



Urban Forestry Commission

Cravath Lakefront room 2nd floor 312 West
Whitewater Str, Whitewater, WI, 53190 *In Person
and Virtual

Monday, February 26, 2024 - 4:30 PM

Citizens are welcome (and encouraged) to join our webinar via computer, smart phone, or telephone.
Citizen participation is welcome during topic discussion periods.

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Please note that although every effort will be made to provide for virtual participation, unforeseen technical difficulties may prevent this, in which case the meeting may still proceed as long as there is a quorum. Should you wish to make a comment in this situation, you are welcome to call this number: (262) 473-0108.

AGENDA

CALL TO ORDER

ROLL CALL

APPROVAL OF MINUTES FROM JANUARY 22, 2024

1. Approval of Minutes for January 22, 2024.

HEARING OF CITIZEN COMMENTS

No formal Committee action will be taken during this meeting although issues raised may become a part of a future agenda. Participants are allotted a three minute speaking period. Specific items listed on the agenda may not be discussed at this time; however, citizens are invited to speak to those specific issues at the time the Committee discusses that particular item.

To make a comment during this period, or during any agenda item: On a computer or handheld device, locate the controls on your computer to raise your hand. You may need to move your mouse to see these controls. On a traditional telephone, dial *6 to unmute your phone and dial *9 to raise your hand.

TREASURER'S REPORT

OLD BUSINESS

CONSIDERATIONS / DISCUSSIONS / REPORTS

TREE CITY

- 2. Community Tree Sale dates are April 26th, 27th and 28th.
We need to establish times for the sale each of those days.
We need to discuss the organizing of volunteers for receiving trees/plants, organizing and tagging them for sale.
- 3. Update on Arboretum Grant
- 4. Discussion regarding Arboretum signage.
- 5. Discussion and update regarding tree tags.
- 6. Discussion and possible approval of Territorial Tree Playground Ideas.

BIRD CITY

- 7. Discussion and update regarding the 2023 Bird City Application.

NEW BUSINESS

- 8. Discussion on Spongy Moth and Pest Management Plan.
- 9. Discussion regarding how to recruit new members for the Urban Forestry Commission.
- 10. Discussion regarding the 2024 Bird Fair.
- 11. Presentation and Discussion from Jaime Wiegel regarding the Whitewater Effigy Mounds.

FUTURE AGENDA ITEMS

ADJOURNMENT

A quorum of the Common Council may be present. This notice is given to inform the public that no formal action will be taken at this meeting.

Anyone requiring special arrangements is asked to call the Office of the City Manager / City Clerk (262-473-0102) at least 72 hours prior to the meeting.



Urban Forestry Commission Meeting
Monday, January 22, 2024 – 4:30 PM
Cravath Lakefront Room
312 W. Whitewater Street
Whitewater, WI 53190
Hybrid Meeting

1. Call to Order and Roll Call

Present: Sherry Stanek, Patrick Taylor, Bill Chandler, Ryan Tevis, Rose Mary Leaver,
Absent: Brienne Brown, Nick Alt
Staff: Andrew Beckman, Kevin Boehm

Meeting called to order at 4:36 by Stanek

2. Approval of Minutes from October 23, 2023

Motioned by Bill Chandler. Seconded by Ryan Tevis. Ayes: Stanek, Taylor, Chandler,
Tevis, Leaver. Nays: None Absent: Brown, Alt

3. Hearing of Citizen Comments

No Comments

4. Treasurer's Report

Rosemary provided an update

5. Staff Report

Andrew Beckman gave an update on city staff's tree trimming and pest management activities.

6. Considerations/Discussions/Reports

a. Discussion and possible Approval of the Landscape Plans for Dollar Tree, located at the corner of Indian Mound Parkway and W. Main Street Parcel #/A503300001

a. Motioned by Patrick Taylor to allow Stanek and Alt an opportunity to review the plans to make recommendations and return to commission for review.

Seconded by Ryan Tevis. Ayes: Stanek, Taylor, Chandler, Tevis, Leaver. Nays:

None Absent: Brown, Alt.

b. Discussion and possible approval of the Landscape Plans for Aldi's to be located at 1370 W. Main St., Parcel #WUP00159.

- a. Motioned by Bill Chandler to allow Stanek and Alt an opportunity to review the plans to make recommendations and return to commission for review.
Seconded by Patrick Taylor. Ayes: Stanek, Taylor, Chandler, Tevis, Leaver. Nays: None Absent: Brown, Alt.

c. Discussion to add a fourth Purple Martin House

- a. Discussion was had to wait until review of the third Purple Martin house can be evaluated before pursuing a fourth.

d. Discussion and possible approval of the Landscape Plans for Starbucks located at 1280 W. Main St., Parcel #/A170900002.

- a. Approved at a previous meeting, no action taken.

7. Tree City

a. Future of Territorial Oak felled timber and possible projects relating to it.

- a. Discussion was made to involve other interested parties in the discussion. Table until future date.

b. Discussion of the 2024 Tree Sale

- a. Tree Sale will be April 26-28, 2024
- b. Nick ordered 250 trees for the sale. Tevis will assist with pickup and transport.

c. Arboretum Grant Update

- a. Stanek, Boehm and Beckman provided updates.

d. Kiwanis Kids Program recap report from October 30, 2023.

- a. Stanek provided update.

e. Pulse Sign order and installation plan

- a. Beckman provided update

8. Bird City

a. Discussion of 2022 approval

- a. Stanek provided update

9. New Business

a. Milkweed Protection Discussion

- a. Stanek provided information

b. Protection of oaks from library expansion

- a. Stanek provided update. No drawings have been submitted to planning commission yet.

