STATE OF MAINE
DEPARTMENT OF CONSERVATION
MAINE FOREST SERVICE
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http://www.maine.gov/doc/mfs/idmhome.htm

Forest & Shade Tree - Insect & Disease Conditions for Maine
June 22, 2011

Natural Pest Control Takes a Hit: White-Nose Syndrome Confirmed in Maine

Bats play a critical role in maintaining healthy ecosystems and have an enormous impact on pest control. Therefore, bats benefit the economies of forestry and agriculture in the United States. For example, the one million little brown bats that have already died due to WNS would have eaten between 660 and 1,320 metric tons of insects in one year. A recent study published in Science estimates that insect-eating bats provide a significant pest-control service, saving the U.S. agricultural industry at least $3 billion a year. (From Me IFW Press Release)

Firewood from Worcester Massachusetts Confiscated During Memorial Day Weekend Exchange

Five pieces of split firewood from Worcester, MA were confiscated by MFS forest rangers at the firewood exchange on 5/27/11. The wood was triple bagged and stored at the Gray MFS facility until Wednesday, when it was delivered to the MFS Insect & Disease Laboratory for transfer to USDA-APHIS, PPQ. The wood was inspected by PPQ Pest Survey Specialist Steve Bonstedt and MFS entomologist Charlene Donahue. None of the wood had signs of insects or damage; all were spit and three pieces were bark free. The pieces were identified as: red oak (2), ash (2), and maple (1). All the wood was burned.

Because this movement was a breach of the federal Asian longhorn beetle quarantine, USDA-APHIS is doing follow up investigation.

Asian Longhorned Beetle Found in Ohio

Asian longhorned beetle has been detected in nearly 100 maple trees in a vineyard about 30 miles south of Cincinnati, OH. Surveys are still in very preliminary stages. See Ohio Department of Agriculture for more information: http://www.agri.ohio.gov/public_docs/news/2011/6.17.11%20ALB%20Fact%20Sheet.pdf.

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www.maineforestservice.gov/idmhome.htm

Restrictions on Softwood Firewood from Canada and Spruce Logs From Nova Scotia

New requirements for softwood firewood from Canada and spruce logs from Nova Scotia went into effect on May 22, 2011 through a Federal Order from USDA APHIS. This action results from federal recognition of the brown spruce longhorn beetle situation in NS, and of the associated concern for exotic pests on any untreated firewood. This new ban of softwood as well as hardwood firewood serves to harmonize the federal regulations with existing Maine firewood regulations, simplifying enforcement by Customs and Border Patrol staff. See our Website for more information: http://maineforestservice.gov/fhm/pages/CanadianFirewoodImport.htm.

Leafsnap: An Electronic Field Guide – iPhone and iPad app

Leafsnap is the first in a series of electronic field guides being developed by researchers from Columbia University, the University of Maryland, and the Smithsonian Institution. This free mobile app uses visual recognition software to help identify tree species from photographs of their leaves. Leafsnap contains beautiful high-resolution images of leaves, flowers, fruit, petiole, seeds, and bark. Leafsnap currently includes the trees of Northeast, New York City and Washington, D.C., and will soon grow to include the trees of the entire continental United States. See: http://leafsnap.com/

Beneficial EAB-Hunting Wasp Soon to Emerge in Maine

Cerceris fumipennis, the **non-stinging** beneficial wasp which is helping us monitor for emerald ash borer (EAB), will be emerging from its overwintering nests sometime this month. This wasp is most often found in the hard-packed sandy soil of baseball diamonds. The Maine Forest Service is still looking for more *Cerceris* colonies throughout the southern half of the state. Perhaps one of the most valuable things you can do to help protect your community from EAB is to look at your school and community baseball diamonds for *Cerceris* nests between mid-July and mid-August. Go to www.maine.gov/cerceris for information on what the wasp looks like and how to find it. We are also looking for volunteers near the towns of Whitefield, Skowhegan and Norway who would be willing to "adopt" an existing colony in one of these towns and spend about 10-15 hours during the summer to monitor the prey brought in. Many of our volunteers have found this to be a great activity to do with their children or grandchildren.

Watch for EAB and ALB this Month

Now is the time to start looking for emerald ash borer (EAB) and Asian longhorned beetle (ALB). If EAB is in Maine, it will emerge in late June, and if ALB is here, we expect it to emerge in mid-late July. If you find any suspicious insect, put it in the freezer and give us a call at (207) 287-2431 or 1 800 367-0263.

