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FORESTRY BULLETIN

August-September, 1973

FOREST INSECT AND DISEASE CONDITIONS IN ONTARIO

Before and after photos of Scleroderris sanitation trials at Massey, Ontario being carried out by the Ontario Ministry of Natural Resources following technical advice being provided by the Forest Insect and Disease Survey Unit.

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This is the third and final bulletin issued during the 1973 field season describing forest insect and disease conditions in Ontario. It is based on insect and disease surveys carried out during late summer and early fall.

FOREST INSECTS

Spruce budworm, *Choristoneura fumiferana* (Clem.)

Spruce budworm egg-mass surveys were carried out during August and September. Over 500 locations were sampled, egg masses counted and forecasts for 1974 prepared. The following summarizes the 1973 level of egg-mass numbers compared with that of 1972 and outlines our infestation forecasts for southern, northeastern and northwestern Ontario in 1974. More detailed information will appear later in a separate information report.

Southern Ontario

Egg-mass numbers increased to record highs for the current outbreak. The most outstanding increase was recorded in the Pembroke-eastern Algonquin Park area where counts in 1973 were almost five times the 1972 average. For example, samples from Algonquin Provincial Park averaged in excess of 1,300 egg masses per 100 square feet of foliage and indicated that there would be severe damage to balsam fir and white spruce in 1974.

It is expected that all areas showing damage in 1973 will again experience moderate or severe defoliation in 1974 and that many susceptible stands on the periphery of the major infestations will show evidence of defoliation as well. The incidence of mortality and top kill should intensify if the unusually high larval populations survive. There will likely be widespread low populations of budworm between Algonquin Park and Georgian Bay, an area that has been free of appreciable damage during the current outbreak.

Northeastern Ontario

Egg-mass numbers in 1973 have doubled those of 1972 throughout northeastern Ontario and have returned to virtually the same record levels of 1971.

As indicated by this increase, moderate or severe defoliation of host trees should occur next year throughout the area infested in 1973. Furthermore, much of the area north and east of Chapleau that was not defoliated in 1973 because of heavy larval mortality caused by frost in 1972 has been reinfested. No significant spread of the main infestation to the northwest is expected, however.

Northwestern Ontario

It is anticipated that defoliation in 1974 will be confined to an area of less than 20,000 acres in the south-central portion of Quetico Provincial

Park. Some of this defoliation will result from small localized infestations remaining within the area sprayed in 1973, namely in the vicinity of Poohbah Lake, Tanner Lake and along the Maligne River west of Tanner Lake. Further south along the international boundary, scattered pockets of moderate-to-severe infestations are expected at Crooked, Robinson, and Basswood (east end) lakes.

Elsewhere in northwestern Ontario, budworm populations continue to remain at extremely low levels.

Birch skeletonizer, *Bucculatrix canadensisella* Cham.

