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MAINE FOREST SERVICE
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<http://www.maine.gov/doc/mfs/idmhome.htm>

Forest & Shade Tree - Insect & Disease Conditions for Maine

May 15, 2012

Weather and climate conditions during the month of May often determine how well or poorly trees and other woody plants will fare during the remainder of the growing season. Because many pesticide recommendations call for preventive and early treatment of the majority of both insect and disease pests, careful observation of weather trends and tree phenology (seasonal development) is critical. For example, the month of May so far has seen extended periods of rain, which is conducive to infections of new leaves and needles by anthracnose and needlecast fungi. The cooler weather may slow the development of some insects, and may also slow leaf and shoot development, and may be enough to require an adjustment in timing of application of protection materials. The variable weather has also short-circuited some insect outbreaks so monitoring for pests before treating is especially critical this year. Just as the weather varies from region to region across the state, so must be our ability to read and anticipate the conditions to optimally manage our forest and shade tree pests.

Purple Traps and Trap Trees-Emerald Ash Borer Survey 2012

Emerald Ash Borer (EAB) has not yet been found in Maine but this year the Maine Forest Service (MFS) is conducting a large survey for this serious invasive insect throughout the state in case it is here. We are working with the US Department of Agriculture-APHIS, the Penobscot Indian Nation, and the Maine Department of Agriculture to place 955 large purple prism-shaped sticky traps in ash trees throughout the state. Within the MFS, our Insect and Disease Lab is working with the Forest Protection Division (Forest Rangers) and Forest Inventory and Analysis crews to place and monitor the traps.

Grid cells to be trapped were pre-selected by a US Forest Service EAB risk assessment computer model. In the late winter, forest rangers located ash trees in these cells and gained landowner permission for placing traps. Trap placement is underway and will continue into June. Traps will be checked half way through the summer and removed in the fall. If you see one of these purple sticky traps on the ground or notice other problems with placement, please report the issue to the MFS toll free number: 1-800-367-0223.

Many people have expressed interest in hanging a trap on their land; unfortunately we do not have extra traps and supplies. However, for those who are interested in monitoring their land for EAB we are conducting the second year of a volunteer-based trap-tree program. This involves girdling an ash tree on your property in late May/early June to make it more attractive to any

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EAB in the area, and then cutting it down the next winter. After cutting it, you would bring sections of the trunk to one of our log-peeling workshops where we will work with you to peel bark and look for signs of EAB. To volunteer to participate in the trap tree network contact Molly Lizotte at the University of Maine, Orono: molly.lizotte@maine.edu (put “EAB trap tree network” in the subject heading). For more information contact Colleen Teerling (207) 287-3096.

Insects

Armored Scales (Diaspididae) – Armored scales often don’t even resemble insects to many people. Hard, waxy coverings camouflage the soft-bodied insects for much of their lives, and free living forms are generally tiny and go un-noticed. They can be serious pests of ornamental trees and shrubs, and can affect the salability of products such as Christmas trees and wreaths. Generally they are ‘background noise’ in the forest insect pest world but some, such as the elongate hemlock scale may contribute to stand collapse.

Scales can be extremely difficult to tell apart; for some species, slide mounted adult females are necessary for identification. As was recently pointed out to me by an arborist, the identification doesn’t matter too much if you’re just trying to maintain ornamental health. This is true. You can time horticultural oil or soap sprays to crawler activity and/or use dormant season applications of horticultural oil with some species (see this factsheet from University of Minnesota for a nice summary of some scales and their control. <http://bit.ly/J6bRX2>).

However, identity can matter when one species is a threat to forest health and economic viability of some green industries and another superficially identical scale is not. Standards of control could vary based on knowledge of the species. We are anticipating a workshop on armored scale identification in the coming years, and would like to begin to build a specimen collection to use at such a training. Beyond that we would like to learn more about where these insects are abundant in our forest and ornamental settings. If you encounter armored scales on trees and would be willing to submit specimens for our use, please send them in. Please note your name and contact information, the host species (and if unknown, include enough of the host for positive identification), location and date of collection on the sample. Samples can be sent in plastic bags with paper towelling to absorb moisture or dropped by the office (50 Hospital Street).