10. Future Agenda Items

- a. Setting times for Tree Sale
- b. Discussion on spongy moth pest management plan

11. Adjournment

- a. Motioned by Ryan Tevis to 5:32 PM. Seconded by Patrick Taylor. Ayes: Stanek, Taylor, Chandler, Tevis, Leaver. Nays: None Absent: Brown, Alt

Respectfully Submitted,

Kevin Boehm

Kevin Boehm

Territorial Tree Playground Ideas
February 26, 2024















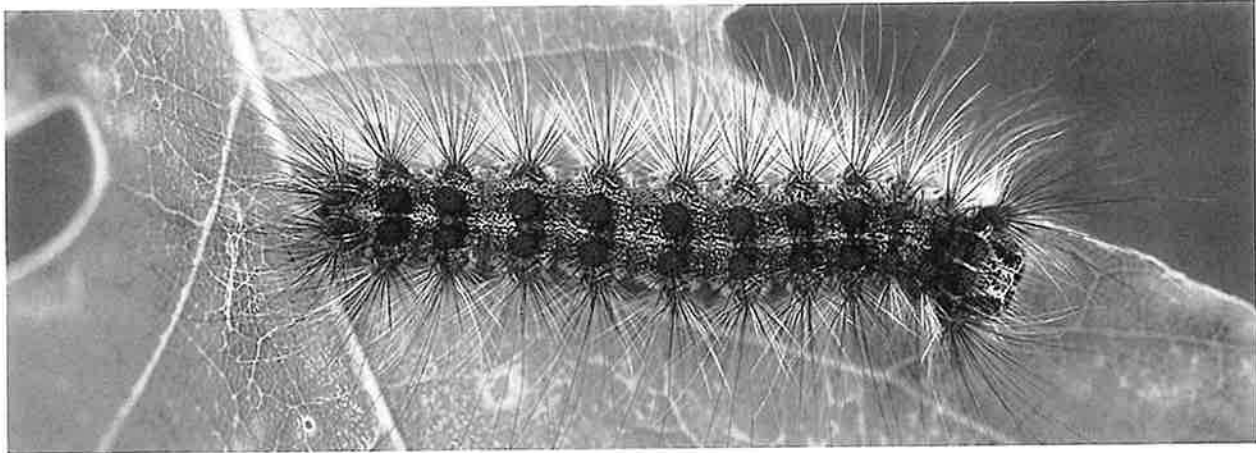












Spongy Moth *Formally* (Gypsy Moth)

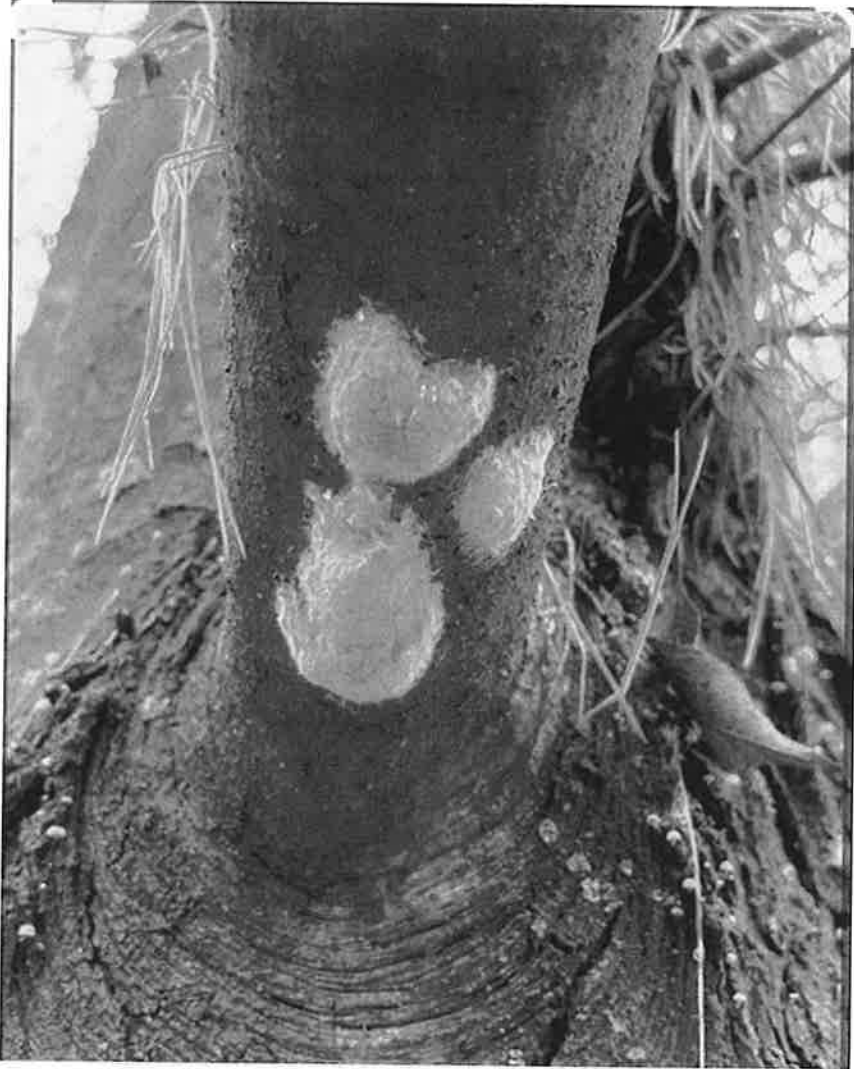
Spongy Moth caterpillar with characteristic red and blue spots on its back.

The Spongy moth is a non-native defoliating insect that feeds on a variety of tree species found in North America. The City of Whitewater's management program focuses on controlling outbreak levels of spongy moth in city owned areas that are at risk of defoliation, typically oak dominant areas. Since spongy moth is firmly established in Wisconsin, the complete removal of these insects is no longer possible.

What you can do

Help manage spongy moth by following these Integrated Pest Management Strategy techniques.

Wearing long-sleeve shirts and protective equipment such as gloves and face masks will help minimize exposure to spongy moth hairs, silken threads, and shed skins, which can cause skin rashes and upper respiratory tract irritation in some people.



August to May: Egg Mass Removal

Carefully survey your property for egg masses and scrape them off surfaces into soapy water to destroy them. In addition to trees, egg masses can be found on eaves troughs, doorframes, under patio furniture, play structures and garden stones.

