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Forest & Shade Tree - Insect & Disease Conditions for Maine

April 15, 2008

Welcome to the 2008 season of the *Insect and Disease Conditions* reports! After a great “old-fashioned” winter, we expect you are as ready as we are to get the growing season underway. As always, we anticipate an extraordinarily busy season. To accomplish all that we must, we invite you to assist us with our mission. We recognize that many of our readers are capable of competently identifying a variety of forest /nursery insects and diseases. We ask you to be vigilant, to make timely observations and let us know what you are seeing whenever you’re willing to share.

Laboratory Hours

Our business hours for 2008 will be 7:30 a.m. to 4:00 p.m. Monday through Friday, except for holidays. However, we may not be able to staff the I&DM Lab at all times. So if you call 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. Of course, we will also accept samples mailed to our Lab in Augusta. If you plan on dropping off a sample at the Lab, we ask that you call in advance, as our staff will likely be travelling in the field a good deal of the time. We have attached the following items to this report for your use:

- * Advice and technical assistance sheet.
- * Insect & Disease Diagnostic and Report Form.

April 25th is Robigalia

Remember to celebrate ***Robigalia*** on April 25th! Starting during the seventh century B.C, when Numa Pompilius, was king of Rome, an annual festival, the *Robigalia*, was instituted. The purpose of the celebration was to appease *Robigus*, the rust god, so that a healthy crop season would be forthcoming. According to accounts, a procession left Rome by the Falmian gate, crossed the Milvian Bridge, and proceeded to the fifth milestone on the Claudian Way. There, in a sacred grove prayers were offered and the priest sacrificed a reddish dog (the color possibly being symbolic of the primary disease to be averted...wheat rust), and a sheep. While we don’t suggest following this tradition to the letter, give a thought to how you will help maintain the health of all the plants we depend on this season, and offer up a toast to *Robigus!*

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We help you make informed decisions about Maine’s forests

Maine Arbor Week on the Horizon

Since 1978, Maine has celebrated Arbor Week during the 3rd full week in May. Arbor Week is a time to reflect upon an enormous resource we have here in Maine – our trees! They provide us with numerous environmental, economic, aesthetic, and social benefits. This year, Arbor Week falls from May 19th thru the 23rd. Project Canopy will host a statewide Arbor Day ceremony on May 19th from 1 to 3 PM at the State House Hall of Flags. The theme for this year’s celebration is “Planting Trees to Fight Global Warming”. In that vein, an ambitious group of students from Lawrence High School in Fairfield, Maine have embarked upon an Arbor Week tree planting campaign. The students, part of the High School environmental group Gang-Green, have written a letter to every school in Maine asking them to register their tree planting projects on their website: www.gang-green.org. In addition, other organizations such as scout troops, church groups and athletic organizations are encouraged to join the effort. In support of this campaign, Project Canopy has tree seedlings available for civic organizations to get involved with tree planting to help fight global warming. If interested, groups should contact Jan Ames Santerre at 287-4987 or jan.santerre@maine.gov for more information.

Quarantine News

Maine has five forestry-related quarantines: (1) *Ribes* spp. (currants and gooseberries) because they are alternate hosts for white pine blister rust, (2) gypsy moth, (3) European larch canker, (4) hemlock woolly adelgid and (5) pine shoot beetle. The quarantine on *Ribes* prohibits planting, possessing or propagating currant or gooseberry plants in some parts of the State and prohibits the species European black currant, *Ribes nigrum*, and its cultivars throughout the State. The four other forestry-related quarantines restrict the movement of certain forest products that have the potential to spread specific tree pests or diseases. Regulated material may move freely within their respective quarantine zones, but must go to facilities with compliance agreements and may require inspection if they are moved outside of the quarantine zone. The compliance agreements require certain practices of the receivers to help reduce the risk of spread of the target insect or disease organism.

The following is a rundown of recent changes to the quarantines:

Hemlock Woolly Adelgid: The quarantine area for hemlock woolly adelgid was expanded in August 2007 to include six towns in southern York County (Eliot, Kittery, Ogunquit, South Berwick, Wells and York) and numerous additional counties in states to our south and west. Regulated articles include, but are not limited to products and byproducts of hemlock harvest with bark and hemlock nursery stock and seedlings.

Gypsy Moth: The quarantine boundary for gypsy moth was last adjusted in October of 2007 to reflect the northern expansion of this insect’s distribution. The quarantined area is generally south of a line that runs from Houlton through Greenville to Parkertown Township. Forest products of all types are regulated by this quarantine, regardless of species. They include, but are not limited to, logs, pulpwood, trees, shrubs, firewood, Christmas trees, and chips. T3 R4 BKP WKR and Pierce Pond Township will soon be added to the quarantine area.