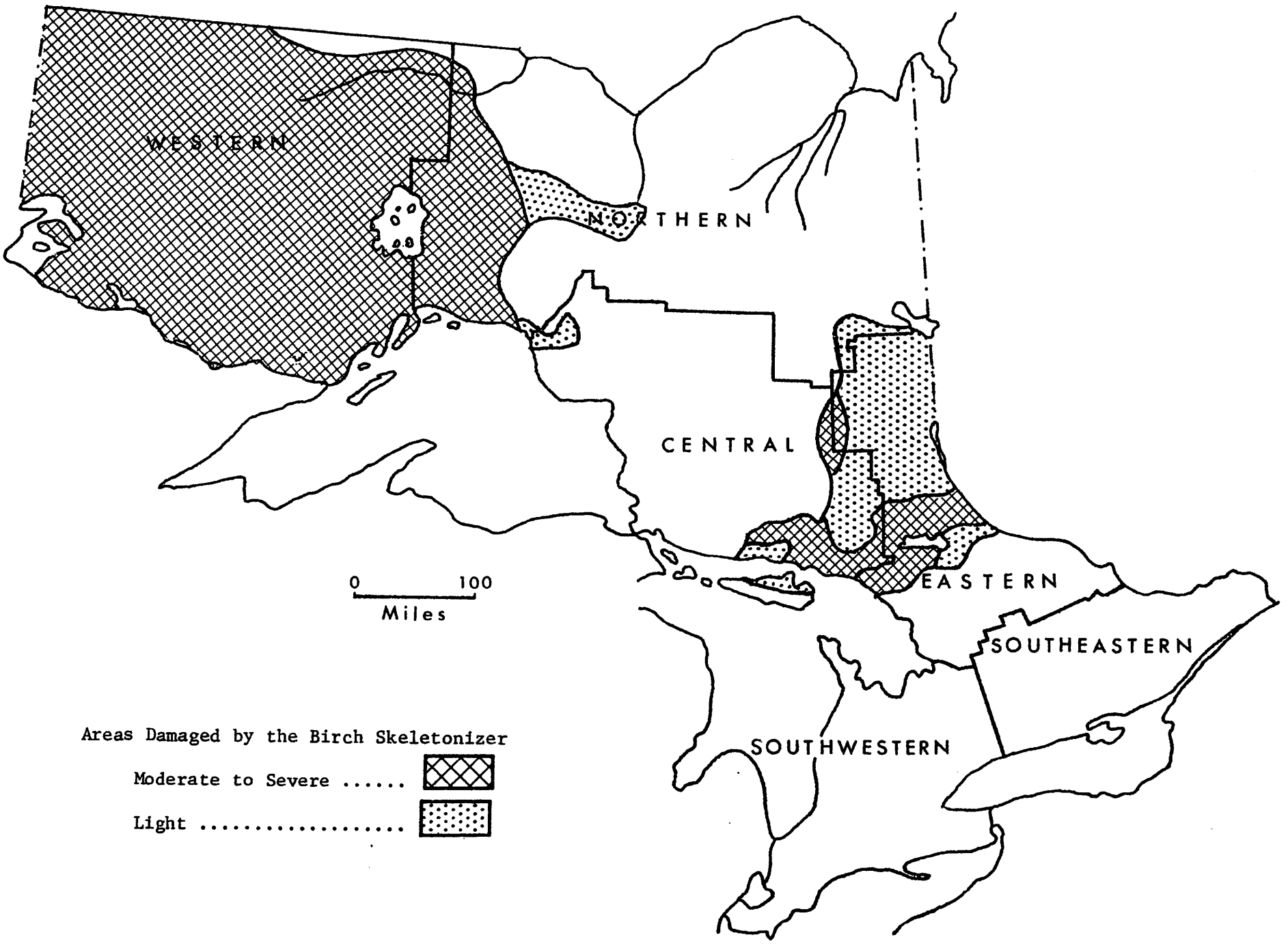
For the fourth consecutive year, white birch foliage was severely skeletonized throughout northwestern Ontario from the Manitoba border northward beyond the Albany River and eastward to Long Lac and Little Pic River (see accompanying map). Birch was also heavily damaged in a band across the central part of the Eastern Region from Temiskaming and Mattawa on the Ontario-Quebec border to Georgian Bay. Although the boundaries of the different degrees of infestation are clear and virtually unchanged from 1972, populations varied considerably from stand to stand. Between these two large infestations, and in southern Ontario, there were scattered pockets of noticeable browning of birch foliage. White birch trees that came under severe attack during late summer had lost all their foliage by early September. Although these trees can be expected to refoliate in the spring of 1974, trees growing in areas severely infested for several years show signs of deterioration in the form of dead branch tips on young trees and dead tops on more mature trees.

Green-striped mapleworm, *Anisota rubicunda* Fabr.