Required supplies

- A flat object such as a butter knife or plastic paint scraper
- Catchment container or bag to collect the egg masses
- Bucket of soapy water. Dish soap works well

Step-by-Step Instructions

1. Place your catchment container below the egg mass
2. Use your scraper tool to remove the egg mass from surface. Ensure all eggs are scraped. Try not to leave any residual eggs in bark ridges or crevices.
3. Empty contents of your catch container or bag into bucket of soapy water
4. Leave the eggs sitting in the bucket for a day or two, then dispose of contents in the garbage. Don't scrape egg masses onto the ground; this does not necessarily kill the eggs and some may still hatch next spring.

Egg masses can be located high up in trees. Be safe if trying to access anything up high, especially if using ladders. Some private tree companies can be hired to provide service at heights.

May to July: Hand pick Caterpillars

Handpicking caterpillars is most effective on small newly planted trees, shrubs, and plants infested with spongy moth. If possible, gently shake the tree so caterpillars fall from leaves. Thoroughly inspect the remaining foliage, branches, and trunk for caterpillars and using gloves, pick them off you tree. Fallen and collected caterpillars should be placed and left to soak in soapy water to destroy them.

May to September: Burlap Banding

Once spongy moth caterpillars grow to about an inch in length by mid-June, they will move down the trunk to seek shelter from predators and heat. Reduce the number of caterpillars on the in your yard by trapping them.

Required Supplies

- Burlap cloth
- Twine or rope
- Bucket of soapy water. Dish soap

Step-by-Step Instructions

1. Wrap and secure a piece of burlap cloth around the trunk of your tree
2. Tie twine or rope around the center or slightly below the center of the burlap
3. Drape the burlap cloth over the twine or rope so there is an overhang where the caterpillars can crawl underneath to seek shelter during the day
4. Check the trap by lifting the overhanging burlap cloth every afternoon and collect any hiding caterpillars

5. Put them into a bucket of soapy water for a few days to destroy them

Tree Damage

The spongy moth caterpillar is known to feed on most species of hardwood trees with the exception of Ash, Tulip Tree, American Sycamore, London plane, Catalpa, Fir and Cedar. Most healthy trees can withstand one to several years of severe defoliation by spongy moth. Under normal circumstances, defoliated trees should regrow their leaves by the end of July, depending on weather conditions during the season. It is recommended if the tree is defoliated, a water schedule should be implemented to stimulate rapid regrowth of foliage.

Spongy Moth's Natural Predators

Spongy moths have three significant natural enemies:

- A fungus: Entomophaga
- A virus: Nucleopolyhedrosis
- A small wasp

The fungus and virus can be very effective at naturally controlling populations, however, they require a cool wet spring to be effective. The wasp can parasitize up to 30% of the eggs that are near the surface of an egg mass, but cannot reach the eggs in the center of the mass.

City's Management Plan

The City of Whitewater will be conducting park inspections and spraying found egg masses over the winter and early spring as temperature permits.

All trees found to have egg masses will be tagged in our mapping system and monitored for any defoliation.

Any tree that has been defoliated in City owned properties will be placed on a water schedule to ensure trees sprout new leaves and to reduce stress.

The goal is to ride out the cycle of these pests as elimination is not possible. Keep the stress levels down on our trees and prevent the window being opened for other pests to cause greater problems.

Spongy Moth

FOREST HEALTH FACTSHEET

Wisconsin Department of Natural Resources, Division of Forestry, Forest Health Program, May 2023

Spongy moth (*Lymantria dispar*) was brought to Massachusetts from Europe in the 1800s. The insect became established in eastern Wisconsin in the late 1980s and has since spread across most of the state.

Spongy moth feeds on many tree and shrub species, preferring oak, aspen, birch, crabapple, willow, tamarack and basswood (linden). Populations periodically become very high when weather conditions are favorable for the insect.

During these “outbreaks,” the caterpillars can be a tremendous nuisance, causing skin rashes and other irritation in some people and defoliating numerous tree species. Heavily defoliated trees (more than 50 percent of leaf area) are weakened and at increased risk of decline and mortality. Other insects and diseases may attack the weakened trees.

Oak trees growing in lawns are particularly susceptible to heavy defoliation. Mice and shrews are discouraged from hunting for larvae and pupae in these areas, as they have no protective cover from cats, owls or hawks.

Life Stages

Eggs hatch between mid-April and mid-May. As the caterpillars grow, pairs of blue and red spots appear down their backs (see title photo).



Female adults laying egg masses.

The large caterpillars create the most feeding damage in June and July. Spongy moth caterpillars do not make a silk web or tent in trees.

Mature caterpillars reach 1.5 to 2 inches in size, then pupate. Within the pupal shell, the caterpillar’s body transforms into an adult moth. Pupae are present from late June to August.

The female moths are white and cannot fly even though they have wings. The males are brown and fly erratically during the daytime in July and August. The adults only live long enough to reproduce.

In July and August, the female moth lays all her eggs in one “egg mass.” Each egg mass contains hundreds of eggs and is about the size of a nickel or quarter. The female moth covers

the eggs with insulating hair from her body, giving the egg mass a tan-colored, furry appearance.

During an outbreak, it is common to see large changes in egg mass numbers from one year to the next. An egg mass survey conducted in the fall or winter is the best predictor of the following summer’s outbreak intensity.



Caterpillars cluster below a sticky barrier band.

Managing Caterpillars

Barrier Bands: A sticky barrier will trap or deter caterpillars as they crawl up into trees. Bands should be prepared before egg hatch begins.

Wrap a band of duct tape completely around the tree and push it into bark crevices, sticky side down. Cover the tape with a sticky pest barrier found at many retailers.

Don’t apply the sticky material directly to the tree or use motor oil or similar products. The barrier band

should be replaced if it becomes coated with caterpillars or dust. It should be taken down in August or when preparing a burlap collection band.

Collection Bands: Burlap bands are used to collect older, larger caterpillars. In June and July, many caterpillars crawl down the tree trunk to hide from predators. Caterpillars will hide under the burlap and can be easily destroyed.



Burlap collection band.

