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THE INSPECTOR'S FORTE:
 To Make Professionalism a Part of Every
 Effort.

Editor's Note

I hope that all is well so far this season. How has the weather been treating you? Here in Kentucky we are gearing up for the nursery inspection season. Please send me information, photos of things that you want to put in the newsletter. I have email and I would love to have the information. The Eastern Chapter of the HIS met March 29 - April 2, 1999. At press time, no information was available about the meeting. Hopefully, the following newsletter will have some information of what happened. I will contact Bob Trumble of Maryland for some information.

What do you think about having a committee for the manuals? At this moment no one knows what or how the manuals are made and I think it might be a good idea. I also think there should be a membership committee that could work on a directory of members. Wouldn't it be great to have email addresses to pass info around. The committee could then send a report and have it put in the newsletter so that all knows what is going on and who is involved. We need to work together as much as we can.

Daylily Insect Control--To spray or not to spray?

Winston Dunwell, Extension Horticulturist, Kentucky

I originally wrote this in 1995 as a guide to the Daylily Evaluation Program at the UKREC, Princeton. From there I shared the thoughts found below with several daylily groups (Tepal Times Vol 7(2):2). I see no reason to change the general theme that we all should grow daylilies resistant or at least tolerant of disease and insect pests.

My interest in daylilies started a number of years ago as many people in the Kentucky nursery industry had daylily collections (Lee Squires, John Korfhage, Hugo Davis, Mitch Leichhardt, and others). I visited Mitch Leichhardt and Casey

Editor Motto: There is no information too trivial!

and Cindy Schott at Leichhardt's and Casey gave me a few fans to spruce up the entrance to the UKREC. Unfortunately, the crew that planted them threw all the labels away. I went back to Casey and Cindy of Schott Gardens and they gave us several daylily cultivars and we planted them and that started it all. We now have about 125 cultivars and are hoping to add more (and remove some). Our collection is for plant characteristic evaluation. Currently, we evaluate for landscape/garden success, so if "Dragon Lore" one of my favorite dark colored daylilies loses its bloom color and bleaches out due to thrip damage we don't worry about it, the damage doesn't always happen.

Originally, I assumed there wasn't any serious pests to worry about and I still believe from a landscape gardener aspect there should not be a requirement for extraordinary pest management other than providing a reasonable environment and selecting the appropriate cultivar. The difficulty arises for hybridizers. It is easy for me to say "that cultivar did not survive, the thrips, aphids, or crown rot got it and good riddance", but if a particularly beautiful plant is developed that has a known pest susceptibility is to be maintained as part of the breeding stock some sort of pest control may be required.

Of course, Bill Munson devoted the whole preface of his book, *Hemerocallis: The Daylily*, 1989, to the presentation of a problem "--daylilies were what I would describe as plain, but consistent, dependable and hardy--- But regrettably it is not as dependable as it once was and is indeed beginning to be fraught with infirmities---" to cure the problem he claims there shouldn't be any susceptibility in any of the breeding lines and we essentially need to work only with strong healthy plants. His final statement in his two page preface states "If we lose our heritage of health and vigor all the beauty that has been achieved will be for naught".

I know of no way to disagree with his discussion. In the Spring 1995 issue of *The Daylily Journal* (Vol. 50, No.1, p. 81) well known hybridizer Grace Stamille wrote to Lana Ross "Have you tried the use of natural predators to eat your thrips? If you can get a healthy population going of Minute Pirate bug (*Orius insidiosus*) or the equivalent in your area, you would not need to spray anymore. They eat aphids and thrips. We also use a predatory mite (*Phytoseiulus persimilis*) to control spider mite should they come our way. We have not sprayed at all since we've been here in Florida. None of the Convention Gardens use insecticides. We followed Bill Munson's lead of many years ago when he gave up spraying and let the beneficials in the area build up----."

Are thrips more of a problem for the hybridizer/daylily collector because of pest pressure due to what often becomes a monoculture of daylilies? I would suspect so, but considering the comments of highly respected hybridizers and the fact that the development of a Best Management Plan for the growing of daylilies would probably include natural selection of pest resistant cultivars would indicate that pesticide-free production practices may be the only acceptable way to grow Daylilies in order to ensure continued consumer interest.

