



STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
MAINE FOREST SERVICE
INSECT & DISEASE LABORATORY
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http://maine.gov/dacf/mfs/forest_health/index.htm

Forest & Shade Tree – Insect & Disease Conditions for Maine

September 25, 2020

Personnel Updates

Kaitlyn Whittemore joined the Forest Health and Monitoring Staff on August 31st, 2020 and can be found in Suite 201 of the Deering Building most days. She fills the Office Associate position. Kaitlyn's interview impressed the committee and she quickly rose to the top in a pool of well qualified applicants. Kaitlyn has broad experience in customer service and office support, including most recently work at the DHHS office in Skowhegan. In addition, she has accrued relevant experience at an insurance agency, a construction firm and in retail. Kaitlyn's positive attitude and enthusiasm for learning and for contributing in a team environment shone through in her interview. She has been quick to learn many of the tasks associated with the position and we are very pleased to again have a consistent, friendly voice at the end of the Insect and Disease Lab phone line.

Joseph Gendreau has accepted the Forest Inventory and Analysis Entomology Technician position in northern Maine and was promoted on August 24th. He has been a Conservation Aide with FIA since June of 2019 and will continue to work out of Madawaska. The position vacated by Joe is now advertised, [closing on September 29th](#).

Girdled Ash Peeling Time

Image: Peeling an ash bolt to monitor for emerald ash borer.

Did you girdle an ash tree to help monitor spread of emerald ash borer this spring? In the coming weeks, we would like you to prepare your tree for peeling. This year will be a little different from prior years. Bolts will be brought several sites and be peeled outdoors by Maine Forest Service staff. We are hoping to complete this work before the end of October.

There will be four collection points:

- **Portland** for ALL trees from the [southern quarantine area](#) and any others in southern Maine.
- **Stockholm** for ALL trees from the [northern quarantine area](#) and any others in northern Maine.
- **Augusta** and **Old Town** for trees from outside [quarantine areas](#).



If you have a tree for processing, please contact Kaitlyn at Kaitlyn.Whittemore@maine.gov or call (207) 287-2431, please indicate a phone number where we can reach you, which collection point you will use, and if you

PATTY CORMIER, DIRECTOR
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18 ELKINS LANE, HARLOW BUILDING



www.maineforestservice.gov

will need assistance with getting the tree to the collection point. If your tree is from an [emerald ash borer quarantine zone](#), the **bolts must go to the collection point in that quarantine zone**. If you are unsure about the boundaries of these zones, please check www.maine.gov/eab. Thank you for your help in monitoring for emerald ash borer!

Insects

Anoplophora macularia

Image: Cerambycid emergence hole found during North Berwick survey.

This month MFS staff performed a second year of ground survey as a follow-up to the *A. macularia* specimen that was submitted spring 2019 to the Maine Department of Agriculture, Conservation and Forestry (DACF). The beetle was reported to have been collected several years prior at a wooded property in North Berwick.

During this year's survey, trees along the road near the detection were surveyed from the ground. Trunks and branches were closely inspected for any signs of adult beetle activity including egg-laying sites and emergence holes. While surveying older sugar maples we found many old tap holes but also some large emergence holes in declining trees. These holes were on a couple of trees that had well developed columns of rot due to trimming and age and were likely due to one of our large native cerambycids such as *Centrodera decolorata* which prefers dead and dying trees unlike *Anoplophora* species.

Unfortunately, little is known about *A. macularia* and its potential risk to Maine's trees. This is the first time this species had been reported in the



Asian longhorned beetle. Gillian Allard, FAO of United Nations, Bugwood.org

United States. Like its cousin the Asian longhorned beetle, this species appears to be able to survive on a wide variety of trees. In Asia, the most significant hosts appear to be citrus, litchi, and mulberry; but it is also documented attacking willow, chestnut, and maple.

DACF will continue to survey in the area where the beetle was reported over the next several years. In addition, we ask for your assistance in looking out for Asian longhorned beetle and similar species as well as related tree damage. If you suspect you've found one of the invasive insects, try to capture it (at least in a picture, but preferably the beetle itself), accurately record where and when you found it, and report it. The department has an extensive resource page on Asian longhorn beetle and other exotic *Anoplophora*, including reporting instructions, here: www.maine.gov/alb.

