

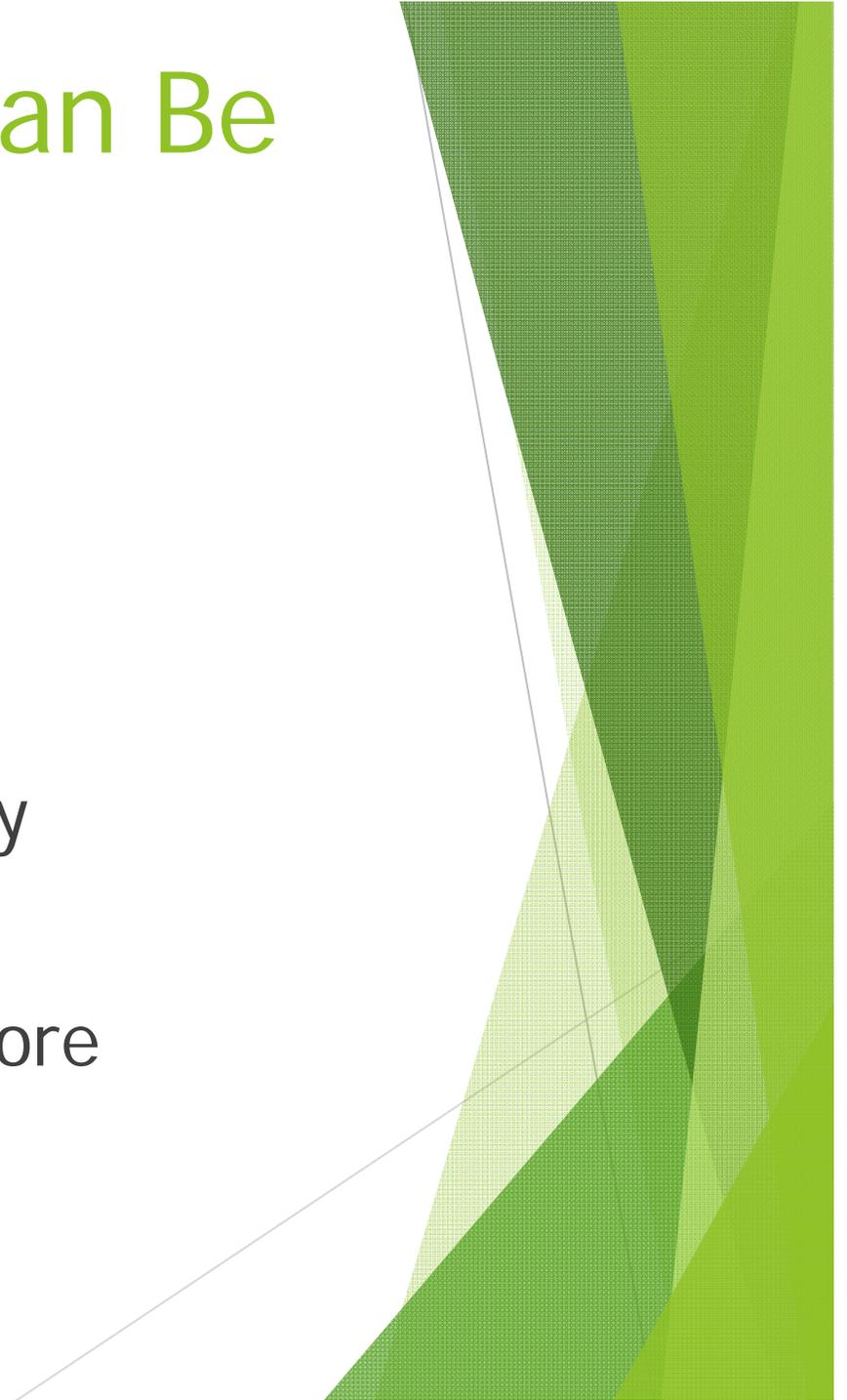
Tree Insects & Disease



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Damage To Trees Can Be Caused By:

- ▶ Diseases
- ▶ Insects
- ▶ Environmental Factors
- ▶ Animals or human Activity
- ▶ Toxic Chemicals
- ▶ Combination of two or more



