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DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY  
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[http://maine.gov/dacf/mfs/forest\\_health/index.htm](http://maine.gov/dacf/mfs/forest_health/index.htm)

**Forest & Shade Tree - Insect & Disease Conditions for Maine**

**August 13, 2018**

**Insects**

**Alder Flea Beetle** (*Altica ambiens*) – Alder flea beetle continues to cause high levels of defoliation of its hosts, *Alnus* spp., in parts of the state. This time of year, affected shrubs may only have crispy, brown remnants of leaves. The damage may kill individual stems, but this is not considered a significant pest.

**Browntail Moth** (*Euproctis chrysorrhoea*) – Browntail moth eggs are hatching, and the caterpillars have started to skeletonize the leaves that will later be enclosed in their overwintering webs. Sometimes the feeding activity of **fall**

**webworm** (*Hyphantria cunea*) is confused with that of browntail moth. At this time of year, the caterpillars and webs of fall webworm are huge in comparison to those of browntail moth (see photos for comparison). Later in the fall, the fall webworm tents will become tattered and worn, and the webs of browntail moth will become more tightly woven. Be aware that the cocoons of browntail moth that were formed on trees and shrubs are still present and contact with them could result in exposure to the toxic hairs.



Development of browntail moth caterpillars and early webbing (left). Development of fall webworm caterpillars and webs (right). Photos from southern Maine, week of 8/6/2018, Maine Forest Service.

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**Elongate Hemlock Scale (*Fiorinia externa*)** – Mobile stages of this pest are still present, so there is still high risk of spreading scale on clothing and machinery. If you wait until after a hard frost for forest management and pruning activities, you will minimize risk of spreading this pest.

**Emerald Ash Borer (*Agrilus planipennis*)** – After allowing for public input and completion of the mid-season check of traps, an order to stop movement of ash material from towns with detections of emerald ash borer (EAB) in Maine was put into place last week. The order covers the towns of Frenchville, Grand Isle and Madawaska. These are the only towns in Maine with confirmed detections of EAB. More information about emerald ash borer and the department response can be found at [www.maine.gov/eab](http://www.maine.gov/eab).

The public is invited to an informational session on EAB on August 23<sup>rd</sup> at 6:30 pm at the Frenchville Community Center. Department of Agriculture, Conservation and Forestry (DACF), USDA Animal and Plant Health Inspection Service and USDA Forest Service staff will be at the meeting to provide an update on EAB and respond to questions.



Purple traps similar to the one above captured single adult emerald ash borers in each of two locations in Grand Isle, Aroostook County.

We have recently finished a mid-season check on the purple traps hung to monitor for EAB. Approximately 250 traps were hung by DACF throughout the state. Over 100 of those were hung in northern Maine in the vicinity of the recent EAB find in Madawaska. Three traps in the town of Madawaska caught EAB, and a single EAB was caught in each of two traps in the adjacent town of Grand Isle (which was not previously known to contain EAB). The USDA APHIS contractor, Delta 21, is checking an additional 411 traps in the area within 100 miles of the quarantine in New Hampshire (DACF did not hang traps in that area). No EAB has yet been found in any other part of the state.

We are also monitoring for EAB using biosurveillance with *Cerceris fumipennis* in the southern part of the state where this non-stinging wasp is found. No EAB have been found so far. If you find any colonies of wasps (often found on baseball diamonds) you think may be *Cerceris fumipennis*, please contact us and we will check them out. We are always on the lookout for new colonies of this wasp to help us monitor for EAB and other exotic metallic woodboring beetles.

We have been seeing a lot of declining ash, both as whole stands and as individual trees, throughout the state for several years. With the recent years of drought, the decline seems to have intensified. We see many ash with all the classical symptoms of EAB: decline and branch death from the top down, epicormic growth, woodpecker feeding and bark

splitting. It is very difficult to differentiate this from EAB, and often the only way to be certain is to girdle tree in the spring for use as a trap tree that EAB will be attracted to and then peel it the following winter to look for signs of EAB. If you have declining ash on your property and think you might want to participate in our girdled trap tree program next spring, please email [patti.roberts@maine.gov](mailto:patti.roberts@maine.gov) and ask to be put on our mailing list or call (207) 287-2431.