Ash Bark Beetles (*Hylesinus* spp.) – Evidence of ash bark beetles is beginning to be noticed in firewood piles across the state. You may see small piles of frass (fine sawdust-like material in this case), galleries (larval feeding tunnels) etched into your ash firewood or standing dead trees, and bark peppered with *round* exit holes just over a millimeter in diameter. Native ash bark beetles tend to develop in weakened and felled trees, including pieces of trees processed into firewood, and are rarely a problem in healthy trees. We appreciate people paying attention to insect signs in their ash firewood, and would want to hear from you if you found ash with S-shaped galleries etched into the wood and bark and D-shaped exit holes. These are symptoms of emerald ash borer, a *serious* invasive forest pest.

Asian Longhorned Beetle (*Anoplophora glabripennis*) – Asian longhorned beetle (ALB) has not yet been found in Maine. One of the many ALB imposters, white-spotted sawyers (*Monochamus scutellatus*), has already started to emerge in Massachusetts—our first calls of the season could be right around the corner here in Maine. Don’t be surprised to see these striking black and white longhorned beetles around your homes and work in Maine, especially in areas

with conifers. The even showier ALB adults begin emerging well behind white-spotted sawyer beetles - usually around July 4th in Massachusetts. Discovery of the adult beetles may be our first indication of ALB in Maine. Keep a lookout for ALB this summer, if you suspect you have found an ALB adult, try to capture it (in the flesh is best, but a photo can often suffice), corral it in a sturdy container such as a pill bottle and report your find to us or our partners at Maine Department of Agriculture.

***Balsam Gall Midge** (*Paradiplosis tumifex*) - Balsam gall midge populations were high again across much of the state in 2011 but particularly Downeast. The gall midge population may crash this year as the parasite population that controls it catches up. No guarantees - it may take another year for this to happen. Christmas tree growers should therefore be checking their plantations this spring for the midges. In mid- to late May (perhaps earlier this year) watch for small orange midges. They are often easiest to see in the early evening when the breezes die down. Treatment is applied approximately two weeks after adults have been seen in large numbers (late May to early June) as the new needles flare and begin to flatten.

The balsam gall midge larvae feed on the new foliage and cause the needle to deform and form a gall around the growing larvae. After the larva finishes feeding and drops to the ground at the end of summer, the damaged needles also fall off. Populations can get high enough so that the tips of branches are denuded. This makes Christmas trees and wreath brush unmarketable for a few years until the foliage fills in.

***Balsam Shootboring Sawfly** (*Pleroneura brunneicornis*) – These sawflies tend to be more abundant in even numbered years so check now for adults flying around Christmas trees on sunny days. Adults look like small, skinny flies. The females lay eggs on the buds and larvae feed before the buds expand. The resulting damage appears as a little “button” of foliage with a hollow stem – in May you can sometimes find the larvae still in the shoots. This sawfly damage can be mistaken for frost damage. Damage from light infestations can be pruned off.

***Balsam Twig Aphid** (*Mindarus abietinus*) – This is the insect that causes new fir foliage to twist, be stunted and covered with white wool and sticky honeydew. This does not damage the trees but makes trees less than perfect for Christmas trees. Christmas tree growers who had a problem last year should check to see if there are aphids on their trees now. The aphids overwinter as eggs that hatch before the buds break. Therefore it is possible to check for the aphids before they start causing damage. Take a dark piece of paper or cloth, hold it under the outer branches and beat the branches to dislodge the aphids. Look for the tiny, yellow nymphs. Do this twice in each of 15 trees. If there are more than two aphids/tree and you had a problem last year, consider treatment.

