area, egg counts indicate that defoliation in 1973 will be confined to less than 100,000 acres. Several threatening but small spots of infestation in the eastern part of Quetico Park and the southwestern part of Thunder Bay District remain active.

In northeastern Ontario, the effects of severe frost on budworm larval populations (see June-July issue of the Survey Bulletin) remained largely unknown until egg counts were begun. High counts in areas where the new shoots of fir and spruce were killed suggested that portions of larval populations had survived by feeding on old foliage and that moths had migrated from areas less affected by frost. This outbreak is expected to continue generally in 1973.

The southeastern Ontario outbreak can also be expected to continue in 1973, covering approximately the same area as that defoliated in 1972.

Survey's spruce budworm monitoring program was maintained in 1972, using a standardized beating sample on fir and spruce at 100 locations across Ontario. Returns were again nil from 15 stations scattered through a large sector of northwestern Ontario lying west of Lake Nipigon and north of the Fort Frances District. There was a minor but consistent increase in the number of larvae taken at monitoring stations located immediately north of Lake Superior. Otherwise, monitoring returns were closely related to the intensity of damage.

Forest Tent Caterpillar, *Malacosoma disstria* Hbn.

Egg-band counts made during late summer generally substantiated the changing forest tent caterpillar picture in Ontario as described in the June-July Bulletin. An infestation which has persisted in parts of the Fort Frances District for the past 7 years has virtually subsided.

Newer infestations between Dryden and Vermilion Bay in the Kenora District and in the Savoff River area of the Geraldton District continued to build up and, at these locations, enlarged, heavy infestations are forecast for 1973. In the Thorneloe-New Liskeard area of the Swastika District where infestations occurred for the first time in 1972, complete defoliation of some aspen stands can be expected in 1973. Less severe defoliation can also be expected south of Temagami in the North Bay District.

Birch Skeletonizer, *Bucculatrix canadensisella* Cham.

In August and September, 1971, uncertainty existed as to the exact cause of widespread yellowing and premature dropping of white birch foliage in northwestern Ontario, although *B. canadensisella* was implicated. Damage to foliage of white birch that appeared at much the same time in the summer of 1972 was clearly the result of the skeletonizer and extended widely through the forests of northwestern Ontario from the Manitoba border east to Longlac. Severe skeletonizing was also mapped over several townships in the northwest corner of the Swastika District, across the southern parts of the North Bay and Sudbury districts and as far west as Parkinson, Gladstone and Bright townships in the Sault Ste. Marie District. Most birch stands in the Pembroke and Parry Sound districts showed moderate-to-severe feeding damage, as did scattered stands in the Lake Simcoe and Lake Huron districts and in the northern and central parts of the Lindsay District.

Birch Leaf Miner, *Fenusa pusilla* (Lepelletier)

This introduced pest which mines the leaves of white birch throughout the summer continued to increase in number in the newly invaded areas of the Thunder Bay and Geraldton districts. Conspicuous damage to birch trees also occurred at locations throughout northeastern and central Ontario as well as in the eastern part of Kemptville District.

Green-striped Mapleworm, *Anisota rubicunda* Fabr.

Damage levels dropped considerably on Cockburn Island and in Humbolt Township of the Sudbury District where defoliation declined from approximately 80 per cent in 1971 to 30 per cent in 1972. Two heavy infestations persisted in the southern and eastern parts of the North Bay District and three pockets of moderate-to-severe defoliation reappeared in the northcentral part of the Pembroke District.

Red-headed Pine Sawfly, *Neodiprion lecontei* (Fitch)

In central Ontario, 1972 colony counts were markedly lower than 1971 counts in the Sudbury and Parry Sound districts. Several moderate-

to-severe infestations occurred in and around the city of North Bay, while in the Pembroke District the pest was more abundant than in any year since 1968. In southern Ontario, numbers increased in the northwestern part of the Lindsay District and two red pine plantations were found to be moderately infested in the Tweed District. In one plantation in the Lake Simcoe District that was sprayed with a suspension of a nuclear polyhedrosis virus of *lecontei* in 1971, not a single colony could be found.