Dogwood Anthracnose of Flowering Dogwood

David Johnson, Missouri Department of Agriculture

Dogwood anthracnose, caused by the fungus, *Discula destructiva*, is a new disease of dogwood in North America. Flowering dogwood and Pacific dogwood, *Cornus florida* and *C. nuttallii*, respectively, are the only native *Cornus* spp. currently observed to be naturally infected by *D. destructiva*. However, natural infections have been found on Japanese dogwood, *C. kousa*, and its cultivar, *C. kousa* var. *chinensis*. The disease was first reported in Washington State in 1976 on Pacific dogwood. The disease was first reported on flowering dogwood in 1983 in New York, Connecticut, Pennsylvania, and New Jersey. The disease has spread rapidly within the native populations of these two dogwoods. It has caused serious losses to flowering dogwood in forests and landscapes over large portions of the Eastern and Southern United States. The rapid spread, widespread destruction, occurrence of disease centers near ports of entry, and genetic investigations strongly suggest that *D. destructiva* is a recently introduced exotic pathogen. Flowering dogwoods of all ages are susceptible to dogwood anthracnose. In Missouri, the disease has not yet been found on native dogwoods. It has been found in nursery stock and recently planted landscape trees whose source, when traceable, has been from out-of-state.

Symptoms and Signs of Dogwood Anthracnose

Disease symptoms begin in the lower canopy in exposed landscape plantings. Understory dogwoods have a more uniform distribution of disease symptoms throughout the canopy. Dogwood anthracnose affects leaves, bracts, current-year shoots, localized areas of bark and cambium of trunks or branches, fruits, and seeds. Symptoms can include leaf spots, leaf blotches, leaf blight, bract necrosis, twig dieback, epicormic branching (trunk shoots), cankers, branch dieback, and death. Leaf spots are irregular in size and outline and have a light brown center and a reddish to purple border. Leaf blotches are irregularly shaped, brown, and more extensive than leaf spots. The blotches may occur intermixed with the leaf spots and with or without purple margins. The spots and blotches should become evident during May and June. Leaf blight results from infection throughout the entire blade or from petiole lesions. Blighted leaves appear pale tan and often remain on the twigs into the following growing season. Girdling cankers, often at leaf nodes, result in twig dieback. Infected twigs turn tan and are covered with fruiting-bodies. Under moist conditions, the brown to black fruiting-bodies in the twig and leaf lesions exude mucilaginous, tendrill-like light colored spore masses. The spores appear to be dispersed by rain splash and possibly by insects and birds. Infection of shoots and epicormic branches leads to main branch and trunk cankers and dieback. Numerous cankers on the main trunk result in tree mortality.

Other fungal pathogens of flowering dogwood can cause very similar leaf symptoms, including purple-rimmed leaf spots, and produce similar looking fruiting-bodies within the lesions. Spot anthracnose, caused by *Elsinoe corni*, is common in early spring on flowering dogwood. This disease produces very

small, 1 to 2 mm, spots on leaves. These small spots are often numerous but are usually in clusters. Larger spots can be produced by other common flowering dogwood pathogens such as *Septoria* spp., *Ascochyta cornicola*, and *Phyllosticta cornicola*. Another anthracnose of flowering dogwood, caused by *Colletotrichum gloeosporioides*, can produce very similar foliage symptoms to those caused by *D. destructiva* and also cause dieback. *D. destructiva* has some fruiting characteristics that are very useful when performing field examinations using a 10X hand lens. The fruiting-bodies (tiny round-looking "bumps") are **very abundant on the underside of the leaf lesions** and often are **centered directly beneath appressed leaf hairs**. Few fungi found on flowering dogwood have been observed to fruit in this manner, especially to the extent that *D. destructiva* exhibits. A microscopic examination of the fruiting-bodies and spores by a qualified person would be necessary for disease confirmation.

