



STATE OF MAINE
DEPARTMENT OF CONSERVATION
MAINE FOREST SERVICE
Insect And Disease Laboratory
168 State House Station-50 Hospital Street
AUGUSTA, MAINE
04333-0168

PAUL R. LEPAGE
GOVERNOR

WILLIAM H. BEARDSLEY
COMMISSIONER

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

Forest & Shade Tree - Insect & Disease Conditions for Maine

April 18, 2012

Welcome to the 2012 growing season! For the first time in several years, the past winter was considerably less snowy and warmer, providing (for most, at least) a welcome respite from shoveling and high fuel usage. Winter injury to trees from desiccation or road de-icing salt runoff has been very minor, compared with last year. But the mild winter season has not been entirely benign. Late fall leaf-drop coupled with the late October snow resulted in some considerable branch and stem breakage, especially in south coastal Maine. Also, the early spring has resulted in earlier budbreak for some tree species in many localities, setting up the potential for damage should a late spring frost occur. And, populations of some important forest insects (hemlock woolly adelgid, for example) that are regulated by colder winter temperatures have been allowed to thrive.

As always, we are looking forward to a very busy season, with new initiatives on invasive forest insects and diseases including a massive survey effort for the emerald ash borer (not yet known to occur in Maine) and a Northeastern regional survey for hemlock tip blight. In addition, our usual plant clinic diagnostic assistance will be available, along with the monthly *Condition Reports*. To help accomplish all this, we invite you to assist with our mission. We ask you to be vigilant and to report to us any observations on tree insects and diseases of concern to you. We appreciate your willingness, expertise and commitment to help keep our trees and forests healthy. We all look forward to working with you this season.

Laboratory Hours

Our business hours for 2012 will be 7:30 a.m. to 4:00 p.m. Monday through Friday, except for holidays. However, due to a very busy field schedule, we may not be able to staff the Insect and Disease Lab at all times. If you call our Lab and receive no answer, please call back another time. And if you plan to visit the Lab, you may wish to call ahead just to make sure someone will be present to meet with you.

If you have questions on insect and disease pests of trees, you can now submit a clinic form directly on-line. We will also accept samples mailed in to our Lab in Augusta. Our street address and location remains the same (50 Hospital Street, Augusta), our mailing address is **168 State House Station, Augusta, 04333-0168**.

MAINE FOREST SERVICE
DOUG DENICO, DIRECTOR

PHONE: (207) 287-2431 OR 1-800-367-0223
FAX: (207) 287-2432
TTY: (207) 287-2213

www.maineforestservice.gov/idmhome.htm

We help you make informed decisions about Maine's forests

Lastly, we have attached the following items to this report for your use:

- * Advice and Technical Assistance Sheet.
- * Insect & Disease Diagnostic and Report Form.
- * Forest and Shade Tree - Early Season Guide to Pest Management in Maine

Reminder: If you have not renewed your paper subscription of the *Condition Reports*, and would like to receive future issues, please fill out and return the included subscription sheet.

Quarantines

Maine has five forestry-related state quarantines. Four of them impact the movement of forest products. A summary of the quarantines is available on our Website and beginning on page 35 of the 2011 *Annual Summary Report*: If you have any questions regarding forestry-related quarantines or moving or receiving regulated material, please contact Allison Kanoti at the Maine Forest Service, allison.m.kanoti@maine.gov or (207) 287-3147. Thank you for your continued cooperation in keeping these exotic forest pests and diseases contained.

Insects

Asian Longhorned Beetle (*Anoplophora glabripennis*) - Two staff members visited the 110 square mile quarantine area around Worcester, MA earlier this month to become more familiar with signs of the Asian longhorned beetle (ALB) in forested situations. It was discouraging to see how cryptic the symptoms are on even fairly heavily infested trees in the woods. The trees attacked were primarily maples and cottonwood; nearby birch were not infested. The visit reinforced how important it is for landowners to be aware of what ALB adults look like and to notice if maple trees in particular have very large galleries and holes and to report it when observed. Infestations caught early can be controlled. Left unchecked it may be very difficult to stop this pest. The Asian longhorned beetle has not been found in Maine.