European Larch Canker: Although nothing has changed in the quarantine rules, a new population of infected larch has been found in Brunswick, ME. So far, the infected trees have been restricted to an ornamental setting – but survey work is not yet complete. This is outside the quarantine area and the Maine Forest Service is currently exploring two options for handling this: attempted eradication of the local population of infected larch, or expansion of the quarantine area.

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. Maps and lists of quarantined towns and information about all the forestry-related quarantines in Maine can be found at our website: maineforestservice.gov/idmquar.htm. Thank you for your continued cooperation in keeping these forest pests and diseases contained.

BPC's New 25 Foot Buffer to Surface Water Becomes Effective May 1st

After over a year of debate and dialog, the Board of Pesticide Control has adopted – and the legislature has upheld – a new 25-foot mandatory setback to surface water for terrestrial broadcast application of pesticides. The rule goes into effect on May 1, 2008. Spot and directed treatments are still allowed within the 25-foot setback. In addition, applicators that can demonstrate a need for broadcast spraying within the 25-foot zone may apply for a variance permit from the Board.

State and national water monitoring data support the need for additional safeguards against pesticide runoff. For instance, exhaustive national sampling by the U.S. Geological Survey showed that streams draining urban areas had detectable levels of one or more pesticides 97% of the time. Pesticides were detected in streams draining urban areas at concentrations high enough to be toxic to aquatic organisms 70% of the time. Even streams in undeveloped watersheds had one or more detectable pesticides 33% of the time and concentrations toxic to aquatic organisms 13% of the time.

For a copy of the new rule and/or additional information, go to the BPC website at www.thinkfirstspraylast.org or call 287-2731.

Restrictions for Browntail Moth Control Applications Near Marine Waters Made Permanent

The BPC is making permanent rules restricting where, how and what may be used to control Browntail moth in order to provide protection for lobsters from pesticides. These rules have been in effect for the past two years.

Early Season Guide to Pest Management

The following table should assist you in the early season planning process. **Remember that this is just a guide** and that conditions will vary. Information on any entry preceded by an * may be available on our website or can be requested by calling or writing to the Insect and Disease Laboratory, 50 Hospital Street, Augusta, Maine 04330-6514, Phone (207) 287-2431, Fax (207) 287-2432.

Insect or Disease	Cultural Controls	Chemical Controls
Apple Scab	Remove any fallen leaves not raked last autumn; plant resistant crabapples such as 'Adams', 'Baskatong', 'Beverly', 'Bob White', 'David', 'Dolgo', 'Donald Wyman', 'Liset', 'Red Jewel' and 'Sugartyme'. Other varieties of apple that are resistant to scab include Liberty, Pristine, Jonafree, Freedom, Redfree, Crimson, Enterprise, and William's Pride.	Propiconazole (Banner) or Thiophanate methyl (Cleary's 3336) or Chlorothalonil (Daconil, Ortho multi purpose fungicide) or Mancozeb (Dithane, Fore, Protect, Zyban) every ten days during wet weather. Captan, Manzate, and Polyram are also effective.
*Balsam Gall Midge		Diazinon or chlorpyrifos (Lorsban**) late May to early June.
*Balsam Shootboring Sawfly		Lorsban 4E** or Diazinon AG500 3 times at 5 day intervals during the 2 weeks following the observation of activity of adults (mid-late April) or in the two weeks prior to normal balsam twig aphid spray dates.
*Balsam Twig Aphid		Diazinon** or chlorpyrifos (Lorsban**) at bud break.
*Birch Casebearer		Malathion or carbaryl (Sevin) applied after most or all of the cases have moved to opening buds.
Black Knot of peach, plum, and cherry	Prune and destroy knotted twigs and branches.	Thiophanate methyl (Cleary's 3336 or Fungo Flo) when dormant and twice again at three week intervals.
*Browntail Moth	Clipping of overwintering webs is only effective prior to the time larvae beginning actively feeding on emerging foliage (mid to late April).	The use of pesticides is a complex issue requiring professional assistance and there are restrictions on treating near water. Call for more information.
*Bruce Spanworm		Emerges early as buds begin to swell on northern hardwoods, especially beech. Larvae bore into buds. Controls not usually recommended.
Cyclaneusma Needle Cast of Scotch pine	Use disease free planting stock; remove non crop Scotch pines from area.	Chlorothalonil (Bravo) prior to bud break and during wet periods throughout growing season.
Dogwood Anthracnose	Remove any fallen leaves not raked last autumn; fertilize trees; prune out dead twigs and suckers; plant Chinese or Japanese dogwood instead of native flowering dogwood.	Chlorothalonil (Daconil 2787), or Thiophanate methyl (Cleary's 3336, Fungo Flo, Zyban) or Propiconazole (Banner) or Mancozeb (Dithane, Fore, Protect) at bud break and again three times at three week intervals.
Dutch Elm Disease	Plant disease resistant elms; eliminate all potential beetle breeding elm material within 700 feet of trees to be protected.	Onyx (bifenthrin) or chlorpyrifos (Lorsban**) for beetle vector control on the lower 9' of trunk.
*Eastern Tent Caterpillar	Prune out egg masses on twigs prior to hatch; remove and destroy small tents as they develop (late April-early May)	Acephate, carbaryl (Sevin), cyfluthrin or <i>Bt</i> on warm days when larvae leave tents to feed.
*Fall Cankerworm		Acephate (Orthene), <i>Bt.</i> , carbaryl (Sevin), cyfluthrin applied while larvae are small (late May-early June on boxelder in Aroostook County). Early to mid May on elm and oak in southern Maine.
*Gypsy Moth	Scrape egg clusters from tree boles and larger branches into a container and destroy them. Complete before egg hatch (late April).	Acephate (Orthene), <i>Bt</i> , carbaryl (Sevin), cyfluthrin, or diflubenzuron (Dimilin**) when larvae are actively feeding (early June).
Hawthorn Leaf Spot Mt. Ash Leaf Spot	Remove any fallen leaves not raked last autumn; plant resistant sorts such as <i>Crataegus crus-galli</i> .	Thiophanate methyl (Cleary's 3336, Fungo Flo) or Chlorothalonil (Daconil) or Mancozeb (Dithane, Fore) as leaves unfold at two week intervals until dry weather.