**Hemlock Woolly Adelgid** (*Adelges tsugae*) – Towards the beginning of August, hemlock woolly adelgid crawlers settle at the bases of hemlock needles and are attached to them for the next six months or more. During the fall and winter, adelgid cannot be spread except on rooted hosts, so this is an ideal time to conduct forest management and pruning activities in hemlock. If your hemlock has HWA, carrying out these activities now will reduce the spread of HWA to other areas. If your trees are not yet infested, working in them now will minimize the chance that you or someone you hire will inadvertently move crawlers into your uninfested trees. Remember that HWA does not mate, so it potentially takes only a single crawler brought into your trees to start a new infestation.

**Minute Pirate Bug** (*Orius* spp.) – Minute pirate bugs (some of which are also called insidious flower bugs), are very small insects in the true bug family. They are very important predators on a wide



Beneficial minute pirate bugs have been reported in large numbers this year (metric ruler). Photo: Maine Forest Service

variety of garden and tree pests, including aphids, thrips, whiteflies, spider mites, small caterpillars and many other small insects and insect eggs. Most of the year, they are scattered throughout your yard and fields and one rarely sees them. However, in states to the south and west of Maine, they are known to congregate in very large numbers near houses and buildings in the late summer/early fall. In past years we have not received questions about this behavior, but during the last few weeks, we have had several calls about swarms of this insect. We may be seeing this behavior now because of the hot, dry weather we have had recently.

Minute pirate bugs do sometimes ‘bite’, probing your skin with their stylets. It is thought they do this to ‘taste’ their

environment. They do not inject any venom, and most people just feel a small pinching sensation (although a few can experience swelling and itching similar to a mosquito bite). It is important to note that standard insect repellants do not work to keep minute pirate bugs off your skin or structures. If you find yourself being bitten, covering up with long-sleeves and pants is your best defense. We do not recommend any chemical control as these insects provide very important natural control for a wide variety of yard, garden and tree pests. As the weather gets cooler in the autumn, they will disappear and again become unnoticeable.

**Winter Moth** (*Operophtera brumata*) – Winter moth, the invasive caterpillar from Europe, has continued to spread along the coast. Pupae are currently in the soil beneath defoliated trees and shrubs. These pupae remain in the soil until adults emerge beginning in November. Much of the movement and spread of this insect is due to people moving soil containing pupae. Movement of soil and plantings from infested areas should be avoided.

However, we have good news regarding this pest. For the past few years we have been releasing *Cyzenis albicans*, a parasitic fly, to control winter moth. This year, for the first time ever, we have

recovered the parasite from Vinalhaven and Peaks Island. We continue to find flies at our release site in Cape Elizabeth, where the parasitism rate is now up to 20%. This means that the parasite is very well established and should spread throughout the area. We will continue to release *C. albicans* when it is available. This biocontrol program is funded by USDA and coordinated by the Elkinton Lab at the University of Massachusetts, Amherst.

Soil-dwelling insect predators are also crucial to the control of winter moth; *Cyzenis* alone has no chance of controlling this pest. This is a strong argument for applying the least toxic lawn care solutions – those that do *not* include broadcast use of broad-spectrum insecticides.

### ***Diseases and Injuries***

**Balsam fir mortality** Reports of dieback and mortality of balsam fir have been frequent across Maine in 2018. This seems to be a regional phenomenon with reports from New Brunswick of wider-spread balsam fir mortality and some similar observations in the northern areas of New Hampshire and Vermont. Inspection of trees in multiple areas of Maine have revealed a number of *contributing factors* to decline and mortality. These include salt exposure along roads, bark beetle attack, armillaria root disease/shoestring rot and winter desiccation. As an example, during a recent trip to Aroostook County nearly all inspected trees in various states of decline were infested with a tiny bark beetle (*Pityokteines sparsus*). As these are all *contributing factors* to decline, it is important to consider the source of *primary* stress. Due to the lack of precipitation from the later part of last year's growing season and the state-wide drought conditions of this year, drought stress seems to be the major *primary* source of stress leading to heightened balsam fir susceptibility to various other agents of decline.