DISEASES



Pecan Scab



Pecan Scab

Hosts: Pecan

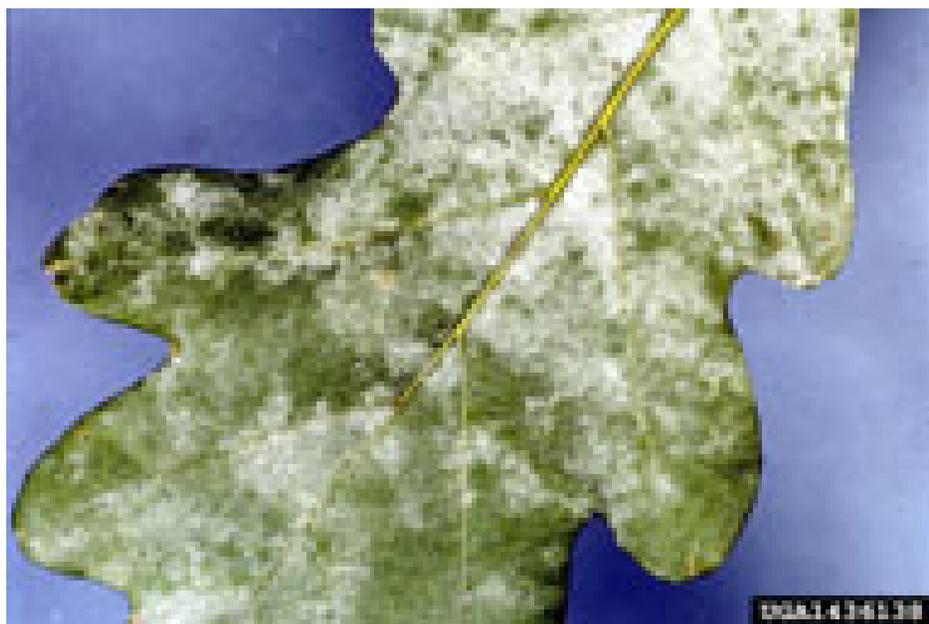
Time of Year: infected in May to June

Symptoms: visible lesions develop in 7 to 14 days. Lesions are generally circular, range in size from pinpoint to about one-quarter inch in diameter. They are light brown to black

Effects: Poorly filled pecans and possible premature nut drop

Control: Use resistant varieties of pecan, mix varieties in an orchard, sanitation, Fungicide applications at budbreak.

Powdery Mildew



Powdery Mildew

Hosts: most local plants, especially crepe myrtle and cedar elms

Time of Year: late summer

Symptoms: a white powdery mold on leaves or buds, may cause distortion of leaves when severe.

Effects: Yellowing of leaves and death of tissue may result in premature leaf drop.

Control: Gather up fallen leaves in autumn and destroy them, may use fungicide sprays when first white patches are noticed. (potassium bicarbonate, benomyl, wettable sulfur, funginex, folpet, cycloheximide, ipiron)

Anthracnose



UGA0355023

Anthracnose

Hosts: various hosts including sycamore, oak, ash, and dogwood

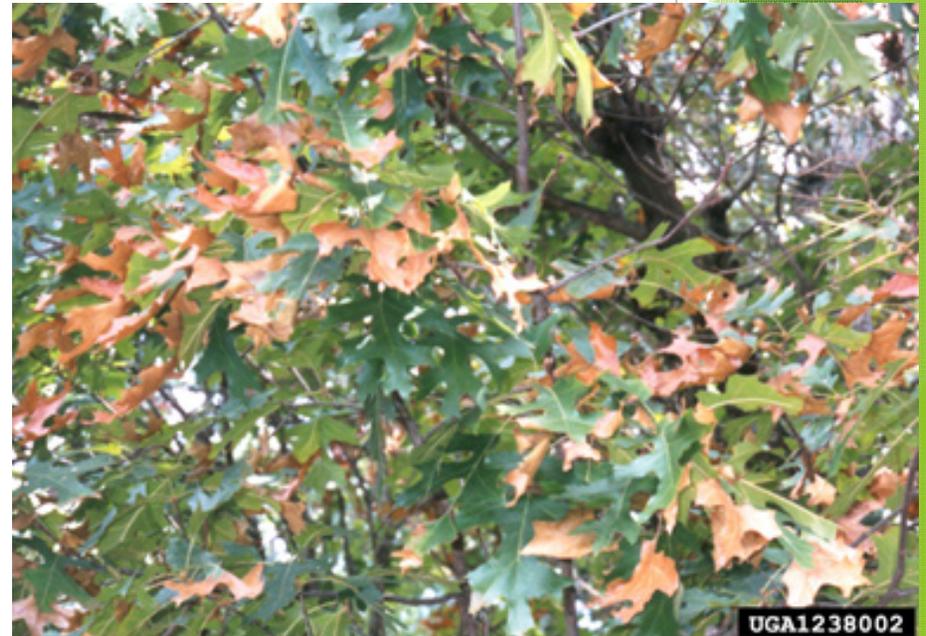
Time of Year: cool season disease of spring & fall

