



STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
MAINE FOREST SERVICE
INSECT & DISEASE LABORATORY

168 STATE HOUSE STATION
AUGUSTA, MAINE 04333

PAUL R. LePAGE
GOVERNOR

WALTER E. WHITCOMB
COMMISSIONER

http://maine.gov/dacf/mfs/forest_health/index.htm

Forest & Shade Tree - Insect & Disease Conditions for Maine

August 21, 2017

Insects

Alder flea beetles (*Altica ambiens*) – We have received several calls this month about alder flea beetles. The larvae of the beetles are sometimes mistaken for black ‘caterpillars’. They feed on tissue between the veins of leaves, leaving holes, and eventually skeletonizing the leaf. In observing the 1910’s outbreak of this insect, Woods recorded mortality of individual stems due to heavy feeding (MAES Bulletin 265, 1917). Although Maine is currently experiencing an outbreak of these insects this is not considered a significant pest in Maine due to the lack of economic importance of alder and the ability of alder, as a whole, to recover from epidemics.



Alder flea beetle larvae feeding on speckled alder. Image: Kathy Foley.

Asian longhorned beetle (*Anoplophora glabripennis*) – Asian longhorned beetle has not been found in Maine. Early detection is important and is most likely to happen if people like you learn how to identify it and the signs and symptoms of its damage, as well as share that information with others and take time to look at trees. In 1904, Maine entomologist Edith Patch wrote of browntail moth and other orchard pests, “...It is the deserted or neglected trees that are to be feared, for in them many species of caterpillars dangerous to the orchard trees breed unnoticed, perhaps for years, until they become numerous enough to make conspicuous ravages...” (MAES Bulletin 108). More than 100 years later, this rings true in regards to Asian longhorned beetle and other novel threats to our trees. It is the deserted and neglected trees that will harbor these pests un-noticed.

You may have read or seen elsewhere that August is “Tree Check” month. One of the main reasons behind that is it is a great time of year to be hyper-aware of Asian longhorned beetle. Signs and symptoms of attack, such as frass and weeping sap, are at their most visible this time of year. The adults may begin emerging from host trees as early as the 4th of July, but in most years, peak emergence wouldn’t happen until the end of August or early September. Find information on how to recognize Asian longhorned beetle at www.maine.gov/dacf/php/caps/ALB/ALBdamagepics.shtml (accessed from the sidebar of www.maine.gov/alb).

DOUG DENICO, DIRECTOR
MAINE FOREST SERVICE
18 ELKINS LANE, HARLOW BUILDING



PHONE: (207) 287-2791 OR 800-367-0223

www.maineforestservice.gov

If you would like more in depth information, there are many learning opportunities. In the Calendar section at the end of this report there is a list of several upcoming opportunities to learn more about the threat of Asian longhorned beetles and others and how to recognize them and report suspected detections.

Browntail moth (*Euproctis chrysorrhoea*) – Browntail moth caterpillars are now hatching from their furry egg masses on the leaves of host trees – primarily oak and apple. The tiny larvae will feed by skeletonizing leaves and leaving the veins behind. Their feeding can be confused with that of fall webworm but the webworm larvae are over an inch in size now, whereas the browntails will be less than ¼ of an inch.



Immature browntail moth larvae in webbing on the underside of a leaf. Image: Maine Forest Service.

There were moth flights reported in July from the usual Midcoast area but not in particularly large numbers. Light traps in Freeport and Hope picked up hundreds of moths so they are still out there. But, when we looked for locations to run some control trials, we came up empty. We have been looking at small trees, i.e. apple, young oak, hawthorn, etc., and have searched from Turner to Yarmouth up to Phippsburg and in between. We have found very few egg masses down low and in many places are not seeing much feeding yet when using binoculars to look at the tops of large trees. There are still hot spots in

areas such as Eddington and Burnham, far outside the usual browntail area, where large trees are affected. We are NOT saying browntail is gone, but it may not be as bad next year in many places.

It is still early in the survey season, so stay tuned. If you are thinking of treating trees now, it would be worth it to closely inspect the trees to see if there are browntails skeletonizing the leaves and starting their winter webs.