***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*) – Balsam twig aphids appear early in the spring and suck the juices from the tender new foliage of fir trees. This feeding causes a twisting and distortion of the foliage. It does not harm the tree but makes it less attractive for Christmas tree sale. Twig aphid tends to be a perennial problem for Christmas tree growers. Check for aphids in May before budbreak. If trees were damaged last year they may need to be treated this year as the population builds up from year to year.

***Browntail Moth** (*Euproctis chrysorrhoea*) – Browntail moth populations are down dramatically from the early spring numbers in 2011. This drop in population was caused by a fungus, *Entomophaga aulicae* that infected the larvae during a protracted cool wet spell last May. There are still browntail webs in the Bath, Brunswick, Topsham area but the numbers are much reduced. Unfortunately numbers are on the rise in Falmouth and Cumberland, and Flying Point area of Freeport.

Browntail moth larvae feed on the emerging foliage of oak, apple, birch, cherry, hawthorn, rose and other hardwoods. They emerge from their overwintering webs starting the end of April, even before the buds have broken. They continue to feed on leaves and molt their hairy skins through June when they pupate leaving their last hairy skin behind. Besides defoliating trees and causing branch dieback and tree mortality, all those hairs make many people itch.

Pruning out webs and destroying them (drop them in soapy water) may eliminate the problem if all the webs are within reach. Clipping should be completed by the end of April and insecticide applications (if warranted) should be made during the month of May by a registered pesticide applicator. There are specific regulations for controlling browntail moth near coastal waters. Be sure to check on the current Board of Pesticide Control regulations before treatment.

***Bruce Spanworm** (*Operophtera bruceata*) – As reported last year there was light defoliation on understory maple and birch across central Maine caused by Bruce spanworm larval feeding in early spring. Quebec also reported Bruce spanworm defoliation. Moth flights were reported in November. Bruce spanworm has caused widespread defoliation on maple, beech and aspen in the past. Past infestations in Maine have lasted for two or three years at moderate to high levels and then tapered off. Damage is usually minimal but has the potential to reduce sap yields in sugar maple stands.

The Bruce spanworms overwinter as eggs on host trees 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. There are usually other insects that are part of the population as well.

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.

***Eastern Tent Caterpillar** (*Malacosoma americanum*) - Look for tiny webs at the crotches of crabapple and cherry tree branches. Remove the webs in the evening or early morning when the caterpillars are in the web. Use a wet soapy rag and pull the web out of tree and drop in a bucket of soapy water (no need for flames or kerosene). Although the tents are unsightly, these insects rarely harm the trees.

Elm spanworm (*Ennomos subsignaria*) - Some old cocoons and overwintering egg masses of the elm spanworm were brought in to the Lab this spring. This is a native, early season defoliator that can cause widespread damage but has rarely been a problem in Maine. The hardwood host range is wide including apple, maple, oak, elm, and basswood. The inchworms hatch in early spring and feed on newly emerging foliage. The cocoons are spun on the branches of trees and may be noticeable either now or later after damage has occurred. Parasites generally bring any outbreaks under control in fairly short order so there is rarely a need to control this pest. This may be one of other defoliators associated with Bruce spanworm outbreaks.

***Elongate Hemlock Scale** (*Fiorinia externa*) – Elongate hemlock scale has been found in two forested locations in Kittery Point and numerous ornamental settings from Portland, south. Early detection of this insect in the forest is difficult, as infestations may establish first in the upper canopy of trees. Therefore, we are looking for opportunities to inspect hemlock brush from recent and ongoing hemlock harvests for signs of this insect—particularly in areas south of Route 1 and in areas known to have infested planted trees (See our map linked on this page: www.maineforestservice.gov/EH_Scale.htm or in the 2011 *Annual Summary Report*). If you can offer such sites for inspection, please contact Allison Kanoti at (207) 287-3147 or allison.m.kanoti@maine.gov.

