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TESTIMONY BEFORE THE JOINT STANDING COMMITTEE ON AGRICULTURE,
CONSERVATION, AND FORESTRY

In Support of LD 1929

An Act to Provide Assistance to Areas Severely Infested with Browntail Moths

February 1, 2022

Senator Dill, Representative O'Neil, and members of the Joint Standing Committee on Agriculture, Conservation and Forestry, my name is Allison Kanoti; I am the State Entomologist and Director of the Forest Health and Monitoring Division of the Maine Forest Service in the Department of Agriculture, Conservation and Forestry. I am speaking on behalf of the Department in favor of *LD 1929, An Act to Provide Assistance to Areas Severely Infested with Browntail Moths*. We thank Representative Hepler for sponsoring this bill.

It is fitting to provide this testimony on the first day of Browntail Moth Awareness Month in Maine. Browntail moth poses a risk to human health. Toxins in the caterpillar's barbed hairs can cause skin rashes, breathing problems, and other reactions and the toxin can persist in the environment for up to three years. Browntail moth is advancing in Maine, and locations throughout Maine with suitable trees can harbor it.

While we do not have the power to stop the browntail moth outbreak, the people and towns of Maine can reduce the spread of browntail moth and its impacts on quality of life. Municipalities are the front line in our battle against browntail infestation; LD 1929 would give our Department an essential tool by channeling funding to hard-hit towns for their browntail response efforts.

Almost 200,000 acres of browntail moth activity was mapped during aerial surveys in 2021, more than half in Kennebec County. Androscoggin and Waldo County had around 30,000 acres mapped, and activity was also mapped in Knox, Cumberland, Lincoln, Sagadahoc, Hancock, Penobscot, and Oxford counties. Populations were also detected in all but one of the other counties. The population continues to increase, the core areas affected are shifting, and the overall trajectory of the outbreak continues to rise.

\$150,000 would be a small step towards supporting communities. We need only to look to the efforts at the City of Waterville, which has dedicated \$100,000 this year to browntail response to understand it. However, we believe it can make a difference in the number of communities that respond.

Our efforts to fight browntail moth infestation thus far have limited our tools to communication and education. The Department and our partners have used the press, newsletters, social media,

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correspondence with affected towns, in-person and virtual talks, and our website to alert people about browntail moth detections and encourage mitigation measures. Although the efforts are well received, the results are not far-reaching enough. LD 1929 will allow us to add financial support for browntail mitigation to the technical assistance and moral support already provided.

In addition to allowing the Department to provide some financial support to outside organizations for response to browntail moth, this bill gives additional staff to Maine Forest Service to respond to this and other growing threats to Maine's forest health. Browntail moth is just one of many emergent challenges that today include new or growing dangers that were first found in Maine in the last two decades, such as Beech Leaf Disease, Elongate Hemlock Scale, Emerald Ash Borer, Hemlock Woolly Adelgid, Red Pine Scale, Southern Pine Beetle, and Winter Moth. Drawing near Maine and worthy of more detection efforts are Asian Longhorned Beetle, Beech Leaf Mining Weevil, Brown Spruce Longhorned Beetle, Oak Wilt Disease, and Spotted Lanternfly, among other lesser-known species. Additional concerns to forest health building within Maine forests include *Lymantria dispar*, exotic earthworms, native fungal disease complexes of white and hard pine and spruces, and native spruce budworm.

In the last two decades, the Insect and Disease Management Unit in the Department has seen a reduction of two professional level and one technician level staff. With increased demands, adequate survey, response, and technical support to maintain forest health are not possible at current staffing levels. In addition, modernization, innovation, analysis, maintenance of existing functions suffer due to excess demand on existing staff.

All this is happening against a backdrop of a lack of 'normal' climate and the direct impact on tree health and the pest organisms living off trees. It is also at a time when forests, growing at their current or better rates, are being recognized not only as critical to Maine's economy and way of life but also crucial as a natural climate solution for their ability to remove carbon from the atmosphere and store it within their wood.

The two parts of this bill are similar in that they recognize significant needs and provide small, positive steps towards addressing real problems. I urge you to support these steps towards improvement.