White Pine Weevil, *Pissodes strobi* (Peck)

Weevil damage was appreciable on jack pine regeneration at several locations in the Sioux Lookout, Kenora and Thunder Bay districts. Weevilling incidence on white pine was generally higher than in 1971 in the southern part of the Sault Ste. Marie District and was also severe in the North Bay District, especially on white and red pine in McLaren Township. Infestations were common in the Parry Sound and Pembroke districts where the proportion of trees weevilled ranged upwards from 0 to 58 per cent. The intensity of attack declined generally in southern Ontario but remained severe in the Orr Lake Forest in the Lake Simcoe District, in Sullivan Township in the Lake Huron District and in several locations in the Kemptville District.

Other Noteworthy Insects

Infestations of the cone beetle, *Conophthorus resinosae* Hopk., were recorded on red pine in the North Bay, Pembroke and Lindsay districts.

Severe defoliation of black walnut by the walnut caterpillar, *Datana integerrima* G. & R., was reported in the districts of Lake Simcoe, Lake Huron, Lake Erie and Tweed.

An increase was noted in population levels of the fall webworm, *Hyphantria cunea* Drury, especially in southern districts where small, moderate-to-heavy infestations occurred.

The orange-striped oakworm, *Anisota finlaysoni* Riotte, caused heavy defoliation of white and burr oaks at locations in the Lake Huron, Lake Erie and Tweed districts.

Heavy feeding on mountain ash by the mountain-ash sawfly, *Pristiphora geniculata* (Htg.), occurred in the districts of northeastern Ontario, North Bay, Swastika, Cochrane, Chapleau, Kapuskasing and Geraldton. This introduced pest also proved annoying in the City of Thunder Bay and in the Neys Provincial Park-Marathon area.

Numbers of the eastern pine shoot borer, *Eucosma gloriola* Heinrich, declined generally in southwestern Ontario in 1972, but the pest caused appreciable damage to red pine at one location in each of the Pembroke and Parry Sound districts.

Reduced levels of defoliation by the larch sawfly, *Pristiphora erichsonii* Htg., were noted throughout Ontario with a maximum of moderate intensity on tamarack in parts of the Pembroke District and in European larch plantations across southern Ontario.

The aspen blotch miner, *Lithocolletis ontario* Free., which causes browning of the foliage of aspen regeneration was common in virtually all districts of northern Ontario.

TREE DISEASES

Scleroderris Canker, *Scleroderris lagerbergii* Gremmen

Surveys of Scleroderris in 1972 were aimed at a two-phase objective:

- (a) The continued definition of the provincial distribution of the disease with an intensification of surveys on forest nurseries and immediately adjacent stands.
- (b) The location and delineation of areas wherein infections were abundant, so-called "hot spots".

Considerable effort was spent on this important disease and the following results were obtained:

- (a) *S. lagerbergii* was collected in 11 townships or comparable areas where the disease had not previously been recorded, but these records represented no major change in the distribution previously determined by the Forest Insect and Disease Survey. The disease is concentrated mainly in northeastern Ontario, especially in a 100-mile-wide band east of Lake Nipigon and Lake Superior through the Geraldton, White River and Sault Ste. Marie districts, and in the Timmins-Iroquois Falls-Englehart area. The disease is also known to be scattered northwest of Thunder Bay as far north as the 52nd parallel of latitude and in southern Ontario between Lake Nipissing and the St. Lawrence River. At several locations within the last named area, disease symptoms could not be found in 1972 in plantations where the disease was previously reported.
- (b) Thirty-nine areas have been designated as *Scleroderris* hot spots, varying in size from a few acres to several thousands of acres. Most of these have been clearly delimited whereas others, because of their size and inaccessibility, remain to be more clearly defined.

Information received recently from the Plant Research Institute of the Canada Department of Agriculture would indicate that, to comply with international rules of binomial nomenclature, the causal organism should be correctly named *Gremmeniella abietina* (Lagerberg) Morelet. Despite the inevitable change, the widely used common name Scleroderris canker will undoubtedly persist.