Insect or Disease	Cultural Controls	Chemical Controls
*Hemlock Woolly Adelgid	Watch for signs of infestation and report immediately.	Call for information.
Horse Chestnut Leaf Blotch	Remove any fallen leaves not raked last autumn.	Thiophanate methyl (Cleary's 3336, Fungo Flo) or Chlorothalonil (Daconil 2787) at bud break and twice more at 14 day intervals.
*Larch Casebearer		Carbaryl (Sevin), or cyfluthrin (Tempo) applied after most cases have moved to the expanding needle clusters (late April to early May).
Maple Anthracnose	Remove any fallen leaves not raked last autumn.	Thiophanate methyl (Cleary's 3336 or Fungo Flo) at bud break and twice again at 10-14 day intervals.
Peach Leaf Curl		Chlorothalonil (Bravo) or Ferbam (Carbamate) or Ziram applied as full coverage spray when trees are dormant.
*Pear Thrips		Controls and timing not well understood. Thrips are active on expanding maple.
Pine-Pine Gall Rust of jack and Scotch pine	Prune rust galls from lightly infected trees; rogue heavily infected trees from plantations before May 1. Use disease free planting stock.	None at this time.
Rhabdocline Needle Cast Swiss Needle Cast of Douglas Fir	Rogue severely infected trees from plantations before May 1.	None at this time.
*Satin Moth		Treat infested poplars and willow in mid to late May with <i>Bt</i> , carbaryl (Sevin) or cyfluthrin.
Sphaeropsis Shoot Blight of two and three needle pines	Use disease free planting stock; remove non crop tree hard pines from area.	Chlorothalonil (Bravo) at bud break and when shoots are half grown.
*Spruce Gall Adelgids	Prune off and destroy new developing galls in mid to late June.	Treat infested trees just prior to bud break with dormant oil, carbaryl (Sevin) chlorpyrifos (Lorsban**) or imidacloprid (Merit). Controls can also be applied in the fall.
*Ticks	Watch for ticks throughout the field season (April-November). Avoid high risk areas if possible, inspect yourself daily and remove ticks and use repellents as directed.	Compounds containing DEET can be used as repellents. Those containing the toxicant permethrin can be used on clothing as directed.
*Viburnum Leaf Beetle	Where possible, prune off any twigs with scabby, egg-filled holes prior to May 1st.	Watch in mid - late May)- for developing larvae and treat with acephate (Orthene), carbaryl (Sevin), or chlorpyrifos (Lorsban**).
*White Pine Blister Rust	Prune cankered lateral branches from trees and excise stem cankers by removing bark at least four inches above and below and two inches either side of discolored bark.	None at this time.
*White Pine Weevil	Refrain from planting white pine or spruce for reforestation in open areas, on heavy clay soils, or on heavily sodded fields. Correctively prune damaged trees to establish new leaders.	Apply control in the spring once there have been several days above 60 degrees Fahrenheit. Use Pyrenone Crop Spray, Astro, Onyx, Talstar or Dibrom 8 at 14-20 day intervals until June. <u>Commercial Forest and Christmas Tree Plantations: Dimilin** or Lorsban**.</u>

***NOTE:** These recommendations are not a substitute for pesticide labeling. Read the label before applying any pesticide. Pesticide recommendations are contingent on continued EPA and Maine Board of Pesticides Control registration and are subject to change.

Caution : For your own protection and that of the environment, apply the pesticide only in strict accordance with label directions and precautions.

**Restricted-use pesticide may be purchased and used only by certified applicators.

Insects

***Balsam Gall Midge** (*Paradiplosis tumifex*) - Balsam gall midge populations are still light but Christmas tree growers should still be on the lookout for it. In mid to late May 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 number (late May to early June) as the new needles flare and begin to flatten.

***Balsam Shootboring Sawfly** (*Pleroneura brunneicornis*) - This sawfly is usually less abundant in odd numbered years and we did not have any reports of outbreaks last year. Adults are active at the end of April flying around the fir trees.

***Balsam Twig Aphid** (*Mindarus abietinus*) - 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 will build up.

***Browntail Moth** (*Euproctis chrysorrhoea*) - The population of browntail moth is low in much of Casco Bay but it is not gone. Winter web surveys detected areas of Bowdoinham, West Bath and Topsham in particular with numbers high enough to cause problems this year. The webs in these areas are high in the oak trees for the most part. Brunswick, Bath, and Freeport have fewer webs but the pesky critters are still there in oak and apple trees. Webs were also found in isolated locations in Harpswell, Georgetown and Portland mostly in apples.

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 water. Be sure to check on the current Board of Pesticide Control regulations before treatment.

***Eastern Tent Caterpillar** (*Malacosoma americanum*) - Most early spring defoliator populations have been relatively low in recent years. We may continue another year with that trend. Check your crabapple and cherry trees for the webs in the branch crotches and remove the webs and caterpillars before they get too big.

***Fall Cankerworm** (*Alsophila pometaria*) - Kennebunk and Wells had a significant amount of defoliation (13,400 acres) caused by fall cankerworm last year. The infestation should continue this year. Look for tiny caterpillars feeding on emerging foliage in late April to early May. Cankerworms feed on a variety of hardwoods and shrubs, especially oak, elm and apple. Control applied early is more effective than waiting until most of the foliage has been eaten.

***Forest Tent Caterpillar** (*Malacosoma disstria*) - Small pockets of defoliation showed up in Aroostook County last summer and moth catches around the state were up somewhat as well. The caterpillars hatch around budbreak and feed on newly emerging leaves. They do not make webs like the eastern tent caterpillars and tend to initially feed higher in the trees. This is an insect to watch for in 2008.

***Gypsy Moth (*Lymantria dispar*)** – Egg mass surveys conducted this fall and winter indicate that gypsy moth populations remain at low levels. In the August 2007 issue of this bulletin we reported that gypsy moth egg masses, females and adults collected from on and around blue spruce trees damaged by gypsy moth had been submitted for genetics testing to the APHIS lab in Massachusetts. The lab results indicate that the samples were likely the European strain of gypsy moth, and not the Asian strain (which is currently not known from Maine, and which has an appetite for conifers). This is good news.

***Hemlock Woolly Adelgid (*Adelges tsugae*)** – Recent analysis of temperature and hemlock woolly adelgid mortality data conducted by the University of Massachusetts indicates that in order to maintain hemlock woolly adelgid populations at static levels, overwintering mortality must be around 91%. In order to reach that level of mortality or more (where populations decrease), temperatures from December through March must meet one of the following conditions:

	Mean temperature	Number of days with the daily minimum temperature below 14°F	Absolute low temperature
Conditions needed for HWA population to remain constant or decrease	23°F or lower	At least 79 days	-31°F or lower
Conditions on Mtn. Rd., York, ME Winter 2007-08	28°F	24 days	-0.5°F

Temperatures in the infested area did not meet or exceed any of these thresholds. Continued population expansions are expected in 2008. If you suspect you have found hemlock woolly adelgid, please report your findings to the Lab.