Symptoms: irregular patches of dead leaf tissue, blackened bases of the leaf stem, cankering of the branch at the base of leaf stem, and shoot dieback.

Effects: May cause decline or death in trees

Control: Destroy fallen leaves and twigs, prune dead wood and large infected limbs as the fungus can overwinter on these parts. Thiophanate-methyl, cupric hydroxide, or chlorothalonil, may be applied at bud-break and 10-14 days later.

Bacterial Leaf Scorch



Bacterial Leaf Scorch

Hosts: various species including elm, red maple, mulberry, oak, and sycamore

Time of Year: mid-summer

Symptoms: yellowing and then browning of the edge of all the leaves on one shoot of a tree, leaves will hang on until fall

Effects: Growth of damaged trees slows and diseased limbs start to die back each year.

Control: Injecting bactericides into the trunk of lightly damaged trees will suppress symptoms but will not eradicate the bacteria. Fertilizing and irrigating may prolong the life of diseased trees.

Oak Leaf Blister



Oak Leaf Blister

Hosts: oaks, especially red oaks

Time of Year: spring

Symptoms: blisters scattered over upper leaf surface with corresponding gray depression on the lower surface.

Effects: Hinders appearance of tree.

Control: Single application of chlorothalonil or mancozeb in early spring just before the buds begin to swell will control the disease.

Hypoxylon Canker



Hypoxylon Canker

Hosts: stressed trees, common on post oaks

Time of Year: activity increases after prolonged drought

Symptoms: Crown thinning and branch dieback, portions of bark slough off and collect at base of tree, tan, olive, and brown spore mats may be seen where bark is gone

Effects: Once spores are visible, tree is dead.

Control: There is no known chemical control or cure.

OTHER COMMON PROBLEMS



Lightning Strike



Mistletoe



- **Parasite common to many trees, especially *sugar hackberry* and *cedar elm*.**
- **Draws water and nutrients from the host tree.**
- **Rarely kills trees but causes structural problems**
- **Spread by birds and rain when in seed.**



- Prune branches with mistletoe infestations.
- Physically remove mistletoe growths.