Probably an **Ermine moth** (*Yponomeuta* sp.) – A spectacular display by uglynest caterpillars was reported in the last *Conditions Report*. It was an anticipated case of mistaken identification! Some caterpillars were kept for rearing due to uncertainty in the identification. The insects were easy to rear from late-instar caterpillars, and more than a half dozen moths were collected. However, visiting carpenter ants at the lab thought the carefully prepared specimens left to dry were a very cleverly plated feast (you knew they don't eat wood, right?). The webbing that decorated *Tilia* sp. in Hebron was most likely caused by an ermine moth species. The remaining intact moth (kept separate because it was too dry to pin), will be sent away for identification—probably a better avenue than making assumptions based on host and appearance (we've been down that road before, see June report). If that is not adequate for a firm ID, we'll be back in Hebron next June to take more samples for a positive ID on the phantom webber. So far light trap catches from two other locations – South Berwick and Freeport – have yielded similar moths.



Moth whose larvae defoliated and webbed *Tilia* sp. in Hebron in June. Image: Maine Forest Service.

Fall webworm (*Hyphantria cunea*) – The webs of fall webworm caterpillars are quite visible now; building of the webs was underway by mid-July but additions will continue until the caterpillars pupate later this season. Although unsightly, feeding from this insect does not cause significant damage to its host. If you want to reduce aesthetic impacts, it is best to start looking for this pest in July. Two low-impact ways to reduce aesthetic damage are to clip and relocate webs or wash them from the tree with a concentrated blast from a garden hose. Both methods may require follow-up and should be employed when the webs first begin to form.

Fall webworm webs can be confused with browntail overwintering webs. The fall webworm webs are much looser and larger than those of the early larval instars of browntail moth. Another way to distinguish the webs is to look at their occupants. Browntail moth caterpillars are tiny (less than ¼ of an inch), the two bright-orange glands on their tail-ends are not orange in these early instars, but they are there as yellow spots. Fall webworm caterpillars, just like their webs, are larger (more than ½ of an inch in most places by now).

Fir coneworm (*Dioryctria abietivorella*) – In 2016 we had a Christmas tree grower report this insect mining the terminal bud cluster of leaders and boring into terminal shoots in plantation balsam fir trees.

The damage came after a heavy cone year in 2015. Despite the name, fir coneworm will infest cones and shoots of several conifer species (see box). 2017 has been another banner year for cone crops — to the point that white pine crowns are now distorted by the weight of the cones and since late May it has been possible to watch the development of cones on fir at highway speed. In Christmas tree plantations, this is an insect to watch for in 2018.