Insects

Arborvitae Leafminer Complex – Cedar in the northern part of the state is showing browning from the feeding of arborvitae leafminers as well as other problems (see also *Diseases and Injuries* section). There are four species of leafminers that feed on cedar in Maine. The larvae feed inside the needles causing them to turn brown. There will be a small hole in each mine that can be seen with a hand lens. This damage is easily confused with winter injury or damage from fungal pathogens. Mined tips will be hollow and will appear translucent if held up to a strong light. The larvae overwinter in the needles then resume feeding in the spring. The moths will be flying soon to mate and lay eggs.

High value trees can be monitored for the presence of leafminer adults. From the end of June into early July periodically shake the branches of the trees and if clouds of tiny moths fly out, it is time to treat. Use a contact insecticide to kill the moths – they do not feed.

On lightly infested trees, this pest can be controlled by clipping and burning mine- containing leaves in fall or very early spring. In heavier infestations, treatment to control the moth stage is fairly effective and will prevent egg-laying. Repeated treatments may be necessary to control the adults as their flights may extend over several weeks. Another option is to wait until new mines appear in early August and treat at that time. Chlorpyrifos (Chlorpyrifos), Bifenthrin (Talstar) and Permethrin (Permethrin) are some of the contact insecticides registered for control of leafminers. These contact insecticides can be used on both adults and larvae. Control of larvae in mines using a contact insecticide is best achieved with an emulsifiable concentrate, however wettable powder sprays will provide adequate control and are less toxic for applications around home grounds. Acephate (Orthene) and Imidacloprid (Merit 75 WP) systemic insecticides are also registered for larval control within the mines.

***Balsam Gall Midge** (*Paradiplosis tumifex*) - Adults of this species have now laid their eggs and the developing galls containing larvae are evident as swellings on the needles. Control at this time will still help even if not as effective as earlier treatment.

***Balsam Shootboring Sawfly** (*Pleroneura brunneicornis*) **-** This sawfly causes the buds of balsam and Fraser fir to turn brown and have a 'button' appearance. If you break off the tiny shoot the stem will be hollow. It looks similar to frost damage but has the hollow stem where the sawfly larvae fed. The buds often fall off or can be pruned off but the reduced growth can cause Christmas trees to be misshapen. It is a difficult pest to control in Christmas tree plantations; it is never a problem in the forest. Larvae have now dropped to the soil and it is too late to control the problem this season.

***Browntail Moth** (*Euproctis chrysorrhoea*) **–** Every cloud has a sliver lining – especially for those in the greater Bath/Brunswick area. The wet weather at the end of May created the right conditions for an epizootic in the browntail moth population killing the majority of the caterpillars. During cold wet weather the browntail moth caterpillars huddle together on their webs and, just like people in the winter time: if one of them gets sick, then they all catch it. The causal agent, a naturally occurring fungus (*Entomophoga aulicae)* that infects only browntail moths, requires the moisture to spread throughout the caterpillar population. There are still browntails in a few spots in Bowdoinham, Topsham, Bath, West Bath and Bruswick but not many. I think people – and trees – will have some relief from this insect for a few years. People

that have had browntail in their yards still need to be cautious mowing and raking as the hairs stay active for a year or more.

The browntail moths are still doing fine on Flying Point in Freeport and in isolated locations Falmouth and Yarmouth. They can still be found in one spot in Turner and another in Augusta. The infestation on Vaughn Island in Kennebunkport also disappeared this summer, it may be fungus but that was not documented.

***Bruce Spanworm** (*Operophtera bruceata*) – A light infestation of this early season defoliator was reported in Blanchard on newly planted silver maple. The small green 'inchworms' start feeding on the buds even before the leaves open. Often by the time damage noticed, the larvae are almost done feeding. This pest prefers maples and poplar but will also feed on willow, beech, white birch, red oak, pine and choke cherries.

Outbreaks are most often localized and usually last three to four years before natural control factors such as parasites, predators and disease cause the population to collapse. Trees subjected to two or more years of heavy defoliation may exhibit noticeable growth reduction, especially those that are weak or growing on poor sites. Heavy defoliation of sugar maple may result in some reduction of sap flow or sugar content.