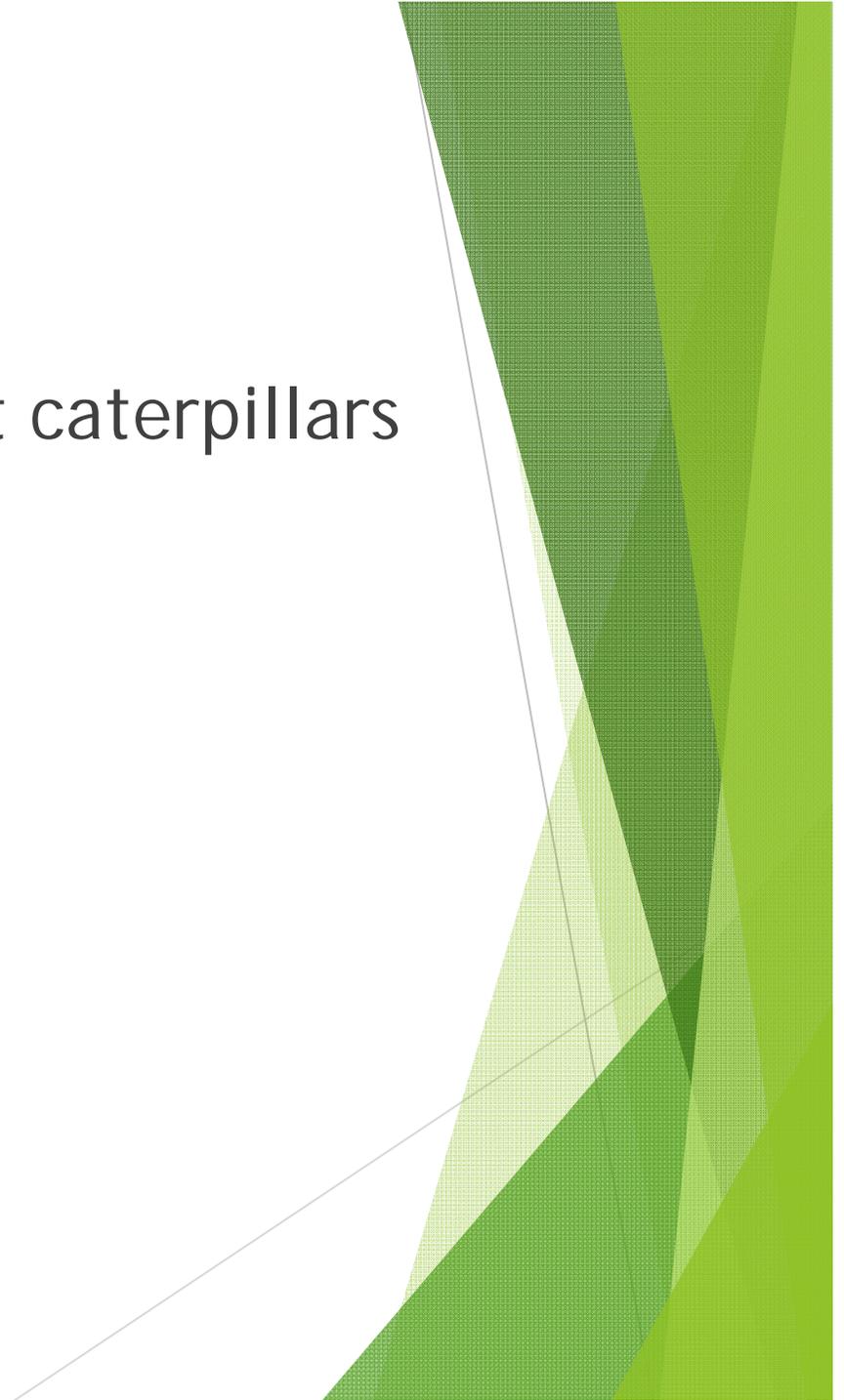
- **Florel** growth hormone is available spray for mistletoe control. Timing is **critical!**

INSECTS & PESTS



Defoliating insects

- ▶ Cankerworms and tent caterpillars
- ▶ Orthopterans
 - ▶ Grasshoppers
 - ▶ Katydid
 - ▶ Walking sticks



Cankerworms



Spring Cankerworm



Fall Cankerworm

Cankerworms

Hosts: red & white oaks, maples, elms, hickories, ash, and cherry

Time of year: Spring (May & June), Fall (after a freeze)

Symptoms: Small holes in leaves are evidence of young larvae feeding on foliage. Older larvae will consume the entire leaf except the midribs and major veins.

Effects: Growth loss, mast reduction, and possible mortality when coupled with other stressors.

Control: Other insects and birds will help in the control. Placing sticky bands around the trunks of high value trees can help trap the females as they climb higher into the tree to lay eggs.

Bacterial thuringiensis is shown to help control cankerworms.