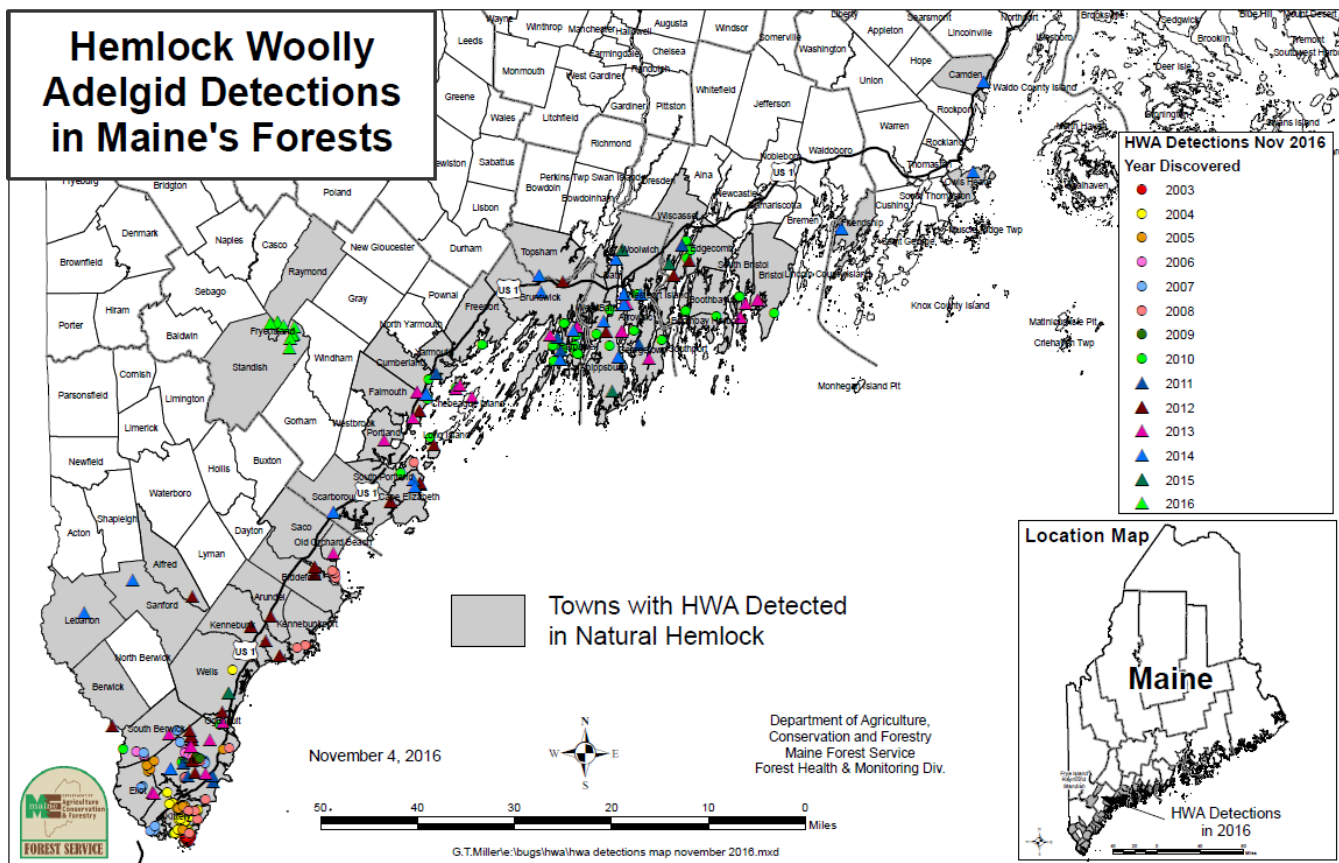
Details of hosts and plant parts attacked by *D. abietivorella* from Whitehouse *et al.* in *Can Ent.* 143: 1-34 (2011).

HOSTS	PLANT PARTS
Fir species	Healthy cones
Spruce species	Damaged second-year cones
Douglas-fir	Needles
Jack pine	Shoots
Lodgepole pine	Cambium
Red pine	
Scots pine	
White pine	

Hemlock woolly adelgid (*Adelges tsugae*) – The detection of hemlock woolly adelgid (HWA) in three counties of southwest Nova Scotia this month is an important reminder that this hard-to-detect insect could be, undetected, in forests of interior and Downeast coastal Maine. To date, any HWA found east of Camden has been thought to be associated with artificial spread, and populations have not been found in forest trees in that area. However, it is worth taking a regular look at hemlocks outside the known infested area in Maine (map below) for the tell-tale white, wispy material covering adelgid on the twigs of hemlock trees.

This is not the easiest time of year to spot HWA; the white ‘wool’ hasn’t been refreshed since June, and the adelgid is dormant until mid-October. However, it is a good time from the perspective of accidental spread. This time of year, adelgid eggs and crawlers are unlikely to be present, and adelgid cannot be accidentally moved on clothing and equipment. Risk of spread on anything except rooted hemlock picks up again in mid- to late-winter.

Information on identification of HWA is available on-line at www.maine.gov/forestpests#hwa. If you think you have found HWA outside the area mapped, please let us know.



Locust leafminer and locust digitate leafminer (*Odontota dorsalis* and *Parectopa robinella*) – The scorched appearance of black locust trees is being noted around the state. Significant skeletonizing and mining is being done by a leaf-mining beetle, *Odontota dorsalis*. This is the second year of an outbreak of the locust leafminer and it appears to be more widespread than in 2016.

In addition to the locust leafminer, mines of a delicate moth species, the locust digitate leafminer, can also be found on the foliage of affected trees. The previous outbreak of locust leaf-mining beetles in Maine caused branch dieback and some locust mortality. With the addition of the digitate leafminer, we may see more mortality – or it may all just go away.