Factors Influencing Dogwood Anthracnose Development

The disease severity of dogwood anthracnose on flowering dogwood has ranged from severely blighted and cankered trees with high mortality to trees with only a few leaf lesions and no mortality. Understory trees are generally the most severely damaged, sustaining more branch dieback and mortality, as compared to dogwoods growing in more open sites. Drought stress appears to predispose dogwoods to infection. Infection is favored by cool, wet periods typical of spring and fall weather, but can occur any time during the growing season. Evaporative potential is an index of drying potential which incorporates air temperature, vapor pressure deficit, air movement, and solar radiation. Disease severity was found to increase as the evaporative potential, which is lowest in canopies of shaded trees and at sites with north-facing slopes, decreases. In the southern Appalachian mountains, disease severity appears to be influenced by temperature and moisture which are in turn influenced by topography and distance from streams. Severity is greater at higher elevations, within 50 meters of streams, and on north facing slopes. Also in the southern Appalachian mountains, the disease severity was found to be lowest at sites where the flowering dogwood populations are the highest; the greatest severity was found on north-east facing slopes and the lowest on south-west facing slopes.

Dogwood Anthracnose Management

Dogwood anthracnose symptoms observed in Missouri on nursery stock and recently planted landscape trees have included leaf spot, leaf blotch, leaf blight, and twig blight. Trees found with dogwood anthracnose have been destroyed and nearby nursery trees quarantined and observed for symptoms. In states where dogwood anthracnose has become established, fungicides are recommended for use on landscape flowering dogwoods if disease pressure is high. The fungicides, Banner and Daconil 2787, are labeled for control of dogwood anthracnose. They should be applied beginning with leaf emergence and continued through the period of leaf

expansion and early growth. Later sprays may be needed if the summer is wet.

Identification of resistant hosts to dogwood anthracnose should be useful for the long-term management of this disease. *C. florida* seedlings with some resistance have been tentatively identified. *C. kousa* is relatively resistant. *C. kousa* var. *chinensis* appears to be less resistant than *C. kousa*. Other resistant species native to North America include *C. racemosa*, *C. canadensis*, *C. amomum*, *C. alternifolia*, and *C. mas* (gray dogwood, bunchberry, silky dogwood, pagoda dogwood, and Cornelian cherry, respectively). The *C. florida* x *C. kousa* hybrids released as the Stellar series by Rutgers University appear to have some resistance, although the level of resistance varies with the cultivar.

Environment and topography appear to be very influential with respect to the severity of dogwood anthracnose. Many of these relationships have been discovered and this information can be used for evaluating and planning the future of flowering dogwood in a particular forest or landscape situation. Preventing drought stress and reducing shade are widely recommended practices to reduce the severity of dogwood anthracnose in ornamental trees. In undisturbed areas of the southern Appalachian mountains, sites with the greatest densities of flowering dogwoods had lower disease severity. This observation demonstrates that the cultural conditions favoring the growth of dogwoods are likely as important in the control of dogwood anthracnose as are the conditions that favor the proliferation and infection of *D. destructiva*. Plant pathologists in New York anticipate the loss of flowering dogwood from marginal sites due to dogwood anthracnose. Such sites include those where tree competition for light is highest, evaporative potential is lowest, and where soils have low moisture-holding capacity increasing the potential for drought and winter injury.

Asian Longhorned Beetle

(*Anoplophora glabripennis*)

<http://www.nsn.org/regio/cbglib/Asianbeetle.html>

The Asian longhorned beetle, native to Japan, China and North Korea, traveled to this country burrowed in raw wood used in shipping and packing materials. Once in the United States and cities like Chicago, the beetles normally stay close to their host trees, although the adults can fly up to 3,000 feet. Humans provide the easiest modes of transportation for the beetles. The beetle can hitch a ride on vehicles moving through infested areas or be spread in infected firewood or tree litter.

Identifying the Pest

Adult beetles are very large, with 1- to 1 1/2-inch long bodies and 1 1/2- to 4-inch antennae. Their bodies are black with white spots, and their antennae are black and white. The best time to spot the adult beetles is from May to October.

During the warm months of summer, the adults lay their eggs under the bark. This process leaves an oval to round darkened wound on the trunk of the tree.

The larva (immature stage) of the beetle burrows into the heart of the tree and feeds. When it matures into an adult, it exits through a 3/8-inch hole. The holes will be scattered anywhere on the tree's trunk, branches and exposed roots. Sawdust found at the base of trees or where branches meet the main trunk can also signal an infestation.