Fall Webworm



- **Common throughout US & southern Canada.**
- **Host include over 100 species of broadleaf trees.**
- **More nuisance than threat to tree health.**
- **Two forms in Texas, redheaded and blackheaded.**
- **Redheaded form builds larger and more dense webs.**
- **Young larvae skeletonize the upper leaf while older ones devour the entire leaf.**
- **Adult moths usually appear in May.**

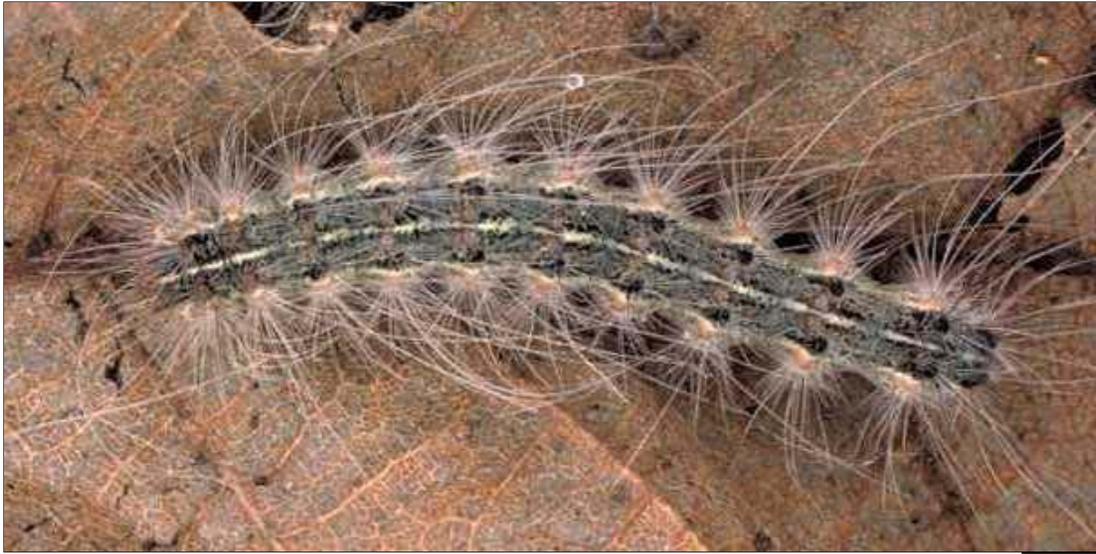


- Female adults lay several hundred eggs on underside of leaves.

- Egg masses appear as white, cottony patch on leaf.

- Up to 4 generations per year in southern Texas.





Controls:

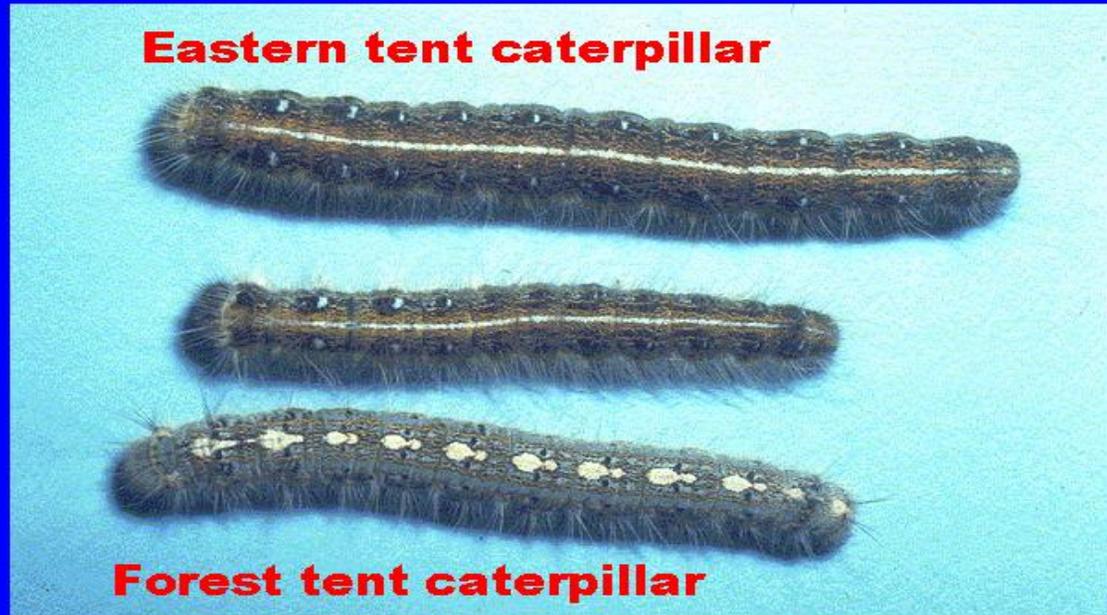
- Prune nests from high value trees and destroy
- Chemically treat with Sevin or *Bacillus thuringiensis* (B.t.)

