



Branching Out

Forest Tent Caterpillar

Many counties in Kentucky have experienced outbreaks of Forest Tent Caterpillars (FTC) over the last several years. Counties along the Ohio River from Ashland to Louisville have been particularly hard hit. The result of this outbreak is many dead or dying maple and oak.

This black caterpillar with distinctive whitish colored, key hole-shaped markings on its back and faint blue lines on its sides emerges from egg masses in the spring and often causes total defoliation of the tree.

High populations of FTC over a three or more year period can stress a tree to the point of death. Prolonged, annual outbreaks combined with a lack of ground moisture are the apparent causes of the tree mortality that is occurring along the Ohio River. Trees that are not dead, but have suffered years of defoliation show a marked decrease in leaf size, dieback of branches, and reduced vigor. Trunk diameter growth may be reduced by as much as 90%.

FTC outbreaks can last as long as three to four years in northern areas and up to nine years in southern areas. The time between outbreak cycles typically is eight to 13 years. Outbreaks occur when the FTC populations build over a period of years to the point that natural enemies cannot keep the population in check.

Control options are limited. Insecticides, including Bt (*Bacillus thuringiensis* var. *kurstaki*) products, can be used on small tree stands with appropriate application equipment. Homeowners should check with their local county extension office for specific chemical options.

Forestland owners who think they might have a problem with FTC should contact their local Division of Forestry office listed below and request assistance.

BLUEGRASS DISTRICT OFFICE
P.O. Box 516, Frankfort, Kentucky 40602
502-573-1085 1-800-866-0876



Environmental and Public Protection Cabinet



FTC larvae with white keyhole-shaped markings on back



FTC egg masses on twigs.



Trees defoliated by FTC.



UK COOPERATIVE EXTENSION SERVICE University of Kentucky – College of Agriculture

TREE WALK at the Campbell County Environmental Education Center
Saturday, July 22—10:00 a.m.

Space is limited. Pre-registration is required by calling (859) 572-2600.

Target audience: Adults (due to the nature of the program)

Come learn to identify native and introduced trees. All participants will receive "A Guide to the Trees of the Campbell County Environmental Education Center." **Sponsored by the Campbell County Cooperative Extension Service.**

*** Call for more information and for directions. ***

Hemlock Woolly Adelgid—Status Report: May 2, 2006

By Tim McClure, Forest Health Environmental Scientist, Kentucky Division of Forestry

Current Situation:

The Hemlock Woolly Adelgid (*Adelges tsugae*), HWA, was found in Harlan County in March 2006. To date, this is the only confirmed infestation, however, it is believed that there are other sites within the area, which haven't been found yet.

The HWA is an aphid-like insect with six life stages; egg, nymph (4 instars) and adult. It feeds on eastern hemlock (*Tsuga canadensis*). There are two generations per year; one generation lives from early summer through the winter and the other lives in the late spring through summer. The insect produces a white-woolly filamentous covering that is easily seen on the winter generation. The summer generation produces little of this covering and is not easily seen except with a hand lens. HWA is found at the base of the needle on the underside of the branch.

Scouting is best performed from October through late spring as the woolly masses are easily seen with the naked eye on the undersides of the branches. The winter generation is active during the winter, whereas the summer generation is semi-dormant in the heat of the summer.

HWA is spread by wind, birds, animals and humans.

Control Options:

. Horticultural oils and insecticidal soaps work well if the tree is

totally saturated to ensure thorough coverage. Repeated or annual application may be needed.

. Systemic insecticides are longer lasting than the above and can be applied as a soil injection, trunk injection or soil drench. The soil injection method is preferred as it is placed in the root zone. Allow 30-90 days for uptake of the chemical. Read the label for information on soil moisture levels. It may be necessary to irrigate the soil after injection or drenching during dry conditions.

. Cultural practices such as removing infested limbs are beneficial if

the infestation is limited to one or two branches. Also, advise clients to place bird feeders and waterers away from hemlock trees.

. Biological control options presently include two predator beetles.

This is thought to be the most promising method of control in forested situations, however, there are only four labs producing the beetles and it is unlikely that in the short-term, these beetles will be available to the general public.

Action to Date:

The infested site was treated with imidacloprid, a systemic insecticide, used as a soil injection. A follow up treatment of insecticidal soap was performed to eliminate the crawlers until the systemic insecticide can be taken up by the tree.

The soil injector used was made by Kioritz and is a model HF-4B. It holds about a gallon of insecticide and costs approximately \$325. It may be feasible for an extension office to purchase and loan-out an injector to the public since imidacloprid is a non-restricted use pesticide. There are environmental restrictions on the use of this pesticide, especially around water. Clients need to read the pesticide label before application.