Combating the Beetles

There is no efficient biological or effective chemical control of the beetle. The only proven method is to cut and burn all infested trees. The USDA has quarantined the affected areas near Chicago. The quarantine bans the transportation of all logs, lumber and other raw wood products from the infested area without a special permit. It also places restrictions on tree trimming in the affected areas. Violations can carry a \$500 fine.

Plant selection is crucial when combating the beetles. Potentially resistant trees include oaks, honey locusts, Kentucky coffee trees and lindens. Planting a variety of resistant species is the best method of avoiding future infestations.

The beetle prefers the softer hardwood trees that are easier to bore into. Listed below are trees that have been attacked.

Ash (European, green & white)	Norway maple
Black locust	Pear
Box elder	Plum
Chinese elm	Silver maple
Corkscrew willow	Sugar maple
Horse chestnut	Sycamore maple
Hybrid poplar	Weeping willow
Lombardy poplar	White mulberry

Import Restrictions

On September 11, 1998, at a press conference held by Mayor Richard M. Daley, Senator Carol Moseley-Braun and Secretary of Agriculture Dan Glickman, it was announced that in 90 days the United States would no longer accept imports from China packed in untreated wooden packing materials. Mr. Glickman stated, "This is a health and safety issue and not a trade issue."

The ban on untreated wood packing materials is critical in controlling the beetle's entry into the country. Because of limited numbers of USDA inspectors, the USDA is able to do only spot inspections, Glickman said. In the past, China's use of wood from infected trees to make pallets and other packing materials makes it highly likely that these materials have been exposed to the Asian longhorned beetle. The goal of the current ban on untreated wood is to protect the United States from future infestations of the beetle.

Control Methods

Scientists have been busy researching control methods since the 1996 outbreak in New York. American scientists recently returned from China with some optimistic results. Researchers had isolated chemical compounds produced by the Asian

Horticultural Inspection Society

longhorned beetles that they believed would attract other beetles and could be used in traps. While two compounds showed potential as an attractant, one chemical compound acted as a deterrent. In the future, researchers may be able to use traps to collect beetles in infested areas and use deterrents to repel the beetle in areas at risk to attack. The USDA is continuing its research and will aggressively test new possibilities.

More Information and Updates

For more information about the Asian longhorned beetle and its attack on Chicago neighborhoods, search the following web sites.

<http://willow.ncfes.umn.edu/asianbeetle/beetle.htm>

This site is managed by the North Central Experiment Station of the USDA. It contains current information about the infestation and links to related sites.

<http://www.aphis.usda.gov/ppq/bbnpag.html>

This site is produced by the USDA Animal and Plant Health Inspection Service. It includes information about detection, the beetle's life cycle, control methods, environmental impact, and references.

<http://www.agr.state.il.us/>

This site is updated regularly and provides links to press releases about the beetle as well as other publications from the Illinois Department of Agriculture.

<http://www.ag.ohio-state.edu/~natres/341/engel/index.html>

This site includes the management plan used by the State of New York during the 1996 infestation and a reference list.

<http://www.news.cornell.edu/science/Sept96/beetle.bpf.html>

This site includes several photos and background information. This site includes an e-mail address to write for more information and links to Cornell University's news service.

<http://chicagotribune.com/>

This site provides news as printed in the *Chicago Tribune* about the beetle. Simply search the archives using the key words Asian longhorned beetle.

<http://www.suntimes.com/index/newsfront.html>

This site provides news as printed in the *Chicago Sun-Times* about the beetle. Search in the categories "Current News" or "News in the Past Seven Days" for recent information about the beetle.

-Chicago Botanic Garden Plant Information

Tell me More About the Gypsy Moth: Frequently Asked Questions

VPI web site

Editor's note: I don't know how many know about or how involved you are with the gypsy moth. So this is a generic FAQ about the gypsy moth. Hope that everyone can find some information that they did not know before.

Q: How many generations does the gypsy moth have each year?

A: There is one generation each year. The gypsy moth spends the winter in the egg stage, caterpillars hatch from eggs in the spring, feed, change into pupae, and then changes into moths. Female moths lay eggs in the summer and the cycle begins again.

Q: When do the eggs hatch and the caterpillars begin feeding?

A: In Virginia, eggs hatch in late April or early May. The hatch continues for two to three weeks. Young caterpillars that hatch from these eggs climb up the trunks of trees and are blown by the wind to other trees where they begin to feed on the leaves.