Eastern Tent Caterpillar

Tent Caterpillars **(*Malacosoma americanum*, *M. disstria*)**



Eastern tent caterpillar



Eastern tent caterpillar

Forest tent caterpillar

Forest tent caterpillars (foot prints along back) don't make tents



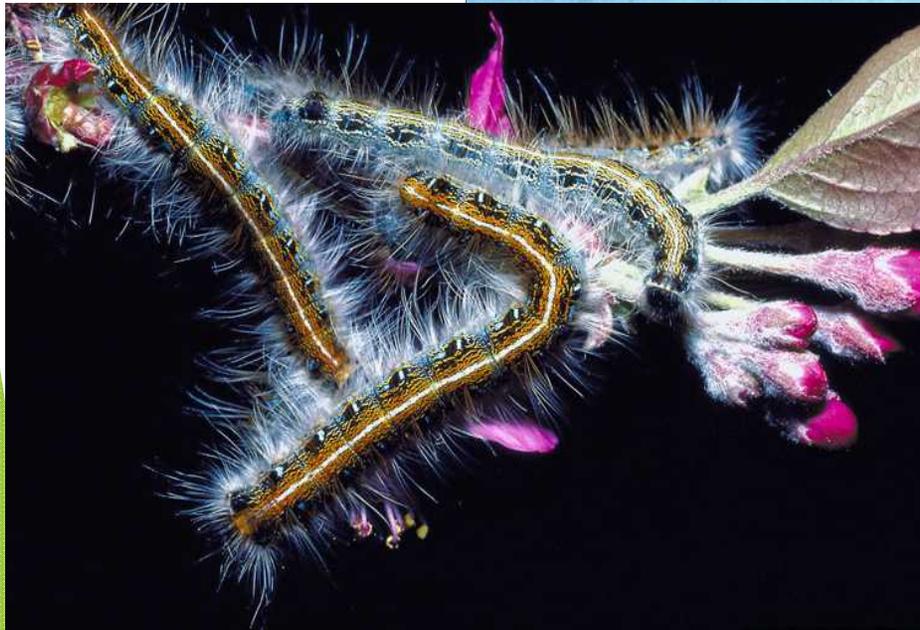
- Especially fond of plants in the *Prunus* genus such as plum, cherry and peach.
- Only one generation per year.
- Occurs throughout most of the eastern half of Texas.

- Egg masses usually encircle small branches.



- Larvae hatch as leaves are unfolding from the buds.

Eastern and Forest Tent Caterpillars



Controls:

- On small trees destroy egg masses on branches and remove nests.
- B.t. (*Bacillus thuringiensis*), methoxychlor, carbaryl (Sevin), malathion, acephate (Orthene)

Forest Tent Caterpillar

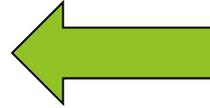


- These DO NOT make a "tent".
- Silk webbing lies flat on the tree's trunk.





**Stand
defoliation**



**Egg
Masses**





- Life cycle similar to that of the Eastern Tent Caterpillar (ETC).
- “Footprint” pattern on dorsal surface.
- Controls are same as for ETC.

Orthopterans



Orthopterans

Hosts: Hardwoods

Time of Year: summer

Symptoms: Entire leaf blade, except stout veins are eaten. Trees may be defoliated twice in one year.

Effects: Mortality may occur if continuous defoliation occurs year after year.

Control: Natural predators (birds)

Squirrels



- ▶ Feed on tissue in oaks and pecans when other food sources are scarce.