***Balsam Woolly Adelgid** (*Adelges piceae*) - The population of this adelgid is still low in most of Maine. Balsam woolly adelgid can be found feeding at the base of foliage shoots and cone buds. They are tiny and black and look like little hand grenades with wisps of wool coming off them. I need a hand lens to see them but if you have good eyes you can spot them without one. As the season progresses they will produce more waxy wool to cover both themselves and their eggs. The adelgid feeding causes the branch nodes to swell forming 'gouts' that deform the tree and bud formation is reduced or does not occur at all. Balsam woolly adelgid can also be found on the trunks of fir. Trunk phase adelgids kill trees more rapidly than the gout phase. Christmas tree growers should rogue out any fir showing swelling at branch nodes. The warm winters will allow this insect to gain ground again.

Bare-patched Oak Leafroller (*Pseudexentera spoliata (cressoniana)*) – This is a tiny moth that flies early in the spring and lays its eggs on the buds of red oaks. The larvae hatch, initially feed on the buds, then roll the leaves from the tip down and feed inside the leafroll. They finish up feeding in June and drop to the ground to pupate and stay there until the following spring. It has only rarely been reported as a problem but we had samples sent in from a moth flight in Cherryfield in April where there was some significant defoliation last year. It may be a problem this year, please let us know if you see it.

***Browntail Moth** (*Euproctis chrysorrhoea*) – The browntail moth larvae have emerged from their overwintering webs and begun feeding on foliage. But the cool rainy weather has slowed them down and they have been staying in their webs. These are the conditions that cause disease epidemics to break out and the browntail larvae to die as happened in much of the Bath-Brunswick-Topsham area last year. Hopefully this will happen in areas that are still plagued with this moth.

Although this pest tends to stay close to the coast there are webs along Route 295 from Augusta south, on Route 95 in Lewiston and a recent find in mall trees in Waterville.

For those with browntail larvae this is the time to plan chemical treatment of areas that have webs (it is too late now to accomplish browntail control through web clipping). First trees should be checked to make sure the larvae are still alive and feeding. Pesticide application should be completed as soon as possible, before the caterpillars develop toxic hairs in early June. We strongly recommend hiring a licensed applicator to control this pest. A list of companies that will treat for browntail moth is available on our [Website](#) or by request. Homeowners generally should not attempt control of the browntail moth with pesticides to avoid both environmental and personal health concerns. Check with the Board of Pesticide Control before applying browntail moth controls near coastal waters.

***Bruce Spanworm** (*Operophtera bruceata*) – The Bruce spanworms overwinter as eggs on maple, poplar and beech and hatch as the buds begin to swell. The tiny inchworms mine the buds causing a ‘Swiss cheese’ appearance as the leaves expand. The larvae continue feeding for about a month and then drop to the ground to pupate. Moth flights were noted last November in central and downeast Maine so these are the areas that would most likely be affected by the spanworms. The variable weather may have impacted the population if the larvae hatched before there was adequate foliage to eat.

We are working with researchers in Massachusetts on both the Bruce spanworm and winter moth (see entry further on) and are interested in finding areas that have high numbers of Bruce spanworm to collect for study. If you see defoliation, please contact us. As always your assistance is greatly appreciated.

Deer Tick (*Ixodes scapularis*) – Please refer your tick questions to Maine CDC. Tick Samples can be mailed into Maine Medical Center Research Institute Vector Borne Disease Lab for identification (however, they will *not* be tested for disease). For links to their Websites visit: www.maineforestservice.gov/ticks.htm.

From the Maine Center for Disease Control:

Know Ticks, No Lyme

Lyme disease is the most common vector-borne disease in Maine. May is Lyme Disease Awareness Month in Maine, so remember to do your tick checks! With the mild winter, it is never too early to start thinking about tick prevention.

Lyme disease is a bacterial infection that is carried by *Ixodes scapularis* (the deer tick). Maine had a record high number of cases in 2011, with positives occurring in all 16 counties. Lyme disease is most common among school aged children and middle aged adults. As the weather begins to get warmer, more ticks will be out in the open. Most Lyme disease infections in Maine occur during the summer months.

The most common early symptom of Lyme disease is an expanding red rash that occurs 3 – 30 days after being bitten. Fever, joint, and muscle pains may also occur. Lyme disease is treatable, and the majority of patients recover after receiving appropriate therapy.