Attached to this testimony, I've provided background materials on the browntail moth in Maine, including information on the legislative proclamation and department communication strategy.

Thank you for your time. I would be happy to answer any questions now or at the work session.



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Background on Browntail Moth and
Our Current Situation in Maine

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Background

Originally introduced from Europe to Massachusetts in the 1890s, browntail moth (BTM) has been established in Maine since 1904. It is currently only known in North America in Maine and Cape Cod, Massachusetts. Browntail moth is primarily of significant concern because of its impact to human health and quality of life. Caterpillars also feed on hardwood trees and shrub and can cause growth reductions, dieback and mortality, especially during epidemics. Contact with hairs from the caterpillars can cause skin rashes, breathing problems and other reactions. The caterpillars' barbed hairs contain a toxin that is stable in the environment for one to three years. The severity of individuals' reactions to the hairs varies. It is a difficult insect to work with because of the health effects; little work has been done to rigorously study this insect in decades and Maine Forest Service (MFS) is working with researchers in the northeast to add to the understanding of this pest.

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2021 Conditions

In 2021 there was continued growth in the outbreak of browntail moth (Figure 1). Call activity was very high, with well over 500 BTM calls and a similar amount of emails received by MFS from mid-May to August. This was in addition to calls fielded by 211 (287 calls) and other agencies such as Maine Center for Disease Control (CDC), Maine Board of Pesticide Control (BPC) and Cooperative Extension. As was true in 2020, in 2021 we provided regular BTM developmental updates to the public and our cooperators to keep everyone up to date.

The annual **winter web survey** wrapped up in late March (Figure 2). In the winter of 2021, field staff detected webs in Aroostook County (Fort Fairfield, Monticello and Smyrna) for the first time since the early 1900's outbreak. This speaks to the ability of this species to hitch-hike rides on vehicles; the caterpillars, pupae and adults can all be carried to new places.

When warranted, two rounds of **aerial survey** are flown for BTM each year: one in late spring/early summer to pick up defoliation from the mature caterpillars and another in late summer/early fall to capture the skeletonization damage from the newly hatched caterpillars. The spring survey revealed around 172,870 acres of defoliation while the fall surveys revealed an additional 26,850 acres. This brings the grand total for 2021 to 199,720 acres. There was some overlap in areas mapped between the two surveys, so the total of unique acres mapped is 198,773, which is again a marked increase from 2020 where the total aerial defoliation was 153,680 acres. In 2021, damage was mapped in Oxford and Hancock Counties for the first time in this outbreak (prior to this, winter webs had been observed and reported on in these counties).

County	BTM Damaged Acres 2021
Kennebec	108,138
Androscoggin	30,820
Waldo	29,750
Knox	9,095
Cumberland	7,175
Lincoln	5,283
Sagadahoc	5,070
Hancock	2,767
Penobscot	674
Oxford	2
Grand Total	198,774

This year MFS moved away from the “risk map” format in favor of a new way to share the information related to our monitoring surveys. This is, in part, due to the broad extent of detections. The new format displays the raw winter web survey data points along with the aerial defoliation and damage polygons.

We continue to work with partners to improve **communication** regarding browntail moth. Milestones in 2021 include reconvening the browntail moth task force in September for updates and a listening session, updating the extensive [Frequently Asked Questions](#) and answers on the website; presenting survey data in an [interactive ArcGIS dashboard](#), creating a [Browntail News](#) bulletin to share updates, and creating an on-line enhanced [management overview](#) based on the Municipal Battle Book of the last

outbreak. In 2022 we are piloting using February as Browntail Moth Awareness Month with support of a proclamation by the governor’s office (see proclamation and PR following)