Squirrels

Hosts: oaks, pecans, some conifers

Time of year: Spring, Fall

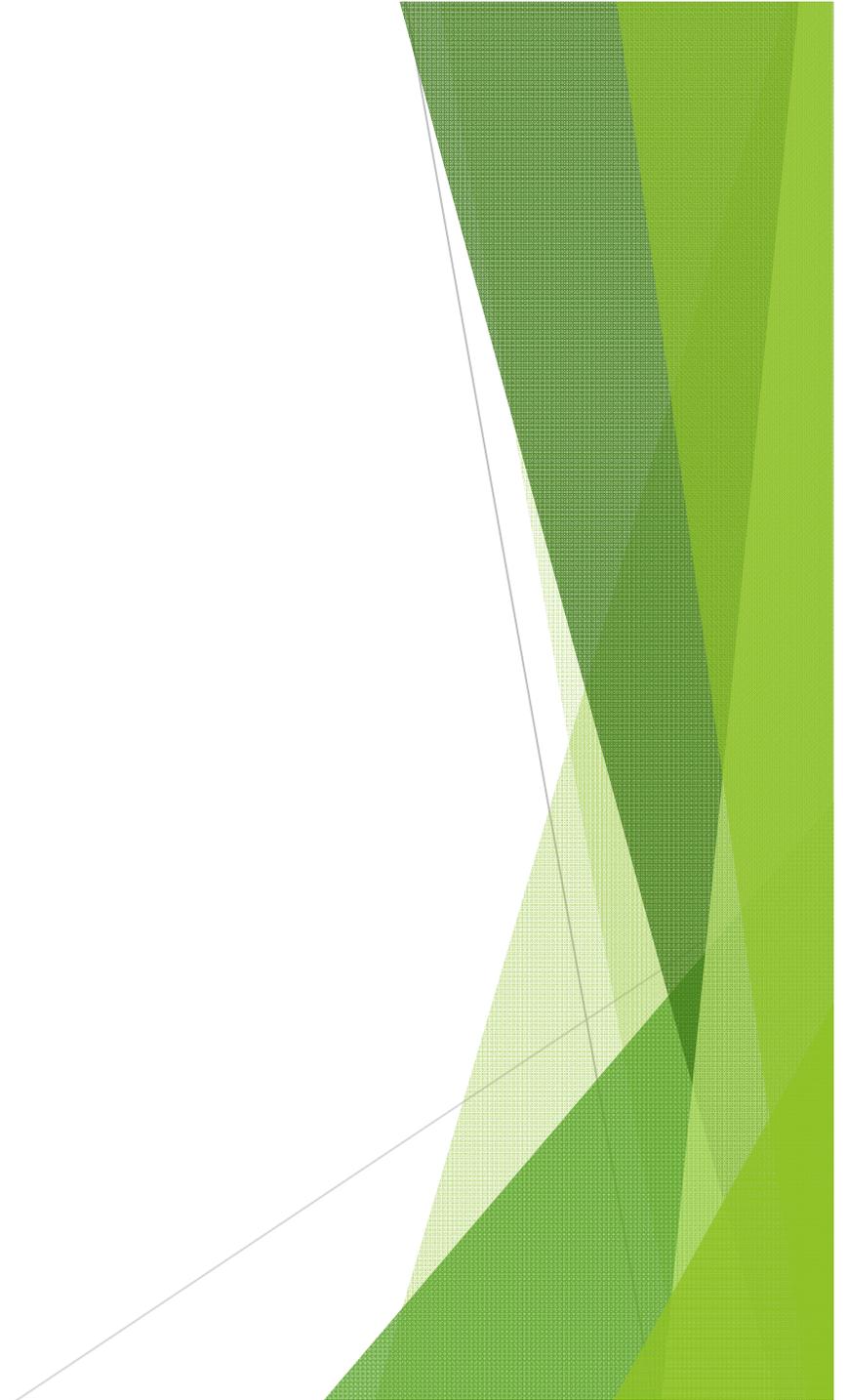
Symptoms: Flagging will occur throughout the canopy of the tree. Upon closer inspection can possibly see teeth marks from the chewing.

Effects: Twigs will die off in canopy, can kill small trees.