Lyme disease is a preventable illness. Maine CDC recommends following the “No Ticks 4 ME” approach which includes:

1. Wear protective clothing
2. Use an EPA approved repellent
3. Perform daily tick checks
4. Use caution in tick habitats

Ticks must be attached for at least 24 hours for the bacteria that causes Lyme disease to be transmitted, so prompt removal of ticks is extremely important. Anyone with a known tick bite, or who spends time in a tick habitat, should watch for symptoms for at least 30 days after exposure. If symptoms develop, call your healthcare provider.

Additional information:

Maine CDC has numerous educational materials available on our website at <http://www.maine.gov/dhhs/mecdc/infectious-disease/epi/vector-borne/lyme/index.shtml>

Eastern Tent Caterpillar (*Malacosoma americana*) – Webs of eastern tent caterpillars are now noticeable although they are relatively few in number this year. Look for silken tents at branch junctions primarily in cherries, apples and other fruit trees. If you have webs in important ornamental or fruit trees you can simply remove the webs containing the caterpillars and place them in water with a squirt of dishwashing detergent. You can also apply a Bt product to the tree. Either approach will kill the caterpillars, but do not burn them out, this process will result in more injury to the tree than the caterpillars could ever cause.

***Emerald Ash Borer** (*Agilus planipennis*) – As with other insects, temperature affects development rate of emerald ash borer (EAB). Research shows that adult beetles do not begin to emerge until 450 (base 50) growing degree days have been reached. This gives us an important tool to triage adult EAB sightings reported in early spring. Plain and simple: EAB beetles are

not flying in Maine this time of year. The University of Maine Cooperative Extension has some growing degree data for Maine: <http://umaine.edu/cranberries/grower-services/degree-days/>. We expect EAB could start emerging at the earliest in mid-June. The green insects people see in early spring are most often tiger beetles or ground beetles, but sometimes are other insects. So if we tell you or a neighbor that what you have seen is not EAB, we have solid reasons for saying so. We take every report of EAB (or other invasive insects) seriously and check out ones that have potential for being EAB.

You've read it here more than once, but please pass it on to your clients and friends: if you see a beetle that you think is one of the "bad guys", note the location, try to capture the insect either on a microchip (not those crumbs in the bottom of the snack bag, but if a snack bag is all you have, it will suffice for the short term) or in a container. Pill bottles and other crush proof sealable jars make excellent containers. If you capture a live insect and can't attend to it right away, try to keep it cool (even frozen), then call us for further diagnosis as soon as you have time.

***Hemlock Woolly Adelgid** (*Adelges tsugae*) – Judging from phone calls and e-mails coming in to the lab and results of our detection surveys, hemlock woolly adelgid populations are indeed reaching noticeable levels in a lot of new areas. Increasingly, homeowners and arborists are reporting damage to ornamental hemlocks from this pest. In addition, a forest infestation was detected in Topsham for the first time last week. This brings the number of towns with known forest infestations of hemlock woolly adelgid to 35 (up from seven in 2009), with five new towns detected so far in 2012.

We're in a peak period for crawler activity; the risk of moving hemlock woolly adelgid from infested areas is highest in May and June (egg and crawler activity occurs roughly from March through the end of July). Bear this in mind if your work takes you from clients with infested hemlocks to clients (or home) with un-infested hemlocks. Whenever possible clothing/equipment should be washed after working in infested areas.

Large Aspen Tortrix (*Choristoneura conflictana*) - Watch for early season defoliation on quaking aspen in the northern third of the state.

Oak Shothole Leafminer (*Agromyza viridula*) – Oak shothole damage is caused by a female small fly that pokes holes with her ovipositor in newly emerging oak leaves (usually when the leaves are less than 1/2" in length.) She then laps up the sap from the leaf wound. Because the leaf is just starting to expand, the holes grow to 1/8 - 1/2" in size and often are paired on the leaf where the ovipositor went through multiple layers of the leaf tissue. This does not do any long term damage to the tree but people often question why the leaves have all the holes in them.

Pear Thrips (*Taeniothrips inconsequens*) - Pear thrips populations are low again with little damage observed so far this year.