Figures

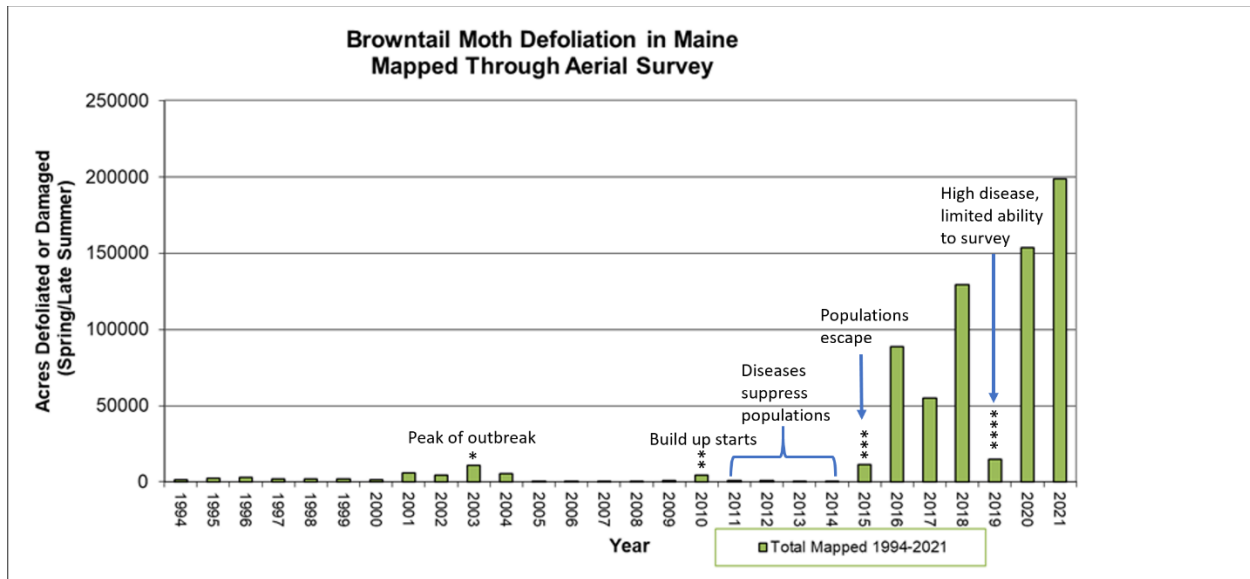


Figure 1. Acres of defoliation or damage caused by browntail moth by year mapped during aerial surveys. Values range from just over 400 acres to current extent of 198,773 acres. At no point in the period shown (more than 2 decades) has the area of detected during aerial surveys been less than 400 acres. The current outbreak is of a magnitude only seen during the initial invasion by this insect in the early 1900’s.

***Peak area mapped during previous modern outbreak (10,730 acres).**

****First indication of building outbreak. For several years populations were suppressed, likely due to caterpillar diseases aided by wet spring weather.**

*****Populations escape natural controls.**

******Reduced defoliation and damage mapped influenced both by large expanses of diseased caterpillar populations and a limited ability to conduct surveys**