A mine of the locust digitate leafminer, a gracillariid moth (left) and larval mines and adult skeletonizing damage caused by the locust leafminer, a chrysomelid beetle (right), Old Town, ME. Images: *Maine Forest Service*.

Psocids (Family Phosidae) – Psocids (sometimes called common barklice) are small soft-bodied insects often seen in groups or tiny herds on the surface of tree bark where they feed on lichens, fungi, and other superficial plant materials. They are members of the insect order Psocoptera. The species *Cerastipsocus venosus* is one of the most common of the species that occur in Maine and can often become very abundant. These psocids appear in July as patches of tiny tan specks on the bark of various hardwoods and conifers. Individuals are less than 3/16 inches (5 mm) long. They can also be found on rocks, fence posts, picnic tables, etc. As they mature they turn gray with lighter cross-banding. Adults have dark smoky-gray wings with a triangular light spot on each forewing. The wings are held roof-like and almost



vertically over the body at rest, and the psocids bear some resemblance to aphids. However, unlike aphids, which possess a beak for sucking plant juices, psocids have chewing mouth parts. The young live in the same manner as adults; differing principally in the lack of wings which develop in pads on the back during later stages.

Adult females deposit their eggs singly or in small clutches on the bark or wherever the group finds its food, and cover each mass with a series of tiny silk strands. Psocids usually disappear soon after they develop wings in mid- to late-August. Winter is spent in the egg stage.

Bark lice cause no harm to trees and controls are not necessary.

*Barklice on the main stem of a tree.
Image: Submitted by a client from Farmingdale.*

Diseases and Injuries



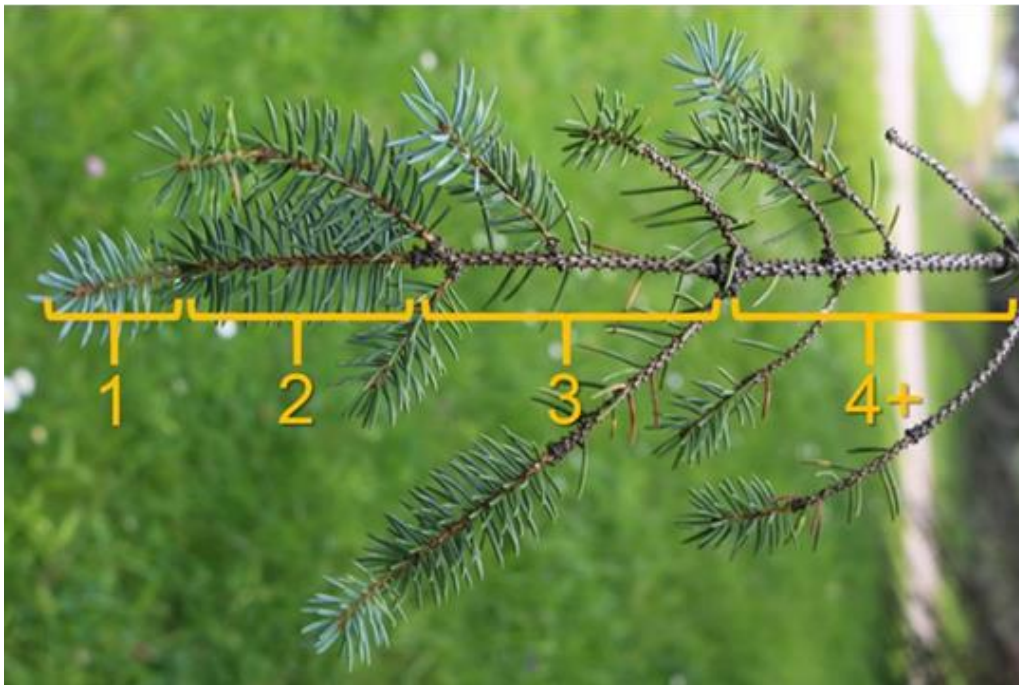
*Typical thin crown and beginning top dieback in a maple tree.
Image: Maine Forest Service.*

Maple stress symptoms have been noticeable in different forms across Maine since early spring. Later growing season symptoms reported from various parts of Maine include premature fall coloration and progressive branch dieback in a top-down pattern.