Wrap the burlap around the tree at chest height. Tie a string around the middle and fold the top half of the burlap over the lower half, forming a two-tiered skirt.

Check the bands daily while caterpillars are present. Use a stick or knife to brush them into a bucket of soapy water to kill them. Don't touch them, as their hairs can cause a rash. Dead caterpillars can go into the trash.

Pupae and female moths can be brushed into soapy water or crushed. Avoid touching female moths with fingers.

Insecticides: Insecticide application may be suitable for protecting high-value trees. These are applied as a spray, soil treatment or injection. Treatments are usually done when caterpillars are small. Trunk injections into oak trees require using a pruning seal or other protectants over injection holes.

An aerial spray is an option for larger areas of high-value trees found in

residential areas, campgrounds and parks. Aerial sprays are usually not economically practical in woodlots.

Destroying Egg Masses

Oiling or removing egg masses is the most effective physical method of reducing the population. Starting in August, examine trees, buildings and outdoor objects. Masses are often found in hidden spots, such as behind signs, inside birdhouses and beneath loose bark. Old masses appear faded, feel soft and do not contain viable eggs. Remove new masses that are safely within reach.



Scraping an egg mass into soapy water.

Egg masses can be scraped into a can or bucket of soapy water. After soaking for a few days, they can be discarded in the trash. Pick up pieces of egg mass that fall on the ground or remain unscraped, as they might still hatch in spring.

Alternatively, egg masses can be covered with a horticultural oil. These products are formulated to penetrate the egg mass and suffocate the eggs.

Reduce Damage

A healthy tree should withstand one or two years of heavy defoliation and produce a new set of leaves within a few weeks. Multiple forms of tree stress simultaneously (e.g., heavy defoliation, drought or physical damage) will usually kill a tree.

Increasing tree diversity in forests

and yards dominated by oak will help to reduce the damage done by spongy moth and other pests. Spongy moth doesn't prefer trees such as maple, red pine, walnut and hickory.

Periodic thinning in woodlots can promote tree health and vigorous growth. Thinning may need to be delayed because of a spongy moth outbreak. Consult an arborist or forester about managing yard and woodlot trees.

Don't Move Spongy Moth

Spongy moth often moves long distances by hitchhiking on outdoor articles such as firewood, campers, vehicles and outdoor furniture. Usually, it is the egg masses that are moved. Inspect outdoor items and remove the various life stages before moving the articles. Obtain firewood near where it will be burned and follow firewood regulations.

A regulatory quarantine is in place in many Wisconsin counties. Items that could move spongy moth are not allowed out of the quarantine area unless inspected for life stages. These regulations help to slow pest spread.

Additional Resources

Visit spongymoth.wi.gov and the [DNR spongy moth webpage](#).



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All photos and graphics: Wisconsin DNR
Wisconsin Department of Natural Resources
PO Box 7921, Madison, WI 53707-7921

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Extension

UNIVERSITY OF WISCONSIN-MADISON

Provided to you by:

Item 8.

Spongy Moth

P.J. Liesch, UW Entomology and R. Chris Williamson, *formerly UW Entomology*

The spongy moth, *Lymantria dispar* (formerly known as the "gypsy moth") is native to parts of Europe, Asia, and North Africa. It was inadvertently introduced to North America in New England in 1869 and has since spread westward. Over time, the spongy moth has become one of the most important insect pests of forest and shade trees in the eastern U.S. The larva (caterpillar) is the destructive life stage that feeds on foliage which can result in defoliation. Repeated defoliation can weaken trees, resulting in greater susceptibility to disease and other insect pests. Spongy moth caterpillars can also be a nuisance when they aggregate on the sides of buildings or produce large quantities of frass (droppings) that fall from trees onto lawns and patios. The hairy caterpillars can also cause skin irritation.

Plants Attacked and Damage: Spongy moth caterpillars have been reported to feed on hundreds of species of trees and shrubs. Preferred hosts include aspen, birch, crabapple, hawthorn, linden, mountain ash, oak, and willow. Some deciduous trees (e.g., dogwood, green & white ash, honey locust, silver & red maple, and tulip tree) and most evergreen trees are generally resistant. Blue spruce and white pine can occasionally be attacked. Feeding damage frequently results in severe and/or complete defoliation which can weaken trees over time. On rare occasions, trees can be killed outright. In most cases, trees recover and produce new leaves in July.



A spongy moth caterpillar.
Photo credit: PJ Liesch, UW Entomology

Life Cycle & Appearance: The spongy moth has four distinct life stages: egg, larva (caterpillar), pupa, and adult (moth). Adult females lay eggs in masses of 500-1000 eggs in August. Egg masses are beige with a velvety texture and spongy consistency (*hence the common name of "spongy moth"*). Egg masses can be attached to a variety of surfaces and can be well hidden. They and are often found on buildings, lawn furniture, mail boxes, rocks and trees. Spongy moths overwinter in the egg stage.

Small caterpillars emerge from the eggs in spring around the time that leaves are expanding (typically in May in Wisconsin). Newly hatched caterpillars climb up to foliage and begin feeding. If the first tree is not a suitable plant, caterpillars produce a silken thread and can be dispersed by the wind ("ballooning"). Once a suitable host plant has been found, they feed for five to six weeks. Spongy moth caterpillars have a "hairy" appearance and are initially a mottled grey color. They soon take on a characteristic appearance with pairs of blue and red bumps running down their backside; mature caterpillars reach lengths of 2+ inches. Spongy moth caterpillars pass through 5 or 6 substages known as instars. Early instars (one through three) feed during the day and cause little damage. Once larvae reach the fourth instar, they begin feeding at night and hide on rough bark or amongst leaf litter during the day. These later instars are larger and cause considerable damage. Approximately 90% of the feeding damage caused by larvae is done by the last two instars. After they have completed feeding, caterpillars pupate and adult moths emerge in July. Pupae are brownish, pod-like structures and are typically 1.5-2.5 inches long. The adults do not feed and only live long enough to mate and lay eggs. Adult moths are approximately 1-1.5 inches long. Female moths are slightly larger than males and are a pale color. Females cannot fly, but do release a chemical pheromone to attract males. The males are a dark brown color and can fly to females to mate.