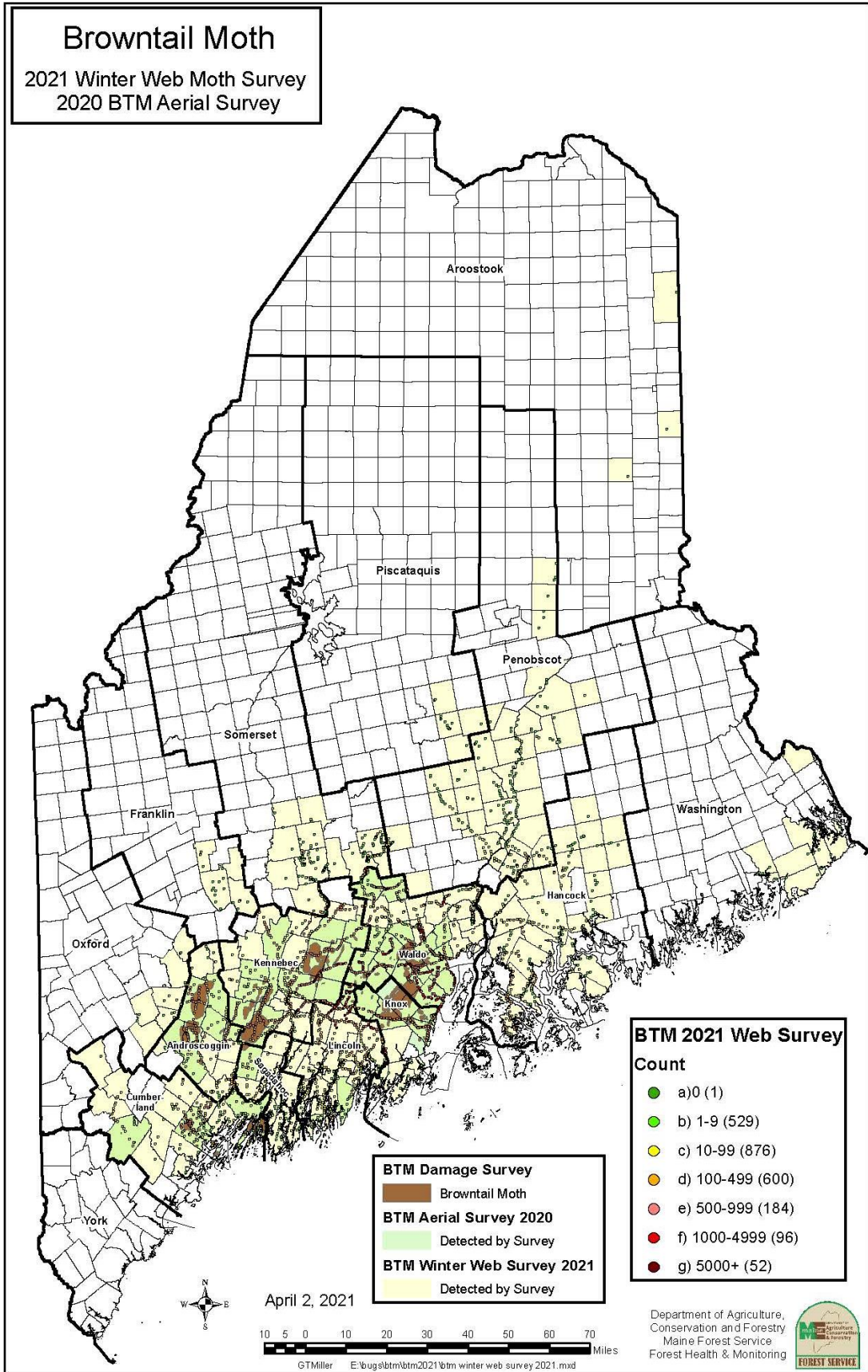


Figure 2. Aerial survey damage from 2020 and winter web survey data from winter 2020-2021. Towns with detections of browntail moth populations from either survey are shaded. These data are also displayed on an [on-line ArcGIS Dashboard](#).