Browntail Moth (*Euproctis chrysorrhoea*)

Image: Scale of skeletonization damage that can occur on a branch in relation to the winter web.



The browntail moth (BTM) caterpillars that hatched from their egg masses in August have been feeding and growing for about a month and a half. These young caterpillars do not have the irritating hairs for which older (4th instar or above) BTM caterpillars are infamous. While feeding, caterpillars graze on the outer layer of the leaf, a type of defoliation called skeletonization. This feeding causes leaves to die and turn a coppery color which is very apparent this time of year, especially in areas with high concentrations of BTM caterpillars. MFS staff uses this type of damage to detect higher populations of BTM from the air during our late-summer aerial surveys. This September aerial survey detected intensified defoliation around the Androscoggin River corridor from Auburn to North Turner, primarily on the western side of the river; surrounding Lake Cobbosseecontee; and around China Lake, Webber Pond and Three Mile Pond. It also confirmed

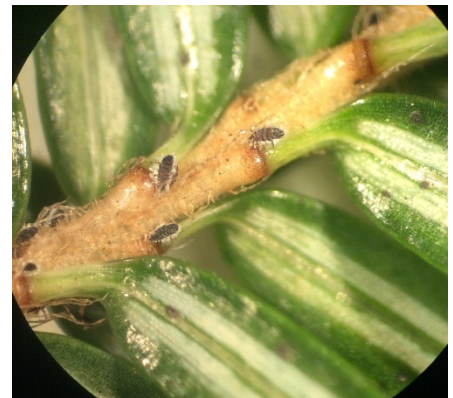
persisting elevated population levels in most of Kennebec, Waldo and Knox Counties.

Homeowners can use this skeletonization to determine the level of BTM in their trees, although this is not as easy as looking for winter webs once leaves have fallen off. In addition to feeding, the little caterpillars have continued building the tight, palm-sized web in which they will spend the winter. Unlike fall webworms' constructions, these compact webs will remain small and will be occupied over the winter.

Hemlock Woolly Adelgid (*Adelges tsugae*)

Image: Settled hemlock woolly adelgid (HWA) nymphs that have just broken aestivation (summer dormancy). From late-summer through February there is a reduced risk of spreading HWA.

A reminder, fall and winter are good times to do any work needed on your hemlock trees. At this time of year, crawlers or eggs are not present and there is very little risk of spreading hemlock woolly adelgid (HWA). If your trees do *not* have HWA, working on them in the fall and winter means there is essentially no chance of your trees becoming infested by HWA that has travelled on machinery or equipment. If your trees *do* have HWA, working on them at this time of year reduces the chance of spreading HWA to other areas. the high-risk season for spreading HWA returns in March.



Oak Leaf Galls

Image: A small sampling of the types of galls on found on oak leaves.



Every year, we get calls and emails about strange growths seen on oak leaves. These growths come in many, many different shapes, sizes, and colors. Sometimes they are on the upper surface of the leaves, sometimes on the lower. Some are fuzzy or spiky, and some are smooth. Sometimes they are on the petioles ('stems') of the leaf. These are galls, and oaks have an amazing abundance and variety of them. Some galls are formed by miniscule non-stinging wasps, and some by tiny mites. Although

people are often concerned about the effect of these galls on the tree, they are almost never a problem. They use a very small proportion of the tree's resources, and most of the leaves' photosynthetic capacity is unaffected. A Google image search of oak leaf galls will introduce you to the astounding diversity of galls on oak leaves. How many different galls can you spot this autumn?

Red Pine Scale (*Matsucoccus matsumurae*)

Image: Signs of red pine scale including resting stage (top) and flocculence (bottom).