Q: How many eggs does the gypsy moth lay?

A: The female gypsy moth will lay between 150-1,500 eggs in a single egg mass. The egg mass is covered with her body hair and is buff in color.

Q: Do any other insects have egg masses that look similar to the gypsy moth?

A: There are some other moths that produce egg masses, and, like the gypsy moth, these spend the winter as eggs. However, the gypsy moth egg masses are rarely confused with these other species because of their buff color and relatively large size.

Q: How big are the caterpillars when they hatch from their eggs?

A: Gypsy moth caterpillars are about 1/4" long when they hatch from their egg.

Q: How big do gypsy moth caterpillars get?

A: Gypsy moth caterpillars can reach 2 1/2 inches long at maturity.

Q: How long does the caterpillar stage last? Will the caterpillars be feeding all summer?

A: There is just one generation per year, feeding occurs during May and June. The caterpillar stage is usually completed by the end of June.

Q: All caterpillars look pretty much the same to me. Are there any caterpillars that look similar to those of the gypsy moth?

A: Yes, at least three. However, the behavior of these caterpillars, and, when and where they are found, are important characteristics to know. The eastern tent caterpillar appears early in the spring, usually far in advance of the gypsy moth. It lives in a large, silken tents in the crotches of many trees. Fall webworm caterpillars appear late in the summer, much later than the gypsy moth, and also live in a protective webbing. Finally, caterpillars of the mourning cloak butterfly live in large groups, and for this reason, they might be confused with the gypsy moth. However, the gypsy moth caterpillar is very hairy, has red and blue spots, and is larger and therefore is easily distinguished from caterpillars of the mourning cloak.

Q: What trees are attacked by the caterpillars?

A: Gypsy moth caterpillars will feed on over 300 trees and shrubs. However, they will do best when feeding on oaks. During heavy infestations the large caterpillars (nearly full grown) may feed on pine, spruce, and hemlock trees that are growing in or near deciduous woodlands.

Q: Are there trees the caterpillars will not attack?

A: Yes, a few. Plants which are not usually eaten by gypsy moth caterpillars include arborvitae, ash, locust, catalpa, cedar, dogwood, holly, sycamore, tulip polar, and walnut.

Q: Can gypsy moth caterpillars kill a tree by eating its leaves?

A: That depends on the kind of tree. Healthy, deciduous trees can usually withstand one or two complete defoliations (that is, they lose all their leaves). By mid-summer, these trees will put out new leaves; however, the foliage is usually less dense and the leaves smaller, and lighter in color. If defoliation occurs more than two consecutive years, the tree may die, but if not, it becomes weak and more susceptible to other insect pests, diseases and drought. Evergreen trees are much less tolerant of defoliation. Most evergreens are unable to survive a single season of intensive gypsy moth feeding.

Q: Do the adult moths feed on anything?

A: Adult gypsy moths do not feed. Mating and egg-laying occur during July and into August soon after the adults emerge, the moths then die.

Q: How do gypsy moths move from one area to another?

A: Dispersal and spread of the gypsy moth may be either natural or artificial. Natural spread occurs when the very small (early stage) caterpillars are windblown from the tops of trees as they hang on silken threads from leaves. Artificial spread over long and short distances occurs when people transport egg masses or caterpillars on plants, automobiles, firewood, household goods, and other belongings. One infestation began in Virginia when an unsuspecting homeowner moved several dog houses from New Jersey that contained gypsy moth egg masses.

Q: Are there any non-chemical methods of controlling gypsy moth around the home?

A: Homeowners can use some manual methods to reduce numbers of gypsy moths around their home. Egg masses can be scraped off surfaces with a putty knife and dropped into a container of bleach. Caterpillars can be trapped under burlap bands or other dark cloth wrapped around the trunks. When infestations are severe, these methods are not adequate to prevent damage and are only useful on individual trees.

Q: Can insecticides be used to prevent the gypsy moth from infesting uninfested areas?

A: No. Judicious use of insecticides can help to slow the establishment and spread of infestations. This will delay the inevitable cost of controlling outbreaks and more intense use of chemicals.

Q: Are there any natural enemies that help to control the gypsy moth?