Severe defoliation of red maple stands continued at three locations in the Eastern Region. The most severe damage was located in Merrick Township north of North Bay where three years of severe defoliation have resulted in the death of many trees and serious deterioration of many more. Severe defoliation recurred southeast of McConnell Lake west of Temiskaming, P.Q. and in parts of Dana and McWilliams townships northwest of Sturgeon Falls. Smaller pockets of moderate-to-severe defoliation were recorded in six other townships in the southern part of the Region. In the Central Region, the infestation expanded east of Killarney Provincial Park and caused severe defoliation of maple over approximately 40 square miles, and a small area of forest on Cockburn Island showed defoliation.

Forest tent caterpillar, *Malacosoma disstria* Hbn.

Incipient infestations in the Western, Northern, Central and Eastern regions described in the August Bulletin were all sampled late in the summer or early fall for the number of overwintering eggs. Results generally supported our earlier forecast that the stage is set for a widespread eruption of the forest tent caterpillar in northern Ontario over the next few years.


WESTERN
NORTHERN
CENTRAL
EASTERN
SOUTHEASTERN
SOUTHWESTERN
0
100
Miles
Areas Damaged by the Birch Skeletonizer
Moderate to Severe .....
Light .....

Despite the large proportion of positive samples and increases in egg numbers over the fall of 1972, population extremes were rare. Thus our impressions are that although infestations are continuing to build up and enlarge somewhat, major extensions of damage boundaries are not anticipated in 1974. One exception, perhaps, is in the Bigwood Township area along the French River south of Sudbury where egg-band numbers reached 130 (roughly 20,000 eggs) per tree.

Orange-striped oakworm, *Anisota finlaysoni* Riotte

Oak trees were defoliated in parts of southwestern Ontario, particularly in the southern parts of Halton and Wentworth counties and in the northern part of the Niagara Peninsula. Elsewhere, light and moderate defoliation was scattered. In the Southeastern Region, populations declined from 1972 levels although pockets of moderate-to-heavy defoliation were noted near Napanee and Kingston.

Mountain-ash sawfly, *Pristiphora geniculata* (Htg.)

This insect again appeared as a pest of mountain ash in the city of Thunder Bay and surrounding areas. Defoliation was evidenced at many locations through the Northern and Eastern regions, and in the Central Region around Shining Tree, in Lake Superior Provincial Park and in the city of Sault Ste. Marie.

Swaine jack-pine sawfly, *Neodiprion swainei* Midd.

High populations of this sawfly were again present in the Temagami-Lady Evelyn lakes area of the Eastern Region. Some jack-pine stands, particularly along lakeshores and on islands in the Temagami area, were severely defoliated.

Fall webworm, *Hyphantria cunea* Dru.

Reports of unsightly webbing and late summer defoliation by this pest originated from many districts. Extremely heavy infestations in the Eastern Region stripped ash trees of foliage at Beaucage Point on Lake Nipissing and trees were virtually covered with webbing at many points from Golden Lake southwest of Pembroke east to the Ottawa River. An increase was noted in the number of "tents" across southern Ontario during August and September with moderate-to-heavy defoliation of a wide variety of host trees at many locations. Infestations were also reported on islands in Lake of the Woods in northwestern Ontario.

Larch sawfly, *Pristiphora erichsonii* Htg.

Despite fairly high counts of oviposition sites (curled shoots), particularly in northwestern Ontario, larval populations generally were low. Reports of heavy defoliation were confined to the Onaman Lake area northwest of Geraldton, to the Rolphton-Petawawa-Pembroke-Golden Lake area, to six townships around Lake Simcoe and in Charlotteville Township south of the town of Simcoe.

Attempts were unsuccessful in both 1972 and 1973 to recover *Olesicampe benefactor* Hinz, an introduced parasite of the sawfly known to occur in extreme northwestern Ontario. Areas emphasized were east of Ignace, the most easterly point to which the parasite is known to have spread since its release at Pine Falls, Manitoba in 1965.

Red-headed pine sawfly, *Neodiprion lecontei* (Fitch)

In the Eastern Region, high populations of this sawfly persisted in the area immediately surrounding North Bay. In the Central Region numbers declined with defoliation of hard pines confined almost exclusively to Cockburn Island. In southwestern Ontario a single light area of defoliation occurred east of Orillia.