Aerial survey this summer picked up an area of about seven acres of declining red pine in Berwick. A site visit to determine cause of the damage revealed declining trees with brick red foliage and lower-crown branch mortality. Upon closer observation of samples in the lab, the trees were found to have Diplodia tip blight, a chronic fungal blight that often leads to long-term decline in red pines in Maine, and infestation by red pine scale. White, cotton-like fuzz (flocculence), a sign of red pine scale, was observed. Other insects, including adelgids, produce similar flocculence. However, characteristic coverings of the cyst-like resting stage of the scale were also observed. Red pine scale is an invasive pest scale of hard pines including red pine (other hard pines native to Maine are not impacted by this species). This is the second detection of red pine scale in York County. The scale is likely more widespread since infestations often go un-noticed until the trees are in severe decline. Winter harvests of infested trees can help to limit both spread of red pine scale and long-lasting impacts from Heterobasidion root disease at the site. Material

harvested outside of winter, especially branches and upper stem sections, should be kept on site if possible until they have dried out.

Spotted Lanternfly (*Lycorma delicatula*)

Image: Adult spotted lanternfly. Wiki user Walthery

The recent announcement of a reproducing population of spotted lanternfly in Connecticut is a timely reminder of the ability of this insect to quickly move from occasional hitchhiker to resident. The spotted lanternfly is a large planthopper native to China. It was first discovered in the United States in 2014 in southeastern Pennsylvania. It feeds on a wide range of host plants, including apple, grape, hops and forest and ornamental trees. It is not only a



plant pest with a broad appetite, it is also a significant human nuisance. Efforts to eradicate and quarantine spotted lanternfly have slowed its spread, but it has successfully established in at least six additional states: Connecticut, Delaware, Maryland, New Jersey, Virginia, and West Virginia. It has not been detected in Maine.

The striking adult lanternfly is active now. Learn more about this pest on the Maine DACF CAPS website, <https://www.maine.gov/dacf/php/caps/slf/index.shtml>, and please, [report it if you see it](#). As always, pictures and the insect itself are very helpful.

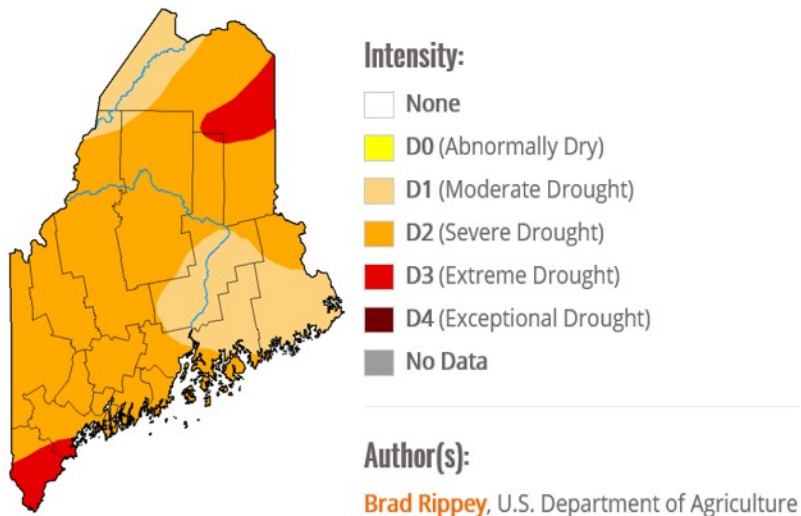
Winter moth (*Operophtera brumata*)

Through our work this past spring collecting winter moth caterpillars (and the parasitic flies within them), we have now recovered *Cyzenis albicans* from all previous biocontrol release sites in Maine, including Harpswell Neck after many years of sampling there. Levels of parasitism between release sites vary hugely from 29.75% at Two Lights State Park to 0.23% in Harpswell Neck. The other two sites, South Portland and Fort McClary, checked in at 9.44% and 1.96%, respectively. We hope the levels of parasitism at Harpswell Neck will build up over successive years as we have seen in other sites. This fall we will put the emergence cage in the ground in East Boothbay Harbor, which saw some of the highest populations of winter moth this year. The fly pupae will overwinter in the ground until next May, after which they will be released. This past year we saw many dead winter moth caterpillars that had died from exposure to a pathogen and we will be working with Dr. Joseph Elkinton of UMass Amherst to determine what might be the cause of those die-offs. A huge thank you to Dr. Elkinton and his students for their help in rearing the *Cyzenis* pupae and determining the level of parasitism.