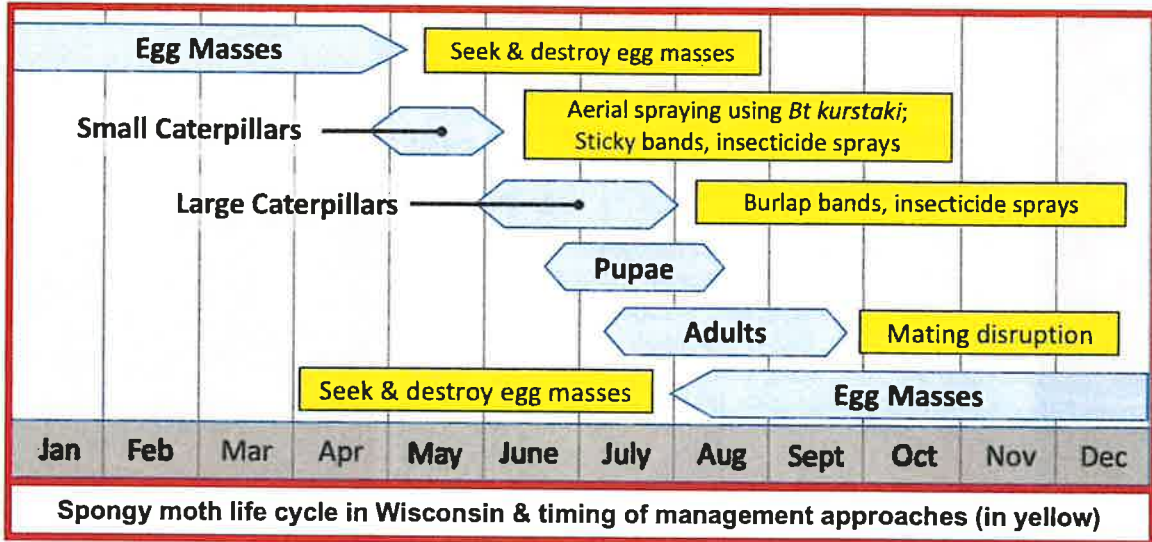
Adult female spongy moth with egg mass.
Photo credit: Ryan Hodnett via Wikipedia CC



Extension

UNIVERSITY OF WISCONSIN-MADISON

Management: Management of the spongy moth depends on many factors, such as the number and size of affected trees, the overall area affected, and the life stage of the insect. Larger areas (*i.e.*, forests and woodlots) cannot be effectively treated by individual landowners; consult a forester for guidance. In specific situations, aerial applications of a bacterial-based insecticide known as *Bacillus thuringiensis kurstaki* ("BTK") may be used to help manage spongy moth populations. Mating disruption (*i.e.*, the use of a synthetic version of the female's sex pheromone) is occasionally used to limit the ability of adult spongy moths to mate in specific areas.



For small numbers of high-value plants, several management options exist. **Destroying Eggs:** Spongy moths spend ~75% of their life cycle as eggs. Locating and destroying the egg masses can help reduce populations in a small area. Egg masses can be scraped off surfaces with a putty knife and dropped into a container of soapy water for several days or bagged and discarded to kill them. Alternatively, egg masses can be treated with a dormant horticultural oil. **Sticky Bands:** Sticky bands can be used around tree trunks to capture and kill small caterpillars. The UW-Madison Division of Extension Spongy Moth website has full instructions for this method: bit.ly/3IZPdiS. **Burlap Bands:** Since larger caterpillars hide during the day, a band or skirt of burlap hung around the trunk of a tree with twine can offer a hiding spot. Burlap bands must be checked daily, and caterpillars can be knocked into a container of soapy water to kill them. **Insecticide Sprays:** For trees and shrubs that are short enough in height, insecticide sprays can be an option. Organic and reduced-impact sprays include insecticidal soaps, horticultural oils, pyrethrins, spinosad, and *Bacillus thuringiensis kurstaki*. These options work best against small caterpillars and the soaps, oils, and pyrethrins only work for a short period of time. Conventional insecticide sprays containing pyrethroid ingredients (*e.g.*, bifenthrin, cyfluthrin, cyhalothrin, cypermethrin, deltamethrin, permethrin, etc.) are commonly sold at hardware stores & garden centers for controlling insect pests on landscape plants and typically protect treated foliage for 1-2 weeks at a time. Always read and follow all directions on the pesticide label. For large trees that cannot be effectively sprayed, consult a certified arborist about additional management options.

Biological Control: In areas where the spongy moth has been established for several years, natural enemies can help keep spongy moth populations in check. Natural enemies include insect parasites that attack eggs and caterpillars, predators such as birds, and insect-specific pathogens. A fungal pathogen called *Entomophaga maimaiga* has been introduced and helps curb spongy moth populations in many years. Spring precipitation helps encourage this fungus, while dry conditions limit its impacts.

For more information on spongy moth: See the UW-Madison Division of Extension spongy moth website fyi.extension.wisc.edu/gypsymothinwisconsin, or contact your county Extension agent.

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Spring Defoliator Caterpillars

Comparisons, Differences, Controls

FOREST HEALTH FACT SHEET

Wisconsin Department of Natural Resources, Division of Forestry, Forest Health Program, July 2023

Three caterpillars commonly found on defoliating trees in the spring can sometimes be mistaken for one another. Knowing which caterpillar is present can help determine the best options for control, if needed. Two of these caterpillars are native to Wisconsin; the third is not native but has become established throughout most of the state.

Eastern Tent Caterpillar



Malacosoma americanum

Origin: Native.

Description: Dark head, cream or yellow stripe down the back; small blue spots on sides.

Population cycle: One generation per year. Caterpillars hatch in spring and feed voraciously before spinning silky cocoons in late spring. Adults fly in May and June. Egg masses overwinter. Localized outbreaks happen every few years; widespread outbreaks occur on roughly 10-year intervals.

Can be found: Feeding on fruit tree leaves; building silk nests in branch forks (see photo on page 2).

