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## Arkansas Plant Health Clinic Newsletter

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### