

Forest Health Conditions in Ontario 2024

Ministry of Natural Resources



Forest Health Conditions in Ontario 2024

Compiled by Ontario Ministry of Natural Resources, Science and Research Branch.

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For more information about forest health monitoring in Ontario visit <u>ontario.ca/page/forest-health-conditions</u>.

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Sommaire : Bilan de santé des forêts 2024

En 2024, les températures ont été près ou au-dessus de la moyenne sur 30 ans.

Le printemps et l'été ont été plus humides que d'habitude dans les régions du Nord-Ouest et du Sud, respectivement.

Des températures plus chaudes que la moyenne et des chutes de neige et de pluie inférieures à la moyenne ont été enregistrées de janvier à mars. Cette tendance s'est poursuivie jusqu'au printemps 2024. Parmi les événements météorologiques dignes de mention, mentionnons :

- les épisodes de fortes pluies au printemps et en été;
- les épisodes de gel rapide et de chaleur extrême en hiver et en été, respectivement;
- les tornades dans la région du Sud.

Pour la première fois, les techniciens ont utilisé l'outil QuickCapture de l'ESRI pour consigner leurs observations sur la santé des forêts pendant qu'ils se trouvaient sur le terrain en préparation des relevés aériens.

Cette année, la disponibilité limitée des aéronefs et celle des pilotes pour les relevés aériens ont représenté des défis pour la surveillance.

Principaux ravageurs et principales zones où des feuilles d'arbres ou des aiguilles ont été mangées :

- la population de tordeuses de bourgeons du pin gris a continué à diminuer dans le nord
- la population de <u>tordeuses de bourgeons de l'épinette</u> a diminué, la zone touchée se trouvant dans le Nord-Est, le Nord-Ouest et le Sud; les relevés de prévisions de l'automne prédisent que la diminution se poursuivra
- la population de livrées des forêts a diminué dans le nord après trois années consécutives d'augmentation
- le nombre et la taille des zones affectées par la <u>spongieuse</u> ainsi que la sévérité des dommages causés ont diminué

Une superficie beaucoup moins importante qu'en 2023, soit un peu plus de 1 600 hectares d'arbres abattus par le vent, a été enregistrée.

Nous avons continué de documenter la présence de la <u>maladie corticale du hêtre</u>, causée par la combinaison d'un insecte envahissant (la cochenille du hêtre) et d'un champignon envahissant le tronc, dans toute la région du Sud.

La maladie de la feuille du hêtre a été signalée dans de nouvelles zones, mais dans des districts où elle avait déjà été signalée.



La présence d'agrile du frêne a été détectée dans de nouveaux endroits de la zone de quarantaine :

- Districts de Peterborough-Bancroft et de Minden-Parry Sound dans la région du Sud
- Districts de Sudbury, de Sault Ste. Marie et de Blind River dans la région du Nord-Est

On a confirmé la présence du <u>puceron lanigère de la pruche</u> dans trois nouveaux emplacements à l'extérieur des zones réglementées du district d'Aylmer-Guelph dans la région du Sud.

Pour la première fois en Ontario, une défoliation notable par la tenthrède en zigzag de l'orme a été confirmée.

Aucun cas nouveau de <u>flétrissement du chêne</u> n'a été détecté.

Introduction

Forest health monitoring in Ontario is conducted by the Ontario Ministry of Natural Resources (MNR).

The annual forest health monitoring program has five components:

- Aerial mapping of major forest disturbances to quantify the extent and severity (e.g., insect outbreaks, weather events, decline, and disease damage)
- Biomonitoring through the collection of insect and disease samples to track occurrence, changes in range or host species attacked, or changes in abundance
- Surveying for pests of interests, particularly invasive species or pests affecting high value trees such as plantations or seed orchards
- Conducting or supporting research in forest entomology, pathology, or weather effects
- Establishing and surveying temporary and permanent sample plots to monitor health of select forest ecosystems

Forest health monitoring in Ontario includes documenting the occurrence of biotic (e.g., insects, disease) and abiotic (e.g., snow and drought damage) disturbances and events. All forested area in the province, regardless of ownership, is monitored and reported on each year.

In 2024, insect diagnostics were executed through a partnership among MNR, the Canadian Forest Service (CFS), and the Invasive Species Centre (ISC). Samples collected by forest health monitoring program staff were identified by ISC staff. The CFS provided laboratory space and access to its historical insect reference collection. Disease samples were identified at the MNR's Ontario Forest Research Institute (OFRI). Results of the insect and disease collections were entered into a national database managed by CFS.

Maps, tables, and graphs were produced from aerial surveys of major forest disturbances. Several constraints affected the 2024 aerial survey results including limited aircraft and pilot availability. Targeted flights for previously identified pests and widened space between flight lines were required. Results from the annual monitoring program were reported provincially at the Forest Health Review in Barrie and as part of the MNR's Science Insights seminar series, and nationally at the Forest Pest Management Forum in Ottawa and are described in more detail in this report.



Weather patterns

Weather affects the growth, phenology (timing of life cycle stages and host development), dispersal, and survival of forest insects. Forest pathogens, especially leaf diseases and needle cast fungi, can be common during wet or humid periods. Also, extreme weather events such as drought, snowfall, flooding, tornadoes, microbursts, frost, freezing, scorch, and rapid temperature fluctuations can affect tree health, causing foliage or twig death, or tree decline and mortality.

Following the trend from December 2023, the mean monthly temperatures across the province were above normal (based on a 30-year average) for the entire winter. In January, snowfall totals across the province were also below normal. In February, as with the rest of the winter, cold spells were rare and brief, and precipitation was below normal. Snow depths at the end of the month were below normal, especially in the south. In late February, a snowstorm in northwestern Ontario and a thunderstorm with hail in southern Ontario occurred. A flash freeze event was recorded in northeastern, central, and eastern Ontario when temperatures dropped dramatically, such as in Ottawa where it went from 16 degrees Celsius to -13 degrees Celsius in 8 hours. In March, locations in the southwest had daily maximum temperatures above 20 degrees Celsius in the first two weeks of the month. Also, most of the province received near normal precipitation amounts for March. Some central portions of the north had precipitation amounts exceeding 200% of the normal. Snowfall totals continued to below normal for southern Ontario.

The warmer than average temperatures in the province continued throughout the spring and by April, most of the province was snow free, except for sections of northwestern Ontario. Storms in early and mid April, that affected both southern and northeastern Ontario, had strong wind gusts (up to 90 km/h) and the later storm resulted in flooding across the region. In May, northwestern Ontario had above normal precipitation which provided relief to drought conditions. Most of northeastern Ontario had a drier than normal May, with less than half the normal precipitation amounts between Sault Ste Marie and Sudbury. Later in May, a storm with strong thunderstorms, winds, and hail moved across central Ontario to the Upper Ottawa Valley.

Summer temperatures were closer to normal mean temperatures in the province. However, fluctuations occurred in June when an extreme heat event with temperatures exceeding mid-30s degrees Celsius with the humidex up to the mid-40s degrees Celsius occurred. After this heatwave, widespread thunderstorms were seen across southwestern to northeastern Ontario which included small hail and flooding rains. In July, most of northern Ontario had below normal precipitation amounts, down to 32% of the normal in Timmins. Most of the south had slightly above normal precipitation, except for a band from Sarnia to the GTA and up to Georgian Bay, which were higher than normal, with up to 291% of the normal precipitation around Toronto Airport. In mid-July, intense rain with 50–60 mm falling in 2–4 hours and a total of 96 mm was recorded over two days. Later in July, widespread thunderstorms occurred in southern Ontario with a tornado reported south of Perth and flooding in Toronto with 25 mm of rain falling in 20 minutes. In August, mean precipitation levels varied across Ontario, with dry conditions

in the north, while some areas in southern Ontario received higher than normal precipitation levels. On August 5, three tornados (two EF-1 and one EFO) were reported in southeastern Niagara. Trees were uprooted, knocked over, or had branches sheared off. Also, in early August, a widespread significant rainfall (80–120 mm) event was reported in the Ottawa area. In mid-August, an EF-1 tornado was reported south of Kitchener with damage also reported in Ayr.

In September, mean temperatures returned to above normal values, and this trend continued to the end of 2024. In September, the warm period lasted consistently for several weeks, the longest warm spell in months. The summer was wet in southern Ontario, but the province was drier than normal throughout September. In mid-month, many locations had a two-week period without any measurable precipitation. In October, much of the province was drier than normal. The driest areas of the province were from London to Ottawa, around Georgian Bay, and northwestern Ontario with these areas only receiving 30–50% of the monthly normal total. For many locations, the total precipitation, relative to normal monthly amounts, was one of the lowest in several years. As of November, monthly precipitation values were near normal for most of the province. At the end of the month, snow squalls were reported east of the Great Lakes, some areas with snow accumulation over 100 cm. In December, precipitation totals were near normal in most of the province. At the end of the month, significant rain was reported in southern and northeastern Ontario. Snowfall was slightly below normal for most of the province, with locally higher amounts in traditional lake snow areas.

Weather data was summarized from Ontario's Monthly Weather Review produced by the Government of Canada.

Extreme weather and abiotic events

In 2024, 480 forest fires were recorded in Ontario, a decrease from 741 in 2023 as reported by MNR's Aviation, Forest Fire and Emergency Services. A sharp decline in area burned was also observed with only 86,657 ha burned in 2024 compared to 429,771 ha in 2023 and less than half of Ontario's 10-year average of 199,954 ha of forest burned. The largest fire was RED014 at 18,704.7 ha, which was over three times smaller than the largest fire in 2023 (SLK033 at 62,378 ha).

In 2024, 1,643 ha of blowdown were recorded, a decrease from 4,331 ha in 2023. Most of the recorded blowdown was in Northwest Region. The Northern Tornados Project documented 60 tornados and 46 other events, including microbursts.

Insect infestations

For the second consecutive year, spruce budworm defoliation decreased in the province. The area of moderate to severe defoliation declined from 1,983,041 ha in 2023 to 1,542,016 ha in 2024. Most (1,339,581 ha) of this defoliation was in Northeast Region, with the majority (512,238 ha) in Hearst Cochrane Kapuskasing District. In Northwest Region, 115, 818 ha of moderate to severe defoliation were mapped, with most of it in Dryden Fort Frances Atikokan District (75,183 ha). In Southern Region, 86,617 ha of moderate to severe defoliation were mapped, with most of it in Pembroke District (65,634 ha). Some light spruce budworm defoliation (8,104 ha) was also mapped in Northwest and Southern regions. Spruce budworm mortality (37,653 ha) was also mapped in all six Northeast Region districts and a small amount (67 ha) in Dryden Fort Frances Atikokan District, Northwest Region.

In the fall, spruce budworm L2 defoliation surveys were undertaken to forecast defoliation levels based on the number of overwintering larvae on tree branches. Across all three regions, 71 locations were sampled. In Northeast Region, the defoliation forecast was moderate for three locations and light for thirty-nine locations. In Northwest Region, the defoliation forecast was moderate for eight locations and light for eighteen locations. In Southern Region, the defoliation forecast results were moderate for one location and light for two locations. No locations sampled in 2024 had severe defoliation forecasts for 2025.

For the fourth consecutive year, moderate to severe defoliation by jack pine budworm decreased in the province, dropping from 45,294 ha in 2023 to 26,136 ha in 2024. Most of the moderate to severe jack pine budworm defoliation were recorded in Northwest Region, primarily in Red Lake Sioux Lookout and Kenora districts (17,814 ha combined), with defoliation also mapped in Chapleau Wawa District (6,403 ha) in Northeast Region. Light jack pine budworm defoliation (3,047 ha) was also mapped in only Kenora District in Northwest Region. Jack pine tree mortality (2,871 ha), caused by consecutive years of moderate to severe defoliation, was mapped in Northwest Region in Kenora, Dryden Fort Frances Atikokan, and Red Lake Sioux Lookout districts.

In the fall, jack pine budworm L2 defoliation forecast surveys were undertaken in Chapleau Wawa District. Forecast defoliation is based on the number of overwintering jack pine budworm larvae on collected tree branches. Five locations were surveyed with light defoliation forecast for all. The highest average number of larvae per branch was six.

After three consecutive years of increase, moderate to severe forest tent caterpillar defoliation decreased from 407,188 ha in 2023 to 332,894 ha in 2024. Most of this defoliation was in Northeast Region (304,377 ha). Much of the decrease was in Northwest Region with 89,032 ha mapped in 2023 to 28,405 ha in 2024. Over half the moderate to severe forest tent caterpillar defoliation (175,710 ha) was mapped in Timmins Kirkland Lake District. Some light defoliation (3,489 ha) was also mapped in Northeast and Northwest regions.

Several other insects caused localized defoliation or damage in various parts of Ontario. These occurrences did not develop into provincially significant areas of defoliation but do contribute to overall effects on forest health.

Forest pathogen summary

Most tree pathogens do not cause symptoms over areas large enough to be mapped, except when the damage is notable. In 2024, both moderate to severe brown spot needle blight defoliation (83 ha) and light brown spot needle blight defoliation (218 ha) were mapped in Aurora Midhurst Owen Sound and Sault Ste. Marie Blind River districts. No other disease was mappable.

Invasive species summary

Beech leaf disease was first reported in Ohio in 2012 and in 2017, symptoms were confirmed in Aylmer District. Since then, beech leaf disease has also been confirmed in Aylmer Guelph, Aurora Midhurst Owen Sound, and Peterborough Bancroft districts. In 2024, beech leaf disease was reported in new areas in districts where beech leaf disease was previously reported.

Emerald ash borer is an invasive insect regulated by the Canadian Food Inspection Agency (CFIA). As of June 30, 2016, the area regulated to control emerald ash borer in Ontario includes Southern Region and the southern part of Northeast Region, south of Montreal River at the northern end of Sault Ste. Marie Blind River District. The City of Thunder Bay in Northwest Region is also regulated for this borer. In 2024, 338 ha of ash decline caused by emerald ash borer were aerially mapped in Northeast Region in Sault Ste Marie Blind River and Sudbury districts, all within the quarantined area. During ground surveys, new occurrences and further mortality were observed in the quarantined area in Peterborough Bancroft and Minden Parry Sound districts in Southern Region and Sudbury and Sault Ste. Marie Blind River districts in Northeast Region.

After being mapped for two consecutive years in Thunder Bay Ignace District, moderate to severe satin moth defoliation increased from 4,766 ha mapped in 2023 to 8,247 ha in 2024.

In 2024, spongy moth defoliation continued to decline in area and severity with 495 ha of light defoliation mapped in Aylmer Guelph District compared to 2,529 ha of moderate to severe defoliation in 2023. Light and trace defoliation was also reported in Pembroke and Kemptville Kingston districts.

In June 2023, the CFIA confirmed the first detections of oak wilt in Canada in the City of Niagara Falls, Springwater Twp, and the town of Niagara-on-the-Lake in southern Ontario. No new occurrences of oak wilt were confirmed in 2024.

Initial infestations of hemlock woolly adelgid were in Etobicoke in 2012 and Niagara Gorge in 2013. However, since 2019 detections by the CFIA during surveys in Niagara Gorge and near Wainfleet, new positive locations have been added to the list almost annually. In 2024, three new locations with hemlock woolly adelgid, outside the regulated



areas, were confirmed by the CFIA in Port Colborne, Thorold, and Pelham, in Aylmer Guelph District.

New occurrences of beech bark disease were observed in Southern Region in Aylmer Guelph, Peterborough Bancroft, and Pembroke districts.

The CFIA confirmed elm zigzag sawfly presence in Quebec in 2020, the first confirmed record of the pest in North America. In 2024, locations of elm zigzag sawfly defoliation were reported in Aylmer Guelph, Aurora Midhurst Owen Sound, Peterborough Bancroft, and Kemptville Kingston districts.

Forest health QuickCapture summary

In addition to collections and surveys conducted by the Forest Health Program, 2024 was the first year the ESRI QuickCapture application was used to record forest health observations by technicians. This tool was adopted to make note of occurrences on the landscape while completing general surveys and in preparation for aerial surveys. Over 900 individual records were collected with over 90 unique identifications, including insects, diseases, and abiotic factors. Spruce budworm was the most common with 349 records.

Pest index — Major forest disturbances

Major forest disturbances occur when an insect, disease, or weather event affects a very large area, is not specific to a region, or has affected more than one region in the past. These disturbances, listed below, are considered of provincial significance.

| Common name | Scientific name | Туре | Page |
|--------------------------|--|---------|------|
| Beech bark disease | <i>Neonectria faginata</i> (Lohman, Watson & Ayers) Castl. & Rossman <i>, Neonectria ditissima</i> (Tul. & Tul.) Samuels & Rossman | Disease | 18 |
| Beech leaf disease | Litylenchus crenatae mccannii Handoo et al. 2020 | Disease | 21 |
| Blowdown | NA | Abiotic | 24 |
| Brown spot needle blight | Lecanosticta acicola (Thüm.) Syd. | Disease | 28 |
| Cedar leafminer complex | Argyresthia aureoargentella Brower, Argyresthia canadensis Freeman, Argyresthia thuiella (Peck), Coletechnites thujaella (kft.) | Insect | 32 |
| Emerald ash borer | Agrilus planipennis Fairmaire | Insect | 34 |
| Forest tent caterpillar | Malacosoma disstria Hübner | Insect | 37 |
| Hemlock woolly adelgid | Adelges tsugae (Annand) | Insect | 47 |
| Jack pine budworm | Choristoneura pinus pinus Freeman | Insect | 49 |
| Larch casebearer | Coleophora laricella (Hübner) | Insect | 60 |
| Oak wilt | Bretziella fagacearum (Bretz) | Disease | 63 |
| Satin moth | Leucoma salicis (L.) | Insect | 66 |
| Spongy moth | Lymantria dispar (L.) | Insect | 68 |
| Spruce budworm | Choristoneura fumiferana Clemens | Insect | 72 |
| Willow leafminer | Micrurapteryx salicifoliella (Cham.) | Insect | 90 |

Pest index — **Minor forest disturbances**

Minor forest disturbances are identified regionally using forest health surveys. These disturbances, listed below, could have local or regional significance to forest health conditions.

| Common name | Scientific name | Туре | Page |
|--------------------------------|--|---------|------|
| Balsam poplar leafblotch miner | Phyllonorycter nipigon (Free.) | Insect | 93 |
| Beech scale | Cryptococcus fagisuga (Linding.) | Insect | 94 |
| Birch casebearer | Coleophora serratella (L.) | Insect | 96 |
| Birch leafminer | Fenusa pusilla (Lep.) | | 98 |
| Eastern tent caterpilllar | Malacosoma americanum (F.) | Insect | 99 |
| Elm leafminer | Fenusa ulmi Sund. | Insect | 100 |
| Elm zigzag sawfly | Aproceros leucopoda Takeuchi | Insect | 101 |
| Fall cankerworm | Alsophila pometaria (Harris) | Insect | 103 |
| Fall webworm | Hyphantria cunea (Drury) | Insect | 104 |
| Frost | NA | Abiotic | 107 |
| Greenstriped maple worm | Dryocampa rubicunda (F.) | Insect | 108 |
| Imported willow leaf beetle | Plagiodera versicolor (Laich.) | Insect | 110 |
| Introduced pine sawfly | Diprion similis (Htg.) | Insect | 111 |
| Locust leafminer | <i>Odontota dorsalis</i> (Thunb.) | Insect | 112 |
| Needle cast | Lophodermium spp., Lophophacidium sp. (Phacidiaceae), Hendersonia pinicola | Disease | 113 |
| Oak decline | NA | Complex | 115 |
| Oak shothole leafminer | Japanagromyza viridula (Coq.) | Insect | 116 |
| Septoria leaf spot | Sphaerulina populicola (Peck) Quaedvl., Verkley & Crous 2013 ; Sphaerulina betulae (Passerini) Quaedvlieg, Verkley & Crous | Disease | 118 |
| Southern pine beetle | Dendroctonus frontalis Zimmermann | Insect | 120 |
| Western gall rust | Endocronartium harknessii (J. P. Moore) Y. Hirats. | Disease | 122 |
| White pine blister rust | Cronartium ribicola J. C. Fisch. | Disease | 123 |
| Willow leaf blotch miner | Phyllonorycter salicifoliella (Cham.) | Insect | 124 |

Pest index — Invasive forest species

Invasive forest species are insects or diseases that are not native to Ontario. Invasive species have the potential or proven ability to have deleterious effects on forest health, tree health, ecosystem functioning, or social and economic values. Invasive species found during forest health monitoring field work in Ontario in 2024 are listed below.

| Common name | Scientific name | Туре | Page |
|-----------------------------|--|---------|------|
| Beech bark disease | <i>Neonectria faginata</i> (Lohman, Watson & Ayers) Castl. & Rossman <i>, Neonectria ditissima</i> (Tul. & Tul.) Samuels & Rossman | Disease | 18 |
| Beech leaf disease | Litylenchus crenatae mccannii Handoo et al. 2020. | Disease | 21 |
| Beech scale | Cryptococcus fagisuga (Linding.) | Insect | 94 |
| Birch casebearer | Coleophora serratella (L.) | Insect | 96 |
| Birch leafminer | Fenusa pusilla (Lep.) | Insect | 98 |
| Elm leafminer | Fenusa ulmi Sund. | Insect | 100 |
| Elm zigzag sawfly | Aproceros leucopoda Takeuchi | Insect | 101 |
| Emerald ash borer | Agrilus planipennis Fairmaire | Insect | 34 |
| Hemlock woolly adelgid | Adelges tsugae Annand | Insect | 47 |
| Imported willow leaf beetle | Plagiodera versicolor (Laich.) | Insect | 110 |
| Introduced pine sawfly | Diprion similis (Htg.) | Insect | 111 |
| Oak wilt | <i>Bretziella fagacearum</i> (Bretz) | Disease | 63 |
| Satin moth | Leucoma salicis (L.) | Insect | 66 |
| Southern pine beetle | Dendroctonus frontalis Zimmermann | Insect | 120 |
| Spongy moth | Lymantria dispar dispar (L.) | Insect | 68 |
| White pine blister rust | Cronartium ribicola J. C. Fisch. | Disease | 123 |

Host index

Tree and shrub species mentioned in this report and their scientific names.

| Common name | Scientific name |
|------------------------|---------------------------------------|
| American beech | Fagus grandifolia Ehrh. |
| American elm/white elm | Ulmus americana L. |
| Austrian pine | Pinus nigra J. F. Arnold |
| Balsam fir | Abies balsamea (L.) Mill. |
| Balsam poplar | Populus balsamifera L. |
| Basswood | <i>Tilia americana</i> L. |
| Black ash | Fraxinus nigra Marsh. |
| Black locust | Robinia pseudo-acacia L. |
| Black spruce | Picea mariana (Mill.) BSP |
| Black walnut | Juglans nigra L. |
| Bur oak | Quercus macrocarpa Michx. |
| Eastern hemlock | <i>Tsuga canadensis</i> (L.) Carrière |
| Eastern white cedar | Thuja occidentalis L. |
| Eastern white pine | Pinus strobus L. |
| Green ash | Fraxinus pennsylvanica Marshall |
| Jack pine | Pinus banksiana Lamb. |
| Largetooth aspen | Populus grandidentata Michx. |
| Manitoba maple | Acer negundo L. |
| Norway maple | Acer platanoides L. |
| Pin cherry | Prunus pensylvanica L. f. |
| Red maple | Acer rubrum L. |
| Red oak | Quercus rubra L. |
| Red pine | Pinus resinosa Ait. |
| Red spruce | Picea rubens Sarg. |
| Scots pine | Pinus sylvestris L. |
| Silver maple | Acer saccharinum L. |

| Common name | Scientific name |
|-----------------|--|
| Speckled alder | <i>Alnus incana spp. rugosa</i> (Du Roi) J. Clausen |
| Sugar maple | Acer saccharum Marsh. |
| Tamarack/larch | Larix laricina (Du Roi) K. Koch |
| Trembling aspen | Populus tremuloides Michx. |
| White ash | Fraxinus americana L. |
| White birch | <i>Betula papyrifera</i> Marsh. |
| White oak | Quercus alba L. |
| White spruce | Picea glauca (Moench) Voss |
| Willow species | Salix spp. |



Major forest disturbances

Mapped area

Major forest disturbances are mapped to quantify annual status and support trend analysis. The following table outlines area (in hectares) of mapped defoliation/damage by severity class for major disturbances in 2024.

| Common name | Light | Moderate to severe | Tree mortality | Total |
|--------------------------|-------|--------------------|----------------|-----------|
| Blowdown | 0 | 1,643 | 0 | 1,643 |
| Brown spot needle blight | 218 | 83 | 0 | 301 |
| Cedar leafminer | 901 | 5,103 | 0 | 6,004 |
| Emerald ash borer | 0 | 19 | 319 | 338 |
| Forest tent caterpillar | 3,489 | 332,894 | 0 | 336,383 |
| Jack pine budworm | 3,047 | 26,136 | 2,871 | 32,054 |
| Satin moth | 0 | 8,247 | 0 | 8,247 |
| Spongy moth | 495 | 0 | 0 | 495 |
| Spruce budworm | 8,104 | 1,542,016 | 37,654 | 1,587,774 |
| Willow leafminer | 0 | 636 | 0 | 636 |

Major forest disturbances maps

Provincial overview

Forest damage ranking 2024



US SD

> US KS



Northwest Region Forest damage ranking 2024





Moderate-Severe 172,482 ha

Mortality 2,938 ha

Abiotic damage (blowdown, severe weather)







Northeast Region Forest damage ranking 2024





Southern Region Forest damage ranking 2024



Light 5,625 ha Moderate-Severe 93,602 ha





Example report

How to read a major disturbance report

Each report summarizes information about an event or disturbance affecting the health of Ontario's forests, and may include:

- **Pest/damage information** basic information about the disturbance, including the type, origin, host species, and area affected that year
- **Key facts** overview of the disturbance, including provincial scale information about the disturbance, possible effects, and annual activity
- **Regional summary** regional summaries, outlining more specific information by MNR administrative region (Northwest, Northeast, Southern)
- Image a photo of the disturbance or pest
- **Outlook** where applicable, an overview of potential future implications and developments for the disturbance
- Trends where applicable, additional information about possible trends
- Area summary where applicable, information about the total area in which the disturbance caused moderate to severe damage from 2020 to 2024 by MNR region and district.

| | Spruce budworm | sturbances |
|-----------------------|--|--|
| Pest or | Common name: Spruce budworm | est dis |
| damage _ | Scientific name: Choristoneuro fumiferenna (Clern.) Pest origin: Native to North America | jor for |
| information | Pest type: Defoliator Host species (Ontario 2024): Balsam fit, white spruce, black spruce, tamarack, eastern herrilock | 2 |
| | Infestation area: 1,542,016 ha (moderate to severe); 37,054 ha (mortality); 8,104 ha (light) Provincial law facts | |
| Kev facts — | Spruce budworm is one of the most damaging native insects affecting fir and spruce in Ontario. | |
| , | Spruce budworm outbreaks occur periodically when the primary host — balsam fir — reaches 40 years of age. Outbreaks can last several decades and can result in widespread balsam fir and spruce mortality. | Pest or |
| | In 2024, moderate to severe spruce budworm defoliation in the province decreased to 1,542,016 ha from 1,983,042 ha in 2023, with most mapped in Northeast Region and the rest in Southern and Northwest | ← damage |
| | regions. In addition, s7,854 ha of spruce budworm mortality were mapped, an increase from 8,880 ha in 2023. Most of the mortality was in Northeast Region and 67 ha in the Northwest Region. | image |
| Regional | Regional summary Northwest | The second s |
| summary | In Dryden Fort Frances Atlikokan District, 75, 183 ha of moderate to severe spruce budworm defoliation were aerially mapped. Large, continuous areas of defoliation were mapped in the southeastern part of the district | Carl Contract |
| | about 20 to 50 km horth and 50 km of May 11 from the easient orbits, boundary have haven a source of Provincial Park, exending west to kitikolan and beyond to fort Frances. Moderate to severe defoliation became more intermittent in the central part of the district around Turtle River - White Otter Lake Provincial Park, | |
| | Stormy Lake, and Lower Meintou Lake, exterioring north to Hwy 17. Other areas of intermittent moderaite to severe defoitation were mapped in southern Quetico Provincial Park around Agnes Lake, and areas adjacent to Upper Manitou Lake and Eagle Lake. In addition, 67 ha of mortality were aerially mapped along Hwy 11 near | |
| | Laseine and Glenorchy, west of Bullmoose Lake, and in northwestern Quetico Provincial Park. 72 | |
| | | |
| | ha of light defoliation were mapped during ground surveys in Northern Bruce Peninsula in areas east of Hwy 6 | ances |
| | from Crane Lake north to Tobermory. In Peterborough Bancrott District, 223 ha of moderate to severe spruce budworm defoliation were aerially | isturb |
| | mapped in Balaam Lake Provincial Park in Coboconk, and along Alvar Noad by Lake Dairymple in Kawartha Lakes. | orest d |
| Trend | Spruce budworm spray program | ajor fo |
| analysis/ | In 2024, the MMR undertook an insect pest management program for spruce budworm affected stands in Heast Cochrane Kapuskasing, Chapleau Wawa, and Timmins Kirkland Lake districts. A double application of the bacterial insectible BK (Foray 768) was applied at 1.5 L/ha to 150,707 ho of spruce/Br stands. An effloary assessment. | 2 |
| outlook/ | including both pre- and post-spray budworm populations and subsequent defoliation assessments, confirmed that the foliage protection program was successful in keeping defoliation below 40% in all but four assessed plots. These what will be assess the successful on the subsequence protection formatic commend to non-serve and unit is non- | |
| issues | press the reverse name destraining and a backward and the backward press compared to pre-spray and point prime. As part of the efficacy assessment, 33 plots were established in treated areas (spray) and 12 plots in untreated areas footnoll. Treated areas were disided into three project areas (district), with each established areas compared | |
| | plots and nearby control plots. In Hearst Cochrane Kapuskasing District, an average defoliation of 25% occurred in spray plots and 48% in control | |
| | plots. In Timmins Kirkland Lake District, an average defoliation of 22% occurred in spray plots and 43% defoliation in control plots. In Chapleau Wawa District, an average defoliation of 19% occurred in spray plots and 22% in control plots. | |
| | This year was the fourth consecutive year managing the current spruce budworm outbreak in Northeast Region. | |
| | Spruce budworm pheromone trapping Spruce budworm pheromone trapping was carried out across the province. Traps were deployed at 61 locations: 16 In Automation Bonion, 2016 Markhane Marking and 18 in Continuon Bonion. | |
| | In northwest region, 2.2 in northeest region, and as in southern region. In Northwest Region, the average number of male motils per trap was 285, with the highest trap average in Npigon GreatBoth District with 1.136 male motils per trap. In Northeast Region, the average number of male motils per trap | |
| | was 360, with the highest trap average in Hearst Cochrane Kapuskasing District with 938 male moths per trap. In Southern Region, the average number of male moths per trap was 159, with the highest trap average in Pembeole District with BM moths and a set of male moths per trap was 159. | |
| | SERVER HOR OWNERS INVESTIGATION FOR THE | |
| | п | |
| | | - |
| | Total area (hectares) in which spruce budworm caused moderate to severe defoliation from 2020-202 by MNR district. | bance |
| Area | Region Area of damage (ha) | distur |
| summary | District 2020 2021 2022 2023 2024 Northwest | forest |
| (wnere applicable) | Dryden fort Frances Atholican 0 0 0 14,072 75,183 Far North 0 0 0 0 0 14,072 75,183 Kenya 0 0 0 0 14,072 75,183 | Major |
| appricable, | Nipigon Geraldton 0 0 0 101,885 13,994 Red Labe Slows Lookout 0 0 0 4,414 | |
| | Thunder Bay Ignace 0 0 0 3,002 17,316 Sub Total 0 0 0 119,018 115,818 | |
| | Northeast Chapleau Warwa 24,100 143,278 156,232 349,383 314,881 Hearst Cochrane Kapuskarine 254,868 525,697 648,136 538,556 512,238 | |
| | North Bay 29,428 30,574 41,750 76,475 74,012 Sault See Marie Bind River 10,826 6,435 22,018 60,231 101,403 | |
| | Sudbury 23,421 157,832 437,474 275,611 62,147 Timmins Kirkland Lake 92,910 438,373 706,842 557,639 274,899 Charles 10,100 10,1 | |
| | Sou locar 435554 1,502,150 2,012,451 1,555,500 1,555,500 Southern Avora Midhurst Own Sound 0 0 0 0 8,363 | |
| | Aylmer Guelph 0 < | |
| | Minden Parry Sound 6,873 348 16,588 12,731 12398 Bracebridge Brenchridge 0 0 1 1889 55,634 | |
| | Peterborough Bancroft 0 0 0 0 223 Sub Total 6,873 348 16,558 13,119 86,616 | |
| | Provincial Total 442,426 1,302,537 2,029,039 1,983,042 1,542,014 | |
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| | | ces |
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| Trends | E HARAN | st dist |
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| | New Setsi waa lio bacture lin which course budwarm coursed moderate to course debilistics in Cataolo from | |
| | 1950 to 2024. | |
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| | | |
| | 79 | |

Example map

How to read the maps in this report

For major disturbances, the following spatial information is provided:

- **Damage map** shows the areas of infestation or damage. Light damage is typically shown in orange, moderate to severe damage in red, and mortality in yellow. Smaller areas are outlined in pink to make them stand out.
- Image photo of the disturbance or pest
- Legend describes map features
- Extent map map of Ontario with the focal area outlined in deep red



Beech bark disease

Pest information

| Common name: | Beech bark disease |
|------------------------------|--|
| Scientific name: | Neonectria faginata (Lohman, Watson & Ayers) Castl. & Rossman, Neonectria ditissima (Tul. & Tul.) Samuels & Rossman |
| Pest origin: | Invasive — native to Europe |
| Pest type: | Canker |
| Host species (Ontario 2024): | American beech |
| Infestation area: | Localized |

Major forest disturbances

Provincial key facts

- Beech bark disease is the result of an insect-fungal pathogen complex initiated when beech scale (*Cryptococcus fagisuga* Lindinger) feeds on American beech.
- As the disease becomes established in a stand, it reduces growth, deforms trees, decreases wood quality and mast production, and usually causes early tree death.
- Beech bark disease has been identified across the range of beech in Ontario, as far north as St. Joseph Island, Sault Ste. Marie District.
- Three distinct phases of beech bark disease development are evident in Ontario:
 - Advancing front: Beech scale populations have recently colonized unaffected beech trees. Scale infestations combined with other stressors can contribute to beech decline.
 - Killing front: Scale populations build rapidly and the fungus colonizes trees. The killing front is characterized by high tree mortality.
 - Aftermath forest: The disease has passed through and remains endemic. Large remnant trees continue to decline and young trees become infected, disfigured, and gradually decline.
- In 2024, beech bark disease was observed in Southern Region.

Southern

- In Aylmer Guelph District, entire tree mortality and severe crown dieback was observed in Apps Mills Conservation Area located in Brant County. Severe levels of old beech bark disease cankers were observed along the stems of mature, codominant beech trees also in Apps Mills Conservation Area, with light levels of beech scale detected. In Huron County, severe levels of beech bark disease cankers were reported on one mature, codominant American beech tree on Wildlife Line in Hullett Provincial Wildlife Area. The entire tree stem was covered in fruiting bodies of neonectria fungus and lesions, but the crown was full and showed no signs of decline. In Waterloo Region, old beech bark disease cankers were recorded covering stems of several mature American beech trees at Crown Land Trail at the intersection of Queen Street and Hwy 8, south of Petersburg.
- In Minden Parry Sound Bracebridge District, severe beech bark disease, with severe beech scale, was recorded in a young stand along Blue Spruce Road in Dwight, affecting the intermediate and codominant tree classes. Moderate beech bark disease was observed further down Blue Spruce Road near a recreational vehicle trail junction affecting trees in codominant and dominant tree classes. Moderate levels of beech scale insect were also observed at this location.
- In Pembroke District, moderate beech bark disease damage was observed on beech trees in a mature maplebeech stand along a portage trail at Little McCauley Lake off Hwy 60, in Algonquin Park. Light beech scale was present.

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Rochester

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Kingston

Syracuseo

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Kilometres



Cleveland

^O Toledo



CA MB

Beech leaf disease

Pest information

| Common name: | Beech leaf disease |
|------------------------------|--|
| Scientific name: | Litylenchus crenatae mccannii Handoo et al. 2020 |
| Pest origin: | Invasive — Unknown |
| Pest type: | Leaf blight |
| Host species (Ontario 2024): | American beech |
| Infestation area: | Localized |

Provincial key facts

- Beech leaf disease was first identified in the United States in Lake County, Ohio, in 2012 and has since been detected west from Michigan, northeast to Maine, and southeast to Virginia. In Ontario, it currently occurs between Lake Erie and Georgian Bay and along the shores of Lake Ontario.
- Symptoms of beech leaf disease were first confirmed in southern Ontario in 2017 in Aylmer District.
- The primary symptom is striping or banding on leaves caused by the thickening of tissue between veins. Severely affected leaves have yellowed bands and are coarse and curled. Early leaf drop of severely affected leaves and bud abortion make tree crowns appear thin. Mortality occurs with saplings dying more quickly than overstory trees.
- The beech leaf nematode releases chemicals while feeding on developing cells in buds. These chemicals, meant to increase the number of feeding cells for the nematode, cause a thickened, jumbled layer of cells in American beech leaves which reduces the ability of leaves to convert and store energy from sunlight.
- Beech leaf disease symptoms have been confirmed in Southern Region in locations in Aylmer Guelph, Aurora Midhurst Owen Sound, and Peterborough Bancroft districts.
- In 2024, new beech leaf disease detections were made in districts where beech leaf disease had previously been confirmed in Southern Region.

Southern

- In Aylmer Guelph District, moderate beech leaf disease symptoms were observed on all American beech age and canopy classes at Crown Land Trail property at Queen Street and Hwy 8, south of Petersburg in Waterloo Region. In Huron County, low level leaf banding was recorded on young American beech in understorey and woodlot fringe on conservation lands along Kirton Road at Blackbush Line, south of Dashwood. Light to moderate foliar symptoms were observed on understorey and woodlot fringe American beech trees along Bells Line and Zurich Road, west of Hensall. These detections represent the first record of beech leaf disease in Huron County.
- In Midhurst Aurora Owen Sound District, beech leaf disease symptoms were reported in two areas of Kendal Crown Land near Ganaraska Road in Durham Region. Light beech leaf disease damage was detected on all beech age classes in a mature hemlock and beech stand. Light to moderate beech leaf disease damage was detected on all beech age classes in a sugar maple and beech stand.
- In Peterborough Bancroft District, severe beech leaf disease was reported in Sidney Conservation Area on understory beech saplings and trees in Quinte West. This detection represents the first record of beech leaf disease in the municipality. Foliar symptoms ranged from moderate banding to severely shrivelled leaves, early leaf drop, and twig dieback. In Northumberland County, moderate beech leaf disease was detected on all beech age classes in a mature sugar maple and beech stand in Bonebakker Nature Reserve on Wilson Drive. Foliar symptoms included low to severe yellow banding. Affected trees were primarily close to the road, and symptom severity dissipated into the forest. Foliar damage was also reported in a mature forest in Grafton, affecting beech saplings and small trees.





Upper and single tier municipalities where beech leaf disease has been confirmed









Blowdown

Pest information

| Common name: | Blowdown |
|------------------------------|----------|
| Scientific name: | NA |
| Pest origin: | NA |
| Pest type: | Abiotic |
| Host species (Ontario 2024): | NA |
| Infestation area: | 1,643 ha |

Provincial key facts

- Blowdown, damage to trees caused by high winds or extreme weather events, is a natural disturbance process in forests. The extent and frequency of such damage is sporadic.
- In 2024, localized areas of blowdown were aerially mapped in Northwest and Northeast regions.

Regional summary

Northwest

- In Red Lake Sioux Lookout District, 535 ha of blowdown were aerially mapped. A small area of blowdown was
 mapped about 37 km east of the Trout Lake Provincial Park boundary line. Small areas of blowdown, ranging
 from 2–12 ha in size, were scattered throughout the northeastern section of the district with the largest area
 of 127 ha between Marchington River and Farrington Lake.
- In Thunder Bay Ignace District, 300 ha of blowdown were aerially mapped. Three small areas were mapped 1 km northwest of Titmarsh Lake. Two small areas of blowdown were also mapped north of Batwing Lake and east of Whalen Lake.
- In Kenora District, 291 ha of blowdown were aerially mapped. A small area of blowdown was mapped on McPherson Island within Lake of the Woods and a larger area below Arrow Lake. Three more areas were scattered further north, between the boundary of Woodland Caribou Provincial Park and Pakwash Provincial Park.

• In Dryden Fort Frances Atikokan District, 199 ha of blowdown were aerially mapped. Two small areas were observed on an island in Dibble Lake within the Turtle River Provincial Park boundary and one area between Nora Lake and Dimple Lake. One 13.5 ha area was mapped about 2 km from Lakin Creek in Quetico Provincial Park.

Northeast

- In Timmins Kirkland Lake District, 210 ha of blowdown were aerially mapped north of Esker Lakes Provincial Park and south of Gogama.
- In Sault Ste. Marie Blind River District, 58 ha of blowdown were aerially mapped in Haughton Twp along the Mississagi River.
- In North Bay District, 50 ha of blowdown were aerially mapped above Lake Nipissing near the Beaucage area. Blowdown was also observed in early June along Olrig Road near Redbridge.

Total area (in hectares) in which blowdown caused severe damage and/or mortality in 2020–2024 by MNR district.

| Region | | Area c | of damage (ha) | | |
|-----------------------------------|-------|--------|----------------|-------|-------|
| District | 2020 | 2021 | 2022 | 2023 | 2024 |
| Northwest | | | | | |
| Dryden Fort Frances Atikokan | 1,169 | 0 | 133 | 37 | 199 |
| Far North | 204 | 0 | 0 | 0 | 0 |
| Kenora | 0 | 0 | 145 | 346 | 291 |
| Nipigon Geraldton | 0 | 0 | 0 | 0 | 0 |
| Red Lake Sioux Lookout | 0 | 30 | 79 | 29 | 535 |
| Thunder Bay Ignace | 0 | 7 | 265 | 569 | 300 |
| Subtotal | 1,373 | 37 | 622 | 981 | 1,325 |
| Northeast | | | | | |
| Chapleau Wawa | 0 | 0 | 65 | 0 | 0 |
| Hearst Cochrane Kapuskasing | 38 | 0 | 350 | 33 | 0 |
| North Bay | 0 | 39 | 13 | 0 | 50 |
| Sault Ste Marie Blind River | 0 | 364 | 119 | 74 | 58 |
| Sudbury | 0 | 188 | 0 | 0 | 0 |
| Timmins Kirkland Lake | 55 | 13 | 60 | 126 | 210 |
| Subtotal | 93 | 604 | 607 | 234 | 318 |
| Southern | | | | | |
| Aurora Midhurst Owen Sound | 0 | 0 | 0 | 0 | 0 |
| Aylmer Guelph | 0 | 0 | 0 | 0 | 0 |
| Kemptville Kingston | 0 | 0 | 2,715 | 770 | 0 |
| Minden Parry Sound Bracebridge | 0 | 63 | 0 | 0 | 0 |
| Pembroke | 0 | 0 | 716 | 262 | 0 |
| Peterborough Bancroft | 0 | 0 | 5,903 | 2,085 | 0 |
| Subtotal | 0 | 63 | 9,334 | 3,117 | 0 |
| Provincial total | 1,466 | 704 | 10,563 | 4,332 | 1,643 |



Blowdown 2024

Areas in Ontario where blowdown caused damage



Area of severe damage





Brown spot needle blight

Pest information

| Common name: | Brown spot needle blight |
|------------------------------|--|
| Scientific name: | Lecanosticta acicola (Thüm.) Syd. |
| Pest origin: | Native to North America |
| Pest type: | Needle blight |
| Host species (Ontario 2024): | Scots pine, eastern white pine |
| Infestation area: | 83 ha (moderate to severe), 218 ha (light) |

Provincial key facts

- This disease affects pines, especially Scots and Austrian pines, of all ages but is most damaging to seedlings and smaller trees.
- Several years of infection by brown spot needle blight reduces tree growth. Coupled with other factors, such as drought and secondary insect attack, this blight may result in branch and tree mortality.
- In some affected locations, previous years' needles turn brown and drop in June, leaving only current years' shoots on trees.
- In 2024, scattered areas of new brown spot needle blight damage were mapped and observed in Northeast and Southern regions.

Regional summary

Northeast

In Sault Ste. Marie Blind River District, 57 ha of moderate to severe brown spot needle blight damage were ground mapped on St. Joseph Island. Severe brown spot needle blight on several mature and smaller roadside Scots pine was reported along 5th Side Road on St. Joseph Island. Moderate to severe brown spot needle blight damage was observed on several mature Scots pine along Hwy 577 in Cobden Twp and on Chiblow Lake Road in Patton Twp. Moderate brown spot needle blight was recorded in a young jack pine stand off Hwy 638 in Plummer Twp. Abundant black spores were observed on new foliage as was orange discolouration on the top halves of needles on several jack pine in the stand. Moderate brown spot needle blight damage was also recorded on an eastern white pine on Jones Road in Leeburn. Several white pine of all canopy classes were

discoloured in this area and along Hwy 638 in Poplar Dale. Light brown spot needle blight was also observed on a smaller fringe eastern white pine on Hwy 129 in Sturgeon Twp. A 3 ha area of light brown spot needle blight damage was also ground mapped on 4th Concession Road on St. Joseph Island.

Southern

- In Aurora Midhurst Owen Sound District, 26 ha of moderate to severe and 215 ha of light brown spot needle blight damage were aerially mapped. In the Municipality of Meaford, moderate to severe damage was mapped in Woodford at the intersection of Hwy 26 and County Road 18. In Simcoe County, scattered areas of damage were mapped throughout northern and central Tiny Twp. Moderate to severe damage was mapped in an urban Scots pine plantation in Penetanguishene and small areas of moderate to severe and light damage in a small Scots pine plantation were mapped in Oro-Medonte Twp. In Grey County, small areas of light damage affecting roadside Scots pine were mapped in southern Georgian Bluffs Twp along Hwy 6 between Grey Road 16 and Grey Road 18.
- In Aylmer Guelph District, moderate to severe brown spot needle blight damage was observed on young Scots pine in a fencerow along Wellington Road 16 in Damascus, in Wellington County. Affected tree crowns were brown and thin with needles dropping prematurely. In Elgin County, moderate to severe brown spot needle blight damage was reported on open-grown Scots pine along Talbot Line (Hwy 3) between Dunborough Road and McKillop Road. In Middlesex County, moderate to severe damage was recorded on a planted Scots pine hedgerow along Sylvan Road between Elliot Drive and McDonald Drive, south of Sylvan. Open grown Scots pine with moderate to severe brown spot needle blight damage were reported along Blandford Road between Township Road 3 and Hwy 401 in Oxford County. At the time of survey, necrotic spots were observed on older needles but not on new shoots.
- In Pembroke District, moderate brown spot needle blight damage was observed in a small patch of young eastern white pine regeneration along Burnstown Road, east of White Lake in Renfrew County.
- In Kemptville Kingston District, light brown spot needle blight damage was observed in a small group of young eastern white pine around Big Clear Lake in Central Frontenac, in Frontenac County. Symptoms included brown needle spots with yellow borders and browning needle tips.

Total area (in hectares) in which brown spot needle blight caused moderate to severe damage in 2020–2024 by MNR district.

| Region | Area of damage (ha) | | | | | |
|-----------------------------------|---------------------|------|-------|------|------|--|
| District | 2020 | 2021 | 2022 | 2023 | 2024 | |
| Northwest | | | | | | |
| Dryden Fort Frances Atikokan | 0 | 0 | 0 | 0 | 0 | |
| Far North | 0 | 0 | 0 | 0 | 0 | |
| Kenora | 0 | 0 | 0 | 0 | 0 | |
| Nipigon Geraldton | 0 | 0 | 0 | 0 | 0 | |
| Red Lake Sioux Lookout | 0 | 0 | 0 | 0 | 0 | |
| Thunder Bay Ignace | 0 | 0 | 0 | 0 | 0 | |
| Sub Total | 0 | 0 | 0 | 0 | 0 | |
| Northeast | | | | | | |
| Chapleau Wawa | 0 | 0 | 0 | 0 | 0 | |
| Hearst Cochrane Kapuskasing | 0 | 0 | 0 | 0 | 0 | |
| North Bay | 0 | 0 | 0 | 0 | 0 | |
| Sault Ste Marie Blind River | 0 | 0 | 77 | 0 | 57 | |
| Sudbury | 0 | 0 | 0 | 0 | 0 | |
| Timmins Kirkland Lake | 0 | 0 | 0 | 0 | 0 | |
| Sub Total | 0 | 0 | 77 | 0 | 57 | |
| Southern | | | | | | |
| Aurora Midhurst Owen Sound | 0 | 0 | 816 | 495 | 26 | |
| Aylmer Guelph | 0 | 0 | 798 | 227 | 0 | |
| Kemptville Kingston | 0 | 0 | | 0 | 0 | |
| Minden Parry Sound Bracebridge | 0 | 327 | 52 | 0 | 0 | |
| Pembroke | 0 | 0 | 0 | 0 | 0 | |
| Peterborough Bancroft | 0 | 0 | 130 | 0 | 0 | |
| Sub Total | 0 | 327 | 1,796 | 722 | 26 | |
| Provincial Total | 0 | 327 | 1,873 | 722 | 83 | |


Brown spot needle blight 2024

Areas in Ontario where brown spot needle blight caused defoliation

Light = 218 ha Moderate to severe = 83 ha



Area of light defoliation

Area of moderate to severe defoliation





Cedar leafminer complex

Pest information

| Common name: | Cedar leafminer complex |
|------------------------------|---|
| Scientific name: | Argyresthia aureoargentella Brower, Argyresthia canadensis Freeman, Argyresthia thuiella (Peck), Coletechnites thujaella (kft.) |
| Pest origin: | Native to North America |
| Pest type: | Defoliator |
| Host species (Ontario 2024): | Eastern white cedar |
| Infestation area: | Localized |

Provincial key facts

- Cedar leafminer complex is a group of similar insects that mine cedar foliage, including:
 - Argyresthia aereoargentella Brower
 - Argyresthia canadensis Freeman
 - Argyresthia thuiella (Pack)
 - Coletechnites thujaella (Kft.)
- The last widespread cedar leafminer outbreak occurred in Southern Region from 2002 to 2007, resulting in substantial crown dieback and some whole tree mortality.
- In 2024, cedar leafminer defoliation was recorded across Southern Region.

Regional summary

Southern

• In Pembroke District, moderate to severe cedar leafminer defoliation was recorded in Renfrew County, west of Renfrew on Hwy 132 between Dacre and Shamrock, north of Calabogie on Pucker Street and Norton Road, and north of Beachburg around Westmeath Bog Conservation Reserve. Small areas of light cedar leafminer defoliation were observed along Hwy 41 southeast of Eganville and intermittently from Khartum to Griffith.

- In Aylmer Guelph District, cedar leafminer defoliation was recorded across the district with the most extensive and severe defoliation in areas of Wellington County and Oxford County. In northern parts of Wellington County, moderate to severe cedar leafminer defoliation was observed in riparian areas along the Grand River through the town of Mt. Forest, in areas of Luther Lake and Luther Marsh Conservation area, along Wellington County Road 16 through Damascus, and along Wellington County Road 109 through the town of Arthur. In central Wellington County, moderate to severe defoliation was reported in areas of Belwood Lake Conservation Area, and in riparian areas along the Grand River from Lake Belwood through Fergus, Elora, and areas south of Inverhaugh. In southern Wellington County, moderate to severe defoliation was observed in Fletcher Creek Conservation Area, areas along Hwy 401 at Hwy 6 North interchange, and areas between Puslinch to Mountsberg Reservoir. In Oxford County, areas of moderate to severe cedar leafminer defoliation were recorded on open grown eastern white cedar north of Hwy 401 around Innerkip, including Chesney Wilderness Area, Vansittart Woods, W.L. Dickson Arboretum, and private woodlots. In Waterloo Region, moderate to severe defoliation was recorded in riparian areas of the Nith River along a section of Wilmot Easthope Road between Line 40 and Christner Road, west of New Hamburg, and around the intersection of Northfield Drive East and Sandy Hills Drive in North Woolwich. Areas of moderate to severe defoliation were also recorded along Laurel Creek, at Wilmot Line and Conservation Drive. In Middlesex County, small areas of moderate to severe cedar leafminer defoliation were reported in areas northeast of Dorchester primarily at the intersection of Gore Road and Elgin Road. In Elgin County, moderate to severe defoliation was reported on all eastern white cedars surveyed at EM Warwick Conservation Area. In Perth County, a small area of moderate to severe cedar leafminer defoliation was reported north of Almuree along Perth Road 107.
- In Aurora Midhurst Owen Sound District, scattered areas of moderate to severe and light defoliation were recorded through the southeastern part of Georgian Bluffs Twp and extending into Meaford in Grey County. Concentrated areas of moderate to severe defoliation were reported in the northeast of Chatsworth Twp extending into north and central Grey Highlands and south of Blue Mountains. In Bruce County, areas of moderate to severe defoliation were reported through the southeast part of Northern Bruce Peninsula around Cape Chin and Lions Head and light defoliation was recorded in South Bruce Peninsula in areas between Pike Bay and Red Bay. In Simcoe County, a small area of moderate to severe defoliation was observed west of Moonstone along Peter Street West at Line 7 North in Oro-Medonte Twp.
- In Kemptville Kingston District, light to moderate cedar leafminer defoliation was recorded in a small area of eastern white cedar along Scott Road, west of Arden in Central Frontenac Twp.
- In Peterborough Bancroft District, a small area of moderate cedar leafminer defoliation was reported in a semimature eastern white cedar stand on Meadowview Road in Omemee, Kawartha Lakes.

Emerald ash borer

Pest information

| Common name: | Emerald ash borer |
|------------------------------|--|
| Scientific name: | Agrilus planipennis (Fairmaire) |
| Pest origin: | Invasive — native to Asia |
| Pest type: | Wood borer |
| Host species (Ontario 2024): | White ash, black ash |
| Infestation area: | 319 ha (mortality), 19 ha (moderate to severe defoliation) |

Provincial key facts

- Since it was discovered in Windsor in 2002, emerald ash borer has threatened ash trees in Ontario.
- Since 2002, this insect has spread east to Ottawa and north to Sault Ste. Marie and Thunder Bay.
- This beetle is expected to spread across the entire range of ash, causing widespread mortality in Ontario.
- In 2024, emerald ash borer mortality and damage was mapped in Northeast Region and damage and mortality were observed in Southern Region.

Regional summary

Northeast

- In Sault Ste. Marie Blind River District, 299 ha of emerald ash borer mortality were aerially mapped in Garden River First Nation and ground mapped in Havilland, St. Joseph Island, and Thessalon townships. Additional mortality was observed in several black ash stands in Wells and Bridgeland townships. Mortality and larvae were observed in a black ash stand near Searchmont in Deroche Twp.
- In Sudbury District, 20 ha of emerald ash borer mortality and 19 ha of moderate to severe black ash damage were ground mapped throughout the town of Killarney. Severe emerald ash borer damage was observed on Caswell Drive in the City of Sudbury. Moderate emerald ash borer damage was observed on Regent Street between Remington Road and Field Street in the City of Sudbury. Signs and symptoms observed included crown dieback, serpentine galleries, exit holes, and woodpecker damage.

Southern

- In Peterborough Bancroft District, severe emerald ash borer damage was recorded on large diameter white ash in a woodlot off Hwy 62 in Eldorado, north of Madoc in Hastings County. In Peterborough County, severe emerald ash borer damage was recorded in Petroglyphs Provincial Park on all black and white ash diameter classes throughout the park and along Northeys Bay Road. Moderate emerald ash borer damage was recorded along County Road 46 in the Town of Lasswade with affected trees showing stress related to emerald ash borer damage. Signs and symptoms included crown dieback, epicormic shoots, woodpecker damage, and larvae present in characteristic larval galleries.
- In Minden Parry Sound Bracebridge District, severe emerald ash borer damage was observed along Nares Inlet Road off Hwy 529A. Signs and symptoms observed at the site included crown dieback, epicormic shoots, and woodpecker damage.

Trend analysis/outlook/issues

Black ash leaf genomics were collected for Canadian Forest Service by Foleyet in Chapleau Wawa District, Deroche Twp near Searchmont in Sault Ste. Marie Blind River District, and Boulter Twp in North Bay District.

Identifying locations with black ash and collecting black ash seed was also completed this year in Northeast Region on behalf of the Forest Research and Monitoring Section.



Emerald ash borer 2024

Areas in Ontario where emerald ash borer caused damage



Area of moderate to severe defoliation

Area of mortality





Pest information

| Common name: | Forest tent caterpillar |
|------------------------------|---|
| Scientific name: | <i>Malacosoma disstria</i> Hbn. |
| Pest origin: | Native to North America |
| Pest type: | Defoliator |
| Host species (Ontario 2024): | Various deciduous species |
| Infestation area: | 332,894 ha (moderate to severe), 3,489 ha (light) |

Provincial key facts

- On average in Ontario, forest tent caterpillar outbreaks have occurred every ten to twelve years, with each outbreak continuing for three to five years.
- In the south, forest tent caterpillar feed primarily on sugar maple and oak, and in the north it is found mostly on trembling aspen but also feeds on several other deciduous species.
- In 2024, forest tent caterpillar was aerially mapped and reported in all three regions.

Regional summary

Northwest

- In Nipigon Geraldton District, 26,031 ha of moderate to severe forest tent caterpillar defoliation were mapped. Areas of moderate to severe defoliation were aerially mapped extensively from the southeast corner of Lake Nipigon and continued in areas north and south of Hwy 11 to the town of Geraldton. The most extensive and severe defoliation was mapped north and south of the town of Beardmore.
- In Red Lake Sioux Lookout District, 962 ha of moderate to severe defoliation were aerially mapped. Scattered areas of moderate to severe defoliation were mapped in the eastern half of the district, concentrated along the Root River west of Churchill Lake, areas around Pashkokogan and McCrea lakes, and an area north of Savant Lake. Areas of moderate to severe defoliation were also mapped in the southern part of St. Raphael Provincial Park and continued south to Armit Lake, with another small area mapped north of Ramin Lake. Light defoliation totalling 2,924 ha were aerially mapped in the northern part of the district in small, scattered areas south of

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Birch Lake, north of Red Lake along the north shore of Slate Bay, south of Wenosaga Lake, and north of Ear Falls. Other areas of light defoliation were mapped between Pashkokogan and Savant lakes, north and south of Lawson Lake, northeast of Runway Lake, and along the north shore of Lac Seul.

- In Thunder Bay Ignace District, 845 ha of moderate to severe forest tent caterpillar defoliation were aerially mapped. All defoliation was mapped south of Hwy 17 in the southern part of the district. Scattered areas of moderate to severe defoliation were mapped from Hwy 11 at Kashabowie south to Weikwabinonow Lake. Other dispersed areas of moderate to severe defoliation were mapped in between Hwy 17 near Upsala to areas north of Lac Des Mille Lacs. Further west, several small areas of moderate to severe defoliation were mapped south of Wawiag River to Saganaga Lake, with small areas mapped along the Dryden Fort Frances Atikokan District boundary.
- In Dryden Fort Frances Atikokan District, 289 ha of moderate to severe defoliation were aerially mapped. Areas of moderate to severe defoliation were mapped in the northern part of Quetico Provincial Park, between Antoine Lake and Russell Lake, north of Maligne River, and north and south of Soho Lake at the northern park boundary. North of Quetico Provincial Park, small areas of moderate to severe defoliation was mapped between Atikokan and Hwy 11, along the north shore of Righteye Lake, north of Keckush Lake, and east of Davidson Lake near the Thunder Bay Ignace District boundary. Other small areas were mapped in the southwest corner of the district, south of Sable Islands Provincial Park, and two small areas mapped south of Dryden and Eagle Lake. Small, dispersed areas of moderate to severe defoliation were also mapped in the northern part of the district; one area west of Sedgewick Lake, west of Turtle River- White Otter Lake Provincial Park, another area south of Gullwing Lake, northeast of Dryden, and one small area east of Williams Lake. Another 79 ha of light defoliation were aerially mapped in northern Quetico Provincial Park: one area south of McAlpine Lake, and another between Quetico River and Moose Creek near the western park boundary.
- In Kenora District, 280 ha of moderate to severe defoliation were aerially mapped across the district. Several small areas of moderate to severe defoliation were mapped on islands in Lake of the Woods, concentrated southwest of Keewatin on Northern Peninsula. Small, scattered areas of moderate to severe defoliation were also mapped north of Kenora around Tide Lake, west of Maynard Lake, west of Oak Lake, south of Long-legged Lake, and the confluence of Wabigoon River and Segise Bay. Another 188 ha of light defoliation were mapped in several areas across the district including along Northern Peninsula in Lake of the Woods, along Clytie Bay Road, south of Hopkins Lake, and in eastern part of Lake of the Woods Provincial Park.

Northeast

• In Timmins Kirkland Lake District, 175,710 ha of moderate to severe defoliation and 139 ha of light defoliation were aerially mapped across the northern half of the district. Concentrated areas of defoliation were mapped south of Lake Abitibi to Esker Lakes Provincial Park, around Larder Lake and South Mindoka extending down

to the Blanche River and Hwy 11 from Earlton to Maybrook. Large areas of moderate to severe defoliation were also mapped from Hwy 66 near Englehart River Fine Sand Plain and Waterway Provincial Park to areas around Watabeag Lake, and Ramore, extending north to Matheson. Other large areas of moderate to severe defoliation were mapped across 50 km to 60 km swath east/west from Shillington through Timmins to the Chapleau Wawa District boundary, with concentrated areas of defoliation mapped around Dana-Jowsey Lake Provincial Park. Other areas of defoliation were mapped further west along Hwy 101 around Palomar, Kukatush, and Groundhog and Horwood lakes. Continuous areas of moderate to severe forest tent caterpillar defoliation were also mapped during ground surveys in the southeastern corner of the district in areas between McCool and Elk Lake, from Elk Lake to Englehart, from Englehart to Kirkland Lake, and beyond to Matheson. Scattered areas of moderate to severe defoliation were mapped intermittently around Powell Creek and Argyle Lake. Another 139 ha of light defoliation were mapped in an area northwest of Timmins along Kamiskotia River.

- In Hearst Cochrane Kapuskasing District, 96,502 ha of moderate to severe defoliation were aerially mapped in the central and southeastern parts of the district. The defoliation was mapped in a large, continuous swath from the north shore of Lake Abitibi northward to Little Abitibi Lake, continuing west to Opasatika on Hwy 101, and south to Opasatika Lake. Concentrated areas of moderate to severe defoliation were mapped around Cochrane, Kapuskasing, and Iroquois Falls. Another area of concentrated defoliation was mapped in the southern section of Groundhog River Provincial Park, north of Hwy 101, with intermittent areas of defoliation mapped in the central part of the park. In addition, scattered areas of moderate to severe defoliation were mapped north of Chapleau-Nemegosenda River National Park along Dunrankin River. Another 159 ha of light defoliation were mapped in an area southeast of South Floodwood River.
- In Chapleau Wawa District, 30,120 ha of moderate to severe defoliation were aerially mapped, particularly in the
 northeast part of the district. Large areas of moderate to severe defoliation were mapped around Foleyet and
 north to the Hearst Cochrane Kapuskasing District boundary. West of Foleyet, moderate to severe defoliation was
 mapped along the west side of Lake Ivanhoe to Foleyet Timber Road and beyond to the west side of Horwood
 Lake. A small area of moderate to severe defoliation was mapped southwest of Borden Lake, near Chapleau, with
 small, scattered areas of moderate to severe defoliation mapped north of Matchinameiqus Lake, and around
 Dalton Mills, and several areas in southeast Bolkow Twp along the north and east sides of Goldie Lake.
- In Sudbury District, 1,288 ha of moderate to severe forest tent caterpillar defoliation were mapped during aerial
 and ground surveys. Small, scattered areas of defoliation were mapped in the central part of the district in the
 Greater Sudbury Area along Northwest Bypass between Hwy 17 and Municipal Road 15 in Chelmsford, north
 of Radar Road, north of the junction of Maley Road and Falconbridge Hwy in Hanmer, and along the north shore
 of Greens Lakes in Capreol. Two small areas of moderate to severe defoliation were also recorded in the western
 part of Halfway Lake Provincial Park, and one area in the northern part of Wanapitei Provincial Park. Another
 two small areas of defoliation were aerially mapped on the northwest side of Round Lake on Whitefish Lake 6
 Reserve. Also, small, scattered areas of light defoliation were mapped in the southeast corner of the district along

Hwy 64 near Monetville and Musky Island Road near the North Bay District boundary. During ground surveys, forest tent caterpillar larvae were collected along Frenchman Lake Road causing light defoliation.

 In North Bay District, 757 ha of moderate to severe forest tent caterpillar defoliation were aerially mapped along the north shore of Lake Nipissing from Cache Bay to North Bay. Several small, scattered areas of defoliation were mapped around Cockburn Lake north of Meadowside. Moderate to severe defoliation was ground mapped along Hwy 17 west of Sturgeon Falls to Mosquito Creek Road, and along Hwy 64 south of Lavigne near the Sudbury District boundary.

Southern

- In Minden Parry Sound Bracebridge District, 112 ha of moderate to severe forest tent caterpillar defoliation were
 mapped in the northern part of the district. Moderate to severe defoliation was mapped along Glen Roberts
 Drive on a hillside between Sugarstone Farm and Long Farm. Several scattered areas of moderate to severe
 defoliation were mapped south of Hwy 520 around Ahmic Lake, west of Magnetawan. An area of moderate to
 severe defoliation was mapped east of Hwy 11 and west of Bernard Lake. Another area of moderate to severe
 defoliation was mapped between Muskoka Rd. and High Rock Dr. west of Lake Bernard. During ground surveys,
 forest tent caterpillar larvae causing light defoliation were collected feeding on understory red oak along Bear
 Cave Road in Rosseau.
- In Aurora Midhurst Owen Sound District, trace forest tent caterpillar populations and trace defoliation were observed on red oak trees at Drury Tract on Penetanguishene Road in Simcoe County during ground surveys.
- In Peterborough Bancroft District, trace forest tent caterpillar defoliation was observed during ground surveys on black ash saplings and young trees in a semi-mature mixedwood forest along Hwy 28, south of Apsley in North Kawartha Twp.



Area (in hectares) of moderate to severe defoliation caused by forest tent caterpillar in Ontario, 1950–2024.

Total area (in hectares) in which forest tent caterpillar caused moderate to severe defoliation in 2020–2024 by MNR district.

| Region | Area of damage (ha) | | | | |
|------------------------------|---------------------|--------|---------|---------|---------|
| District | 2020 | 2021 | 2022 | 2023 | 2024 |
| Northwest | | | | | |
| Dryden Fort Frances Atikokan | 0 | 0 | 772 | 344 | 289 |
| Far North | 0 | 0 | 0 | 0 | 0 |
| Kenora | 0 | 0 | 0 | 0 | 280 |
| Nipigon Geraldton | 0 | 0 | 8,586 | 72,048 | 26,031 |
| Red Lake Sioux Lookout | 0 | 0 | 24 | 6 | 962 |
| Thunder Bay Ignace | 0 | 0 | 15,106 | 16,635 | 845 |
| Sub Total | 0 | 0 | 24,487 | 89,032 | 28,407 |
| Northeast | | | | | |
| Chapleau Wawa | 0 | 220 | 5,142 | 12,588 | 30,120 |
| Hearst Cochrane Kapuskasing | 0 | 29,257 | 132,870 | 193,810 | 96,502 |
| North Bay | 0 | 0 | 0 | 0 | 757 |
| Sault Ste Marie Blind River | 0 | 0 | 0 | 0 | |
| Sudbury | 0 | 5,893 | 7,287 | 8,370 | 1,288 |
| Timmins Kirkland Lake | 0 | 1,556 | 91,469 | 103,388 | 175,710 |
| Sub Total | 0 | 36,926 | 236,768 | 318,156 | 304,377 |
| Southern | | | | | |
| Aurora Midhurst Owen Sound | | 0 | 0 | 0 | 0 |
| Aylmer Guelph | 0 | 0 | 0 | 0 | 0 |
| Kemptville Kingston | 0 | 0 | 0 | 0 | 0 |
| Minden Parry Sound | 0 | 0 | 0 | 0 | 112 |
| Bracebridge | | | | | |
| Pembroke | 0 | 0 | 0 | 0 | 0 |
| Peterborough Bancroft | 0 | 0 | 0 | 0 | 0 |
| Sub Total | 0 | 0 | 0 | 0 | 112 |
| Provincial Total | 0 | 36,926 | 261,255 | 407,188 | 332,896 |



Areas in Ontario where forest tent caterpillar caused defoliation

Light = 3,489 ha Moderate to severe = 332,894 ha



Area of light defoliation Area of moderate to severe defoliation







Areas in the Northwest Region where forest tent caterpillar caused defoliation

Light = 3,191 ha Moderate to severe = 28,405 ha









Areas in the Northeast Region where forest tent caterpillar caused defoliation

Light = 298 ha Moderate to severe = 304,377 ha



Area of light defoliation Area of moderate to severe defoliation







Areas in the Southern Region where forest tent caterpillar caused defoliation

Moderate to severe = 112 ha



Area of moderate to severe defoliation





Hemlock woolly adelgid

Pest information

| Common name: | Hemlock woolly adelgid |
|------------------------------|---------------------------|
| Scientific name: | Adelges tsugae (Annand |
| Pest origin: | Invasive — native to Asia |
| Pest type: | Sap-sucking insect |
| Host species (Ontario 2024): | Eastern hemlock |
| Infestation area: | Localized |

Provincial key facts

- In Canada, introduced populations of hemlock woolly adelgid are established in Nova Scotia and Ontario. Endemic populations of hemlock woolly adelgid are also found in British Columbia.
- In Ontario, hemlock woolly adelgid was first found in Etobicoke, near Toronto, in 2012 on five ornamental trees. In 2013, the Canadian Food Inspection Agency (CFIA) detected an infestation during pest-specific surveys in the Niagara Gorge near Niagara Falls. The pest was again detected by the CFIA during surveys in 2019 in the Niagara Gorge and in a forested area near Wainfleet, Niagara Region. CFIA confirmed the presence of hemlock woolly adelgid in Fort Erie, also in Niagara Region in 2021, in the town of Pelham (Niagara Region) and Grafton in Northumberland County in 2022. In 2023, the CFIA confirmed three detections in Haldimand County, Hamilton, and Lincoln in the Niagara Region.
- The insect has two generations per year in Canada, and is dispersed naturally by wind, birds, and mammals. It can also be spread by human movement of nursery stock and other wood products such as firewood.
- Feeding damage causes branch, twig, bud, and shoot dieback and leads to premature needle loss and eventual tree mortality.
- In 2024, the CFIA confirmed the presence of hemlock woolly adelgid in three new locations in Niagara Region.

Major forest disturbances

Southern

• The Canadian Food Inspection Agency confirmed three new detections of hemlock woolly adelgid at locations in Port Colborne, Thorold, and Pelham, in the Niagara Region. These detections are outside current regulated areas for this invasive pest, which include the city of Niagara Falls, the town of Fort Erie, and the township of Wainfleet.

Trend analysis/outlook/issues

MNR forest health field staff have been trained in survey protocols and procedures for detecting hemlock woolly adelgid. The ministry will continue to collaborate with federal partners in both the CFIA and Natural Resources Canada to support related survey and scientific initiatives.

In 2024, the Forest Health program supported hemlock woolly adelgid phenology research led by researchers at the Canadian Forest Service for the second consecutive year. The goal of this research is to better understand the life cycle of hemlock woolly adelgid at two known infested sites in southern Ontario.

Pest information

| Common name: | Jack pine budworm |
|------------------------------|--|
| Scientific name: | Choristoneura pinus pinus Freeman |
| Pest origin: | Native to North America |
| Pest type: | Defoliator |
| Host species (Ontario 2024): | Jack pine |
| Infestation area: | 26,136 ha (moderate to severe), 3,047 ha (light), 2,871 ha (mortality) |

Provincial key facts

- Jack pine budworm outbreaks occur in Ontario about every eight to ten years.
- In Ontario, broad-scale control programs have been undertaken to protect high value jack pine stands during an outbreak, with the most recent one carried out in 2021 in Northwest Region.
- For the fifth consecutive year, the area of moderate to severe jack pine budworm defoliation decreased in Ontario. In 2024, 26,136 ha of moderate to severe defoliation were aerially mapped. Of that, most was mapped in Northwest Region with a small area in one district in Northeast Region. In addition, 3,047 ha of light defoliation and 2,871 ha of jack pine mortality were aerially mapped in Northwest Region.

Regional summary

Northwest

In Kenora District, 9,867 ha of moderate to severe defoliation and 3,047 ha of light defoliation were aerially
mapped in areas across the district. The defoliation was distributed intermittently throughout the entire
district, but moderate to severe defoliation was concentrated in the northeast and southwest. Notable areas
of moderate to severe defoliation were mapped on Aulneau Peninsula, and areas between Conifer Lake, Oak
Lake (part of West English River Provincial Park) and extending to Clay Lake. Other scattered areas of moderate
to severe defoliation were mapped around Anishinabi Lake and continued south to Hwy 105. In northern
Kenora District, areas of moderate to severe defoliation were mapped near the Red Lake Sioux Lookout district
boundary, 6 km southwest of Pakwash Lake Provincial Park and south to Goose Lake (part of West English
River Provincial Park). Light jack pine budworm defoliation was aerially mapped in the central part of the

district in several areas around Kenora. Areas of light defoliation were mapped on both sides of Hwy 17 around Clearwater Bay, and east of Kenora in areas north and south of Hwy 17 at the junction of Hwy 71, and parts of Rushing River Provincial Park. Other small areas of light defoliation were mapped around Catastrophe Lake and Old Man Lake. Additionally, 1,791 ha of jack pine mortality were mapped mainly in the northeast part of the district in areas south and north of West English River Provincial Park.

- In Red Lake Sioux Lookout District, 7,947 ha of moderate to severe defoliation were mapped during aerial surveys. Scattered areas of defoliation occurred in the western half of the district particularly around Trout Lake, Red Lake, and Douglas Lake. The western and eastern sides of Trout Lake were particularly affected, with small, scattered areas of defoliation mapped southeast of Red Lake and north of Lac Seul. Only one small area of moderate to severe defoliation was mapped in the eastern half of the district. Across the district, 504 ha of jack pine mortality was mapped with concentrated areas around Douglas Lake in eastern Woodland Caribou Provincial Park, and around Trout Lake.
- In Dryden Fort Frances Atikokan District, 1,230 ha of moderate to severe defoliation were aerially mapped through the central part of the district. Areas of defoliation were mapped around Turtle River-White Otter Lake Provincial Park, Atikwa Lake, Lawrence Lake, and Rowan Lake. Two small areas of moderate to severe defoliation were also mapped in the southeast corner of the district, southeast of Agnes Lake. In addition, 576 ha of jack pine mortality were mapped in the district, with large areas mapped around Sedgewick Lake, Esker Lake, and areas south of White Otter Lake.
- In Far North District, 689 ha of moderate to severe defoliation were mapped in one area 5 km south of Valhalla Lake in the southwest corner of the district, near the Red Lake Sioux Lookout District boundary.

Northeast

In Chapleau Wawa District, 6,403 ha of moderate to severe jack pine budworm defoliation were aerially mapped, with large areas concentred in the northwest part of the district. Continuous areas of defoliation were mapped in Kwinkwaga Ground Moraine Uplands Conservation Reserve on the southeast side of Kwinkwaga Lake, and areas north of Hwy 17 northwest of White River around Lovedee Lake and Leslie Lake. Scattered areas of moderate to severe defoliation were also mapped south of Hwy 17, east of Bremner River, west of White River, and around Nokanee Lake. On the east and southeast side of White Lake, several jack pine stands with moderate to severe defoliation were mapped. Small areas of light defoliation were observed during ground surveys in southeast Chapleau, outside of Missinabi Provincial Park, along Lafereniere Road/Park Road, along Hwy 667 in Wakami Flats to western Wakami Provincial Park.

Jack pine forest health plots

In the mid-1990s, plots were established in jack pine stands in the northern regions to monitor the effects of jack pine budworm and the overall health of jack pine forests across northern Ontario.

Although jack pine health plots are assessed on an annual basis, full plot remeasurements (diameter at breast height and tree height) are scheduled every 5 years. In 2024, most jack pine health plots were remeasured. In August, 41 plots in Northeast Region were remeasured and 33 in Northwest Region. The remaining Northwest Region plots are scheduled to be remeasured in 2025.

In 2024, 90 plots (41 in Northeast Region, 49 in Northwest Region) comprising 2,015 jack pine trees were assessed. Trees were surveyed for any pest, disease, or abiotic factors that affect health/condition and the abundance of male flowers.

In Northeast Region, 39 trees in jack pine plots were reported as recently dead. Most (49%) of this mortality was attributed to tree cutting, while 41% was caused by armillaria. White spotted sawyer beetle was responsible for 5% of the mortality, and blowdown accounted for 3%.

In Northwest Region, 62 trees in jack pine plots were reported as recently dead. Mortality was determined to be caused by various abiotic factors and pests. 27% of trees were cut, and blowdown accounted for 8% of the mortality. Jack pine budworm caused 5%, sawyer beetles and bark beetles each caused 2% mortality. Armillaria caused 3% mortality, and the causal agent for the remaining 54% of mortality was not determined.

Male flower abundance varied between Northeast and Northwest regions. In Northeast Region, 50% of the surveyed live trees had high numbers of male flowers, 20% had moderate numbers of male flowers, and 30% had low numbers of male flowers. Less than one percent of trees assessed had nil flowers. Some jack pine male flower surveys were not completed in 2024 due to high temperatures in June.

In Northwest Region, 75% of surveyed live trees had low numbers of male flowers, 17% had moderate numbers of male flowers, 4% of live trees had high numbers of male flowers, while the remaining 4% had nil.

In Northwest Region, 5% of live trees were affected by jack pine budworm. In Northeast Region, jack pine budworm was not observed affecting trees in the forest health plots.

Jack pine budworm pheromone trapping

Jack pine budworm pheromone trapping was completed across the province in 2024. Traps were deployed at 74 locations: 33 in the Northwest Region, 32 in the Northeast Region, and 9 in Southern Region.

Southern Region had the highest average number of moths per trap at 27 male moths. The highest average number was at a trap in Minden Parry Sound Bracebridge District with 170 male moths per trap.

In the Northeast Region, the average number of male moths per trap was 3 male moths. The highest trap count was 44 male moths per trap in Sault Ste. Marie Blind River District.

The Northwest Region had the lowest average male moth trap captures per region with 2 male moths per trap. The highest trap count was in Kenora District with an average of 14 male moths per trap.

Jack pine budworm defoliation forecast survey

In Ontario, jack pine budworm defoliation forecasting is based on surveys of the number of overwintering larvae on jack pine branches. Jack pine budworm overwinter as a second instar larva (L2) by encapsulating themselves in silken shelters (hibernacula) under branch scales and bark cracks. Larvae are typically in these shelters from late August until the following spring. This overwintering stage of the lifecycle provides an opportunity to collect branches to extract and count larvae to forecast the potential severity of defoliation for the following year. Defoliation forecasts are used to determine which stands might be considered for protection.

Locations for L2 surveys were selected based on defoliation mapped. From each location, 10 jack pine trees were selected, and a 1 m branch was sampled from the mid- to upper crown of each tree. Branches were sent to a laboratory to be processed in a sodium hydroxide washing procedure which extracts the second instar larvae from their hibernacula. These larvae were then separated from other fine debris using hexane and a separatory funnel and put onto filter papers for microscopic examination. Larvae were counted under a microscope to determine the average number of larvae per branch for each sample location. This average was used to forecast jack pine budworm defoliation in 2025.

In Northeast Region, 5 locations (50 trees) were sampled for overwintering larvae in 2024. All locations were in Chapleau Wawa District. The 2025 forecast for all locations was light defoliation. The highest average number of second instar larvae per branch was 6.



Area (in hectares) of moderate to severe defoliation caused by jack pine budworm in Ontario, 1950–2024.

Total area (in hectares) in which jack pine budworm caused moderate to severe defoliation from 2020 to 2024, by MNR district.

| Region | Area of damage (ha) | | | | |
|------------------------------|---------------------|---------|---------|--------|--------|
| District | 2020 | 2021 | 2022 | 2023 | 2024 |
| Northwest | | | | | |
| Dryden Fort Frances Atikokan | 145,005 | 31,256 | 23,865 | 2,183 | 1,230 |
| Far North | 100,609 | 11,247 | 38 | 1 | 689 |
| Kenora | 119,631 | 52,726 | 2,242 | 18,057 | 9,867 |
| Nipigon Geraldton | | 36,064 | 40,213 | 20 | |
| Red Lake Sioux Lookout | 380,051 | 43,224 | 7,617 | 11,504 | 7,947 |
| Thunder Bay Ignace | 184,338 | 171,613 | 46,619 | 664 | 0 |
| Sub Total | 929,635 | 346,129 | 120,593 | 32,429 | 19,733 |
| Northeast | | | | | |
| Chapleau Wawa | 0 | 0 | 610 | 12,865 | 6,403 |
| Hearst Cochrane Kapuskasing | 0 | 0 | 9,470 | 0 | 0 |
| North Bay | 0 | 0 | 0 | 0 | 0 |
| Sault Ste Marie Blind River | 0 | 0 | 0 | 0 | 0 |
| Sudbury | 128 | 137 | 0 | 0 | 0 |
| Timmins Kirkland Lake | 0 | 0 | 0 | 0 | 0 |
| Sub Total | 128 | 137 | 10,081 | 12,865 | 6,403 |
| Southern | | | | | |
| Aurora Midhurst Owen Sound | 0 | 0 | 0 | 0 | 0 |
| Aylmer Guelph | 0 | 0 | 0 | 0 | 0 |
| Kemptville Kingston | 0 | 0 | 0 | 0 | 0 |
| Minden Parry Sound | 0 | 0 | 0 | 0 | 0 |
| Bracebridge | | | | | |
| Pembroke | 0 | 0 | 0 | 0 | 0 |
| Peterborough Bancroft | 0 | 0 | 0 | 0 | 0 |
| Sub Total | 0 | 0 | 0 | 0 | 0 |
| Provincial Total | 929,763 | 346,266 | 130,674 | 45,294 | 26,136 |



Areas in Ontario where jack pine budworm caused defoliation

Light = 3,047 ha Moderate to severe = 26,136 ha Mortality = 2,871 ha



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Toronto





Areas in the Northwest Region where jack pine budworm caused defoliation

Light = 3,047 ha Moderate to severe = 19,734 ha Mortality = 2,871 ha

Area of light defoliation

Area of moderate to severe defoliation

Area of mortality







Areas in the Northeast Region where jack pine budworm caused defoliation

Moderate to severe = 6,403 ha



Area of moderate to severe defoliation







Jack pine budworm second instar larvae survey results

Defoliation forecast 2025

Light

Jack pine budworm defoliation 2024

Area of moderate to severe defoliation







Jack pine budworm pheromone trapping results 2024

Average number of moths per trap

- 0
- < 10
- 10 25
- 25 50
- > 50





Larch casebearer

Pest information

| Common name: | Larch casebearer |
|------------------------------|--|
| Scientific name: | Coleophora laricella (Hübner) |
| Pest origin: | Invasive — native to Europe |
| Pest type: | Defoliator |
| Host species (Ontario 2024): | European larch, tamarack |
| Infestation area: | 1,338 ha (moderate to severe), 67 ha (light) |

Provincial key facts

- Larch casebearer was introduced to North America in Massachusetts in 1886 and was detected in Ontario in 1905. This pest is now found across the range of tamarack and throughout European larch plantations in Ontario.
- Larch casebearer is a serious defoliator of tamarack. In Southern Region, defoliation was last mapped in 2018.
- Since 2019, observations of small populations and resulting defoliation were only detected during ground surveys.
- In 2024, areas of defoliation were observed during ground and aerial surveys in Southern Region.

Regional summary

Southern

In Aylmer Guelph District, 762 ha of moderate to severe and 36 ha of light larch casebearer defoliation were mapped during ground surveys in Wellington County, Hamilton, Waterloo Region, Middlesex County, Brant County, Oxford County, Norfolk County, and Elgin County. In southern parts of Wellington County, scattered areas of moderate to severe larch casebearer defoliation were mapped on tamarack in treed swamps along both sides of Hwy 401 from Puslinch Lake to Mountsberg Reservoir, especially concentrated in areas at the Hwy 401 and Hwy 6 (Hanlon Road) interchange. Areas of moderate to severe and light defoliation were also mapped along the eastern limits of Guelph. In the central part of the county, scattered areas of moderate to severe and light larch casebearer defoliation were mapped between Valens Reservoir and Freeltown along Fletchers Creek and Regional Road 97, including parts of Fletchers Creek Conservation Area.

Further west, small, scattered areas of defoliation were mapped south of Hwy 403 at Hwy 24. In Waterloo Region, scattered areas of moderate to severe defoliation were mapped along Hwy 401 from Greenfield to New Dundee Road. Small areas of defoliation were also mapped from Wilmot to Laurel Creek in Waterloo. Two other small areas of moderate to severe defoliation were mapped in North Woolwich along Sandy Hills Road. In Middlesex County, small areas of moderate to severe larch casebearer defoliation were mapped along Hwy 401 at Dorchester Swamp and around Dorchester along Thames River. One small area of defoliation was mapped along Marion Street at the intersection of Elgin Road. In Brant County, moderate to severe larch casebearer defoliation was mapped in an area north of the Grand River at Glen Morris. In central Norfolk County, moderate to severe defoliation was mapped. Small areas of defoliation was mapped north of Wyecombe at the intersection of Middleton North Walsingham Townline Road at Byerlay Sideroad, and another small area of defoliation was mapped east of Windham at the intersection of Bakers Lane and Windham Centre Road. In Elgin County, moderate to severe defoliation was mapped in a treed swamp and a small European larch plantation along Hwy 401 at the Elgin Road (County Road 73) interchange.

- In Pembroke District, 312 ha of moderate to severe and 31 ha of light defoliation were mapped during aerial surveys in a mature tamarack stand at Westmeath Bog Conservation Reserve and in a small area south of Westmeath Provincial Park, near the Town of Westmeath in Renfrew County. Areas of light defoliation were reported during ground surveys along Hwy 41 between Opeongo Road and Constant Creek in a tamarack stand surrounding a large wetland. Also, small areas of light to moderate larch casebearer defoliation were recorded during ground surveys north of Calabogie on Pucker Street, west of White Lake on Burnstown Road, southeast of Renfrew on Goshen Road, and west of Pembroke on Hwy 17.
- In Aurora Midhurst Owen Sound District, 209 ha of moderate to severe larch casebearer defoliation were mapped in Grey County, concentrated in areas along Grey Road 3 north of Lamlash in West Grey.
- In Peterborough Bancroft District, 54 ha of moderate to severe larch casebearer defoliation were mapped during aerial surveys. In Kawartha Lakes, defoliation was mapped in areas along East Cross Creek north of Janetville, along County Road 48 near Balsam Lake and in a treed tamarack swamp near Northline Road southeast of Coboconk. In Asphodel-Norwood Twp, small areas of moderate to severe defoliation were mapped north of Westwood along County Road 38 and east of Norwood along Hwy 7. In Hastings County, an area of moderate to severe defoliation was mapped between Hwy 60 and Limerick Lake in a treed wetland. In Northumberland County, severe larch casebearer defoliation was recorded along County Road 25 near Castleton. In Hastings County, moderate defoliation was recorded intermittently along Hwy 62 from Millbridge to L'Amable, and light defoliation was recorded in areas along Hwy 620 in Ormsby.



Larch casebearer 2024

Areas in Ontario where larch casebearer caused defoliation

Light = 67 ha Moderate to severe = 1,338 ha

Area of light defoliation Area of moderate to severe defoliation





Oak wilt

Pest information

| Common name: | Oak wilt |
|------------------------------|-------------------------------|
| Scientific name: | Bretziella fagacearum (Bretz) |
| Pest origin: | Invasive — unknown |
| Pest type: | Vascular wilt |
| Host species (Ontario 2024): | Oak species |
| Infestation area: | Localized |

Provincial key facts

- Oak wilt is a disease caused by an invasive forest pathogen, named *Bretziella fagacearum*. Within short distances, the disease is spread by insect vectors such as sap beetles (Coleoptera: Nitidulidae) and root grafting. Long distance movement is often the result of people moving oak wilt infected wood.
- Oak wilt poses a risk to all oak species in eastern Canada, especially red oak (Quercus, section Lobatae).
- Sweet smelling, fungal pressure pads develop on stems and large branches of newly killed trees and cause the bark to crack. Nitidulid beetles crawl through the cracks to feed on the fungus. New infections of oak wilt occur when the beetles transfer fungal spores on their bodies from the infected trees to fresh wounds on uninfected oak trees. Oak wilt pockets develop when the fungus spreads through root grafts from infected to nearby uninfected trees.
- Of the hundreds of species of nitidulid beetles, only a subset has behaviours (flight timing, host preference) that result in oak wilt transmission. Current species of interest are *Carpophilus sayi* and *Colopterus truncatus*, since they are known vectors for oak wilt in the United States.
- Current efforts are focused on early detection and prevention of oak wilt establishment by developing best management practices and pruning guidelines.
- In June 2023, the Canadian Food Inspection Agency (CFIA) confirmed the first detections of oak wilt in Canada in the City of Niagara Falls, Springwater Twp, and the town of Niagara-on-the-Lake in southern Ontario.



Southern

• In 2024, no new oak wilt occurrences were confirmed in Ontario according to the CFIA.

Trend analysis/outlook/issues

- In 2021, results from a three-year study in Ontario, New Brunswick, and Manitoba showed that oaks in central and eastern Canada were most at risk of oak wilt infection between April and end of July. This determination was made using the flight patterns of the two most common beetle vectors.
- In 2022, oak trees were wounded at five locations in Sault Ste. Marie on a weekly basis between April and August to determine when beetles were attracted to oak wounds. This work revealed that beetles rarely visited wounds in April and May and was repeated by collaborators in New Brunswick, Manitoba, and Michigan, which showed similar results.
- A two-year study was completed in 2024 to investigate the risk of oak wilt infection of trees by beetles prior to bud break. Oak trees were wounded in southern and northern Ontario and New Brunswick before, during, and after bud break. This work showed that nitidulid beetles rarely visit fresh oak wounds prior to bud break even though they have been active for several weeks. This finding suggests the risk of oak wilt infections is low prior to bud break. The reason why this occurs is unknown. Changes in tree physiology at bud break could be responsible for beetle visits to wounds after bud break or beetle behavior could be changing in response to the consistently warm temperatures observed at that time of year.
- In 2024, eight locations with red oak were chosen to deploy a series of Lindgren funnel traps baited with lures
 to attract oak wilt vector beetles. An additional lure that mimics the smell of stressed trees was added to half
 the traps to attract other beetles. The goal of the project was to determine if environmental DNA monitoring
 for the oak wilt fungus on beetle vectors could be combined with monitoring for other beetles without
 compromising results. Technicians counted beetles to see if the additional lure repelled beetles known to carry
 the oak wilt pathogen. They also tested to see if the oak wilt pathogen DNA was present in the samples and if
 so, how much. Results from this project are still pending at the time of publishing.



Satin moth

Pest information

| Common name: | Satin moth |
|------------------------------|--|
| Scientific name: | Leucoma salicis (L.) |
| Pest origin: | Invasive — native to Europe and Asia |
| Pest type: | Defoliator |
| Host species (Ontario 2024): | Trembling aspen, European white poplar |
| Infestation area: | 8,247 ha (moderate to severe) |

Provincial key facts

- Satin moth is found across North America, including most of southern Ontario. This pest continues to expand its range in Ontario, spreading from the south and reaching Sault Ste. Marie in 2011 and Thunder Bay in 2016.
- Satin moth normally infests individual or small groups of ornamental poplar trees, especially European white and Carolina poplar, but will occasionally defoliate poplar and aspen stands.
- In 2024, satin moth was reported in Northwest and Southern regions.

Regional summary

Northwest

In Thunder Bay Ignace District, 8,247 ha of moderate to severe satin moth defoliation were mapped, an increase from 4,766 ha in 2023. Large areas of satin moth defoliation were mapped on Sibley Peninsula, near the Terry Fox monument, and Fort William First Nation. Severe satin moth defoliation continued about 24 km east of the Terry Fox monument along the Hwy 11/17 corridor and about 8 km north on the Hwy 527 corridor. Defoliation was heaviest north of Hwy 11/17.

Southern

 In Aylmer Guelph District, moderate to severe satin moth defoliation was recorded affecting a small area of European white poplar of varying sizes and age classes along Centre Road (Middlesex County Road 81) east of Townsend Line, near Crathie in Middlesex County. In Wellington County, moderate to severe satin moth defoliation was observed on open grown European white poplar trees located along Wellington Road 7 and Wellington Road 9 near Teviotdale.


Satin Moth 2024

Areas in Ontario where satin moth caused defoliation

Moderate to severe = 8,247 ha







Spongy moth

Pest information

| Common name: | Spongy moth |
|------------------------------|--|
| Scientific name: | Lymantria dispar dispar (L.) |
| Pest origin: | Invasive — native to Europe |
| Pest type: | Defoliator |
| Host species (Ontario 2024): | Oak spp., American elm, other hardwood species |
| Infestation area: | 495 ha (light) |

Provincial key facts

- Spongy moth (formerly known as LDD or gypsy moth) was discovered in Ontario in 1969, with the first severe defoliation case recorded in Kemptville District in 1981.
- Spongy moth outbreaks are cyclical, typically occurring every seven to 10 years. In Ontario, major outbreaks peaked in 1985, 1991, 2002, and 2008. The most recent outbreak, which peaked in 2021, was the most widespread recorded in the province.
- Spongy moth prefers a range of hosts including oak, birch, and aspen, and occasionally feeds on softwoods, such as eastern white pine and Colorado blue spruce.
- Moderate to severe spongy moth defoliation decreased substantially from 1,779,744 ha in 2021 to 22,427 ha in 2022 and 2,529 ha in 2023. This decrease indicates a population collapse in northeastern Ontario and parts of southern Ontario, particularly in southeastern Ontario.
- In 2024, light and trace spongy moth defoliation was reported in Southern Region.

Regional summary

Southern

In Aylmer Guelph District, 495 ha of light spongy moth defoliation were mapped during ground surveys, a
decrease in extent and severity from 2,529 ha of moderate to severe defoliation in 2023. In Hamilton, small
areas of light defoliation were recorded during ground surveys in Dundas Valley in areas between Dundas
and Ancaster and extending west along Hwy 403 from Ancaster to Jerseyville. Light spongy moth defoliation

Major forest disturbances

was also observed in the western section of Dundas Valley Conservation area, and at Ancaster Rotary Park. In Norfolk County, small areas of light defoliation were mapped at St. Williams Conservation Reserve - Nursery Tract along Concession Road 6 affecting black, white, and red oak trees of all canopy and age classes. Light spongy moth defoliation on fringe black oak was also mapped at St. Williams Conservation Reserve - Turkey Point Tract along Gibson Road. An area of light defoliation was also recorded in the northern part of Backus Woods off Norfolk County Hwy 24 East, and in woodlots along Concession Road 4 between County Road 23 and West Quarter Line Road. In Niagara Region, small spongy moth larvae populations were detected during ground surveys in the understorey causing trace defoliation on various hardwoods at Short Hills Provincial Park.

- In Pembroke District, light spongy moth defoliation was observed on red oak along Woito Station Road, in Renfrew County.
- In Kemptville Kingston District, trace spongy moth defoliation was observed on American elm along Oak Bluffs Road between Bobs Lake and Crow Lake in South Frontenac Twp.



Area (in hectares) of moderate to severe defoliation caused by spongy moth in Ontario, 1980–2024.

Total area (in hectares) in which spongy moth caused moderate to severe defoliation from 2020 to 2024, by MNR district.

| Region | | Area | of damage (ha | ı) | |
|-----------------------------------|---------|-----------|---------------|-------|------|
| District | 2019 | 2020 | 2021 | 2022 | 2023 |
| Northwest | | | | | |
| Dryden Fort Frances Atikokan | 0 | 0 | 0 | 0 | 0 |
| Far North | 0 | 0 | 0 | 0 | 0 |
| Kenora | 0 | 0 | 0 | 0 | 0 |
| Nipigon Geraldton | 0 | 0 | 0 | 0 | 0 |
| Red Lake Sioux Lookout | 0 | 0 | 0 | 0 | 0 |
| Thunder Bay Ignace | 0 | 0 | 0 | 0 | 0 |
| Sub Total | 0 | 0 | 0 | 0 | 0 |
| Northeast | | | | | |
| Chapleau Wawa | 0 | 0 | 0 | 0 | 0 |
| Hearst Cochrane Kapuskasing | 0 | 0 | 0 | 0 | 0 |
| North Bay | 407 | 3,349 | 0 | 0 | 0 |
| Sault Ste Marie Blind River | 246 | 3,641 | 0 | 0 | 0 |
| Sudbury | 24,262 | 68,875 | 0 | 0 | 0 |
| Timmins Kirkland Lake | | 52 | 0 | 0 | 0 |
| Sub Total | 24,916 | 75,917 | 0 | 0 | 0 |
| Southern | | | | | |
| Aurora Midhurst Owen Sound | 57,356 | 273,438 | 8 | 0 | 0 |
| Aylmer Guelph | 99,387 | 233,454 | 20,215 | 2,529 | 0 |
| Kemptville Kingston | 238,192 | 454,917 | 685 | 0 | 0 |
| Minden Parry Sound Bracebridge | 2,046 | 83,332 | 0 | 0 | 0 |
| Pembroke | 13,547 | 149,053 | 452 | 0 | 0 |
| Peterborough Bancroft | 133,941 | 509,632 | 1,066 | 0 | 0 |
| Sub Total | 544,468 | 1,703,827 | 22,427 | 2,529 | 0 |
| Provincial Total | 569,384 | 1,779,744 | 22,427 | 2,529 | 0 |

Hamilton

Haldimand County

65

53

QEW

Stoney



Pest information

| Common name: | Spruce budworm |
|------------------------------|--|
| Scientific name: | Choristoneura fumiferana (Clem.) |
| Pest origin: | Native to North America |
| Pest type: | Defoliator |
| Host species (Ontario 2024): | Balsam fir, white spruce, black spruce, tamarack, eastern hemlock |
| Infestation area: | 1,542,016 ha (moderate to severe); 37,654 ha (mortality); 8,104 ha (light) |

Provincial key facts

- Spruce budworm is one of the most damaging native insects affecting fir and spruce in Ontario.
- Spruce budworm outbreaks occur periodically when the primary host balsam fir reaches 40 years of age.
- Outbreaks can last several decades and can result in widespread balsam fir and spruce mortality.
- In 2024, moderate to severe spruce budworm defoliation in the province decreased to 1,542,016 ha from 1,983,042 ha in 2023, with most mapped in Northeast Region and the rest in Southern and Northwest regions. In addition, 37,654 ha of spruce budworm mortality were mapped, an increase from 8,890 ha in 2023. Most of the mortality was in Northeast Region and 67 ha in the Northwest Region.

Regional summary

Northwest

In Dryden Fort Frances Atikokan District, 75,183 ha of moderate to severe spruce budworm defoliation were aerially mapped. Large, continuous areas of defoliation were mapped in the southeastern part of the district about 20 to 30 km north and south of Hwy 11 from the eastern district boundary near Kawene and Quetico Provincial Park, extending west to Atikokan and beyond to Fort Frances. Moderate to severe defoliation became more intermittent in the central part of the district around Turtle River - White Otter Lake Provincial Park, Stormy Lake, and Lower Manitou Lake, extending north to Hwy 17. Other areas of intermittent moderate to severe defoliation were mapped in southern Quetico Provincial Park around Agnes Lake, and areas adjacent to Upper Manitou Lake and Eagle Lake. In addition, 67 ha of mortality were aerially mapped along Hwy 11 near Laseine and Glenorchy, west of Bullmoose Lake, and in northwestern Quetico Provincial Park.

- In Thunder Bay Ignace District, 17,316 ha of moderate to severe spruce budworm defoliation were aerially mapped. Nearly all defoliation was mapped in the southern part of the district in areas between Thunder Bay and east of Northern Lights and Greenwater Lakes. The most concentrated areas of defoliation were mapped south of Dog Lake between the City of Thunder Bay and Whitefish Lake, including parts of Oliver Paipoonge, Conmee, and O'Conner townships. Moderate to severe defoliation was also mapped along Oliver Road and Arthur Street in Thunder Bay. A small area of moderate to severe defoliation was mapped east of Thunder Bay adjacent to Roll Lake, and another east of Ignace, south of Snoden Lake.
- In Nipigon Geraldton District, 13,994 ha of moderate to severe spruce budworm defoliation were aerially mapped. Areas of defoliation were concentrated in the southern part of the district along the north shore of Lake Superior and Hwy 17 from Marathon to Schreiber, with other small areas of defoliation mapped along Hwy 17 at the junction of Hwy 614 on the Chapleau Wawa District boundary. Other scattered areas of moderate to severe defoliation were mapped along the Pic River, southwest of Kagiano Lake, and west of Steel Lake.
- In Kenora District, 4,911 ha of moderate to severe spruce budworm defoliation were aerially mapped. Scattered areas of defoliation were mapped in the northeastern corner of Big Island within Lake of the Woods, about 16 km east of the Minnesota border. Other intermittent areas of defoliation were mapped between Sturgeon River and English River, between Anishinabi Lake and Aerobus Lake, and an area northwest of Umfreville Lake. Other small areas of defoliation were mapped east of Hwy 105 at Farewell Bay Road.
- In Red Lake Sioux Lookout District, 4,414 ha of moderate to severe spruce budworm defoliation were aerially and ground mapped in the central part of the district. Small, scattered areas of defoliation were mapped from Ear Falls north to Trout Lake, from Sunlight Lake north to Birch Lake, and from Butter Lake north to areas along Root River.

Northeast

In Hearst Cochrane Kapuskasing District, 512,238 ha of moderate to severe spruce budworm defoliation were aerially mapped. Defoliation was continuous from south of Opasatika in the west to the Ontario-Quebec border in the east. Defoliation was mapped from areas north of Kapuskasing to Remi River, and areas south of Hwy 11 to the Groundhog River. Moderate to severe defoliation continued eastward along Wakusimi River, Poplar Rapids River, North Muskego River, Mattagami River, and Abitibi River, and extended throughout the southern part of the district. In eastern Hearst Cochrane Kapuskasing District, moderate to severe defoliation was mapped as far north as Montreuil Lake and continued southeast to Circle River, near the Ontario-Quebec border. In addition, 7,325 ha of spruce budworm mortality were mapped in the south-central part of the district, in Sydere, Bradburn, Laidlaw, Mabee, and Dargavel townships. Other areas of mortality were mapped south of Hwy 655 near Driftwood and the southwest part of Greenwater Provincial Park. Smaller, scattered areas of mortality were mapped in Aitken Twp along Nat River bordering the Timmins Kirkland Lake District. Other small areas of mortality were mapped east of Smooth Rock Falls, and around Departure Lake.

- In Chapleau Wawa District, 314,881 ha of moderate to severe spruce budworm defoliation were aerially
 mapped. Extensive moderate to severe defoliation was mapped throughout the northeastern part of the district
 from Nemegos Twp to Hwy 101, up to Shoals Provincial Park and extending north to Dalton Twp. Areas of
 defoliation were mapped sporadically along Hwy 101 to Hwy 17, with scattered areas to the south and southeast
 of Missanabie, particularly on the southeast side of Dog Lake. Moderate to severe defoliation continued west,
 in Dubreuilville Twp, and adjacent to Hwy 17, and Hwy 519. Defoliation was mapped in areas northwest of
 Obatanga Provincial Park and continued westward to the northeastern corner of Pukaskwa National Park
 and north to White Lake. From there, defoliation extended southeast of White Lake to the western part of
 Kwinkwaga Ground Moraine Uplands Conservation Reserve and continued along White River to White River
 Twp off Danny Lake Road. In addition, 95 ha of light spruce budworm defoliation were aerially mapped along
 the Montreal River, west of Mackay Dam and east of Lake Superior Provincial Park. During aerial surveys, 1,062
 ha of spruce budworm mortality were mapped in areas along the northeast district border, east of Scorch
 Lake and along the western side of Rice Lake, north of Folyet along Ivanhoe River, and north of Hwy 101 near
 Nemegosenda Lake.
- In Timmins Kirkland Lake District, 274,899 ha of moderate to severe spruce budworm defoliation were aerially . and ground mapped. Defoliation was extensive throughout most of the district, with concentrated areas of defoliation mapped south of Lake Abitibi, along Little Misema River south to Larder Lake and beyond to Englehart. Other concentrated areas of moderate to severe defoliation were aerially mapped around King Kirkland, Charlton, and Elk Lake, along Hwy 66 near Matachewan, and south of Hwy 101 around Nighthawk Lake south to Whitefish Lake. From there, defoliation continued to intensify in areas east of Hwy 144 south to Benneweis Lake. North of Hwy 101, more defoliation was aerially mapped near Malette Lumber Road heading West to Nat River, along Bromley Lake Road, and Nova Road bordering Vimy Lake with the Chapleau Wawa district boundary. Additional areas of moderate to severe defoliation included areas adjacent to Beaucage Lake, Awekwa Lake, Kenogaming Lake, and Tanton Lake. Defoliation extended from Palomar south to Kukatush near Groundhog Lake, to Horwood Lake continuing beyond Delahey Mountain to the border of Chapleau Wawa District. Scattered areas were aerially mapped along Kamiskotia Road, Enid Creek, and North Porcupine River. Areas of moderate to severe spruce budworm defoliation were mapped in the eastern part of the district during ground surveys from Hwy 65 near McCool to Elk Lake and continuing from Hwy 560 east of Elk Lake to Englehart. Ground mapping continued south of Round Lake to Hwy 112, and east to Hwy 11, north to Matheson and ending with Hwy 101, east of Matheson to Hwy 672 and south to Hwy 66, and west to Kirkland Lake. In addition, areas of mortality were mapped in the western part of the district, near Kamiskotia Lake, parts of Kamiskotia River, Enid Lake, Nat River, and Flying Post No. 73. Smaller areas of mortality were also mapped west of Ghost River south of Lake Abitibi, west of Larder Lake, and areas of St Jean Baptiste Creek in Henwood and Beauchamp townships.
- In Sault Ste. Marie Blind River District, 101,403 ha of moderate to severe spruce budworm defoliation were aerially and ground mapped. Areas of moderate to severe defoliation were aerially mapped north of 4th Line in

Sault Ste. Marie, in Bruce Mines, Thessalon, and Iron Bridge, along Hwy 129, Hwy 556 near Ranger Lake, and in the northeast corner of the district. Moderate to severe defoliation was recorded on white spruce, balsam fir, and tamarack in Gaudette Twp, along Black Creek Road west of Hwy 129, and on Portelance Road north of Elliot Lake. Moderate to severe defoliation was also noted on eastern hemlock along Hwy 638. Ground mapping was completed on St. Joseph Island and in the northwest part of the district due to flight constraints. Moderate to severe defoliation was ground mapped on St. Joseph Island and on Hwy 17 south of Havilland Twp to 6th line. In addition, 3,605 ha of light defoliation were mapped throughout the district, with most ground mapped in the northwest and aerially mapped in the northeast corner of the district. Intermittent areas of light defoliation were ground mapped along Hwy 17 between Pancake Bay Provincial Park and the northern district boundary, along Nils Bay Road and Four Seasons Drive, and along the Montreal River. Two small areas of light defoliation were also ground mapped on St. Joseph Island. Additionally, 7,549 ha of spruce budworm mortality were mapped during aerial and ground surveys. Notable areas of mortality occurred east of Hwy 129 with concentrated areas near Hwy 546 north of Elliot Lake, around Thessalon, north of Bruce Mines near Hwy 670, and other small areas further west. Balsam fir mortality was also observed along Hwy 638 later in the season.

- In North Bay district, 74,012 ha of moderate to severe spruce budworm defoliation were aerially mapped across
 the district. Concentrated areas of defoliation were mapped in Temagami River Provincial Park, Sturgeon River
 Provincial Park, Lady Evelyn-Smoothwater Provincial Park, around Mowat Landing, and along Hwy 65 west of
 New Liskeard. Defoliation was also aerially mapped around Chisholm, Mattawa, and along the district's southern
 boundary, along the edge of Algonquin Provincial Park. Other areas with concentrated moderate to severe
 defoliation included River Valley, Field, Verner, Crystal Falls, and Beaucage. Moderate to severe defoliation was
 ground mapped from Hwy 11 near Tilden Lake to Temagami, including areas along Red Squirrel Road. Ground
 mapping continued from Latchford to New Liskeard along Hwy 11 and to the Timmins Kirkland Lake District
 boundary. Moderate to severe defoliation was also ground mapped from North Bay along Hwy 11 south to Trout
 Creek. Scattered areas of moderate to severe defoliation were mapped around the Jocko River, Ottertail Creek
 and Dokis. During aerial surveys, 6,041 ha of mortality were mapped around Redbridge and in areas along Jocko
 River, Antoine Creek, and Balsam Creek.
- In Sudbury District, 62,147 ha of moderate to severe spruce budworm defoliation were mapped during aerial and ground surveys. The most concentrated areas of defoliation were aerially mapped around the northwestern district border with Sault Ste Marie Blind River District, and near the northeastern border with Timmins Kirkland Lake District around Onaping Lake. Areas of moderate to severe defoliation were observed along Hwy 17 from Pioneer Road in Markstay to Kukagami Lake Road, along Hwy 144 south of Old Cartier Road, along Hwy 69 from Hwy 17 to the Hwy 637 interchange, and along Hwy 637 to Killarney. In the eastern part of the district, moderate to severe defoliation were mapped along Bay Road in Nairn Centre. Other areas of moderate to severe spruce budworm defoliation were mapped along Hwy 64 between St. Cloud and Wahnapitae, Reserve Road in Naughton. Larvae were also recorded feeding on balsam fir and eastern hemlock in the area. Moderate to severe spruce budworm defoliation were ground

mapped on Manitoulin Island, concentrated around Elizabeth Bay, Green Bay, and Cold Spring. Along Munster Road near Cartier, spruce budworm larvae were observed feeding on white spruce and tamarack. In addition, 457 ha of light spruce budworm defoliation were aerially mapped west of the Wakanassin River and south of Lower Klondyke Lake, along Kukagami Lake Road from Hwy 17 extending north to Bugg Lake, and from Bugg Lake to Sand Bay Road. During aerial and ground surveys, 8,749 ha of mortality were mapped with most detected in areas around the southwestern border with Sault Ste. Marie Blind River District including areas north of Spanish River and south of Webbwood. Spruce budworm mortality was reported among white spruce and balsam fir along Portelance Road, north of Capreol following the Wahnapitae River. Spruce budworm mortality was also ground mapped on Manitoulin Island, north of Providence Bay along Hwy 551, and west of Poplar along Union Road.

Southern

- In Pembroke District, 65,634 ha of moderate to severe spruce budworm defoliation were aerially mapped across
 the district, with large, concentrated areas of defoliation in the northern and northwestern parts of Algonquin
 Provincial Park. Moderate to severe defoliation extended beyond Algonquin Provincial Park in areas south and
 southwest of Pembroke and mapped intermittently around Bonnechere Provincial Park and areas east along
 Round Lake Road, near Alice, and south towards Eganville near Hwy 41. Moderate to severe spruce budworm
 defoliation was ground mapped along Hwy 17 from areas south of Chalk River to areas beyond Deux-Rivières
 and the North Bay District boundary. Small, scattered areas of moderate to severe white spruce defoliation
 were mapped along Hwy 17 between Pembroke and Chalk River. An additional 3,095 ha of light defoliation were
 aerially mapped in eastern Algonquin Provincial Park with intermittent areas of moderate to severe defoliation in
 the northeastern part of the park. Small areas of light defoliation were also mapped around Barry's Bay, Wilno,
 Killaloe, and Eganville.
- In Minden Parry Sound Bracebridge District, 12,398 ha of moderate to severe spruce budworm defoliation were ground and aerial mapped. Moderate to severe spruce budworm defoliation was mapped along Hwy 11 from South River to Sundridge. In Sundridge, small areas of defoliation were ground mapped along Albert Street South, Pevensey Road, Barriedale Road, areas west of Crooked Lake, and many smaller areas along Kent Mill Road, Pickerel, and Jack Lake Road. In South River, moderate to severe defoliation was ground mapped southwest of Twentyseven Lake, south of Smyth Lake, and along Lindsay's Hill Road. Moderate to severe defoliation was also mapped along Hwy 124, Nipissing Road, and Nelson Lake Road. Additionally, 211 ha of light defoliation were mapped near the eastern border of Algonquin Provincial Park between Kearney and Brooks Mill.
- In Aurora Midhurst Owen Sound District, 8,363 ha of moderate to severe spruce budworm defoliation were aerially mapped across the district. Concentrated areas of moderate to severe and light white spruce and balsam fir defoliation were mapped in Northern Bruce Peninsula, in areas between Tobermory and Stokes Bay. In South Bruce Peninsula, moderate to severe white spruce defoliation was mapped east of Boat Lake. An additional 641

ha of light defoliation were mapped during ground surveys in Northern Bruce Peninsula in areas east of Hwy 6 from Crane Lake north to Tobermory.

• In Peterborough Bancroft District, 223 ha of moderate to severe spruce budworm defoliation were aerially mapped in Balsam Lake Provincial Park in Coboconk, and along Alvar Road by Lake Dalrymple in Kawartha Lakes.

Trend analysis/outlook/issues

Spruce budworm spray program

In 2024, the MNR undertook an insect pest management program for spruce budworm affected stands in Hearst Cochrane Kapuskasing, Chapleau Wawa, and Timmins Kirkland Lake districts. A double application of the bacterial insecticide Btk (Foray 76B) was applied at 1.5 L/ha to 150,770 ha of spruce/fir stands. An efficacy assessment, including both pre- and post-spray budworm populations and subsequent defoliation assessments, confirmed that the foliage protection program was successful in keeping defoliation below 40% in all but four assessed plots. These plots did however have decreased spruce budworm population levels compared to pre-spray and post spray.

As part of the efficacy assessment, 33 plots were established in treated areas (spray) and 12 plots in untreated areas (control). Treated areas were divided into three project areas (districts), with each project area containing spray plots and nearby control plots.

In Hearst Cochrane Kapuskasing District, an average defoliation of 25% occurred in spray plots and 48% in control plots. In Timmins Kirkland Lake District, an average defoliation of 22% occurred in spray plots and 43% defoliation in control plots. In Chapleau Wawa District, an average defoliation of 19% occurred in spray plots and 22% in control plots.

This year was the fourth consecutive year managing the current spruce budworm outbreak in Northeast Region.

Spruce budworm pheromone trapping

Spruce budworm pheromone trapping was carried out across the province. Traps were deployed at 61 locations: 16 in Northwest Region, 27 in Northeast Region, and 18 in Southern Region.

In Northwest Region, the average number of male moths per trap was 285, with the highest trap average in Nipigon Geraldton District with 1,136 male moths per trap. In Northeast Region, the average number of male moths per trap was 360, with the highest trap average in Hearst Cochrane Kapuskasing District with 938 male moths per trap. In Southern Region, the average number of male moths per trap was 159, with the highest trap average in Pembroke District with 848 male moths per trap.

Spruce budworm defoliation forecast survey

In Ontario, spruce budworm defoliation forecasting is based on surveys of the number of overwintering larvae on tree branches. Spruce budworm overwinter as second instar larvae (L2) by encapsulating themselves in silken shelters (hibernacula) under branch scales and bark cracks. These larvae typically shelter from late August until the following spring. This overwintering stage of the lifecycle allows monitoring crews to collect branches and extract and count larvae to forecast the potential severity of defoliation the following spring and summer. Defoliation forecasts are used to determine which stands should be considered for protection. Locations for L2 surveys are selected based on defoliation mapped during the current infestation.

From each location, ten trees were selected, and a one metre branch was sampled from the mid to upper crown of each tree. Branches were sent to a laboratory to be processed in a sodium hydroxide washing procedure to extract the second instar larvae from their hibernacula. Extracted larvae were collected and counted under a microscope to determine the average number of larvae per branch for each sample location. This average is used to forecast spruce budworm defoliation for 2025. An average of more than 65 larvae per branch indicates potential for severe defoliation, 26 to 65 larvae per branch indicates potential for moderate defoliation, and less than 25 larvae per branch indicates potential for light defoliation.

In the province, 71 locations (710 trees) were sampled. These locations were divided among districts: Timmins Kirkland Lake (20), Hearst Cochrane Kapuskasing (13), Dryden Fort Francis Atikokan (11), Thunder Bay Ignace (10), Chapleau Wawa (9), Nipigon Geraldton (5), Pembroke District (2), and Minden Parry Sound Bracebridge (1).

The defoliation forecast for 2024 by district is:

- Timmins Kirkland Lake: moderate for two locations, light for eighteen locations
- Hearst Cochrane Kapuskasing: moderate for one location, light for twelve locations
- Dryden Fort Francis Atikokan: moderate for two locations, light for nine locations
- Thunder Bay Ignace: moderate for three locations, light for seven locations
- Chapleau Wawa: light for nine locations
- Nipigon Geraldton: moderate for three locations, light for two locations
- Minden Parry Sound Bracebridge: light for one location
- Pembroke: moderate for one location, light for one location



Total area (in hectares) in which spruce budworm caused moderate to severe defoliation in Ontario from 1950 to 2024.

Total area (hectares) in which spruce budworm caused moderate to severe defoliation from 2020–2024 by MNR district.

| Region | Area of damage (ha) | | | | |
|-----------------------------------|---------------------|-----------|-----------|-----------|-----------|
| District | 2020 | 2021 | 2022 | 2023 | 2024 |
| Northwest | | | | | |
| Dryden Fort Frances Atikokan | 0 | 0 | 0 | 14,072 | 75,183 |
| Far North | 0 | 0 | 0 | | |
| Kenora | 0 | 0 | 0 | 58 | 4911 |
| Nipigon Geraldton | 0 | 0 | 0 | 101,885 | 13,994 |
| Red Lake Sioux Lookout | 0 | 0 | 0 | | 4,414 |
| Thunder Bay Ignace | 0 | 0 | 0 | 3,002 | 17,316 |
| Sub Total | 0 | 0 | 0 | 119,018 | 115,818 |
| Northeast | | | | | |
| Chapleau Wawa | 24,100 | 143,278 | 156,232 | 349,383 | 314,881 |
| Hearst Cochrane Kapuskasing | 254,868 | 525,697 | 648,136 | 536,566 | 512,238 |
| North Bay | 29,428 | 30,574 | 41,750 | 76,475 | 74,012 |
| Sault Ste Marie Blind River | 10,826 | 6,435 | 22,018 | 60,231 | 101,403 |
| Sudbury | 23,421 | 157,832 | 437,474 | 275,611 | 62,147 |
| Timmins Kirkland Lake | 92,910 | 438,373 | 706,842 | 552,639 | 274,899 |
| Sub Total | 435,554 | 1,302,190 | 2,012,451 | 1,850,904 | 1,339,580 |
| Southern | | | | | |
| Aurora Midhurst Owen Sound | 0 | 0 | 0 | 0 | 8,363 |
| Aylmer Guelph | 0 | 0 | 0 | 0 | 0 |
| Kemptville Kingston | 0 | 0 | 0 | 0 | 0 |
| Minden Parry Sound Bracebridge | 6,873 | 348 | 16,588 | 12,731 | 12398 |
| Pembroke | 0 | 0 | 1 | 389 | 65,634 |
| Peterborough Bancroft | 0 | 0 | 0 | 0 | 223 |
| Sub Total | 6,873 | 348 | 16,588 | 13,119 | 86,616 |
| Provincial Total | 442,426 | 1,302,537 | 2,029,039 | 1,983,042 | 1,542,014 |



Areas in Ontario where spruce budworm caused defoliation

Light = 8,104 ha Moderate to severe = 1,542,016 ha Mortality = 37,654 ha









Areas in the Northwest Region where spruce budworm caused defoliation

Moderate to severe = 115,818 ha Mortality = 67 ha



Area of moderate to severe defoliation

Area of mortality







Areas in the Northeast Region where spruce budworm caused defoliation

Light = 4,157 ha Moderate to severe = 1,339,581 ha Mortality = 37,587 ha









Areas in the Southern Region where spruce budworm caused defoliation

Light = 3,947 ha Moderate to severe = 86,617 ha



Area of moderate to severe defoliation







Defoliation forecast 2025

- Moderate
- Light

Spruce budworm defoliation 2024







Defoliation forecast 2025

- Moderate
- Light

Spruce budworm defoliation 2024











- Moderate
- Light

Spruce budworm defoliation 2024











- Moderate
- Light





] province_extent







Spruce budworm pheromone trapping results 2024

Average number of moths per trap

- < 10
- 10 25
- 0 25 50
- **•** 50 100
- > 100





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Willow leafminer

Pest information

| Common name: | Willow leafminer |
|------------------------------|--------------------------------------|
| Scientific name: | Micrurapteryx salicifoliella (Cham.) |
| Pest origin: | Native to North America |
| Pest type: | Leaf miner |
| Host species (Ontario 2024): | Willow spp |
| Infestation area: | 636 ha (moderate to severe) |

Provincial key facts

- Willow leafminer is a defoliator that affects willow.
- This pest can be widespread at times.
- The larvae feed on the inner tissue of leaves causing foliage to turn brown and drop prematurely.
- This pest was most recently recorded in Ontario in 2014.
- In 2024, 636 ha of moderate to severe willow leaf miner defoliation were mapped in Northeast Region.

Regional summary

Northeast

- In Hearst Cochrane Kapuskasing District, 636 ha of moderate to severe willow leafminer defoliation were aerially mapped intermittently along the Hwy 11 corridor from Iroquois Falls to Kapuskasing.
- In Chapleau Wawa District, moderate willow leafminer defoliation was recorded along Whitehorse Road in Hornepayne, and along Lafreniere Road near Missinaibi Provincial Park in Chapleau. Throughout Chapleau Wawa District, light to moderate levels of willow leafminer defoliation were observed along most surveyed roads and highways.



Willow leaf miner 2024

Areas in Ontario where willow leaf miner caused defoliation

Moderate to severe = 636 ha







Minor forest disturbances



Balsam poplar leafblotch miner

Pest information

| Common name: | Balsam poplar leafblotch miner |
|------------------------------|---------------------------------|
| Scientific name: | Phyllonorycter nipigion (Free.) |
| Pest origin: | Native to North America |
| Pest type: | Defoliator |
| Host species (Ontario 2024): | Balsam poplar |
| Infestation area: | Localized |

Provincial key facts

- Balsam poplar leafblotch miner occurs occasionally in large numbers in Ontario and infestations are short lived.
- This balsam poplar pest is most common north and west of Lake Superior.
- The balsam polar leafblotch miner is closely related to the aspen leafblotch miner.
- In 2024, balsam poplar leafblotch miner was recorded in Northwest and Northeast regions.