The only location where numbers increased was in the central portion of the Southeastern Region where red pine was moderately defoliated in Verulam, Somerville, Glamorgan, Kennebec and Oso townships.

Introduced pine sawfly, *Diprion similis* (Htg.)

Scattered light populations were reported immediately east of Fort Frances, where this introduced pest was first found in northern Ontario, and southeast of Bracebridge in the Eastern Region. Numbers of this insect on pine were generally low in southern Ontario.

Cone beetles, *Conophthorus coniperda* (Sz.) and *C. resinosae* Hopk.

Damage to the shoots of red and white pine occurred between North Bay and Temagami, and of red pine at the Petawawa Forest Experiment Station and near Barry's Bay, all in the Eastern Region. In the Southeastern Region damage to cones by *C. coniperda* was particularly heavy in Durham and Northumberland County forests.

Eastern pine shoot borer, *Eucosma gloriola* Heinr.

Light populations of this shoot borer were reported on jack pine in the Thunder Bay and Chapleau areas, and in southwestern Ontario where populations continued to decline.

White pine weevil, *Pissodes strobi* (Peck)

Despite some declines in weevil intensity, the incidence of leader injury was again severe in many plantations and natural stands across the Province. Infested leaders were common on open-grown jack pine and spruces throughout the Western and Northern regions. In central Ontario, weeviling incidence as high as 34% was recorded in Wells and Parkinson townships northwest of Blind River. Elsewhere in this Region, fewer leaders of white pine were damaged than in 1972, whereas infestations in stands of jack pine intensified with proportions of trees with dead leaders ranging upwards of 22%. Counts increased in the Eastern Region with several approaching the maximum value of 17% in the northern half and 40% in the southern half. In southwestern Ontario, damage to white pine was again high in the Orr Lake Forest and at other scattered locations in Simcoe County. Severe weevil damage continued in the general area of Arnprior, Perth and Kemptville and the problem worsened in the northern part of Hastings County.

Poplar blotch miners, *Lithocolletis* spp.

Heavy damage to trembling aspen foliage by *Lithocolletis ontario* Free. occurred from Lac Seul and Sturgeon Lake south to Highway 17 in the Western Region, as well as in the Northern Region between Hearst and the Pagwa River, along the Chain of Lakes Road and east of Kapuskasing. Foliage also turned an unsightly brown at places in central Ontario, namely near Chapleau, Sault Ste. Marie, Thessalon and in the Temagami-North Bay area.

Lithocolletis nipigon Free. caused similar damage to balsam poplar foliage in Kakabeka Provincial Park and in the town of Nipigon in the Western Region as well as northwest of Hearst and near Kapuskasing in the Northern Region.

The birch leaf miner, *Fenusa pusilla* (Lep.)

Damage by the birch leaf miner was commonplace in 1973. Some of the instances of severe browning of foliage were located as follows: in the five easternmost counties of Ontario, in the Bancroft area, around Angus and Camp Borden, in the Village of Missanabie and north of Sault Ste. Marie. This pest showed marked increases in its numbers southwest of Thunder Bay and on shade trees in the city of Thunder Bay. It is known to occur throughout Ontario except for most of the Western Region. Other birch leaf miners of lesser importance than *F. pusilla* in 1973 were the amber marked birch leaf miner, *Profenusa thomsoni* (Konow), and two leaf-mining sawflies *Heterarthrus nemoratus* (Fall.) and *Messa nana* Klug.

TREE DISEASES

Scleroderris canker, *Gremmeniella abietina* (Lagerb.) Morelet

Progress can be reported in the sanitation trials being carried out by the Ontario Ministry of Natural Resources in three red pine plantations in northern Ontario. Work is completed in Bastedo Township near Sturgeon Falls, pruning is more than half completed in Salter Township near Massey (see cover) and sanitation pruning was begun at Neys Provincial Park west of Marathon.