Photo Credit: Wisconsin DNR

Forest Tent Caterpillar



Malacosoma disstria

Origin: Native.

Description: Blue head; cream or yellow-colored spots in the shape of footprints down the back; blue stripes on the sides.

Population cycle: One generation per year. Caterpillars hatch and feed in early spring and spin cocoons two months later. Moths appear in three weeks and lay eggs shortly afterward. Egg masses overwinter. Outbreaks usually occur every 10-16 years and last 2-4 years.

Can be found: Feeding on tree leaves; no silk nests, but silk may be found on bark or along twigs.

Photo Credit: Wisconsin DNR

Spongy Moth Caterpillar



Lymantria dispar

Origin: Not native; established in Wisconsin.

Description: Yellow and black markings on head; pairs of blue dots near the head; pairs of red dots on the rest of the caterpillar. Younger caterpillars are dark, with orange dots along the back.

Population cycle: One generation per year. Caterpillars start hatching in mid-May, pupate in late June or July and emerge as adults from July to August. Egg masses overwinter. Outbreaks occur periodically when favorable weather conditions occur, typically every 8-12 years, and last 1-3 years. Outbreaks usually occur every 10-16 years and last 2-4 years.

Can be found: Feeding on leaves or hiding on tree bark during the day.

Photo Credit: Wisconsin DNR

Eastern Tent Caterpillar



Egg mass: Brown egg mass deposited around stout twigs, hardened, similar to Styrofoam. Often does not fully encircle branch. Usually located near the silk nests.

Preferred host plants: Black cherry is preferred in Wisconsin, but caterpillars also may feed on apple, crabapple, maple, box elder, hawthorn and birch among others.

Photo Credit: Wisconsin DNR

Forest Tent Caterpillar



Egg mass: Brown egg mass deposited around branches, hardened, similar to Styrofoam. Fully encircles branch.

Preferred host plants: Aspen and oak, although in parts of the Midwest they prefer sugar maple.

Photo Credit: Wisconsin DNR

Spongy Moth



Egg mass: Tan, fuzzy lumps deposited on any accessible surface. Older egg masses are faded and tattered with small holes. Average size is dime-sized to quarter-sized.

Preferred host plants: Oak and aspen, as well as apple, crabapple, birch, willow and many other species.

Photo Credit: Wisconsin DNR

Control Methods

Control for all these spring defoliators can be accomplished in several ways. Note that management of tent caterpillars may be desirable in high-value yard or orchard trees but is rarely needed or economically viable in forests.

- **Pesticides:** Using pesticide sprays, including the biological insecticide *Bacillus thuringiensis* var. *kurstaki* (Btk), is most effective if applied while caterpillars are small.
- **Manual control:** Scraping caterpillars into a can of soapy water is effective. Removing the entire silken nest of eastern tent caterpillar will include the caterpillars; dropping it into a bucket of soapy water will drown the caterpillars. Crush the web nests of the eastern tent caterpillar. Crush groups of forest tent caterpillars when they congregate on the bark of trees in late afternoon. [Place a burlap skirt](#) around oaks to encourage spongy moth caterpillars to congregate in the afternoon where they can easily be crushed with a stick or drowned in soapy water.
- **Do not burn or prune:** Do not burn eastern tent caterpillar nests or prune the branches that hold them. These actions damage the tree more than caterpillar feeding.
- **Caution:** Avoid touching the caterpillars. The hairs can be irritating to skin and may cause a rash.
- **On the web:** For more information, visit the Wisconsin spongy moth portal at spongymoth.wi.gov.



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Wisconsin Department
of Natural Resources,
PO Box 7921,
Madison, WI 53707-7921

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Conifer Bark Beetles

Biology, Symptoms And Management

FOREST HEALTH FACT SHEET

Wisconsin Department of Natural Resources, Division of Forestry, Forest Health Program, Revised June 2023



Left: An adult spruce beetle, *Dendroctonus rufipennis*. **Photo:** Edward Holsten, USDA Forest Service, Bugwood.org. **Right:** An adult red turpentine beetle, *Dendroctonus valens*. **Photo:** Joseph Berger, Bugwood.org.



Red pine trees dying because of bark beetle feeding under the bark. **Photo:** Michael Hillstrom, Wisconsin DNR.



The gallery of an adult two-toothed pine beetle, *Pityogenes bidentatus*. **Photo:** Michael Hillstrom, Wisconsin DNR.

Locations

Bark beetles are found throughout Wisconsin. Ranges vary with each beetle species and its preferred host tree(s). Common conifer bark beetle species include: pine engraver (*Ips pini*), red turpentine beetle (*Dendroctonus valens*), chestnut-brown bark beetle (*Pityogenes hopkinsi*), spruce beetle (*Dendroctonus rufipennis*), eastern larch beetle (*Dendroctonus simplex*), and balsam fir bark beetle (*Pityokteines sparsus*).

Impact

Many species of bark beetles attack conifers in Wisconsin. Most prefer to attack only one or a few host species of conifers. Bark beetles can attack trees under stress; stress can be caused by overcrowding, drought, flood, damage from other insects, disease, changes in the water table,

wounds, fire, storm damage and thinning during a drought. Bark beetles may also attack trees that are dying, freshly cut trees and logging debris.

Stressed trees are more vulnerable to bark beetle attack because their defensive mechanisms are compromised. Healthy conifers produce large quantities of pitch that often prevent bark beetle attacks. Occasionally, extremely large populations of bark beetles mount a mass attack that can overwhelm the defenses of healthy trees.

Biology

Adult beetles emerge in spring after spending the winter in the layer of needles and other debris on top of the soil or from an infested tree. Beetles bore into a tree, mate and lay eggs. Fungi that may impact tree health are sometimes introduced during colonization.



Two *Ips pini* bark beetles in a gallery. **Photo:** Linda Williams, Wisconsin DNR.



Numerous tiny bark beetle exit holes.
Photo: Michael Hillstrom, Wisconsin DNR.