Regional summary

Northwest

- In Thunder Bay Ignace District, moderate to severe balsam poplar leafblotch miner defoliation was observed on balsam poplar trees, especially along the Hwy 11/17 corridors, Hwy 502, and Cedar Narrows Road.
- In Nipigon Geraldton District, moderate to severe balsam poplar leafblotch miner defoliation was observed on balsam poplar trees, especially along the Hwy 17 and Hwy 11 corridors.
- In Red Lake Dryden District, light balsam poplar leafblotch miner defoliation was recorded along Hwy 105 and Gleave Rd.

Northeast

• In Sault Ste. Marie Blind River District, light balsam poplar leafblotch miner defoliation was observed on several roadside balsam poplar trees along central Ranger Lake Road and in Sturgeon Twp. Balsam poplar leafblotch larvae were recorded feeding inside mines on leaves along Ranger Lake Road.

Beech scale

Pest information

| Common name: | Beech scale |
|------------------------------|-------------------------------|
| Scientific name: | Cryptococcus fagisuga Linding |
| Pest origin: | Invasive — native to Europe |
| Pest type: | Sucking insect |
| Host species (Ontario 2024): | American beech |
| Infestation area: | Localized |

Provincial key facts

- Beech scale was first found in Canada in the 1890s in Halifax, Nova Scotia.
- In Ontario, it was first found in 1966 in Elgin County along the north shore of Lake Erie.
- This insect is now found across the range of beech in Ontario.
- Infestation with scale predisposes beech trees to beech bark disease, which noticeably reduces vigour and eventually kills the tree.
- In 2024, various levels of beech scale were observed in Northeast and Southern regions.

Regional summary

Northeast

- In Sault Ste Marie Blind River District, moderate amounts of beech scale were collected on mature American beech trees in Striker Twp near Blind River. Most mature American beech in the stand had full crowns with some displaying crown dieback. Light levels of beech scale were also observed on a fringe tree on A Line Road in St. Joseph Twp.
- In North Bay District, light to moderate beech scale was collected on a single mature beech tree off Rye Road near Commanda.

forest disturbance:

VIINOr

Southern

- In Aylmer Guelph District, severe levels of beech scale were observed on mature and semi-mature American beech trees in Linfield Conservation Area. Moderate beech scale colonies were observed on large diameter, codominant American beech trees in the western section of Hullett Marsh Provincial Wildlife Area at a Wildlife Line access point. Light scale was collected on several large diameter American beech trees in the north sections of Varna Nature Trails, near Bayfield. Low populations of beech scale were also detected on co-dominant American beech trees at Morrison Dam Conservation Area in Exeter. In Perth County, low levels of beech scale were detected on mature American beech trees at Sawyer Preservation Woodlot, south of Russeldale. Trace to low levels of beech scale were present on mature beech trees in a woodlot along Centennial Road, west of Goshen.
- In Minden Parry Sound Bracebridge District, severe beech scale was collected on Blind Bay Cottage Road near Killbear Provincial Park. Beech scale was observed affecting large diameter, codominant trees with some lower levels of scale observed on all other tree classes. Moderate to severe beech scale was collected from a young hardwood stand along Blue Spruce Road in Dwight.
- In Pembroke District, light beech scale was observed on American beech trees of various age classes in a mature hardwood stand in Little McCauley Lake portage trail off Hwy 60 in Algonquin Park.



Birch casebearer

Pest information

| Common name: | Birch casebearer |
|------------------------------|--------------------------------------|
| Scientific name: | Coleophora serratella (L.) |
| Pest origin: | Invasive — native to Europe |
| Pest type: | Defoliator |
| Host species (Ontario 2024): | White birch, yellow birch, alder spp |
| Infestation area: | Localized |

Provincial key facts

- Birch casebearer was first reported in North America in 1927.
- Consecutive years of severe defoliation by this insect can cause branch and twig mortality and, when outbreaks are severe, may kill the tree.
- This casebearer produces one generation per year.
- Its preferred host is white birch but also defoliates other birch and alder species.
- In 2024, birch casebearer was observed in the Northeast and Southern regions.

Regional summary

Northeast

- In Sudbury District, severe birch casebearer defoliation was collected at a boat launch on Stinson Hydro Road, near Wahnapitae. Light defoliation on white birch was recorded along Kukagami Lake Road with only one to two casebearers per leaf throughout codominant and intermediate tree crowns. Light birch casebearer defoliation was also observed on Sinaminda Lake Road in Solski Twp, and on Sand Bay Road, in Nairn Centre.
- In Sault Ste. Marie Blind River District, moderate to severe birch casebearer defoliation was collected on a couple mature white birch on the east end of Hwy 556 (Ranger Lake Road). Moderate to severe defoliation was also observed sporadically along the central part of Ranger Lake Road and towards Searchmont, with one to five trees affected in each area. Similar occurrences were observed along Hwy 129.
- In Chapleau Wawa District, a small area of light to moderate birch casebearer defoliation was reported between

the Wawa Tourist Information Centre and Hwy 17, and intermittently along Hwy 17 from Wawa to Hwy 519. Birch casebearer affected all ages and sizes of white birch.

Southern

- In Minden Parry Sound Bracebridge District, severe birch casebearer defoliation was observed on white birch along Hekkla Road in Cardwell Twp, near Rosseau. Severe defoliation was observed throughout entire crown of all tree classes on yellow birch and alder along Bear Cave Road in Cardwell Twp, with multiple birch casebearers per leaf.
- In Peterborough Bancroft District, moderate to severe birch casebearer defoliation was recorded on alder on County Road 25 in Castleton. Moderate defoliation from birch casebearer was also confirmed on planted mature European black alder trees on County Road 10 in Campbellcroft.

Birch leafminer

Pest information

| Common name: | Birch leafminer |
|------------------------------|------------------------------|
| Scientific name: | <i>Fenusa pusilla</i> (Lep.) |
| Pest origin: | Invasive — native to Europe |
| Pest type: | Defoliator |
| Host species (Ontario 2024): | White birch |
| Infestation area: | Localized |

Provincial key facts

- Birch leafminer was first identified in Quebec in 1929, with the first outbreak recorded in Ontario in 1939.
- In Canada, birch leafminer occurs from Newfoundland to Alberta.
- Birch leafminer produces two to four generations per year.
- Birch leafminer damage is most severe on open grown white birch.
- In 2024, birch leafminer was reported in Northeast Region.

Regional summary

Northeast

In Sault Ste. Marie Blind River District, moderate to severe defoliation was observed affecting several areas of white birch, in all canopy classes, along 3rd, 4th, and 5th Line in Sault Ste. Marie. Other observations of moderate to severe defoliation were made on Trout Lake Road in Aweres Township, Hwy 552 in Goulais River, Lake Shore Drive in Red Rock, Hwy 532 in Searchmont, Hwy 129, Hwy 554, Camp Dours Road in St. Joseph Township, Hwy 638 in Aberdeen Additional Township, and Centre Line Road in Bruce Mines. Collections of birch leafminer causing moderate to severe defoliation were made on Ranger Lake Road, Hwy 17 north of Sault Ste. Marie, Robertson Lake Road in Vankoughnet Township, and Connor Road north of Sault Ste. Marie. Light defoliation with intermittent areas of moderate defoliation were recorded on Hwy 17 north of Batchewana to the district boundary. Light levels of defoliation were observed on Maple Ridge Road in Batchewana and on Mile 38 Road. Trace areas of defoliation were observed on Hogg Road in the Montreal River Harbour area.

Eastern tent caterpillar

Pest information

| Common name: | Eastern tent caterpillar |
|------------------------------|----------------------------|
| Scientific name: | Malacosoma americanum (F |
| Pest origin: | Native to North America |
| Pest type: | Defoliator |
| Host species (Ontario 2024): | Choke cherry, black cherry |
| Infestation area: | Localized |

Provincial key facts

- Eastern tent caterpillar populations fluctuate annually.
- Larvae usually defoliate cherry and apple trees and occasionally mature black cherry.
- It is not considered a major pest, though nests can be unsightly.
- Defoliation by eastern tent caterpillar causes little permanent damage to the host tree.
- In 2024, localized eastern tent caterpillar populations were reported in Southern Region.

Regional summary

Southern

 In Aurora Midhurst Owen Sound District, eastern tent caterpillar defoliation was reported in two locations in Simcoe County in Springwater Twp during ground surveys. Severe defoliation was reported on choke cherry and black cherry at Hendrie Tract on Hendrie Road and on choke cherry at Drury Tract on Penetanguishene Road. In Halton Region, moderate to severe defoliation on choke cherry caused by eastern tent caterpillar was reported at Mountsberg Conservation Area during ground surveys. Moderate to severe defoliation on choke cherry was also reported at Terra Cotta Conservation Area.

Elm leafminer

Pest information

| Common name: | Elm leafminer |
|------------------------------|-----------------------------|
| Scientific name: | <i>Fenusa ulmi</i> Sund. |
| Pest origin: | Invasive — native to Europe |
| Pest type: | Defoliator |
| Host species (Ontario 2024): | White elm |
| Infestation area: | Localized |

Provincial key facts

- Elm leafminer was introduced to North America before 1898 and has since become well established in southeastern Ontario.
- Larval feeding causes leaf browning and irregular holes that can affect tree aesthetics and may reduce vigour and growth of most elm species.
- In 2024, elm leafminer caused localized moderate defoliation in Southern Region.

Regional summary

Southern

- In Kemptville Kingston District, localized moderate elm leafminer defoliation was observed on mature and young white elm trees along Thousand Islands Parkway, near Mallorytown, in Leeds and Thousand Islands Twp. Leaf mining defoliation was observed throughout surveyed elm tree crowns. In South Frontenac Twp, moderate elm leafminer defoliation was recorded on mature and young white elms, along Bellrock Road, near Verona.
- In Peterborough Bancroft District, moderate elm leafminer defoliation was observed in localized areas on multiple age classes of white elm trees. In Prince Edward County, elm leafminer caused moderate defoliation to fringe white elm, of all age classes, in a small area along County Road 13, north of Black River. In Northumberland County, moderate elm leafminer defoliation was recorded on a mature multi-stemmed fringe white elm, along an agricultural field, off County Road 30 in Meyersburg.

Elm zigzag sawfly

Pest information

| Common name: | Elm zigzag sawfly |
|------------------------------|------------------------------|
| Scientific name: | Aproceros leucopoda Takeuchi |
| Pest origin: | Invasive — native to Asia |
| Pest type: | Defoliator |
| Host species (Ontario 2024): | White elm |
| Infestation area: | Localized |

Provincial key facts

- The Canadian Food Inspection Agency confirmed elm zigzag sawfly presence in Quebec in 2020. This detection was the first confirmed record of the pest in North America. It has since been reported in areas of Quebec and southern Ontario.
- Elm zigzag sawfly is native to parts of China and Japan, but has established in other parts of Asia, Europe, and North America.
- Elm zigzag sawfly gets its name from the characteristic zigzag pattern left by larvae as they feed on elm leaves. It can cause severe defoliation of elm trees.
- The insect reproduces asexually with up to six generations per year in the world's temperate regions. Adult sawflies are strong fliers, covering up to 90 km per year.
- In 2024, elm zigzag sawfly larvae and defoliation were detected during ground surveys in four districts in Southern Region.

Regional summary

Southern

• In Aylmer Guelph District, varying levels of elm zigzag sawfly defoliation were detected during ground surveys. In Hamilton, moderate to severe defoliation on two open-grown white elm trees was observed at the intersection of Whitechurch Road East and Tyneside Road near Mt. Hope. Larvae and pupal cases were abundant and observed on every leaf surveyed. In Waterloo Region, light elm zigzag sawfly defoliation was reported on regenerating white elm trees along a trail at Sandy Hills Forest, north of Elmira. In Wellington County, light defoliation on young white elm trees was observed along the G2G Rail Trail at the trailhead west of Ariss on



8 Line East. Also, trace defoliation was reported along Cottontail Road Trail at Wellington Road 7 in Elora. In Waterloo Region, larvae were observed causing trace elm defoliation at Schneiders Bush on Wilmot Line. Trace defoliation and larvae were also observed in the southern part of the region at Bannister Lake and FWR Dickson conservation areas. In Hamilton, trace defoliation was also reported on young, open grown elm trees at Dundas Valley Conservation Area along Headwaters Trail.

- In Aurora Midhurst Owen Sound District, elm zigzag sawfly defoliation was reported at locations in two counties during ground surveys. In Simcoe County, light defoliation on open-grown white elm was observed at Homewood Park in Orillia. Light white elm defoliation was also reported at the intersection of Crossland Road and Flos Road 4 W, west of Phelpston in Springwater Twp. In Grey County, light elm zigzag sawfly defoliation was reported on white elm at Old Baldy Conservation Area in Grey Highlands.
- In Kemptville Kingston District, light elm zigzag sawfly defoliation was detected on white elm during ground surveys at various locations including areas south of Ottawa in Russell Twp; Purdon Conservation Area in Lanark Highlands Twp; and along the Thousand Islands Parkway in Leeds and Thousand Islands Twp.
- In Peterborough Bancroft District, trace elm zigzag sawfly defoliation was observed on three mature white elm trees along Youngs Point Road in Lakefield, Selwyn Twp.


Fall cankerworm

Pest information

| Common name: | Fall cankerworm |
|------------------------------|-----------------------------------|
| Scientific name: | Alsophila pometaria (Harris) |
| Pest origin: | Native to North America |
| Pest type: | Defoliator |
| Host species (Ontario 2024): | American beech, basswood, red oak |
| Infestation area: | Localized |

Provincial key facts

- Fall cankerworm is an early season defoliator of hardwood trees that can reach epidemic levels throughout its range in North America.
- The distribution of this native pest is thought to coincide with the range of basswood in Ontario.
- This pest has one generation per year.
- In North America, fall cankerworm has an outbreak cycle with large populations present for two to three years followed by sharp population declines for five to eight years.
- The most recent fall cankerworm outbreak in Ontario occurred between 2016 and 2019, with areas of defoliation aerially mapped across Southern Region in 2016, 2017, and 2018.
- In 2024, defoliation caused by fall cankerworm was not aerially mapped but localized defoliation was reported in two areas of Aylmer Guelph District in Southern Region.

Regional summary

Southern

• In Aylmer Guelph District, fall cankerworm defoliation was reported at two locations. For the second consecutive year, moderate to severe fall cankerworm defoliation was reported on red oaks and basswood of all age and canopy classes along Pinery Line near Auburn in Huron County. In Niagara Region, trace defoliation was observed along Cataract Road in the eastern section of Short Hills Provincial Park. Green and black larvae of various larval instars were observed feeding on basswood and American beech in the understorey and along the forest edge.

Fall webworm

Pest information

| Common name: | Fall webworm |
|------------------------------|--|
| Scientific name: | Hyphantria cunea (Drury) |
| Pest origin: | Native to North America |
| Pest type: | Defoliator |
| Host species (Ontario 2024): | American elm, ash spp., black walnut, cherry spp., hickory spp., Manitoba maple, speck led alder, white birch, poplar spp., willow spp., American basswood, bitternut hickory, black locust, lilac |
| Infestation area: | Localized |

Provincial key facts

- Fall webworm is one of the few native North American insects accidently introduced into Europe and Asia.
- Its effect on tree health is usually limited because defoliation occurs late in the growing season, but persistent infestation can cause branch and crown dieback.
- In Canada, only one generation of fall webworm occurs per year, whereas two will occur in warmer climates.
- High populations of this pest often last only two to three years, making associated tree mortality unlikely.
- In 2024, defoliation from fall webworm varied from trace to severe in Northeast and Southern regions.

Regional summary

Northeast

In North Bay District, moderate to severe fall webworm defoliation affected black ash stands along Hwy 64 south
of Musky Island Road near Lavigne, Jocko Point Road heading West to Sturgeon Falls along Hwy 17. Severe fall
webworm defoliation was recorded east of the town of North Bay to Corbeil and from Hwy 11 south of North
Bay to Powassan. Moderate to severe defoliation was observed west of Gormanville Road to Beaucage Park
Road with heavy focus on the Lake Nipissing shoreline and along Hwy 654 in black ash stands. Light to moderate
fall webworm defoliation levels were observed along Hwy 63 near Redbridge and Songis Road.

- In Sault Ste. Marie Blind River District, light fall webworm defoliation was observed on ash species, speckled alder, white birch, and cherry species in Havilland Twp, along Hwy 532 west and central parts of Ranger Lake Road. In Sturgeon Twp, trace levels of fall webworm defoliation were observed on speckled alder and pin cherry along Hwy 129, and on willow species along Robb Road in Blind River.
- In Sudbury District, light fall webworm defoliation was observed along Hwy 64 from Musky Island Road to Hwy 69, Sand Bay Road in Nairn Centre, and along Jacklin Road in Espanola.

Southern

- In Aylmer Guelph District, moderate to severe fall webworm defoliation was observed on black walnut trees ٠ along Hwy 3 (Talbot Line) from Eagle to New Glasgow in Elgin County. In Chatham-Kent, moderate to severe fall webworm defoliation on black walnut and ash species was reported along Hwy 401 at the Highgate interchange. In Lambton County, moderate fall webworm defoliation was observed on hickory species, Manitoba maples, and black cherry along Churchill Line (County Road 14) from Nauvoo Road (County Road 79) to Mandamin Road. In Middlesex County, moderate fall webworm defoliation was observed on open grown and woodlot fringe black walnut, black locust, and willow species along Hwy 402 between Delaware and Strathroy. Areas of moderate black cherry and black walnut defoliation were detected along Hwy 23 (Mitchell Line) from Elginfield north to Whalen Corners. Intermittent areas of light to moderate fall webworm defoliation were observed on black walnut along Valleyview Road between Thorndale Road and Elginfield Road. Light black cherry defoliation was observed along Westdel Bourne at Woodhull Road. In Huron County, trace to light fall webworm defoliation was reported on black walnut, willow species, and bitternut hickory along Bannockburn Line from Centennial Road to Bayfield Road, south of Clinton. In Perth County, light fall webworm defoliation was observed on mature black walnut, black cherry, and Manitoba maples at Wildwood Conservation Area and along Perth Road 96 at Harrington. In Oxford County, trace defoliation was observed on bitternut hickory and Manitoba maple trees along Hawkins Road between Pigram Road and Dereham Line, east of Tillsonburg. In Norfolk County, trace black walnut and white elm defoliation was observed along Byerlay Sideroad from Hwy 3 (Talbot Rd) to 3rd Concession Road Str, southeast of Tillsonburg.
- In Minden Parry Sound Bracebridge District, moderate fall webworm defoliation was observed along Hwy 69 between Muskrat Bay Road and Beckanon Road. Light defoliation was recorded along Hwy 529, East of S Narrows (Dollars Lake) along Hwy 522, Winhara Road to Route 41 in Gravenhurst, and Troutspawn Lake Road near Oxtongue Lake. Light fall webworm defoliation affected mature trees intermittently from Old North Road to Hwy 60 turnoff along Hwy 11. Light defoliation caused by fall webworm was observed along Hwy 11, from Hwy 60 turnoff to exit 182, towards Hwy 118. Light defoliation was observed along Hwy 117 to Echo Lake Road and along Echo Lake Road in Baysville. Trace fall webworm defoliation was observed on pin cherry in Dunchurch along Hwy 124.
- In Peterborough Bancroft District, intermittent areas of moderate fall webworm defoliation were observed along County Road 2 and Third Line near Bailieboro, along Asphodel 2nd Line, Asphodel 3rd Line, and County

Road 2 near Birdsalls and Villiers primarily on mature black walnut and young ash species, but also on white elm, basswood, black cherry, and lilac. Moderate fall webworm defoliation was also recorded on white elm, ash species, bitternut hickory, black locust, and white birch east of Havelock along Hwy 7 near Preneveau, along County Road 46 from Havelock to Round Lake, and Youngs Point Road from Lakefield to Youngs Point.

• In Pembroke District, moderate fall webworm defoliation was observed along Wylie Road between Chalk River and Deep River, primarily affecting black ash trees.



Frost damage

Pest information

| Common name: | Frost damage |
|------------------------------|--------------|
| Scientific name: | NA |
| Pest origin: | NA |
| Pest type: | Abiotic |
| Host species (Ontario 2024): | Red oak |
| Infestation area: | Localized |

Provincial key facts

- Frost can be damaging to new conifer shoots and emerging or flushed hardwood leaves.
- Heavier frost damage is encountered in low lying areas causing newly emerged conifer shoots to droop and turn red and hardwood leaves to curl and turn black.
- In 2024, frost damage was reported in Northeast and Southern regions.

Regional summary

Northeast

• In Sudbury District, cooler May overnight temperatures resulted in browning and shriveling of new leaves. New leaves began to re-flush within a few weeks and dead leaves were retained on the trees giving them an overall brown hue. Frost damage was observed on red oak along Desmarais Road, ending before Joe Lake Road. All red oak sizes and canopy classes were affected.