Rhizina Root Rot, *Rhizina undulata* Fr. ex Fr.

This disease, a serious problem of young plantations in Europe, was previously recorded in Ontario in the following districts: Kemptville, Lake Simcoe, Lindsay, Kenora and Sioux Lookout. Sporophores were present on the ground in late September at two widely separated sites in the Thunder Bay District that had been burned over in the spring of 1972, namely, along Highway 17 in Trewartha Township between Upsala and English River and at Allard Lake north of the Ogoki Reserve.

Fomes Root Rot, *Fomes annosus* (Fr.) Cke.

New records of this disease were established in southern Ontario. In the Lake Huron District, the organism was found infecting jack pine in the Sandy Hill Tract, Woolwich Township. In the Lake Simcoe District, the disease was found on red pine in the Uxbridge Forest Headquarters Tract and within the same immediate area a sporophore was found on a dead large-tooth aspen tree. *Fomes annosus* was also cultured from red pine in the Dufferin County Forest Headquarters Tract and from jack pine in the Hendrie Forest in Vespra Township.

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

Blister rust damage was most noticeable in northwestern Ontario, especially in parts of the Fort Frances District and in the Lake of the Woods area of the Kenora District. The rust was also reported as a persistent problem of white pine in parts of the Geraldton, Sault Ste. Marie, Pembroke, Tweed and Lindsay districts.

Singleton Mortality of Balsam Fir

A condition that has become known among Survey personnel in Ontario as "singleton mortality" is characterized by balsam fir trees dying singly. This problem had been prevalent in parts of northern Ontario in the late 1950's and early 1960's, but subsequently and until recent years the rate of mortality had declined appreciably. In 1972, quantitative aerial surveys of recently dead fir were resumed in the Geraldton District and initiated in the Sault Ste. Marie and North Bay districts to provide

preliminary determinations of mortality rates for the purpose of comparison with other years and other regions. Three strip surveys in the Geraldton District covering over 1,600 acres indicated an average of 15 brick-red-colored fir trees per 100 acres observed. These trees were assumed to have died in 1972. The maximum number counted was 29. Moreover, this rate of mortality was considered to prevail generally among dominant and codominant fir trees over roughly half of the Geraldton District in 1972. Similar counts at nine locations in the northern part of the Blind River Division, Sault Ste. Marie District, averaged 11, with a maximum of 25 dead trees, but at four locations in the Temagami Division of the North Bay District counts averaged only 0.6 per 100 acres observed.

Butt Rot of Conifers, *Polyporus tomentosus* Fr.

Polyporus tomentosus was found to be the most common and widely distributed cause of stand openings in white and black spruce stands across Ontario and to be a damaging root rot of balsam fir in some areas. One of the largest affected areas found in 1972--almost 10 miles long--was located along Highway 17 in Kincaid Township north of Sault Ste. Marie. Approximately 45 per cent of the white spruce growing within this area showed symptoms of the disease. A characteristic sporophore is illustrated on page 1.

Other Noteworthy Diseases

A high incidence of shoot blight, *Phomopsis juniperavora* Hohn., was reported on juniper in the townships of Marysburgh and Hallowell in Prince Edward County, Tweed District. All of the red juniper in a 15-acre site were heavily infected. The disease proved troublesome on all species of juniper in a private nursery in Manvers Township in the Lindsay District.

White-pine needle blight caused conspicuous browning of current needles in parts of Ontario, York, Dufferin, and Simcoe counties in the Lake Simcoe District, in the Georgian Bay area of the Parry Sound District, and on scattered individual trees in the Pembroke District.

Ink-spot disease of aspen, *Ciborinia whetzellii* (Seaver) Seaver, was for the second consecutive year of little consequence over most of Ontario. Moderate infection levels did occur east of Caramat in the Geraldton District and in Buchanan Township in the Pembroke District.

Moderate and high infections of *Chrysomyxa ledi* (Alb. & Schw.)
and *Chrysomyxa ledicola* Lagh. occurred on white and black spruce
at several widely separated locations in the Cochrane and Kapuskasing
districts.

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