A: Yes. There is a complex of natural enemies, which is composed of parasites, predators, and disease organisms. They often control the gypsy moth after 2-3 years of severe outbreaks, and they help in keeping some populations at low levels. Disease is a major factor in halting outbreaks, but this occurs only after the full impact of a large population has been realized. In North America there are a number of insect parasites that attack various stages of the gypsy moth. At

present, they have not prevented outbreaks nor controlled infestations before severe defoliation has occurred.

Q: Do birds feed on gypsy moth caterpillars and adults?

A: A number of birds feed on the gypsy moth during various life stages. However, birds usually leave areas that are completely defoliated.

Q: Should I have the trees on my property sprayed to protect them from gypsy moth?

A: Under normal conditions, when few caterpillars or egg masses are observed, annual protective spraying of pesticides on trees and shrubs is not justified and may reduce the natural enemy complex of the gypsy moth.

Q: Will gypsy moth caterpillars be numerous enough to be a nuisance to you?

A: If you have susceptible trees; egg masses or caterpillars have been found; nearby areas have shown defoliation you may have a problem. You should contact your county Extension office for more information.

Q: When should I use pesticides to protect or control gypsy moth on my property?

A: Your decision to use a chemical or biological insecticide (such as *Bacillus thuringiensis*) should be determined by the answers to the following questions:

- Is there a large proportion of preferred hosts on your property?
- Have stages other than adults (egg masses, caterpillars) been observed on your property or reported in your area to the extent that some defoliation is expected?
- Is your property located adjacent to areas heavily infested with gypsy moth?
- Is the state, county, or municipality carrying on an area-wide program where your property is located?
- Have you contacted your county Extension office to find out what guidelines exist for controlling gypsy moth populations?

Interstate Nursery Inspection

Bill Hilbert, Kansas Department of Agriculture

The date for the Interstate Nursery Inspection has been set. It will be June 21, 22, 23, 24 at Omaha, Nebraska. The 21st and 24th will be travel days. More details later.

Latest Bunch of Members

Cherie Copeland, Kansas Department of Agriculture

March 17, 1999

Here's the latest bunch of members.

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Bruce Cummings - \$5.00
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Patrick Henry - \$5.00
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Reed City MI 49677
616 832-1821

Daniel Keane - \$5.00
1557 Kingston Dr
Saginaw MI 48603
517 758-1778 fax 517 758-1484

Karen Campeotto - \$5.00
2734 Lexington Pkwy
Southfield, MI 48076
248 552-9339

David Fields - \$5.00
1444 Helma Ave
Hamilton Ohio 45013
513 887-1459 fax 513 887-1459

Ernest Abel - \$5.00
701 S Elmwood, Suite 9
Traverse City, MI 49684
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Keith Eldred - \$5.00
2021 36th St
Allegan, MI 49010
616 673-5460 wk 616 356-0600

David Blackburn - \$10.00
1 Natural Resources D
Little Rock AR 72205
501 225-1598
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Tom Hill - \$10.00
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H.I.S e-mail addresses

Here is a list of the H.I.S. email. If you or someone that you know is not on the list, please send that to me and I will add you to it. Also, if you see a typo on this list, let me know too. If you do not want your name on this list for any reason, let me know and I will take it off.

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Editor's Comments:

I want to thank David Johnson, Cherie Copeland, Bill Hilbert and Winston Dunwell for contributing an article for the newsletter. Without you this would be much more difficult.

Please send articles for the newsletter, it is YOUR newsletter. I would like to have information of what is going on in your state. Highlights from any of the inspectors, supervisors, department heads, etc. Let everyone know what is going on this spring, summer, fall and even winter. I will publish as often as is necessary...provided I have the information to put in the newsletter. In other words, promote what you are doing to the rest of the members.

Kentucky Highlights

Kentucky is getting closer to the Slow the Spread (STS) program. So we are implementing the use of GPS units with a few of our trappers. This way we will be able to learn how the STS system works before we become a STS state. We have met with John Knighten, USDA-FS and others to help us understand the system.

Photos for your enjoyment!!!

http://www.aces.uiuc.edu/longhorned_beetle/



Here are some photos of the Asian Longhorned Beetle and some of the damage it can do.



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