Diseases, Injuries and Environmental Issues

Drought

Image: Drought conditions as of September 22, 2020 from [US Drought Monitor](#).



Since spring 2020, many parts of Maine have experienced prolonged periods of very low or no precipitation. In fact, this month the USDA declared Aroostook County an official Drought Disaster Area. Drought is a significant primary stressor of trees, in some cases increasing tree susceptibility to secondary agents of decline. Physiologically, drought stress may lead to increased dieback of fine roots underground, which in turn manifests as crown dieback. Further, some tree pests are keenly able to exploit the decreased defensive capabilities of drought-prone trees. Two examples of this relationship are

increased prevalence of bronze birch borer damage to birch trees following drought or the increased incidence of *Cytospora* canker of spruce following drought stress. The impact of drought can be seen immediately in some areas in some species, while in other areas and species, the impacts of drought stress may be delayed several months. Sometimes drought stress and the associated secondary impacts continue to negatively impact trees for years.

Fall Needle Drop of Conifers



Image: (top) Orange inner foliage typical prior to seasonal needle drop by mugo pine; (bottom) white cedar.

In the coming weeks, people may notice coniferous tree species shedding needles. The needles on twigs and branches closest to the interior of the tree, which are the oldest needles, begin to turn a pale-yellow to orange color before dropping onto the ground, lawns, cars and driveways. Unless there are clear signs of injury, wilting, signs of insect feeding or signs of fungal infection (e.g., black spots or banding on needles), there is no cause for alarm. This is very likely simply due to the natural phenomenon of seasonal needle drop and not an insect or disease problem. Although conifer needle disease incidence and severity has been high during the past few years, the premature needle drop caused by those disease agents typically happens in June and July.

Unlike broad-leafed trees (deciduous trees), conifers do not completely re-foliate each year. Seasonal needle drop in coniferous trees is a way for them to increase their efficiency. The older needles are shed because they represent a greater energy cost in terms of maintenance and defense than they generate through photosynthesis compared to newer foliage. The energy that the tree saves by shedding inefficient needles is invested in growth, maintenance and defense of more valuable tissues.

Seasonal needle drop can be expected to be more noticeable and perhaps a bit earlier in Maine this year, due to the droughty summer conditions throughout most of the state. Some conifers, like larch species and dawn redwood, are deciduous and will lose all their needles (leaves) in fall and re-foliate each spring.

Hemlock Yellowing



Image: Hemlocks throughout Maine have been exhibiting yellowing of older, interior needles.

Hemlocks throughout Maine have been exhibiting yellowing of older, interior needles. The Maine Forest Service forest pathologist has inspected many of the trees showing this symptom and has not seen any sign of insect or disease. Thus, the thought is that this yellowing, expressed over a large area, is a response to the droughty conditions experienced over much of Maine this growing season. Hemlocks in the landscape setting showing this symptom should be regularly watered into the fall to prevent winter injury. Hemlocks in forested areas should be fine, but may become predisposed to

stress-related, secondary pests next year.

Powdery Mildew

Image: Lilac leaves with powdery mildew growth.

Usually warm and dry weather is not conducive to fungal growth, however this is not true for the powdery mildew fungi. This time of year, their superficial growth on leaf surfaces is often seen on the leaves of susceptible hardwood trees and shrubs. While the initial infection of the leaves occurred during wet periods of weather in the spring, repeated infection can occur throughout most of the growing season.



The white fungal growth does not become conspicuous until late summer and proliferates well during warm, dry weather. There are at least three genera of fungi (*Erysiphe* spp., *Phyllactinia* spp. and *Podosphaera* spp.) that cause the whitish moldy appearance of leaves indicating infection, often seen on lilacs, oaks, dogwoods, ninebark and roses. Although the infections are unsightly and cause alarm, they are typically not very impactful to overall tree/shrub health. Some leaf discoloration and deformation may be visible on infected trees. However, the affected leaves have already done the bulk of their photosynthesis and lowering their productivity at this time of the year is not serious.

Treatment of these foliar pathogens is seldom warranted and is more easily addressed through cultural practices, like thorough raking and removal of leaves in autumn and again in spring. Removing dead twigs is also important, as some powdery mildew species overwinter on dead wood. For heavy infection of species of powdery mildew that overwinter in live buds, fungicide treatment may be required. When planting landscape trees, choose resistant species, and make sure they are well spaced to encourage airflow and lessen infections in the spring.