***White Pine Weevil (*Pissodes strobi*)** - Control of white pine weevil should be under way by the time you receive this publication in southern parts of the State. The adults lay eggs and 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 chemical control recommendations listed above.

Winter Moth (*Operophtera brumata*) - This insect has caused significant damage in Massachusetts in recent years and has been in Nova Scotia for decades. Winter moth males have been trapped along the coast of Maine during surveys over the past three years but no females or larvae have been found to date. We will continue to check for winter moth populations especially in southern Maine.

Diseases and Injuries

Winter Injury – It is expected that most trees and other woody plants have survived very well over the past winter. Although the early spring has been slightly colder than average, temperatures throughout the mid-winter season remained relatively mild. Fewer than the

average number of below-zero days also seemed the rule for most regions. The early and continuous deep snow cover protected the ground. The lack of deep freezing of soil (in some areas, no soil freezing at all) meant that soil moisture was available throughout the winter season. Conifers, susceptible to winter drying from winds, were able to replenish lost moisture readily. As a result, there should be very little winter desiccation damage observed this spring. Also, due to the heavy snow cover and slow spring melt, soil moisture reserves will be more than adequate to meet the early-season requirements for bud flushing and new growth.

Salt Damage – While the heavy snow cover protected roots and re-supplied soil moisture this winter, the frequent snowstorms resulted in a record year for use of roadside deicing salts. Roads required treatment in over twenty separate storms in most areas of the state. Some northern towns required treatment even more often. Symptoms of salt damage to roadside conifers are now quite evident. Browning of foliage, usually foliage on the lower portions of the crown, is typical. Conifers growing at roadsides and close enough to be affected by wind-blown salt spray from passing traffic are usually most severely affected. However, conifers away from the road, but affected by drainage ditches and runoff from the roads, can also be damaged because salt contaminated water is taken up by the roots. It is important to remember that hardwoods are also affected by road run-off with high concentrations of salt. Symptoms for hardwoods are more difficult to detect, and appear long after the damage has been done. Roadside sugar maples, perhaps the most well documented species susceptible to salt injury, are especially sensitive, and can develop a chronic decline.

Most affected conifer trees will recover as the season progresses, with new green growth masking the presently brown needles, many of which will fall prematurely as the season progresses. For woody ornamentals in sensitive areas, ensuring proper drainage that carries road run-off away from plantings is essential.

White Pine Blister Rust (*Cronartium ribicola*) - Early spring is the optimum time to survey white pine stands to find currant and gooseberry plants (*Ribes* species). These plants act as an obligate alternate host for the fungus that causes white pine blister rust. This very damaging disease can affect white pines of any size or age, but has its most damaging consequences in young regeneration and in sapling to pole-sized timber. By uprooting or treating the *Ribes* with herbicides, subsequent infection of white pine can be prevented. Most common species of *Ribes* in Maine are among the very first woody plants to break bud and “green up” in the spring, (by mid-to late April in southern Maine), making them easily visible in woods and brush thickets where they grow.

Control need not be done this early in the season, but identification of individual *Ribes* plants, or concentrations of plants, is much easier now than later in the season, when all other plants are in full leaf. For specifics of the white pine blister rust disease, and of the current quarantine regulations affecting *Ribes* species, please call or write the Insect and Disease Lab, or check the MFS, Forest Health and Monitoring website (www.state.me.us/doc/mfs/idmhome.htm).

Needlecast of Spruce (*Rhizosphaera kalkhoffii*) - For the past three years, *Rhizosphaera* needlecast on white and blue spruces has been widespread and very damaging to ornamentals throughout Maine. Because needles that turn brown and die have been infected during the

previous season, it is often not recognized until it is too late for effective prevention with a fungicide.

It is suggested that if ornamental trees have been heavily infected for the past two or three years, a fungicide application this spring will be a prudent action to take. If branch tips are holding only one year's worth of green needles, and if most needle loss is in the lower one-third of the live crown, then it is likely that infection by this needlecast has occurred. Fungicides (chlorothalonil [Daconil], copper hydroxide [Kocide 2000], or mancozeb [Protect T/O]) should be applied when new needles are about 0.5 inches long (about late May to early June for mid-Maine locations), and again ten days to two weeks later, for full protection. Many homeowners will prefer to use resistant varieties of spruce rather than using fungicides. Norway spruce is among those exhibiting resistance. Another alternative for border plantings damaged by this needle cast disease is planting another evergreen hedge (not spruce) in front of the infected border trees.

Conditions Report No. 1, 2008
Maine Forest Service
Forest Health and Monitoring Division