***Elongate Hemlock Scale** (*Fiorinia externa*) – Since the last Conditions Report in May, elongate hemlock scale has been reported on planted trees in three new towns by Don Berry of Mainely Grass. All three sites have been confirmed and containment measures are underway. In Scarborough and Gorham the infested trees were firs. In York, the infested trees were hemlocks. Check planted hemlock and fir for this pest, and native hemlock and fir in forests near hemlock woolly adelgid infestations. Please let us know if you think you have found elongate hemlock scale. See www.maineforestservice.gov/EH_Scale.htm for more information.

Forest Tent Caterpillar (*Malacosoma disstria*) – Scattered reports of forest tent caterpillars have come in from around the state. Most are reporting seeing a few more of these hairy caterpillars with a 'keyhole' pattern on their backs than usual. However, one area in T3 R4 WELS had noticeable defoliation and the characteristic gathering of large larvae on tree trunks.

Hemlock Borer (*Melanophila fulvoguttata*) – Scattered hemlock mortality brought on by hemlock borer was noted along the Mountain Road in York. This could represent the start of a buildup of the native pest in that area. Follow-up on the ground to determine the extent of the infestation is needed. Hemlock borer is attracted to stressed trees, primarily hemlock. The stressor along the mountain road was most likely the road. However, hemlock woolly adelgid is stressing forest interior trees in that area, making them prime for attack by hemlock borer, and build up of more damaging populations. Hemlock borer may be the ultimate cause of tree mortality in many hemlock woolly adelgid and/or elongate hemlock scale infested stands.

Larch Casebearer (*Coleophora laricella*) – Casebearer damage is visible in places throughout central Maine and into northern Maine. It is spotty this year - sometimes even within a stand with one tree heavily affected and other not touched at all. The browning is fading now as the needles drop off and the elongating branches mask the damage. Although the damage looks severe for a few weeks it does little lasting harm to the trees.

Large Aspen Tortrix (*Choristoneura conflictana*) – This early season defoliator has come and gone - stripping scattered stands of quaking aspen in Aroostook county. The large aspen tortrix has been defoliating trees in Quebec for the past four years and we have been seeing the moths in our light traps. This is the first time we have found defoliation on our side of the border though. This insect overwinters as a larva at the base of the tree and feeds as soon as the foliage is out. It rolls and ties leaves together for protection and pupates in the leaves.

Poplar Leafroller Complex – Poplars along the northern I-95 corridor and in the Ashland area in Aroostook County look tattered and thin from a complex of leafrollers. These are tiny moths whose larvae feed in the spring inside rolled up leaves. They generally leave enough foliage on the trees so that little damage is done.

Satin Moth (*Leucoma salicis*) – Poplar yard trees from Fort Fairfield to Portland are being attacked by satin moth caterpillars. Isolated poplar stands south of Millinocket have also been stripped of foliage. The satin moth caterpillars are quite striking – brown with large white dots running down their backs and hairy red bumps sticking out from their sides. The caterpillars overwinter so they are ready to eat as soon as the leaves come out and will completely consume the leaves except the larger veins. They make their cocoons on the trees and the moths emerge in July. When the eggs hatch, the tiny caterpillars skeletonize leaves in late summer and then hibernate on the trees.

Spruce Budworm (*Choristoneura fumiferana*) – Not here YET. Maine has had a hiatus from the spruce budworm for the past 28 years; that may be about to end. Quebec has 1.89 million acres with spruce budworm defoliation to the north and also west of Maine. Last year they sprayed 137, 711 acres with Bt to lessen the impact of the outbreak. New Brunswick has seen a rise in the catches of spruce budworm moths in their pheromone traps to our north and we have seen a slight rise in our pheromone trap catches as well. This year both the spruce and fir in the northern half of the state are coning heavily. Pollen is an excellent food source for spruce budworm larvae and heavy cone years often presage a spruce budworm outbreak. We do not expect serious budworm defoliation in Maine this year, but it is probably on the horizon in the not too distant future.

Please send in reports (as well as photos and/or samples if possible) of any fir or spruce in northern Maine that have foliage webbed together and chewed as the larvae should be finished feeding now. The moths will be flying in June so report any unusual amounts of small brown moths. Catch and send some in if possible. We do have traps out but they are not everywhere and any additional eyes in the woods are appreciated.