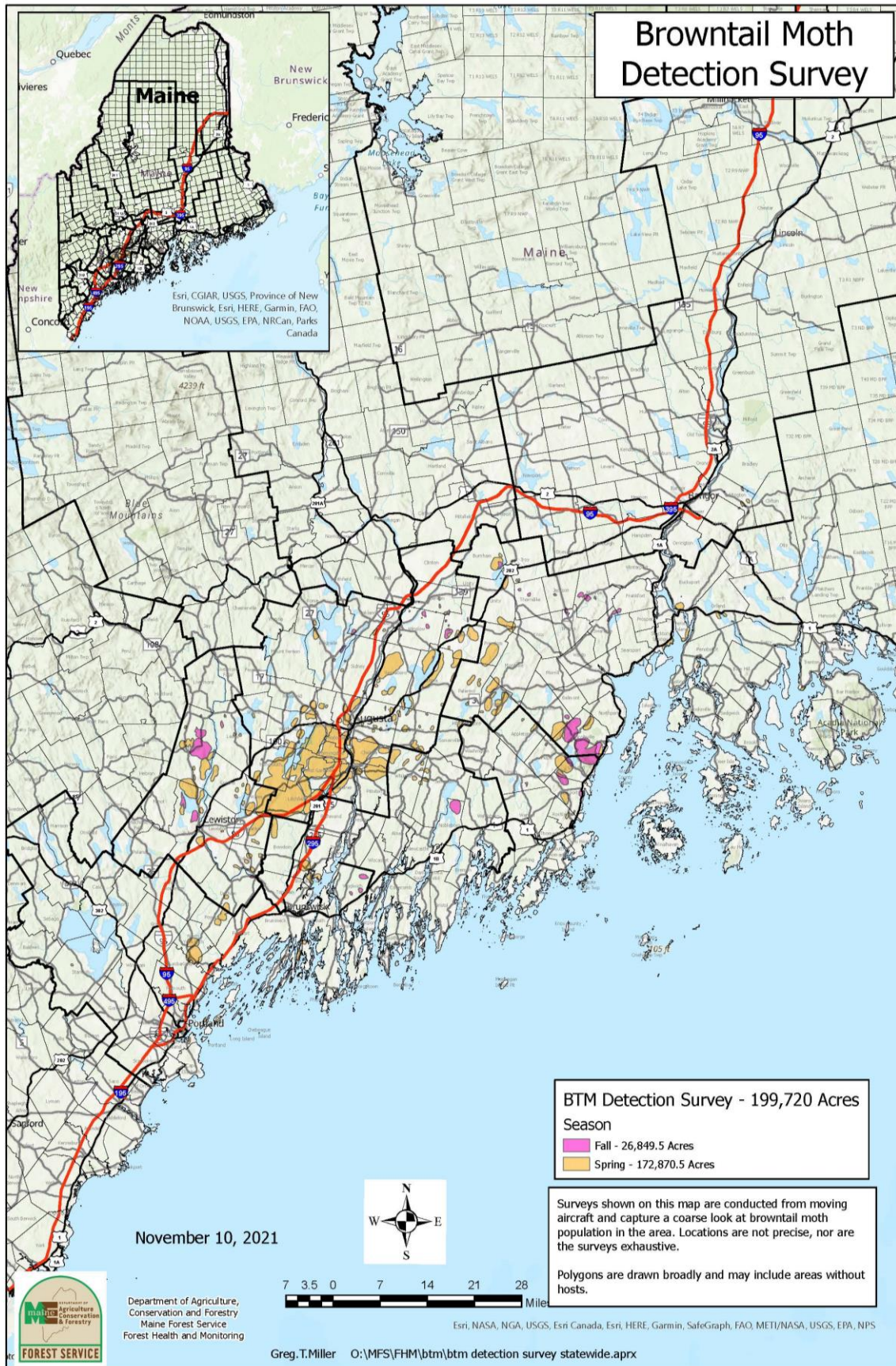


Figure 3. 2021 Browntail Moth Defoliation (Spring) and Skeletonization Damage (Fall) Aerial survey data. These data are also displayed on an [on-line ArcGIS Dashboard](#).

State of Maine



WHEREAS, Browntail moth (BTM) populations in Maine have been in an outbreak phase since 2015, and BTM is not a pest that can be eradicated; and

WHEREAS, most areas of Maine, especially settled areas that have significant host tree populations such as oak, apple, crabapple, pear, birch, cherry, as well as other hardwoods, are at risk of infestation by the caterpillars; and

WHEREAS, while long-lasting tree defoliation and branch dieback are major concerns, the caterpillar's microscopic, toxic hairs can cause trouble breathing and skin irritation similar to poison ivy from a few hours up to several weeks; and

WHEREAS, state agencies are committed to coordinating within state government, with local communities, and directly with citizens to respond to this issue; and

WHEREAS, winter is the best time to safely clip and destroy BTM winter webs within reach or to hire a licensed arborist or a licensed pesticide applicator to reduce populations that are out of reach; and

WHEREAS, comprehensive BTM information and tools compiled by state agencies and the University of Maine, including research, infestation tracking, FAQs, and educational resources for communities, municipalities, businesses, and healthcare providers, are available by dialing 211 or visiting 211maine.org;

NOW, THEREFORE, be it resolved that I, Janet T. Mills, Governor of the State of Maine, do hereby proclaim the month of February 2022 as

Browntail Moth Awareness Month

throughout the State of Maine, and I urge all citizens to learn more about BTM, look for it where you live, work and play, join in clipping overwintering webs, and take other actions to reduce impacts in the spring and summer.