Proposed Actions:

. Educate the public, public lands workers, and interested civic groups on HWA and get them to scout their land as well as any public lands they may walk. Educational outreach includes meetings at extension offices, newspaper articles, radio, television, etc.

. Report any confirmed infestations to Office of State Entomologist (UK, attention Carl Harper or Joe Collins) and Kentucky Division of Forestry (800-866-0555) attention Tim McClure.

. Advise clients of control options and advise them to read the pesticide label. Imidacloprid costs about 65 cents per inch of tree caliper to use. Therefore it is only recommended that trees be infested before any treatment is employed.

. Have landowners prioritize their hemlock and treat those trees that

rate a high priority due to location, age, etc. on their property for treatment purposes.

Outlook:

As HWA moves into Kentucky it is reasonable to expect that many hemlock trees will die over the next ten years. It is logistically impossible to treat most of the hemlock. Generally, there is >80% mortality rate in the areas of the country infested with HWA.

On the positive side, Kentucky's hemlock trees grow in clumps not in contiguous acres as in some other states. Therefore, this "clump population" may hinder quick movement of HWA in Kentucky.

Homeowners will be able to use one of the control options to treat hemlock in a landscape situation where equipment access is feasible, especially for horticultural oils and insecticidal soap application. The cost of imidacloprid will preclude wide spread use of a systemic insecticide. Therefore it is economically feasible to treat only high priority trees, especially with a systemic insecticide.

Eventually, it is hoped that the use of biological controls will keep the spread and destruction of HWA to a manageable threshold.

How the loss of hemlock along streams will affect trout and other cold water organisms is unknown. Also, the effects on wildlife, that use hemlock as habitat, is unknown.

Trees and Drought

Source: *Forest Resources Extension, Pennsylvania State University, 2006*

Adequate water is crucial for tree growth. Water is one of the main elements involved in photosynthesis. Without water trees cannot produce enough food to fuel growth. Drought impacts the leaves' ability to produce food, the roots' ability to grow and function, and the plant's ability to move food, hormones, and other elements around. The main problems associated with longer periods of drought (weeks and months) are poor and stunted growth. Ultimately, lack of water will lead to death either by desiccation and starvation, or secondary problems such as a soil fungus. Some trees (e.g., beech and dogwood) are more sensitive to drought than others (e.g., gingergko and redbud).

Symptoms of drought include wilting of leaves for a number of days (especially those exposed to afternoon sun and wind). All trees leaves can wilt on especially hot days, but they should recover quickly in the evening. Ultimately, long-term drought will cause browning of leaves, loss of leaves, early fall coloring, poor and stunted growth,

and death. Interestingly, the symptoms of overwatering are the same as drought due to the negative impacts too much water has on root growth and function.

Treating drought is not just about applying water. There is more to consider:

1) Treat any cultural problems such as soil compaction, soil fill, deicing salts, weeds and turf, and root damage.

2) To slow evaporation of water and control weeds and grasses, mulch as much area under the canopy as possible with 2- 3 inches of composted mulch. Keep mulch a few inches away from the tree trunk. Instead of mulching, protect the natural leaf litter – it serves a similar function.

3) Apply moderate amounts of water slowly and deeply so that water supports good plant growth, but does not exclude oxygen from the soil. There is no absolute rule on how much water to give trees. The need for irrigation is affected by tree species and size, soil/site conditions, and weather. Trees, young or old, need water to penetrate from 24 to 36 inches

into the soil. Soil must be allowed to dry between watering. Newly planted trees should be watered every four days or so during hot, dry weather. This means applying about 10 gallons deeply through soaking. Two rules of thumb for older trees are: 700 gallons of water per 1000 square feet of tree canopy and 20 gallons per inch of diameter.

In both rules water is applied deeply and slowly through soaking. These are huge amounts of water, and in most cases it is not possible to irrigate large areas of trees. Mature trees benefit from irrigation when they have been hurt by soil compaction or root damage, or are especially valuable.

Periods of drought are to be expected and seasonal water stress is part of our growing season. But, newly planted trees must be irrigated; root growth and food manufacturing stops, or is greatly lessened, in dry soils. Two actions that will absolutely NOT HELP in drought are fertilization and pruning. Do not do these!