A pitch tube resulting from an attack by a red turpentine beetle, *Dendroctonus valens*. **Photo:** Michael Hillstrom, Wisconsin DNR.



Woodpeckers remove bark from beetle-infested trees to eat the larvae hiding beneath. **Photo:** Brian Schwingle, Minnesota DNR.



Between March and August, remove harvested pine logs within three weeks to prevent bark beetle infestations.
Photo: Michael Hillstrom, Wisconsin DNR.

Larvae hatch and feed beneath the bark, creating galleries that disrupt the flow of water and nutrients in the tree.

Some beetle species, such as the pine engraver (*Ips pini*), complete development rapidly (in as little as 30 days) and go through multiple generations per year. Other species, including the spruce beetle (*Dendroctonus rufipennis*), take up to two years to complete their life cycle.

Warmer temperatures allow beetles to develop more quickly; cooler weather will lengthen the cycle. Populations of bark beetles can build up rapidly in hot, dry years.

Signs And Symptoms

- Individual or groups of trees with light green, straw yellow, red or brown foliage. Brown, dead needles and tree mortality may occur abruptly.
- Small, round exit holes in the bark or pitch tubes near the base of the tree.
- Feeding galleries (tunnels) under the bark.
- Fine dust in bark crevices, at the base of the tree, or on understory plants.

Prevention

Conduct sustainable forest management activities, such as thinning stands at the proper time to maintain healthy, vigorous trees.

Whenever possible, avoid stressing conifers in multiple ways, such as thinning during a drought. Remove harvested logs within three weeks of being cut during the months of March through August.

Management

Management strategies will vary depending on the bark beetle species, host species and site conditions.

Recommendations for managing conifer bark beetles may include:

- If trees are stressed from drought, storm damage or disease, consider a pre-salvage harvest.
- Promptly salvage trees that are severely damaged by storms, fire, disease, insects or other destructive agents before bark beetles have a chance to infest them.
- Harvest conifers during winter, or when bark beetles are not active. Remove cut logs and tops down to 2 inches in diameter from the site by March if cut during the winter, or within three weeks of being cut from March through August.
- Logging debris remaining on the site should be left attached to the main stem, scattered into openings, or driven over to break it up and allow faster drying.
- Minimize damage to remaining trees during logging operations. Avoid large wounds, soil compaction and root injury which can stress trees and attract bark beetles.
- Plant site-appropriate conifer species, taking into consideration soil types and other factors that impact tree health and survival.



All photos: Wisconsin DNR unless noted

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Spotted Lanternfly

WISCONSIN DEPARTMENT OF AGRICULTURE, TRADE AND CONSUMER PROTECTION

Lawrence Barringer, Pennsylvania Department of Agriculture, Bugwood.org

Scientific name

Lycorma delicatula (Order: Hemiptera, Family: Fulgoridae; this bug is *not* a moth)

Native & Introduced Range

Native to China, India, Japan and Vietnam; invasive in Korea and in the United States. Introduced into **Connecticut, Delaware, Indiana, Maryland, Massachusetts, Michigan, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, Virginia, and West Virginia.**

Feeding habits/damage

Spotted lanternfly (SLF) is a sap-feeding planthopper that strongly prefers the invasive **tree-of-heaven (*Ailanthus altissima*) and grape vines (*Vitis* spp.)**. It will also feed on hops, maple, walnut, willow, apple, cherry and poplar trees (it doesn't feed on fruit). Nymphs may feed on roses and other ornamentals.

Both nymph and adults of spotted lanternfly **suck sap from stems**, leading to reduced photosynthesis, plant weakness, and death. Honeydew excreted by insects promotes black sooty mold fungi and may attract other insect pests like ants, wasps or bees.

Life Stages



Fall egg mass¹

Hatched egg mass²

Early instar nymph³

Late instar Nymph⁴

Adult⁵

Life cycle

Adults lay **1"-2" long waxy, grayish egg masses** on nearly any flat surface (boats, ATVs, pallets) in fall. After overwintering, egg masses resemble **dried, cracked mud** before hatching in spring. After hatching, egg masses look like 4-7 rows of dark brown "seeds."

Wingless, black and white spotted early stage (1st-3rd instar) nymphs, or immatures emerge from eggs and feed on a wide variety of plants by sucking sap from young stems and leaves. **Later stage (4th instar) nymphs are red and black with white spots.**

Adults are 1" long x 1.5" wide and appear in late summer and fall. Adults may become a nuisance as they swarm, feed in huge groups & excrete sticky, sugary honeydew.

Spread

Short distance spread: flying, walking, or jumping.

Long distance spread: Aided by humans, spotted lanternfly adults, nymphs and egg masses commonly "hitchhike" on nursery stock, firewood, shipping containers, bricks, stone, and vehicles, spreading long distances to new areas.

Report

If you suspect spotted lanternfly, **please report it right away:**

- Fill out the reporting form at slf.wi.gov
- Call the Pest Hotline at 1-866-440-7523; or
- Email DATCPpesthline@wi.gov (with detection location, images & contact info)

420-24
5-76
4.13

Pest Alert

Beech Leaf Disease

Beech leaf disease (BLD) is a novel disease affecting American beech (*Fagus grandifolia*) in North America. Symptoms of BLD have also been observed on European (*F. sylvatica*), Oriental (*F. orientalis*), and Chinese (*F. engleriana*) beech species, which are occasionally planted as ornamentals. The disease has recently been found in areas throughout the northern edge of the range of American beech. Recent detections in tree nurseries have caused significant concern among forest managers, homeowners, and nursery growers. BLD symptoms have been shown to be associated with a newly recognized subspecies of the anguinid nematode *Litylenchus crenatae mccannii*. Nematode infection mechanisms are not fully understood, but research indicates that the nematode is associated with buds and leaves of beech of all age classes.

Identification and Description

Early symptoms of BLD include dark stripes or bands between lateral veins of leaves that are visible immediately upon bud break in the spring (figure 1). Affected leaves may be unevenly distributed in the lower canopy. Banding is most apparent when viewed from below, looking upward into the canopy. Leaves with severe symptoms are heavily banded, shrunken, and crinkled with a thickened, leathery texture (figure 2) that often leads to chlorotic banding later in the season (figure 3). Aborted bud development and premature leaf drop result in a thinning of canopy cover over time. Tree mortality of all age classes has been occasionally observed within 2 to 7 years but appears to be more common for smaller trees.