Shenna Bellows
Shenna Bellows
Secretary of State

In testimony whereof, I have caused the Great Seal of the State to be hereunto affixed GIVEN under my hand at Augusta this twelfth day of January Two Thousand Twenty-Two

Janet T. Mills
Governor

Figure 4. Proclamation declaring February 2022 Browntail Moth Awareness Month in Maine

Winter Browntail Awareness Campaign: Follow the 4R's

Follow the Four Rs to Knockout Browntail in Our Communities and Reduce the Itch!

Encounters with hairs from [browntail moth](#) caterpillars can cause mild to severe rashes and respiratory issues. Browntail moth caterpillars [overwinter in webs](#) that may have from a couple dozen to several hundred caterpillars each. Some people say they experience itching with fewer than 10 webs per tree or shrub; others say they have no symptoms from heavier infestations around their yards.

February 2022 has been recognized as Browntail Moth Awareness Month in Maine to encourage people to take advantage of the dormant season of the insect and join together to reduce impacts from browntail moth.

Winter is the best time to spot an infestation and take steps towards controlling the caterpillars and reducing the itch.

Use these Four R's to get you started:

1. Recognize: Learn how to tell if the trees where you live, work and play have browntail moth. Their [winter webs](#) can look like single leaves hanging onto twigs, or fist-sized clumps of leaves tied together tightly with silk. Knowing where the webs are in your yard or town can help inform your management decisions.



Webs can look like fist-sized clumps of leaves tied together tightly with silk, or like single leaves hanging onto twigs.

2. Remove: With permission, [use hand snips or extendable pole pruners to remove webs](#) within reach from the ground and away from hazards such as powerlines. Protect your eyes and skin from hairs that might be present from past caterpillar activity. After removal, destroy webs by soaking in soapy water for several days, then disposing in trash or by burning.



Use hand snips or extendable pole pruners to remove webs within reach from the ground and away from hazards such as powerlines.

3. Recruit: [Hire professional help](#) for treatment of webs out of reach or near hazards on property you own or manage. Line up help during winter. [Licensed Professional Arborists](#) can remove webs in larger trees and shrubs in the winter. In trees where the caterpillars' hairs cause a nuisance and where it is not practical to remove webs, [Licensed Pesticide Applicators](#) may be able to use insecticides during the growing season to manage browntail moth.



In large, heavily infested trees like this oak removal of webs may not be practical because of time and cost involved in this approach. In trees like this that are a concern from the standpoint of human health or nuisance, licensed pesticide applicators may be able to use insecticides to help reduce impacts from browntail moth.

4. Reach Out: If you find browntail moth in your neighborhood, let your neighbors and town officials know. The more that neighbors, businesses and others get together to respond to the problem, the better the results.



Vehicles line the road at a community web-clipping event in Deer Isle. Foreground, browntail web in serviceberry. The more that neighbors, businesses and others get together to respond to the problem, the better the results.

We invite you to join us in scheduling awareness-raising events and promoting management of browntail moth this winter. Use #KnockoutBrowntail on social media. Efforts could include organizing groups to map infestations on town and school properties, hosting public service

web-clipping events, hosting contests for the most webs clipped or other community and knowledge building activities.

KNOCKOUT BROWNTAIL

maine.gov/dacf/knockoutbtm

For more information:

Contact 211 Maine for answers to frequently asked questions on browntail moths:

- Call 211 or 1-877-463-6207
- Text your ZIP code to 898-211

Or [visit our website](#). While you are there, sign up for our new Browntail News Bulletin.

Example FAQ

Content from: www.maine.gov/dacf/knockoutbtm

What do we know about 2022 browntail populations?

Generally speaking, we expect conditions to be as bad or worse than last year in terms of potential encounters with browntail moth and their hairs. Browntail moth populations in Maine have been in an outbreak phase since 2015, and populations continued to increase in 2021, with almost 200,000 acres of damage mapped in aerial surveys. Also, the second consecutive dry spring in 2021 limited disease in the caterpillar stage, allowing a bumper crop of moths to disperse in July 2021. We will know more about the 2022 outlook after our winter web surveys.

What are areas of Maine that are most at risk for 2022?