***Satin Moth** (*Leucoma salicis*) – Last season satin moth caterpillars defoliated ornamental poplars across the State. There were also small stands of defoliation in northwestern Maine. The caterpillars begin to feed with the onset of warmer weather. Keep an eye out for this insect as the leaves develop. If needed, apply controls on ornamentals while the larvae are still small. Also keep an eye out for defoliation in aspen-dominated forests in northern Maine.

Solitary Bees and Wasps - Solitary bees and wasps are starting to emerge. Unlike social bees and wasps which may be aggressive and sting readily, solitary hymenoptera are generally non-aggressive (they don't have nest-mates to protect), and rarely sting. Some cannot sting at all, and with others, you have to seriously harass them before they will sting. Generally high numbers are present only for a week or two as they emerge from their overwintering nests. Then they disperse. If you have gardening or other work to do in the immediate area of the nests, we suggest working for a few days in the morning or evening when the bees are not active. Once informed of their gentle nature, most people are happy to have these wild pollinators in their yard.

Winter moth (*Operophtera brumata*) – There is good news from MA: the hot weather in March initiated hatching of winter moth eggs in MA before the foliage started to emerge. Between lack of food, warm then freezing temperatures many of the winter moth larvae appear to have died. Weather can play an important role in the life cycles of insects.

We are still looking for signs of winter moth in Maine, male moths have been trapped along the coast but we have not found any larvae or damage. Please report any hardwood defoliation this spring so that we can check out which insect is feeding on the trees. Winter moth particularly favor oak but feed on a wide range of other hardwoods as well. The feeding makes leaves look like Swiss cheese.

***Yellowheaded Spruce Sawfly** (*Pikonema alaskensis*) - Adults will soon be active around young spruce trees. They are particularly attracted to open grown white spruce under 12 feet tall. The eggs hatch in June and most people do not notice the yellow (orange)-headed, striped, green larvae until substantial amounts of foliage have already been eaten off the tree. If you have spruce that have bare lateral branches especially near the top of the tree, check for larval feeding in June.

Diseases and Injuries

Balsam Fir Needlecast (*Isthmiella* spp.; *Lirula* spp.; *Rhizosphaera pini*) – Several Christmas tree plantations that have been damaged from one or more of several needlecast fungi were reported again this spring. The damaged needles now apparent were infected in 2009 or 2010; those infected in 2011 will be showing as damaged this summer. These needlecasts have been widespread, but are usually concentrated in localized micro-sites in plantations, with relatively small groups of trees being affected. This spring needlecast incidence has been reported from growers in Falmouth and Cape Elizabeth (Cumberland Co.), and from Buxton (York Co.).

Cedar-Apple Rust (*Gymnosporangium juniperi-virginiana*) – The overwintering galls of cedar-apple rust on eastern red-cedar (*Juniperus virginiana*) twigs are now developing the bright orange, jelly-like tendrils that produce the spore stage which can infect apples and crabapples. The disease is of little consequence on the junipers, but infection of apple leaves can result in heavy and pre-mature defoliation. Although there are a number of fungicides registered for control of cedar-apple rust for apples, the best solution is to plant apple varieties that are resistant or nearly immune to infection. Apple varieties resistant to this disease include Liberty, Delicious, McIntosh, Macoun, and others. For a list of suitable varieties of crabapples for Maine, consult University Maine Cooperative Extension Bulletin No. 2058 “*Flowering Crabapples in Maine*,” which is also available on-line at <http://umaine.edu/publications/2058e/>.

Frost Injury – Although the warm weather in early spring produced expectations of above-



normal seasonal temperatures, the past several weeks have been decidedly cooler and wetter. As odd as it may sound, there have been a few reports of frost injury to new leaves. Aspens were reported to have been nipped by frost in the areas around Jay (Franklin Co.), and individual red maples were similarly affected in New Gloucester (Cumberland Co., photo at left). Frost conditions were also reported to have occurred about three weeks ago in the

Downeast area of Washington and Hancock counties, but no reports of damage have been received here at the Lab.