***Emerald Ash Borer** (*Agrilus planipennis*) – The emerald ash borer (EAB) is a small invasive beetle from Asia that has destroyed millions of ash trees since being discovered in the U.S. in 2002. It has been found in 15 states, as well as in parts of Ontario and Quebec, Canada. EAB has NOT yet been found in Maine. The closest infestations are in Montreal, Quebec, Canada and Albany County, NY.

The U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Plant Protection and Quarantine (USDA APHIS) has funded a trapping survey to help detect EAB in areas where it may be present but difficult to detect with the human eye. The Maine Forest Service, Maine Department of Agriculture and Penobscot Indian Nation are cooperating with the USDA to hang 955 traps across the State of Maine (for more information, see www.maineforestservice.gov/purpletraps.htm).

Extensive research has gone into developing a trap and lure combination to aid in early detection. The purple traps are made of corrugated plastic and fold into a prism shape. A lure, which is a combination of manuka oil and a leaf-blend compound, is hung inside the trap. The outside surface is covered with sticky glue. The trap is hung in the canopy of ash trees. The color and scent of the trap will attract flying adult emerald ash borers that will then get stuck in the glue.

The purple traps are non-toxic and pose no risk to humans, pets, or wildlife. However, the glue on the outside of the trap is extremely sticky and messy. Please do not handle them. If you see a purple trap on the ground in Maine, please call the MFS toll-free number: 1-800-367-0223.

***Hemlock Woolly Adelgid** (*Adelges tsugae*) – Statewide the winter of 2011-2012 (Dec-Feb) was the third warmest on record, ranking 114/117 years of record keeping (<http://www.nrcc.cornell.edu/>). Overwintering mortality of hemlock woolly adelgid is thought to be an important factor in limiting damage from this pest at its northern extent. Given the warm winter, we expected to find discouraging levels of mortality when we sampled forest infestations of HWA this spring, and we were not wrong. Across five sampled sites, mortality of HWA that successfully broke aestivation averaged 17.7 percent. We expect that the high survival rate of hemlock woolly adelgid this past winter will contribute to increased detections of hemlock woolly adelgid this season.

Location	Live	Dead	Percent Dead	Range (n=10 trees)
Kittery	1044	158	13.1	8.3-22.5
Saco	880	145	14.1	5.5-24.7
Harpswell	932	236	20.2	12.1-28.0
Georgetown	1094	185	14.5	6.0-38.6
Wiscasset	1189	385	24.5	18.2-32.1
	5140	1109	17.7	

The surviving adelgid began depositing eggs in late February or early March. Samples examined for winter mortality in late March did not have crawlers, but by this printing they are likely out. Crawlers can survive for some time off of the host, so can be transported and become founders of new infestation centers. Carriers of these crawlers can range from abiotic vectors like wind and equipment to biotic ones such as birds and mammals (including the two-legged ones and their four-legged friends). Other stages of adelgid are sessile and are harder to move, but can be carried long distances on live hemlock material. More information about hemlock woolly adelgid can be found at www.maineforestservice.gov/HemlockWoollyAdelgid.htm.

Large Aspen Tortrix (*Choristoneura conflictana*) - Watch for defoliation on quaking aspen in the northern third of the state. This pest may be declining as the Bruce spanworm increases. It will be an interesting year to see what pest dominates in the forest.

***White Pine Weevil** (*Pissodes strobi*) - Control of white pine weevil should be underway in southern parts of the State by the time you receive this publication. The adults lay eggs and the larvae feed on the terminal leader of pine and spruce in early spring. On ornamentals, covering the leader with a nylon stocking secured with a twist tie can block the female from laying eggs. Remove the covering before the leader begins to elongate. This of course is not practical on a large scale and chemical control may be warranted for Christmas tree or timber plantations. See recommendations in the “*Forest and Shade Tree - Early Season Guide to Pest Management in Maine*”.