Tar Spot of Maple (*Rhytisma acerinum*)

Image: By late summer, black fungal spots develop, which are the spore-producing structures of the fungus responsible for next year's infections. Leaves with multiple infections eventually turn brown and drop prematurely from the tree.



Tar spot of maple is caused by the native fungus, *R. acerinum*, and is again prevalent in several parts of Maine this year, despite the prolonged dry spring weather. *R. acerinum* affects the non-native Norway maples, including several cultivars common in horticultural settings, such as the burgundy-leaved Crimson King maple. There are three other species of fungi in the genus *Rhytisma* that produce a tar spot symptom on our native maples, but these are encountered less frequently and typically cause minor damage.

The fungi that cause tar spot survive the winter in fallen leaves and produce and disseminate spores during prolonged periods of wet weather in spring. Although infections happen in spring, the tar spot symptom does not appear until late in the season and is easily observed now. Collecting and disposing leaves in fall is the most practical recommended management strategy. If composting the collected leaves on-site, the leaf piles should be covered with a layer of soil, a dense layer of grass clippings or other compost. This will prevent the fungus from dispersing spores to re-infect maples the following spring. While fungicides are available and effective, chemical management of tar spot is rarely required and is often not practical.

Publications of Interest

[A Checklist of Maine Spiders \(ARACHNIDA: ARANEAE\)](#) has just been published by the Maine Forest Service. This joins earlier checklists of Microlepidoptera (tiny moths), Hymenoptera (bees, wasps, ants, etc.), and others published by the division. It marks the culmination of a 14-year collaboration between spider expert Dr. Daniel T. Jennings and the Maine Forest Service, especially retired Forest Entomologist Charlene Donahue, with earlier involvement by Maine Department of Inland Fisheries and Wildlife. Its foundation is more than 40 years of work by Jennings. Jennings was a retired research entomologist for the USDA Forest Service out of Orono Maine. He passed away on September 14, 2020 and was involved in all but the final, minor details of this publication.

Calendar

Free Fall Credit Programs from the Board of Pesticides Control and the University of Maine Cooperative Extension (Various Dates), two credits each:

Turfgrass Insect Pest Management – Via zoom: October 6 or 7

Browntail Moth – Via zoom: October 13 or 14

Vegetation Management – Via zoom: October 20 or 21

Preregistration is required visit www.thinkfirstspraylast.org for more details.

Invasive Forest Pest Webinars

Maine Association of Conservation Districts is offering free regional webinars to highlight how to protect Maine forests from invasive forest pests. One credit available for Licensed Pesticide Applicators and Licensed Professional Foresters:

- Thu, October 1 from 4-5 pm (Cumberland SWCD);
- Wed, October 7 from 3-4 pm (Penobscot SWCD); and
- Tue, Oct 13 from 9-10 am (Central Aroostook SWCD)

Pre-registration is required. Participants will receive information on how to join the webinar after they register. For questions or more information, please contact Hildy at Knox-Lincoln SWCD at 596-2040 or hildy@knox-lincoln.org.

Office hours are 7:30 am to 4:00 pm, Monday through Friday, except for holidays. However, we are currently working remotely and DACF buildings are closed to public access. You can still reach us at: (207) 287-2431. Status of the building closure will be updated on the DACF homepage, www.maine.gov/dacf.

NOTE: The Augusta office is now housed in the Deering Building, 90 Blossom Lane, Suite 201. The mailing address and phone numbers are unchanged. A map is available on our website, https://www.maine.gov/dacf/mfs/forest_health/contact_us.html. The lab at 50 Hospital Street is currently housing the Kennebec County Soil and Water Conservation District.

Conditions Report No. 6, 2020

On-line: https://www.maine.gov/dacf/mfs/publications/condition_reports.html

DEPARTMENT OF AGRICULTURE CONSERVATION & FORESTRY

Maine Forest Service – Forest Health and Monitoring

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Unless otherwise noted, photos by Maine Forest Service, Forest Health and Monitoring, DACF