The Power of Observation—A Good Tool for Planting

Tom Davis, Covington Urban Forester and ISA Certified Arborist (OH-0023)

Why is there so much mystery surrounding the opportunity to make the right choices when it comes to planting trees or any plant for that matter? People will comment about someone who is successful by stating that person has a "Green Thumb." Folks who practice common sense are more apt to achieve this realm of "Botanic Sainthood." They may look at how plants grow in nature by sprouting right on top of the soil and growing roots right along the top soil horizon. Perhaps they also realize that in nature forests seem to have a lot of decaying leaves lying right on top of the ground, and some of that humus is a part of the soil.

When you think about seed production, nature has had millions of years to get it right by trial and error at very little expense. But when it comes to spending a couple of hundred of dollars for nursery stock, no one

likes to make mistakes and watch a planted tree die or worse, linger for several years looking like a "Charlie Brown" shade tree in their front yard.

So what powers of observation do you need to reach the status of a "Green Thumb?" First, it starts with the fact that we don't manipulate the power of nature. Simply put, the ability to understand and appreciate how nature works will give you the insight to replicating it. After all, isn't our intention to recreate environments in which we experience a sense of something? Through the powers of our senses we experience color, texture, smell, movement, contrast, the sounds of birds and insects, breezes through "Whispering Pines" or water in a "Babbling Brook" or fountain. The components of an environment are in essence the environment

itself, and without them you have not created it.

So when you plant that "Red Sunset" Red Maple in the subsoil of your soil-compacted front yard, have you put together the necessary components for success? If not, should you expect any results other than the ones you receive? Red Maples grow natively in flood plains where they have loose grainy soil and frequent opportunity for hydration. How does this environment correlate to one in which you have subjected it?

Plants are survivors, but there are limits to everything. Do your homework researching the plant and where it grows best. If it has special needs, like real soil or drainage, give it what it needs to be the best it can be.

NORTHERN KENTUCKY URBAN & COMMUNITY FORESTRY COUNCIL

c/o Boone County Extension Service
P.O. Box 876
Burlington, KY 41005

Phone: 859-572-2600

Creating an awareness about the value of urban forestry in Northern Kentucky Communities.

We're on the web!

www.nkyurbanforestry.org

Will Your Trees Survive This Hurricane Season?

International Society of Arboriculture

With hurricane season just around the corner you need to know if your trees will be safe from the possible wrath of Mother Nature. Thousands of trees and communities are at risk for damage by heavy rains and wind which can cause trees to crack, split, and even uproot, which can lead to further property damage and power outages. You may be able to prevent further property damage during a storm, and enable your trees to recover by following a few practical suggestions from the International Society of Arboriculture (ISA).

Pre Storm Preparation:

Look for potential Hazards- Investigate the condition of your trees. You or an ISA Certified Arborist should look for damage such as cracks in the trunk or major limbs; hollow, aged, and decayed trees; hanging branches; improperly formed branches; one-sided or significantly leaning trees; and branches that may potentially rub the house or fall on utility lines. Depending on the existing problem, a Certified Arborist should be consulted to either remove the

tree or to prune potentially hazardous branches.

Recognizing and reducing tree hazards not only increases the safety of your property and that of your neighbors, but also improves the tree's health and may increase its longevity and chance of survival," says Jim Skiera, ISA's Executive Director.

Know your tree species- Some species are more prone to storm damage. You should have a Certified Arborist evaluate your trees for hardiness and resilience. Being aware of which trees may succumb to harsh weather conditions will help you decide if you want to replace these potentially dangerous species.

Do not top your trees- Untrained individuals may urge you to cut back all of the branches, on the mistaken assumption that it will help avoid breakage in future storms. However, professional arborists say that "topping," the cutting of main branches back to stubs, is extremely harmful and unhealthy for your trees. The stubs often produce many weakly at-

tached branches that are higher and are more likely to break when a storm strikes. Also, topping will reduce the amount of foliage on which the tree depends for the food and nourishment needed for re-growth. A topped tree that has already sustained major storm damage is more likely to die than repair itself.

Protect your assets- Trees may increase property value by up to 20%. Find out if your homeowner's insurance will cover any damage your landscape may sustain due to unnatural causes, and include the total value of your trees when listing your assets for coverage. A Certified Arborist who has experience with appraisals can provide an estimated value by inspecting your trees. Be sure to document the value of potential loss with photos of the trees and the evaluation by the arborist. Improper tree care can lead to premature death, dangerous and weak structures, exposure to disease, and worse it may cause unnecessary property damage. Hiring an ISA certified arborist who can assist you with pre-storm inspections and post-storm repairs can help avoid unnecessary loss of your trees.