Winter moth (*Operophtera brumata*) – This early spring defoliator is an invasive from Europe that is currently at outbreak levels in Massachusetts and causing oak and maple tree mortality.

We have not confirmed a breeding population in Maine yet but have found male moths along the immediate coast in southern Maine. This insect is very closely related to the native Bruce spanworm, so closely related that they can interbreed. This is why we are interested in studying the Bruce spanworm.

Please report any hardwood defoliation this spring so that we can check out which insect is feeding on the trees. Massachusetts is rearing and releasing a parasite that has proved effective in other parts of North America for controlling winter moth. They are willing to work with us on releasing the parasite in Maine when an established population is found. This could potentially head off the kind of damage that MA is currently experiencing by controlling the problem before it gets out of hand. Page 17 of the 2011 *Annual Summary Report* has more information on winter moth.

Diseases and Injuries

Anthracnose of Maples (*Discula campestris*, *Kabatiella apocrypta*, and other fungi) – Indications to date are that infection levels for maple anthracnose, and for most other hardwood anthracnoses, should be lower than in past years. Moisture conditions so far have been near-normal, and therefore significantly drier than in the recent past. With a lower risk of infection, sanitation methods including raking and removal of last years' leaves (*before* new leaves emerge), will be that much more effective in managing the disease. Follow the “*Forest and Shade Tree - Early Season Guide to Pest Management in Maine*” chart for fungicide recommendations.

Pruning Storm-Damaged Trees – Trees with broken branches or tops that were damaged by hurricane Irene or from the “Halloween” snowstorm last year should be correctively pruned this year. This will help the tree recover from the injury, and can also reduce the hazard to people and property that can result from falling limbs. Unfortunately, this specific time of year (early spring) is *not* an appropriate time to accomplish the task. Pruning when sap is running to supply the new buds and the actively growing cambium (the tissue that is producing new wood and bark) can result in excessive bark tearing and significant *additional* injury to pruned trees. Wait until the leaves have fully expanded (July) before tackling this maintenance task. An exceptionally complete guide to pruning can be found at the following website:

www.na.fs.fed.us/spfo/pubs/howtos/ht_prune/prun001.htm

Spruce Needlecast (*Rhizosphaera kalkhoffii*) – As with the anthracnose disease of hardwoods, the infection levels of spruce by *R. kalkhoffii* should be lower this year. If the current drier weather persists for the next month or so, fungicide application may be unwarranted, especially for light to moderately-infected trees. However, for those trees that have been heavily damaged in the last several years, fungicide protection would still be advisable. The heavily damaged trees will be carrying high levels of inoculum (spores) for re-infection. Follow the “*Forest and Shade Tree - Early Season Guide to Pest Management in Maine*” chart for fungicide recommendations.

Tar Leaf Spot of Maples (*Rhytisma acerinum*) – The comments made above regarding anthracnose of maples and other hardwoods will also apply to the tar leaf spot disease. However, leaves may be infected by this pathogen over a much longer time period, so excessively wet weather anytime in May, June and early July can negate the current “low infection level” prediction.

White Pine Blister Rust (*Cronartium ribicola*) – *Ribes* plants, the primary host of white pine blister rust, are now in near-full leaf in southern Maine. Because foliage of most other forest vegetation has not yet emerged, early spring is an ideal time to scout for *Ribes* plants. Located plants can be treated now (physically removed or treated with herbicide), or “flagged” for treatment at a later date. Removal of all *Ribes* species within 900 – 1000 feet of susceptible pines or pine stands will provide acceptable protection.

Conditions Report No. 1, 2012

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

Maine Forest Service

Forest Health and Monitoring

Contributors: Charlene Donahue, Allison Kanoti, William Ostrofsky