Leaves continue to be undersized leading to a thin appearance of the canopy. Early fall coloration is a typical symptom of stress in maples. This can be seen on specific branches, sections of trees and even entire trees. Crown dieback can occur due to several situations, but this year it is believed to be due to fine root dieback during the extended drought of last year.

The impacts of last year's prolonged period of water deficit may be seen for the next few years as secondary pests take advantage of weakened trees.

Spruce needle cast diseases – Since 2016 an effort has been underway to better understand the distribution of the two main spruce needle cast diseases causing defoliation in Maine. Of particular interest is the distribution of *Stigmina* needle cast, which has recently been acknowledged as a spruce needle disease of significance in the region. While MFS staff have collected samples from symptomatic trees during their normal duties and landowner samples have been documented, more samples would be greatly appreciated. If you have any species of spruce tree showing symptoms of needle loss in the lower third of the canopy and you would like to have the tree diagnosed, feel free to send in a sample to the Augusta lab, care of Aaron Bergdahl, forest pathologist. In order for a sample to be diagnosed, needles from several age classes are needed (see figure below). Place a branchlet like the one pictured below in a sealed paper envelope and send to: 168 State House Station, Augusta ME, 04333. Any contributions to the better understanding of spruce disease distribution in the state of Maine are greatly appreciated.



A spruce branchlet showing symptoms of spruce needle cast disease. Each needle age class is indicated by the numbers labelling each bracketed section of growth. Note the lack of needles in the 3- and 4-year age classes. These needles, although sparse, are the most important for disease diagnosis and must be included in a submitted sample. Image: *Maine Forest Service*

Oak wilt has not been detected in Maine but is a pathogen of significant concern and therefore a focus of early detection efforts. The causal agent of oak wilt, *Ceratocystis fagacearum*, has been confirmed in three locations on Long Island, New York; one location in eastern New York; and one location in western New York. This disease has caused mortality of oaks in the Midwestern United States for decades and is a threat to oaks in natural and residential areas there.

The oak wilt fungus spreads via the water conducting tissue (xylem) leading to wilting and killing of branches (flagging). As the disease progresses in the tree, wilting and branch mortality expands, with trees typically dying in the same year. Mortality has been recorded after as little as five weeks post infection. Once a tree is infected, it will not recover.

Oak trees have a habit of connecting their roots with neighboring oak trees (root grafting). This can allow the oak wilt fungus to spread from tree to tree rapidly, causing pockets of oak mortality in a stand. Trees infected with the oak wilt fungus via root grafts die quickly. The disease can persist in white oak group oak trees causing noticeable, but less-severe symptoms and overall slower decline.

Wounding of oak trees via pruning or otherwise during the growing season should be strictly avoided in areas where the oak wilt pathogen is present. This is because sap-feeding beetles spread the disease from the fungal structures formed by oak wilt fungus that produce sweet, spore-filled liquid. The beetles are also attracted to sap produced at tree wounds. If the beetle visits a fungal structure and becomes coated

with spores as it feeds and then visits a wound site on an oak tree, the fungus will likely be successfully transmitted. If wounds occur in summer, they should be sealed or dressed in a way to prevent beetles from making contact with the wound. Options include water-based latex paint and other tree wound dressing products.



Above: Oak leaves shed in July from a tree in Pennsylvania confirmed to be infected with the oak wilt disease fungus. Right: In the foreground, tree that died from oak wilt disease and a smaller neighboring tree in decline due to the disease. Images: (top) *Maine Forest Service*. (right) *Isabel Munck, USFS*.

Underground root grafting junctions must be broken around infected trees to avoid spreading the disease to neighboring trees. This is accomplished by deep trenching around infected removed trees or efficient stump and root removal. Trees that die in the summer must be removed from the site and dried by debarking, splitting, chipping or burning the wood. This prevents the possible formation on cut trees of the spore-producing fungal pads that are effective in disease transmission.

Again, oak wilt has not been found in Maine. However, if you encounter symptoms described and pictured here in red oak trees, please contact the Augusta lab at the number below for further evaluation.