Diseases and Injuries

Anthracnose of Maples (*Discula campestri*s, *Kabatiella apocrypta*, and other fungi) – There have been several instances of anthracnose occurring on a variety of maple species over the past month. The typical symptoms this year have been a blackening of very young leaves and shoots, along with scattered premature leaf drop. It is believed that these symptoms indicate very early infection of leaves. Anthracnose on older leaves often appears as larger areas of light brown spots, with the leaves retaining, more or less, their original shape and size. The wet weather conditions during the month of May were ideal for rapid infection of very young leaves.

Anthracnose on maples has been observed this year in Randolph, Oakland, Rockland, Thomaston, and Portland. Although the disease occurs statewide, localized infections affecting only small numbers of trees appears common. Fungicides are available which can help prevent infections, but it is too late in the season now for applications to be effective.

Hemlock Decay/Logging Injuries – Logging injuries and internal decay in living trees continues to be a chronic problem in many forest stands. This spring, two instances (stands in West Gardiner and Peru) were reported regarding butt decay and mortality of hemlock in partially harvested (thinned) stands. Root systems of hemlock are very shallow, and as a species, hemlock is considered to be extremely sensitive to stand and soil disturbances. Precautions to limit residual stand damage should always be considered when conducting harvesting operations, but are especially critical in hemlock stands. A list of harvesting practices to consider can be found at: http://www.maine.gov/doc/mfs/HemlockDecayLoggingInjuries.htm or see attached**.**

Needlecast of Balsam Fir (*Rhizosphaera pini*) - Several needle cast diseases occur on balsam fir, and the majority are of little consequence in natural stands. However, most can cause substantial damage to Christmas tree plantations. One of the needle pathogens, *Rhizosphaera pini*, has been observed on samples from Jefferson, Houlton, and Belgrade this spring. This is considered one of the less aggressive needle cast pathogens, and chemical control is not generally recommended, even in Christmas tree plantations. Cultural controls of good weed management, and roguing or pruning of the occasionally heavily-infected trees is recommended.

Oak Leaf Blister (*Taphrina caerulescens*) **and Oak Anthracnose** (*Apiognomonia quercina*) – Two oak leaf diseases, oak leaf blister and oak anthracnose, have been reported from locations throughout central and southern Maine. At a few locations and on some trees, light to moderate leaf drop has been noted. This year an unusual symptom of the anthracnose disease appears to be spot infections of the leaf petioles, which has caused the petioles to "snap," allowing the affected leaves to dry out and droop. Although the diseases may appear severe in some locations or on some individual trees, long-term damage to tree health is not expected. Both diseases can be managed with protectant fungicides applied early in the spring, but are rarely required.

Seed Production – Several species of trees have been reported as producing an abundant seed crop this year, including ash, balsam fir, spruce, red maple, and in some locations oaks. Heavy seed and cone production often leaves upper crown regions appearing thin or "damaged," both from the lesser amount of foliage and also from the coloration of the seeds or cones themselves. High cone crops in balsam fir may also signal an increase in populations of spruce budworm which rely on male strobili as a rich food source during the early phases of their development.

Sugar Maple Decline – A maple syrup producer in Shirley (Piscataquis Co.) reported on dieback in a sugar maple stand. The dieback and decline of the trees appeared to be related to basal stem wounding from past stand thinning activities, scattered root decay caused by *Armillaria* root rot, and a moderately high occurrence of the sugar maple borer (*Glycobius speciosus*). All three problems are common to sugarbushes throughout Maine. Monitoring for these problems, careful removal of the most severely affected trees, reducing or eliminating mechanical injuries to crop trees, and reducing tapping of trees showing early decline is recommended.

White Pine Needle Casts – Damage from several needle-cast diseases of white pine has again become very noticeable throughout western, central and southern Maine. For the past few years,

damage to Eastern white pine foliage has been observed throughout the state. Overall, affected trees seem to be less severely damaged this year than last, but locally severe infections can still be found, especially in western Maine. Infection of needles produced in 2010 have now resulted in the premature shedding of the one-year-old needles. Homeowners, landowner, and foresters should expect to see unusual and excessive shedding of the infected needles until mid-July.

The damage is characterized by the yellowing, browning and loss of one-year-old needles. The lower two-thirds of tree crowns are usually most severely affected. The newly emerging, current-season needles will appear undamaged, and will allow trees to survive. White pines of all sizes are susceptible. Pine regeneration growing under infected overstory trees can be especially heavily damaged. While no direct mortality as a result of the needle loss has been observed yet, the premature loss of the needles does weaken trees, and may make them more vulnerable to other stresses such as drought or insect defoliation. Mature and over-mature trees on poor sites with shallow soils are especially at risk.