Drought stress in trees describes a condition where there is not adequate moisture in the soil for a tree to extract and carry out necessary life functions. Among other physiological responses, drought conditions can lead to dieback of a tree's fine roots that are very important for water and nutrient uptake. Losing the function of these roots leads to reduced tree vigor, making trees less resilient to additional stressors. For example, when a tree suffers drought stress and fine root damage occurs late in a growing season, it becomes more susceptible to winter desiccation. Also, attack by diseases and insects are often more damaging to trees during times of drought, since the trees lack resources for normal defense responses. In some cases, it has been noticed that even usually weakly pathogenic fungi (those that typically do not cause disease-like symptoms) have caused cankering and branch dieback in drought stressed trees. This further highlights the significance of regional drought as a primary source of stress predisposing trees to attack by insects and pathogens and reducing a tree's ability to withstand pressures from additional agents of tree decline.

The Maine Forest Service will continue to look into balsam fir mortality to gain a better understanding of this phenomenon.

**Drought stress and hardwoods** – As mentioned in the previous section, prolonged periods of drought during the growing season have occurred during the past three years. The accumulation of this drought stress has been increasingly impacting many trees statewide and may continue to affect trees in the years to come. Conifers, in general, are better equipped to deal with drought compared to broadleaved trees. However, when conifers suffer from drought stress and attack from secondary pests, they die seemingly quickly and turn a bright orange color, making them difficult *not* to notice. Hardwoods, on the other hand, decline in various, less obvious ways depending on the degree of drought and the drought tolerance of a particular broadleaf tree species.

All tree species struggle to carry out photosynthesis during times of drought, slowing growth significantly and limiting the production of chemicals used in tree defense against insects and pathogens. Some tree species may show scorching of leaf tissue on the leaf margin, while other species may drop their leaves from a portion of a crown or even the whole tree. Leaves may also become chlorotic (yellow) since the tree lacks resources to replenish chlorophyll. Branch dieback, typically in a top downward progression is common following prolonged drought and loss of leaves. As ash trees are particularly susceptible to drought, this can be mistaken as a symptom of emerald ash borer infestation. Norway and sugar maples also do not cope well with drought and often show dieback in the crown. Beech and birch are also very sensitive to drought and are easily predisposed to attack by secondary agents of decline. For hardwoods, these include diseases such as Armillaria/shoestring rot and bark beetles (different species than those attacking conifers) cytospora canker and some species become more susceptible to verticillium wilt.

Trees will continue to react to this stress in the coming years, so it is important to monitor the health of your trees and forests. When and where possible, efforts to support tree health like fall watering and supplemental fertilizer in early spring are important to helping trees recover from drought stress and some of its impacts.

**Fire blight (*Erwinia amylovora*)** – Fire blight is a bacterial blight of trees and shrubs in the Rose family (Rosacea). Trees in Maine most commonly affected by this disease are pear, apple, hawthorn and mountain ash (pictured). On a recent trip to Aroostook County, fire blight on mountain ash was observed multiple times in several towns. Additionally, samples were received at the lab from southern parts of Maine earlier this year as well.

Fire blight symptoms include quite rapid wilting and darkening of branch tips resulting in a characteristic ‘shepherd’s crook’ shape. Soaked-looking, sometimes oozing cankers can be found at the base of symptoms, while other, smaller cankers may be difficult to recognize. Bacterial ooze is the main mode of spreading infection to other parts of the