Most areas of Maine, especially along the coast and inland, that have significant host tree populations are at risk. In 2021 [overwintering browntail moth webs](#) were found in every county in Maine except York. The highest populations in 2021 were found in Androscoggin, Cumberland, Kennebec, Knox, Lincoln, Sagadahoc, and Waldo Counties, with some pockets of high populations in adjacent counties. Aerial surveys revealed intensification in many areas, and first damage mapped in coastal Hancock County as well as Oxford County.

What are the most precise ways for people to know the browntail moth situation in their area?

Consulting [our interactive survey map](#) will give people a general idea of what the population looks like in their area. However, there is no substitute for inspecting the host trees and shrubs around places they frequent.

- Late-fall through early spring: on sunny days, [examine hosts for winter webs](#) on the tips of host branches
- Spring-early summer: look for the distinctive caterpillars. The white stripes characteristic of older larvae usually develop in late May. The two orange dots towards the rear are present throughout this stage.
- Early summer through leaf fall, watch for and avoid cocoons and their remnants.
- Late-summer watch for distinctive feeding and developing silk created by young caterpillars before overwintering

Since toxic hairs haven't been produced since the end of June in 2021, do I still need to be concerned about exposure?

In areas with low browntail moth populations and individuals who are not highly sensitive to the toxins in the browntail caterpillar hairs, the risk of a reaction is reduced. This is in part because the risk of encounters with the hairs is reduced with ample rainfall after spring-feeding caterpillar activity has stopped. Consistent rain has been seen over much of the infested areas from July and into September; this will help incorporate hairs into the soil and reduce their chance of becoming airborne in drier conditions. However, **sensitive individuals and people in areas with moderate to high populations in spring 2021 or prior should continue to use caution in conducting work that might stir up the hairs or otherwise lead to encounters with them.** Activities such as sweeping, raking, mowing, using leaf blowers, gardening, handling firewood or other material where hairs may have settled or caterpillars may have pupated are examples of conditions that may lead to encounters with the hairs long after the caterpillars are gone.

Where is the best resource to find how to protect oneself from and manage browntail moth?

More [Frequently Asked Questions](#)

Browntail Moth (BTM) Frequently Asked Questions

Biology	Human Health Concerns
Management	Animal Health Concerns
Pesticide Options <ul style="list-style-type: none">• General• Control of Browntail Moth near Marine Waters• Pesticides and Food/Pesticides and Non-Target Organisms• Pesticide Injections	Reducing Toxic Hair Exposure
	Public Policy

Figure 5. Screen capture of [Frequently Asked Question page](#).

Browntail Moth Management Overview

Content from:

https://www.maine.gov/dacf/mfs/forest_health/invasive_threats/browntail_moth_overview.htm

What can we do to reduce impacts from browntail moth?

Maine has persistent browntail moth populations that, even during periods of lower population, have caused human impacts every year over the last several decades. Browntail has been established in Maine since 1904 and has been in an outbreak phase over a broader area since 2015.

We cannot stop the spread or eliminate the pain and frustration caused by browntail moth. However, there are steps that can be taken to reduce the impacts to people in areas with the pest. This site provides resources for towns and other organizations considering taking actions to reduce impacts from browntail moth populations.

[Share your ideas](#) on how to mitigate browntail moth impacts.

Education

Educating the public is the first step in managing browntail moth. All organizations engaged in responding to browntail moth are encouraged to provide education. Examples of how this has been done include providing information on websites and in social media, including inserts in utility bills and other town mailings, creating and displaying signs to warn of infestations.

- [Maine CDC Browntail moth factsheet \(PDF\)](#) | [عربي](#) | [Français \(PDF\)](#) | [Kreyòl Ayisyen \(PDF\)](#) | [Lingala \(PDF\)](#) | [Português \(PDF\)](#) | [Soomaali \(PDF\)](#) | [Español \(PDF\)](#) | [Tiếng Việt \(PDF\)](#)
- [DACF Browntail Moth Brochure](#) (PDF | 1.67 MB) (limited paper copies available)
- [Maine Forest Service Browntail Moth Information Page](#)
- [Frequently Asked Questions](#)
- [Life cycle diagram/activity calendar \(PDF | 336 KB\)](#)

Survey

Figuring out where browntail moth is in relation to human activities is an important part of deciding how to respond to its presence. [Maine Forest Service surveys](#) are coarse scale to assess state-wide populations. Finer scale surveys are necessary for local response and can play an important part of education, engaging others in your efforts and informing your management decisions.