There appear to be several fungi involved in causing needle damage. A survey is currently being conducted by the Maine Forest Service and other New England states in cooperation with the USDA Forest Service to more accurately delineate the range of these fungi across northern New England, and to clarify the relative importance of each to the white pine resource. Three fungi are of particular importance. *Mycosphaerella dearnessii* ("brown spot") and *Canavirgella* needlecast (*Canavirgella banfieldii*) were known from previous years. This spring, an additional needle pathogen (*Bifusella linearis*) was identified from several of the same stands that were damaged last year. All three pathogens may occur on needles of the same tree, and each causes similar symptoms.

Until the last few years, these diseases have never been reported as causing significant or widespread damage in the Northeast. There are no fungicides recommended for managing any of these needle pathogens at this time. After the affected needles drop by mid-July, the crowns of many trees will appear thin, and tree vigor will be reduced. *For this reason, forest management activities including stand thinning and other practices that result in significant stand disturbance, are discouraged in stands that have had extensive needle loss, or where the crowns appear especially thin.* Stand conditions will require regular monitoring for the next few years to better assess management risks.

Calendar

July 9, 2011 (Saturday) - Unity. The Maine Forest Service Forest Health and Monitoring and Forest Policy and Management Divisions are partnering with Unity College to present a workshop on hemlock woolly adelgid and hemlock management planning.

This workshop is geared toward landowners, foresters, loggers, and others who are involved in maintaining & managing forests in coastal and central Maine. Hemlock woolly adelgid is a non-native, invasive insect pest that has done considerable damage in the eastern U.S. In Maine it has been found in several towns along the coast, as far north as Bristol. The workshop will address how to identify this pest, describe its potential impacts on a variety of resources, and discuss possible management strategies for dealing with its effects in the forest.

The workshop is planned for 8:30 through 12:30, and will meet at Unity College, with a field session nearby. Snacks and van transportation to the field site will be provided. There is no cost for the workshop but please register so that we can plan for the group size. Please register by email to MFS District Forester Morten Moesswilde, morten.moesswilde@maine.gov , or call (cell phone 441-2895.)

June 21 thru August 26 – Augusta, Maine State Museum. *Off Limits: Pine Trees, Politics, and the King's Broad Arrow.* The story of the King's Broad Arrow policy and associated white pine artifacts will be on display at the Maine State Museum. This year marks the 300th anniversary of the first British Parliamentary Law that reserved large white pines in the New England colonies for use as masts for the British Navy. An original printing of the Law and the processing methods, culture and policies surrounding the use of white pine as ship masts and other items in colonial New England will be featured.

July 22-25, 2011 - The National Park Service, Maine Forest Service, Maine Entomological Society, University of Maine, University of New Hampshire, and the SERC Institute are pleased to sponsor the 9th annual bioblitz at Acadia National Park. This year, we will be targeting the Lepidoptera, moths and butterflies. The event is open to professional entomologists, amateur naturalists, and other interested persons.

As in the past, the event will be based at the park's Schoodic Education and Research Center and collecting will be focused in the Schoodic section of the park. Lodging at the Schoodic Education and Research Center will be provided to participants at no charge; however space is limited, and will be available on a first-registered, first-served basis. Participants will only need to pay a small registration fee and food costs - meals will be provided by the SERC Institute.

The event will begin with dinner on Friday evening followed by presentations about ongoing research or emerging issues of interest to the entomological and natural history community. Saturday morning will feature a workshop on collecting and identifying moths and butterflies. The official bioblitz will commence around noon and continue 24 hours till noon on Sunday. The remainder of Sunday and Monday morning will be focused with sorting, pinning, and identifying collected specimens.

Lead taxonomist for the event will be Dr. Brian Scholtens from the University of Charleston.

We are now accepting registrations for this summer's Lepidoptera bioblitz, July 15-22, 2011. Please complete the attached registration form and mail it to June Devisfruto, Acadia National Park, Schoodic Education and Research Center, P.O Box 570, Winter Harbor, ME 04693. Registration for the event will close on June 24, 2011.

For immediate questions, please contact David Manski at Acadia National Park, e-mail us or 207/288-8720.