Southern

 In Minden Parry Sound Bracebridge District, frost damage was observed on red oaks on Pinewood Road and along the Hwy 124 corridor into Parry Sound, starting near Waubmik. Intermittent damage was recorded along Nipissing Road in Magnetawan and Seabreeze Road in Dwight. All red oak sizes and canopy classes were affected.

Greenstriped mapleworm

Pest information

| Common name: | Greenstriped mapleworm |
|------------------------------|--|
| Scientific name: | Dryocampa rubicunda (F.) |
| Pest origin: | Native to North America |
| Pest type: | Defoliator |
| Host species (Ontario 2024): | Red maple, sugar maple, red oak, white birch, beaked hazel |
| Infestation area: | Localized |

Provincial key facts

- Greenstriped mapleworm feeds primarily on red and sugar maple.
- Larvae feed on the underside of leaves and consume most of the leaf tissue other than the mid rib and larger veins.
- Severe infestations may decrease growth, cause crown dieback, and reduce the sap quality of sugar maple.
- In 2024, greenstriped mapleworm caused localized moderate to severe defoliation in all regions.

Regional summary

Northwest

In Dryden Fort Frances Atikokan District, localized areas of severe greenstriped mapleworm defoliation were
observed on red maple throughout the district. Numerous reports were made concerning red maple defoliation
on ornamental trees and roadside fringe trees. Majority of red maples along Highway 11, west from Quetico
Centre to Fort Frances, were completely defoliated. Severe red maple defoliation was also observed along
Highway 502 north towards the town of Dryden.

Northeast

 In Sudbury District, severe greenstriped mapleworm defoliation was observed on understory red maple along Hwy 84 north of Capreol, Ritchie Falls Road, and Hwy 810, south of Ritchie Falls. Severe defoliation was reported on young red maple and white birch in Garson Twp and on Ashigami Lake Road. Severe sugar maple defoliation was reported in the Long Lake area, south of Sudbury. Moderate greenstriped mapleworm defoliation was observed on a young red oak and white birch stand on Skead Road in Garson.

Southern

• In Pembroke District, localized severe greenstriped mapleworm defoliation was observed affecting semi-mature and young maples in an eastern white pine stand at Jack Pine Park in Petawawa. Larvae were also found feeding on red oak and beaked hazel saplings in the understorey. North of Petawawa, moderate to severe greenstriped mapleworm defoliation was observed on semi-mature and understorey red maple trees at Brindle Crossing along Hwy 17.



Imported willow leaf beetle

Pest information

| Common name: | Imported willow leaf beetle |
|------------------------------|-------------------------------|
| Scientific name: | Plagiodera versicolora (Laich |
| Pest origin: | Invasive — native to Europe |
| Pest type: | Defoliator |
| Host species (Ontario 2024): | Willow spp. |
| Infestation area: | Localized |

Provincial key facts

- Imported willow leaf beetle was introduced to North America in 1915 and is now widely distributed across willow range in Ontario.
- Up to three generations of this insect can occur in a year.
- This pest can cause severe defoliation, but the damage is not serious unless defoliation occurs in several consecutive years.
- In 2024, localized imported willow leaf beetle defoliation was reported in Southern Region.

Regional summary

Southern

• In Peterborough Bancroft District, moderate imported willow leaf beetle defoliation was recorded on mature willows along a low-lying area in a residential location in Grafton, Northumberland County.

Introduced pine sawfly

Pest information

| Common name: | Introduced pine sawfly |
|------------------------------|-----------------------------|
| Scientific name: | Diprion similis (Htg.) |
| Pest origin: | Invasive — native to Europe |
| Pest type: | Defoliator |
| Host species (Ontario 2024): | White pine, jack pine |
| Infestation area: | Localized |

Provincial key facts

- Introduced pine sawfly was first found in Ontario, near Oakville, in 1931.
- This sawfly causes severe defoliation that has resulted in widespread tree mortality in affected areas.
- Natural control factors help keep populations low.
- Introduced pine sawfly has two generations per year, with the second generation usually more abundant in August and September.
- In 2024, introduced pine sawfly was observed in Northeast and Southern regions.

Regional summary

Northeast

• In Sudbury District, light introduced pine sawfly defoliation was recorded on Wolseley Bay Road.

Southern

- In Minden Parry Sound Bracebridge District, severe introduced pine sawfly defoliation was reported along shoreline areas in Archipelago Twp, west of MacTier. Introduced pine sawfly larvae causing light defoliation were collected on white pine and jack pine on Hartley Bay Road. Light white pine defoliation was recorded on Blind Bay Cottage Road in Carling, near Killbear Provincial Park.
- In Aurora Midhurst Owen Sound District, light introduced pine sawfly defoliation was observed on young white pine along trails in Glen Major Forest in Durham County. In Simcoe County, trace populations of introduced pine sawfly causing light defoliation in a young white pine plantation were reported along Simcoe County Road 56 in Springwater Twp.

Locust leafminer

Pest information

| Common name: | Locust leafminer |
|------------------------------|----------------------------|
| Scientific name: | Odontota dorsalis (Thunb.) |
| Pest origin: | Native to North America |
| Pest type: | Defoliator |
| Host species (Ontario 2024): | Black locust |
| Infestation area: | Localized |

Provincial key facts

- Locust leafminer occurs in southern Canada and most of eastern United States and can cause extensive widespread damage mainly to black locust trees.
- Adult and larval feeding causes leaf browning and may cause mortality if severe defoliation occurs during a poor growing season.
- Locust leafminer larvae and pupae parasites reduce high populations.
- In 2024, locust leafminer caused moderate defoliation to black locust in Southern Region.

Regional summary

Southern

• In Peterborough Bancroft District, moderate locust leafminer defoliation was recorded in a semi mature black locust stand surrounding residential property on both sides of Hwy 2 from Clitheroe Road to Cherry Hill Road in Grafton. Two small areas of moderate defoliation were also recorded along east-bound Hwy 401 between Cobourg and Grafton on young, fringe black locust trees. Defoliation was recorded for second consecutive year in these areas.

Needle cast

Pest information

| Needle cast |
|--|
| Lophodermium spp., Lophophacidium sp. (Phacidiaceae), Hendersonia pinicola |
| Native to North America |
| Foliar disease |
| Eastern white pine |
| Localized |
| |

Provincial key facts

- Needle casts are fungal diseases that affect needle-bearing trees of all age classes but are most damaging to seedlings and young trees.
- As with many fungal diseases, needle cast diseases flourish in years with humid and warm spring conditions.
- Multiple years of needle cast infection can reduce tree vigour and growth.
- In 2024, reported symptoms on eastern white pine included yellowing and browning of previous years' needles, premature needle drop, and crown thinning with only current year's growth still present.
- In 2024, localized areas of needle cast damage were observed in Northeast and Southern regions.

Regional summary

Northeast

In Sault Ste Marie Blind River District, light to moderate needle cast damage was recorded on all eastern white pine canopy classes in localized areas. Moderate damage was observed on young, open-grown eastern white pines along Hwy 556 near Searchmont. Light needle cast damage was also observed on several mature eastern white pine in a stand on Hwy 129 in Sturgeon Twp. New foliage at the top of the crown was either browning or missing. Light needle cast was collected on a fringe and an understory tree in the same area. Light needle cast damage was observed on several mature eastern white pine further north on Hwy 129 by Black Creek Road and by Ranger Lake Road in Villeneuve Twp.

Southern

- In Pembroke District, moderate to severe needle cast damage affected mature eastern white pine stands in localized areas. In Renfrew County, areas of moderate to severe needle cast damage were observed between Barry's Bay and Round Lake, along Paugh Lake Road, Simpson Pit Road, Scenic Road, Round Lake Road, and Lehovitch Road. Moderate to severe needle cast damage was observed outside Pembroke, between B Line Road and Hwy 41 south and between Petawawa and Algonquin Provincial Park along Priebe Road and Barron Canyon Road. Moderate to severe needle cast damage was observed intermittently between Petawawa Research Forest and Driftwood Provincial Park along Hwy 17 and Wylie Road. Small areas of moderate to severe damage were reported along the Beachburg Tract of Renfrew County Forest in Beachburg and along Norton Road and Pucker Street north of Calabogie, and along Hwy 41 north of Griffith. In Algonquin Provincial Park, moderate to severe needle cast damage was observed intermittently along Hwy 60, particularly at Mew Lake and Lake of Two Rivers campgrounds, and along the shorelines of Oxtongue River and Westward Lake.
- In Kemptville Kingston District, moderate to severe needle cast damage was observed at Charleston Lake Provincial Park affecting mature white pines in areas adjacent to lakes, roadways, and comfort stations.

Oak decline

| Pest information | |
|------------------------------|-------------|
| Common name: | Oak decline |
| Scientific name: | NA |
| Pest origins: | NA |
| Pest type: | Complex |
| Host species (Ontario 2024): | Red oak |
| Infestation area: | Localized |

Provincial key facts

- Red oak mortality and decline in Ontario's Northeast Region is attributed to a combination of several events over the past nine years.
- In May 2015, a spring frost event occurred across the southern part of Northeast Region. Four consecutive days of below freezing temperatures caused red oak to flush with stunted or damaged leaves.
- In 2017 and 2018, severe forest tent caterpillar defoliation was recorded in Northeast Region. Drought-like conditions preceded and coincided with this defoliation.
- Red oaks are commonly found on rocky sites with shallow soil, making them susceptible to drought stress.
- The combination of these stressors predisposed red oak to secondary factors including armillaria root rot, twolined chestnut borer, and other insects.
- In 2024, additional areas of oak decline were observed in Sault Ste Marie Blind River District.

Regional summary

Northeast

• In Sault Ste. Marie Blind River District, oak decline was observed in a few areas in the southeast part of the district along Hwy 17 east of Iron Bridge, east of Cutler, and along the Mississagi River west of Blind River. In these areas, moderate crown dieback was observed on many overstory red oak. Another smaller area of oak decline was observed on Camp Dours Road on St. Joseph Island where twig and branch dieback were recorded on several roadside red oak.

MULLE III

Oak shothole leafminer

Pest information

| Common name: | Oak shothole leafminer |
|------------------------------|-------------------------------|
| Scientific name: | Japanagromyza viridula (Coq.) |
| Pest origins: | Native to North America |
| Pest type: | Defoliator |
| Host species (Ontario 2024): | Oak species |
| Infestation area: | Localized |
| | |

Provincial key facts

- Oak shothole leafminer larvae and adults feed on newly developing oak buds and leaves, often leaving symmetrical holes and ragged blotch mines.
- Oak shothole leafminer rarely causes lasting damage to the health of mature trees, and natural predators typically keep populations under control. However, defoliation can appear more severe if other stressors are also present.
- In 2024, oak shothole leafminer was reported in localized areas in Northeast and Southern regions.

Regional summary

Northeast

• In Sault Ste Marie Blind River District, moderate oak shothole leafminer defoliation was collected on red oak along Hwy 554, north of Iron Bridge in Parkinson Twp, and along Hwy 17 at the southeast corner of the district near Cutler. Defoliation affected all roadside red oak size classes.

Southern

- In Peterborough Bancroft District, moderate oak shothole leafminer defoliation was recorded on black oak trees in an oak-pine stand off Pratt Road in Peter's Woods Provincial Park, Northumberland County. Moderate defoliation was also recorded on young, open grown black oak in Oak Heights near Castleton.
- In Aylmer Guelph District, light oak shothole leafminer defoliation was reported on young, open grown red and pin oak trees, and on various oak species along the forest edge at Ancaster Rotary Park in Hamilton. Spongy moth larvae were also present and contributed to the light oak tree defoliation at this location. In Norfolk County, light oak shothole leafminer defoliation was reported on black and red oak trees at St. Williams

Conservation Reserve, Turkey Point Provincial Park, Backus Woods, and wooded areas along McDowell Road East between Pine Grove and Bill's Corners. In Elgin County, light oak shothole leafminer defoliation was collected at John E. Pearce Provincial Park. Defoliation was concentrated in areas north of Talbot Line (Hwy 3) and affected young, open grown red oaks of all age classes. Trace oak shothole leafminer defoliation was also collected at Southwold Earthworks National Historic Site, affecting mature red oak trees along the edge of a wooded area.

• In Aurora Midhurst Owen Sound District, light oak shothole leafminer defoliation was recorded on a few mature red oaks in Fort Willow Conservation Area in Grenfel.



Septoria leaf spot

Pest information

| Common name: | Septoria leaf spot |
|------------------------------|--|
| Scientific name: | Sphaerulina betulae (Pass.) Quaedvl., Verkley & Crous, Sphaerulina populicola (Peck) Quaedvlieg, Verkley & Crous, Sphaerulina musiva (Peck) Quaedvl., Verkley & Crous |
| Pest origins: | Native to North America |
| Pest type: | Foliar disease |
| Host species (Ontario 2024): | White birch, balsam poplar, trembling aspen |
| Infestation area: | Localized |

Provincial key facts

- Septoria leaf spot is a common fungal disease of white birch and poplar species.
- This disease commonly infects leaves but can also cause branch and main stem cankers, particularly on hybrid poplar.
- Leaf diseases are normally more prevalent in wet and humid weather. Fallen leaves re-infect new leaves the following year.
- After repeated severe infections, trees may lose vigour and become more susceptible to other pests and pathogens.
- In 2024, various species of septoria leaf spot were observed in Northeast and Southern regions.

Regional summary

Northeast

- In Sudbury District, severe septoria leaf spot of white birch was observed along Hwy 17 between the Hwy 69 junction and Sand Bay Road in Nairn Centre. Severe septoria was observed near a boat launch on Stinson Hydro Road and along Hwy 17, west of Norvic Drive. Moderate septoria leaf spot was observed along east Hwy 17 from the City of Greater Sudbury to Warren.
- In Sault Ste. Marie Blind River District, moderate to severe septoria on white birch was observed in scattered
 patches along Shoepack Lake Road in Vance Twp, on the southern part of Hwy 129, on McCreights Road in
 Kirkwood, throughout Prince Twp, and on Porchuck Road and Lakeview Road near Echo Bay. Light to moderate
 damage was observed on mature white birch along Hwy 638 east of Gordon Lake Road in Aberdeen Additional

Twp and on Centre Line Road in Bruce Mines. Light defoliation was also observed on white birch on Conner Road, Robertson Lake Road, and Hwy 552 in Goulais River. Moderate damage was observed on balsam poplar in several areas. Moderate septoria damage on balsam poplar was observed in Prince Twp, on Porchuk Road and Lakeview Road near Echo Bay, along Hwy 129 near Thessalon, in Laird, Garden River, Neebish and on St. Joseph Island.

- In North Bay District, moderate to severe levels of septoria leaf spot on white birch were observed along Hwy 539 west of Field, Hwy 63 by Redbridge, and Songis Road in Phelps Twp.
- In Timmins Kirkland Lake District, moderate levels of septoria leaf spot were observed on white birch and trembling aspen along Hwy 560, west of Gowganda towards the Upper Notch Dam.

Southern

• In Kemptville Kingston District, moderate septoria leaf spot on balsam poplar was observed on Munster Rd. in Carleton Place. The full canopy of leaves had brown and yellow spots on them, which was observed on many of the poplars in the area.

Southern pine beetle

Pest information

| Common name: | Southern pine beetle |
|------------------------------|-----------------------------------|
| Scientific name: | Dendroctonus frontalis Zimmermann |
| Pest origins: | Native to North America |
| Pest type: | Wood borer |
| Host species (Ontario 2024): | NA |
| Infestation area: | NA |

Provincial key facts

- Southern pine beetle is native to the southeastern United States and Mexico but has been spreading
 northward due to climate change. Pine forests in Canada are predicted to become more climatically suitable if
 temperatures continue to warm.
- Although southern pine beetle has not yet been detected in Canada, it can be found in Maine, New Hampshire, and New York.
- Loss of valuable wildlife habitat and resources, changes in ecological processes, and increased risk of fire during outbreaks are some of the expected effects of southern pine beetle in Canada's pine forests.
- In 2024, the Ministry of Natural Resources collaborated with the Canadian Food Inspection Agency (CFIA) to support the 2024 southern pine beetle trapping survey in Southern Region.

Regional summary

Southern

• The CFIA confirmed no occurrences of southern pine beetle in Ontario.

Trend analysis/outlook/issues

• In collaboration with the CFIA, nine Lindgren traps were deployed at pre-determined locations in Southern Region to detect the presence or absence of southern pine beetle.



Western gall rust

Pest information

| Common name: | Western gall rust |
|------------------------------|--|
| Scientific name: | Peridermium harknessi (J. P. Moore) Y. Hirats. |
| Pest origins: | Native to North America |
| Pest type: | Disease |
| Host species (Ontario 2024): | Jack pine |
| Infestation area: | Localized |

Provincial key facts

- Western gall rust is common across Ontario, affecting two- and three-needled pines.
- It typically causes malformations, stunting, and aesthetic degradation of infected trees.
- It can be a major pest in nurseries and plantations.
- Branch galls can kill branches and galls on the main stem of trees younger than 10 years old can kill the tree.
- This rust can infect pine to pine and does not require an alternate host to complete its life cycle.
- In 2024, western gall rust was reported in Northeast and Southern regions.

Regional summary

Northeast

• In Sudbury District, western gall rust was observed in moderate levels along Kukagami Lake Road in Scadding Twp, Ashigami Road in Street Twp, and West Branch Road in Olinyk Twp. All sizes of jack pine and canopy classes were affected. Some branches affected by galls were dead or were flagging with orange foliage.

Southern

• In Minden Parry Sound Bracebridge District, a moderate level of western gall rust was observed on Nares Inlet Road.

White pine blister rust

Pest information

| Common name: | White pine blister rust |
|------------------------------|--------------------------------------|
| Scientific name: | Cronartium ribicola J. C. Fisch. |
| Pest origin: | Invasive — native to Asia and Europe |
| Pest type: | Rust disease |
| Host species (Ontario 2024): | White pine |
| Infestation area: | Localized |

Provincial key facts

- This disease is relatively common throughout Ontario where Ribes spp. (the alternate host) occur near five needle pine.
- It causes branch dieback, reduces growth, and, if infection reaches the stem, eventually kills the tree.
- Porcupine damage can be present on trees with white pine blister rust since they are attracted to the sweet sap at the canker.
- In 2024, white pine blister rust surveys were completed in four white pine plantations in Northeast Region. White pine blister rust levels in the surveyed white pine plantations were lower in 2024 compared to 2023.

Regional summary

Northeast

- In Timmins Kirkland Lake District, annual white pine blister rust plantation surveys were completed in Evanturel, Eby, and Ingram townships. In Ingram Twp, every third row had been cut in the first section of the plantation and every other row in the second section. The Evanturel Twp plantation had the highest occurrence of white pine blister rust (15.3%) compared to the Ingram Twp (9.3%) and Eby Twp (0.7%) plantations. Evanturel had the most scale (36.7%) compared to Ingram (16%) and Eby (10%). Ingram had the most porcupine damage (8%) compared to Evanturel (6.7%) and Eby (0.7%).
- In North Bay District, an annual white pine blister rust plantation survey was completed in Gurd Twp. White pine blister rust affected 18% of trees. Scale was found on 27.3% of trees surveyed. Porcupine damage was recorded on 1.3% of trees surveyed.

Willow leafblotch miner

Pest information

| Common name: | Willow leafblotch miner |
|------------------------------|---------------------------------------|
| Scientific name: | Phyllonorycter salicifoliella (Cham.) |
| Pest origin: | Native to North America |
| Pest type: | Shoot borer |
| Host species (Ontario 2024): | Willow spp. |
| Infestation area: | Localized |

Provincial key facts

- Most willow and some poplar species are susceptible.
- Leaves may be defoliated, but mortality is rare.
- Early instar larvae feed on the upper surface of leaves, while mature larvae mine between the upper and lower surface, giving leaves a blotched appearance.
- Necrotic, pale blotches appear on the upper surfaces of leaves in mid-summer but later appear reddish-brown.
- In 2024, localized willow leafblotch miner defoliation was reported in Northeast Region.

Regional summary

Northeast

- In Sault Ste Marie Blind River District, moderate to severe willow leafblotch miner defoliation was recorded in a
 mature jack pine stand off Hwy 129 in Rioux Twp. Most understory willow in the stand were affected. Moderate
 to severe defoliation was also reported on most understory willow in a mature jack pine stand further north on
 Hwy 129 in Martel Twp. Also, moderate defoliation was recorded on two fringe willow at the east end of Ranger
 Lake Road in Villeneuve Twp.
- In Chapleau Wawa District, light willow leafblotch miner defoliation was collected off Hwy 667, on a side road by Little Lake Wenebegon. Several willow trees were affected in the area. Light defoliation was also recorded on several willows along Hwy 651 near Missanabie. Yellow and brown blotches on leaves and thinning foliage were observed on affected trees.