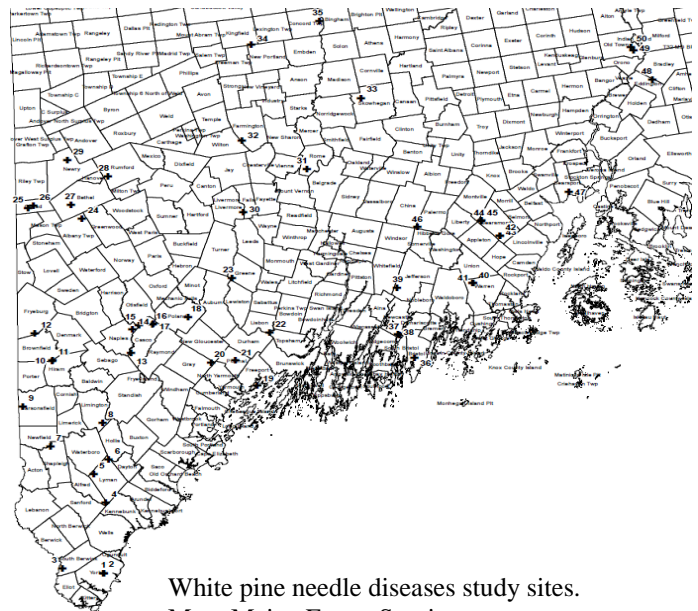


Mountain ash with fire blight.  
Photo: Maine Forest Service.

same tree or nearby trees. Spread can occur by rainsplash during warm and moist weather. Insects attracted to the sugary bacterial ooze exuded from cankers also effectively spread this disease. Injuries from hail, pruning or other damage can cause rapid spread of this destructive disease. Managing fire blight is challenging and a topic of debate. Management guidelines for fruit growers can be readily found online, but for the homeowner wishing to keep their planting free of this disease, vigilance and early detection are key. Infected plant parts should be pruned away and destroyed. Pruning cuts should be made as far back as possible into older wood, which may harbor the disease, but will not show symptoms – more succulent wood is much more susceptible. Once fire blight really gets started in a tree, it may require so much pruning that the tree will no longer be aesthetically acceptable, stressing the importance of keeping a close eye on your trees.

**White pine needle disease evaluation and monitoring project 2018 field work completed** – Field work for the Maine portion of a regional effort by ME, MA, NH, RI and VT to address white pine health issues concluded in early July. The project, titled “Monitoring eastern white pine decline and its causes in New England and New York through enhanced survey methods” was financially supported through a grant by the US Forest Service.

Eastern white pine (EWP) stands with differing levels of symptom severity were evaluated to determine the stand factors associated with WPND incidence and severity and assess the impact that this long-term disease pressure has had on EWP decline and regeneration. The ultimate goal of this work is to use what is learned to develop management practices to improve EWP health in Maine and the overall region. A total of 40 plots (each with 4 subplots) and approximately 700 trees were evaluated by Maine Forest Service Forest Health personnel across the state’s most concentrated white pine resource. Trees were evaluated based on crown health variables such as transparency, density, live crown ratio and disease presence. Other site factors like slope, aspect, basal area, etc., were also recorded. Additionally, diseased needle samples were collected to be identified by a USFS forest pathologist. Currently, data is being entered and will be analyzed this fall/winter with a publication of results is planned for 2019.



Special thanks to all the landowners, managers and foresters who helped this effort and offered their white pine land for our work. Supporters include the University of Maine Demeritt Forest, Maine Bureau of Parks and Lands, Maine Inland Fisheries and Wildlife, Maine Forest Service-- Forest Policy & Management Division, the US Forest Service for use of the Penobscot and Massabesic research forests, Chadbourne Tree Farms, Freeman Ridge Forestry, Hancock Lumber, JD Irving, LandVest, Robbins Lumber and Sappi.

## ***Calendar***

**August 23, 6:30PM:** Emerald Ash Borer Informational Meeting. Frenchville Community Center, Frenchville, ME.

**Sept 8:** Annual Forestry Field Day. Wilton, ME. Colleen Teerling will be on hand to provide information about forest health topics. <http://www.mainewoodlandowners.org/Events/ForestryFieldDay.aspx>

**September 21, 22, 23:** Common Ground Fair, emerald ash borer information will be available in the Native Arts and Crafts Tent. **Sept 22 @ 10:00 am** Colleen Teerling will present a talk on emerald ash borer. The Maine Forest Service will have information on other topics at the Pine Gate.

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**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)

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### **Conditions Report No. 3, 2018**

On-line: [http://maine.gov/dacf/mfs/publications/condition\\_reports.html](http://maine.gov/dacf/mfs/publications/condition_reports.html)

DEPARTMENT OF AGRICULTURE CONSERVATION & FORESTRY

Maine Forest Service - Forest Health and Monitoring

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