- [Browntail Moth Citizen Science Survey Form \(PDF | .1 MB\)](#)
- Example community mapping effort: [City of Bangor](#)

Management

An integrated approach to managing browntail moth is the best approach to management. Management tools include mechanical, cultural and chemical control efforts. Some management approaches require a license, and others can be done by volunteers and unlicensed individuals. Some towns that have decided to engage in management request a public health nuisance declaration from [Maine CDC](#).

Mechanical and cultural control efforts

Web clipping

Between mid-December and early April populations of browntail moth within reach can be reduced through clipping and destroying overwintering webs. Extreme populations and those in mature trees are not readily managed through this method. However, web clipping should be conducted where it is practical.

This activity [may require work by a licensed arborist](#).

- [List of licensed arborists \(PDF | 253 KB\)](#)
- [Arborist program website](#)
- [Browntail moth web clipping video](#)

Several communities have organized grass-roots efforts to encourage web clipping including door knocking educational campaigns and equipment lending programs (for example through conservation commission, library or local non-profit).

- Example pole-pruner lending programs: [Bowdoinham Public Library](#), [Island Heritage Trust](#)

Tree removal

Generally, this permanent solution is not recommended for trees that are otherwise providing important functions in the landscape and environment. Higher populations of browntail moth are temporary, tree removal is not. However, there are instances where tree removal may make sense. In general, we recommend tree removals targeting browntail moth take place when caterpillars are in their winter webs (October through March) and that webs are destroyed.

This activity [may require work by a licensed arborist](#).

- [List of licensed arborists \(PDF | 253 KB\)](#)
- [Arborist program website](#)

Restrict Access

In some cases, it may be possible to restrict access to an area in order to reduce exposure to caterpillar hairs. Consider installing signs warning of populations if other treatments cannot be done.

- Example warning sign developed by the City of Portland
([with QR code - PDF | 1.12 MB](#))
([without QR code - PDF | 1.14 MB](#))

Adjusted Maintenance Schedule

Consider adjusting maintenance schedules for open areas around untreated infested trees. This will reduce both employee and public exposures since use of unmown areas will be more limited.

Landscape design and planning

An important part of planning for browntail moth can be modifying the landscape around public use-areas so they are less inviting to the pest. Certain trees and shrubs harbor more browntail moth than others. Some have forms that lend themselves to browntail moth management by clipping from the ground, so need not be avoided, others pose a greater challenge to management. Careful consideration of artificial lighting so it is less attractive to insects and is not drawing moths closer to hosts can also play a role in designing or adapting landscapes. Although we do not generally recommend radical changes to established landscapes, potential effects from browntail moth should come into consideration when adding new elements to landscapes, altering established plantings or developing new landscapes.

Insecticide treatment: license required

In some cases, treatment with insecticides will be the best approach for balancing human use and browntail moth. We encourage people to work with licensed and experienced pesticide applicators. Except when you are treating your own

private property with general use insecticides, all applications *must* be done by **licensed pesticide applicators** licensed in appropriate categories. There are special requirements for treatments in areas such as school grounds and other public spaces as well as for areas near marine waters.

- [Frequently Asked Questions on Pesticide Options](#)
- [List of licensed pesticide applicators](#)
- [Pesticide laws, regulations and policies](#)

Insecticide control methods can be broken into foliar applications and systemic applications.

Foliar application

Examples of foliar application include:

- Treatment from the ground with truck-mounted mist blowers or hydraulic sprays. Some companies also apply hydraulic sprays from lifts
 - Treatment from the air using fixed wing or rotary aircraft
-

Systemic Application

Examples of systemic applications include:

- Treatments with specialized tree injector systems
- Treatments with capsules inserted in drilled holes
- Treatments through soil or trunk applications