Needle rusts of spruce, *Chrysomyxa ledi* (Alb. & Schw.) D By. and *Chrysomyxa ledicola* Lagh.

These rusts were found commonly on spruces in the Northern and Central regions of Ontario with infection levels generally light to moderate. Elsewhere infection was light or trace, thus indicating somewhat unfavorable conditions for rust development in 1973.

Sweetfern blister rust, *Cronartium comptoniae* Arth.

In northeastern Ontario, evaluations made in 1973 showed levels of infection and incidence in the light and moderate categories, as in the past, but between Rainy Lake and Atikokan in northwestern Ontario infection ranged upwards to heavy.

Armillaria root rot, *Armillaria mellea* (Vahl ex Fr.) Kummer

Rhizomorphs and mycelial fans of *A. mellea* were found among the roots and beneath the bark of recently dead trees that comprised up to 3% of jack pine regeneration in parts of the Caramat, Humboldt Bay and McKay Lake areas near Geraldton. Similar observations were made on small red pine trees where up to 30% were found to be dead in individual plantations in Clarke and Hope townships (Durham County) and in plantations in the southeastern part of the Central Region.

Valsa canker of spruce, *Valsa* (*kunzei* Fr.)

In southwestern Ontario infections continued on white spruce trees in a mixed plantation near Barrie where 33% of the trees were infected and 5% mortality occurred in 1973. A new light infection was discovered in a semimature stand north of Aurora where incidence was 5%.

A foliage disease on balsam poplar, *Septoria populi* Desm.

Heavy infection levels of this disease caused a premature dropping of the foliage in the townships of Clarke, Cavan, Cardiff and Lutterworth in southeastern Ontario. This same condition was found at several locations in the southeastern part of the Central Region, especially on Manitoulin Island.

Ink spot of aspen, *Ciborinia whetzelii* (Seaver) Seaver

In addition to the information provided in the August Bulletin, pockets of moderate-to-heavy infection were recorded at scattered locations around Thunder Bay.

Cytospora canker, *Cytospora chrysosperma* Pers. ex Fr.

Damage to the crowns of weeping willow was conspicuous in Ontario in 1973. Owing to the popularity of this tree species as an ornamental, numerous inquiries were received from property owners.

Fomes root rot, *Fomes annosus* (Fr.) Karst.

Both the Forest Insect and Disease Survey and the Ontario Ministry of Natural Resources recorded new finds of Fomes root rot in southern Ontario. All new infection centres were located within the limits of previously established boundaries of infection.

Mortality of balsam fir

The death of individual balsam fir trees has been occurring sporadically throughout northern Ontario for many years. The cause of this mortality is not known. Areas of particular note that were reported in 1973 were located east of Longlac, and between Marathon and Terrace Bay in the Northern Survey Region and north of Elliott Lake in the Central Survey Region. In the former region the incidence of death was similar to that of 1972 but in the central Region counts made during aerial surveys were generally at least double those of 1972, as shown by the following examples:

Location	Approximate stand size	No. dead, 1972	No. dead, 1973
Rotter L.	160 acres	15	50+
Little Moon L.	40 acres	10	22
Christman L.	80 acres	4	12

Wind damage

Severe wind storms were common in 1973. Besides the extensive blow-down in northwestern Ontario reported in the August Bulletin, a storm on September 5 caused light damage over a large section of the Northern Survey Region from Klotz Lake on Highway 11 eastward to Hearst and as far south as White River. Another storm on August 23 in the Central Region dropped virtually all merchantable trees in a strip 1/4 - 1 mile wide through the intervening townships between Paudash and Rhodes townships north of Sudbury, a distance of roughly 36 miles.

Hail damage

On July 7, a severe hail storm damaged white spruce, black spruce and jack pine seedlings in a compartment of the Dryden Provincial Nursery. By late summer, almost one third of the seedlings showed dead tops.

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