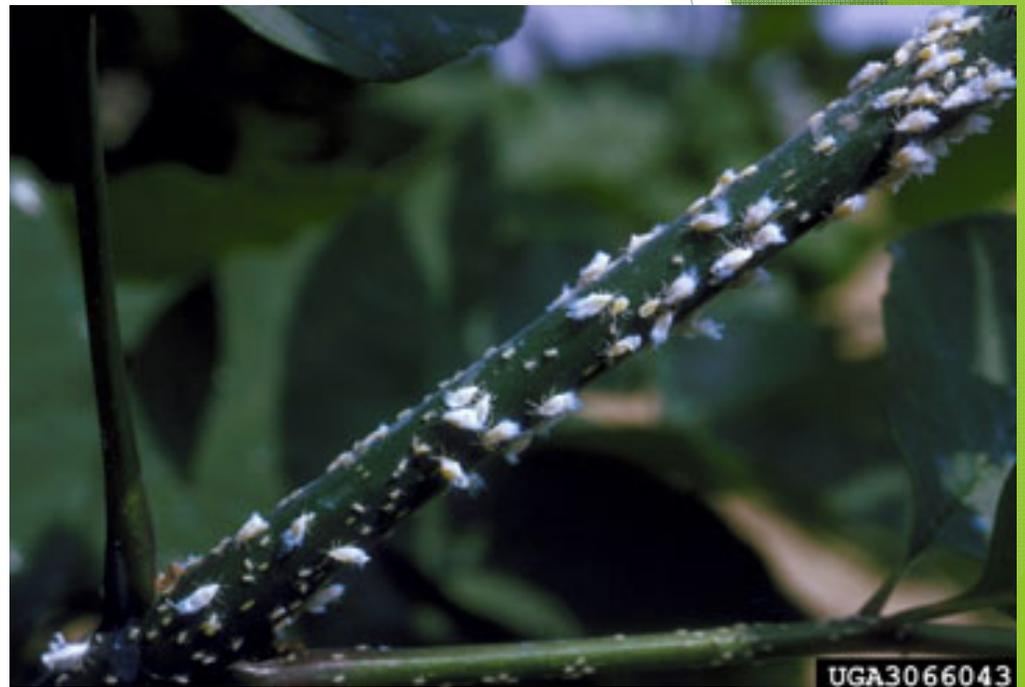
Control: Good luck!

Sucking Insects

- ▶ Aphids
- ▶ Lace bugs
- ▶ Scales



Aphids



Left: oak leaf aphid, Above: woolly ash aphid

Aphids

Hosts: hardwoods and conifers

Time of Year: spring, summer

Symptoms: feed on undersides of leaves causing stunting, curls or folds in leaves. Also look for leaf discoloration, dieback or flagging of newly formed terminals, and early leaf drop

Effects: May distort foliage, cause terminal dieback, reduce vitality, weaken the tree, and cause branch or crown dieback. May also see sooty mold and ants frequenting tree.

Control: Parasites and predators, insecticides may be used to protect high value trees.

Lace Bugs



Lace Bugs

Hosts: hardwoods (sycamore, oak, elm, hackberry)

Time of Year: summer

Symptoms: Infested leaves will have chlorotic spots or flecks on the upper side.

Effects: Leaves may be discolored and performing little photosynthesis and may fall from tree

Control: Natural enemies, chemical controls are usually only used on shade and ornamental trees.

Scales



Scales

Hosts: hardwoods and conifers

Time of Year: spring, summer

Symptoms: stunting of leaf or shoot growth, leaves turning yellow or red, early leaf drop or dieback

Effects: Heavy infestations may kill trees. Sooty mold and ants frequenting trees.

Control: Natural enemies, chemical controls are used on high value trees and are most effective on immature scales.

Gall Forming Insects



Oak Apple gall



Horned wasp gall

Diagnosis of Problem:

D ISTRIBUTION OF DAMAGE

I DENTITY OF TREE

S ITE TYPE, CONDITIONS, & CHANGES

E NVIRONMENTAL CONDITIONS & OTHER CHANGES

A GE OF TREE NOW OR AT PLANTING

S YMPTOMS

E XTRANEIOUS MATTER (INSECTS, FUNGI, EXUDATES, ODORS)

D EAD BARK, DISCOLORED WOOD

T IME OF ONSET OF DAMAGE & ITS PROGRESS WITH TIME

R OOT CONDITION

E VIDENCE – REVIEW BEFORE MAKING A DIAGNOSIS

E XTRA EVIDENCE – SEE WHERE POSSIBLE, IN ORDER TO CONFIRM

Questions?