Juniper Tip Dieback (*Kabatina juniperi*, *Phomopsis juniperovora*) – Observations and reports from around central Maine have indicated a high incidence of tip dieback on eastern red-cedar (*Juniperus virginiana*), common juniper (*J. communis*), and other ornamental junipers. Shoot tips infected during the 2011 growing season often turn a bright, straw-yellow or light tan in early spring. Fungicides are available which can reduce infections to current-season shoots, but are not usually needed. Damaged tips can be clipped to just below (about an inch below) the discolored portion and simply removed.

Spruce Needlecast (*Rhizosphaera kalkhoffii*) – Now is the time for applying the first of two fungicide applications for control spruce needlecast on ornamental trees. Recommended materials are copper-based fungicides (such as Bordeaux Mix or Kocide, among others) or chlorothalonil (such as Bravo or Daconil, among others). This disease is most damaging on Colorado blue spruce and white spruce (photo at right), and has been a serious problem for several consecutive years now. This year, timing of bud break and needle elongation has again coincided with extended periods of rain, increasing the probability of high levels of infection for the current-year needles. A second application should be made when the needles are about nearly fully-grown, or about three to four weeks after budbreak. Fungicides do not control the disease in needles already infected. This spring, specific reports of the disease have come from Brunswick (Cumberland Co.), and Lyman (York Co.). The disease is common throughout Maine and New England.



White Pine Blister Rust (*Cronartium ribicola*) – Several inquiries regarding white pine blister rust have been received over the past month. One report was concerned with the apparent relatively high incidence of the disease in a stand in Penobscot (Hancock Co.), and whether canker excision can be an effective control for infected trees. To that end, the following is a brief summary of this control practice.

Under some specific circumstances, canker excision can be used successfully to remove white pine blister rust infections that have reached the main stem. However, the disease is much easier

to control if the infection is identified in the branch, before it reaches the main stem. Since it may require several years for an infection to reach the main stem, branch pruning is an easy and more effective management practice.

The excision practice should only be attempted with younger trees. Trees greater than four or five inches in diameter at breast height are reaching the upper limit for treatment. The canker margin needs to be clearly visible, to ensure that the excision removes all of the infection. Once tree bark begins to fissure, or become “plated,” the canker margin becomes difficult to see. Most lethal stem infections occur in young trees because there are more live branches nearer the ground where infection conditions are highly favorable and because there is proportionately more susceptible foliage (where infections originate) nearer the main stem.

Isolating the canker by tracing about two inches to the outside and around the canker margin with a sharp utility knife will capture the extent of the fungus in most cases. A “U”-shaped bark scribe also makes an ideal tool to use. The removal of the bark tissues in a groove down to and shallowly into the sapwood, and completely encompassing the canker should be sufficient. Bark from the entire canker need not be removed. The fungus is primarily active only in living bark and cambium, so extensive gouging of the wood itself is unnecessary. The branch which gave rise to the stem infection, and which is likely centered on the ellipse of the canker should be pruned and removed also. Cankers which exceed more than one-half the circumference of the stem are considered too large to treat.

Keep in mind that such stem wounds are injuries and will result in wood discoloration and even possibly eventual decay development. Promoting rapid growth and wound closure by allowing the injury to become resin-soaked and dry is the optimum course to follow after canker excision. Although the excision practice is *not* recommended under most situations, it can be a viable way to save especially valuable ornamental trees. In addition, it can also be used in natural forests and plantations in conjunction with pruning methods in intensively-managed areas. Studies have shown that canker excision on younger trees can be up to 80 % effective in saving treated trees.

Calendar

June 12, 2012 - *Management Strategies for Eastern Forests Threatened by Hemlock Woolly Adelgid (Adelges tsugae)*. Mary Ann Fajvan, Research Forester, Northern Research Station, USDA Forest Service, Noon and 7 p.m. The Pennsylvania State University Webinar. To register and take part in the live seminars or to view the upcoming seminars schedule, visit <http://extension.psu.edu/private-forests/tools-resources/webinars>.

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On-line: www.maineforestservice.gov/ConditionsReportsIndex.htm

Maine Forest Service

Forest Health and Monitoring

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