Office hours are 7:30 a.m. to 4:00 p.m., Monday through Friday, except for holidays. If you plan to visit either office, you may wish to call ahead just to make sure someone will be present to meet with you. (207) 287-2431 (Augusta) and 827-1813 (Old Town)

Calendar of Division and Related Events

Maine Woodland Owners and Tree Farm Field Day, September 9th, Milford, ME. The 63rd Maine Woodland Owners and Maine Tree Farm Forestry Field Day will be based at the Maine Youth Fish and Game Camp, in Milford on the Stud Mill Road. Bring your forest insect and disease questions. The event honors the 2017 Maine Outstanding Tree Farmers, Pam and Bryan Wells, owners of the Wells Demonstration Forest. More details are available at the Maine Woodland Owners website.

<http://www.swoam.org/Events/ForestryFieldDay.aspx>.

Common Ground Fair, Sept 22nd – 24th, Thorndike, ME. Allison Kanoti will be talking about forest insects hosted by the Maine Woodland Owners Association in the Low Impact Forestry Tent at **2pm Sept 22**.

Throughout the fair, Maine Forest Service will have a booth in the Low Impact Forestry Area, and our division will have a separate display in the Maine Indian Basketmakers' tent focused on emerald ash borer. <http://www.mofga.org/TheFair/tabid/135/Default.aspx>.

Bug Maine-ia, September 12th, Augusta, ME. The Maine State Museum gets creepy and crawly as Bug Maine-ia invades! This is a great learning experience for kids and adults with bugs from Maine and around the world (many living) converging under one roof! Admission is FREE. <http://mainestatemuseum.org/>.

Invasive Forest Pest Presentations, August - September

Maine Soil & Water Conservation Districts, under a grant from the Invasive Forest Pest Outreach Project of the Department of Agriculture, Conservation and Forestry, are offering a series of **free** presentations in August and September for landowners and users, landscape and forest professionals, and all residents of the state. Presentations are designed to help participants identify current and potential invasive forest pests and their host species, understand the threats to our forests and woodlands posed by these pests, and learn how to report suspected pest sightings or damage to trees that may be a result of pest infestations.

- **Tue, August 15** from 5:30-7pm at Thompson Library, 186 E Main St, Dover-Foxcroft. FMI: 564-2321 x3
- **Wed, August 16** from 6-7:30pm at Machias Blueberry Festival, Machias FMI: Nate Pennell, 255-4659
- **Wed, August 30** from 6:30-8pm at Belgrade Lakes Center, 137 Maine St, Belgrade Lakes, FMI: Dale Finseth, 622-7847 x3
- **Wed, September 6** from 5:50-7pm at Topsham Public Library, 25 Foreside Rd, Topsham FMI: Josie Lahey, 251-3574
- **Tue, September 12** from 6:30-8pm at Rockland Public Library, 80 Union St, Rockland FMI: Hildy Ellis, 596-2040
- **Sat, September 16** from 1-3pm at Belgrade Lakes Center, 137 Maine St, Belgrade Lakes FMI: Dale Finseth, 622-7847 x3
- **Tue, September 19** from 5-7pm at Region III Vocational School, 35 W. Broadway, Lincoln FMI: Amy Polyot Amy.polyot@penobscotswcd.org. 947-6622 x3. Registration required.

Also, look for invasive forest pest displays at the following upcoming events:

- **August 19-26** Union Fair (Knox County)
- **August 23 & 24** Maine Farm Days in Clinton (Kennebec County)
- **August 26** Acton Fair (York County)
- **September 9** Wells Forest Tree Farm Field Day in Milford (Penobscot County)
- **September 18** Farmington Fair Ag Day (Franklin County)
- **September 22-24** Common Ground Country Fair in Unity (Waldo County)
- **October 14** A Day in the Woods at Hidden Valley Nature Center in Jefferson (Lincoln County)
- **November 11** Craig Brook Fish Hatchery Spawning Festival in East Orland (Hancock County); display & mini-presentations throughout the day
- **November 11 & 12** Maine Harvest Festival in Bangor (Penobscot County)

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

DEPARTMENT OF AGRICULTURE CONSERVATION & FORESTRY

Maine Forest Service - Forest Health and Monitoring

Contributors: Aaron Bergdahl, Charlene Donahue, Allison Kanoti, Colleen Teerling