Current Range

Symptoms of BLD were first observed in northeast Ohio in 2012 and have since been detected in Connecticut, Massachusetts, New Jersey, New York, Pennsylvania, Rhode Island, West Virginia, and the Canadian Province of Ontario (figure 4). The recent increase in BLD detection may be a result of increased search efforts in addition to true spread.

BLD appears to be spreading, particularly from west to east based on the number of new county detections in recent years. Insect or avian vectors as well as human-mediated movement of the nematode are possible modes of its dispersal that are currently being studied. There is likely a delay between initial nematode infestation and BLD detection as *L. crenatae* has occasionally been confirmed in asymptomatic tissue at the molecular level.



Figure 1.—Banding appearance associated with BLD. Courtesy photo by Tom Macy, Ohio DNR.



Figure 2.—Banding appearance and shrunken leaves associated with BLD. Courtesy photo by Cleveland Metroparks.



Figure 3.—Advanced symptoms of BLD with chlorotic striping. Courtesy photo by Cameron McIntire.

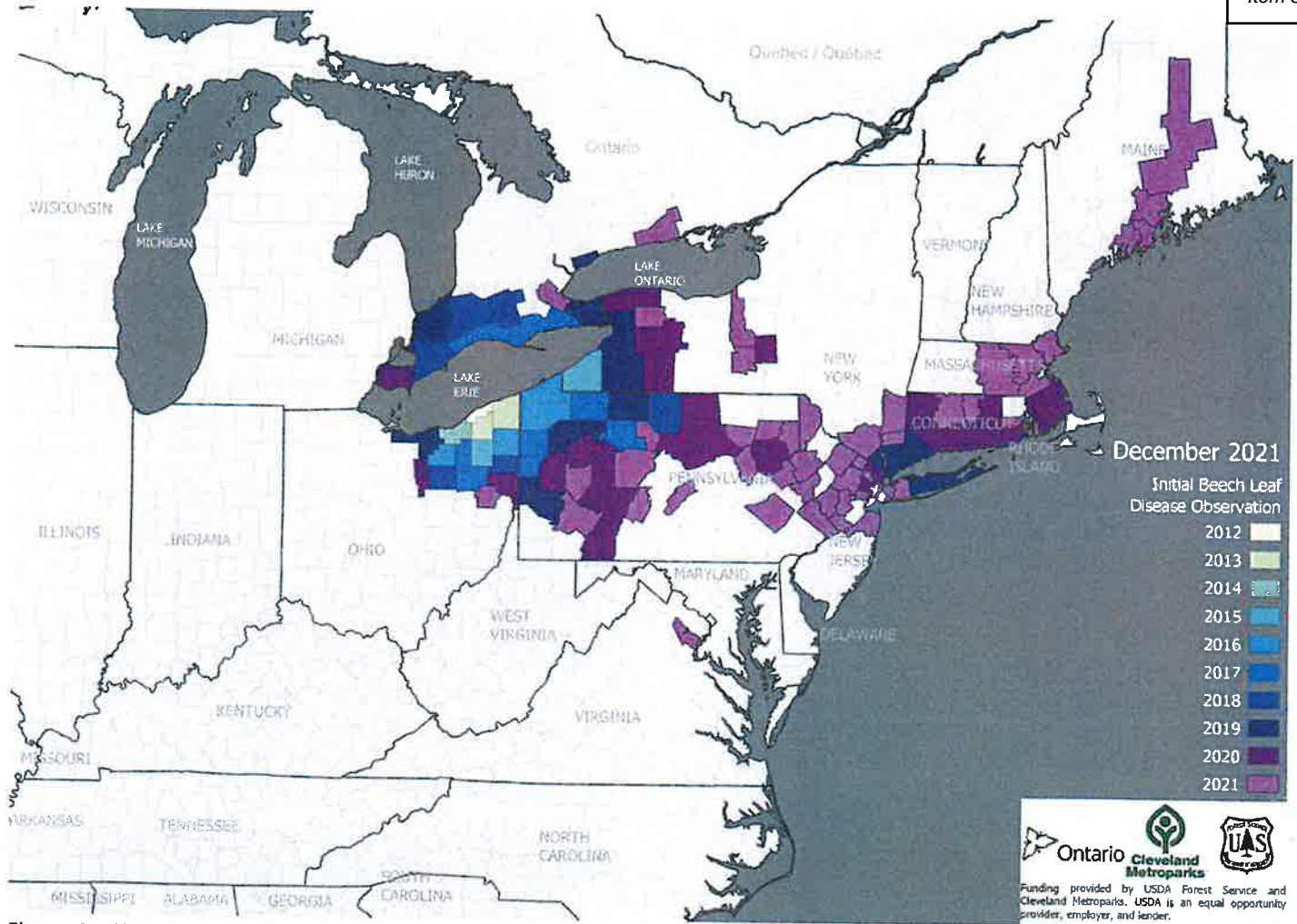


Figure 4.—Known range of BLD. Map courtesy of Cleveland Metroparks.

Management

No treatments are currently available for trees affected by BLD; however, several methods are being studied. Common mitigation strategies are likely to be effective at reducing the incidence of BLD and decreasing the likelihood that it is moved to new areas. Those include destroying infected plant material after removal and avoiding transporting plant material, including branches, twigs, soil, leaves, and whole seedlings, from affected areas. Pruning infected landscape trees may decrease foliar surface moisture and thus disease severity.

Be on the Lookout

Please contact your local forest health specialist if you observe symptoms of BLD. You can also report symptoms using Tree Health Survey,

which can be accessed using the QR code to the right or by visiting <https://treehealthapp.cmparks.net>. This app trains users how to identify beech trees and beech leaf disease symptoms. You can use Tree Health Survey to record the location and symptom severity of diseased trees as well as submit photos.



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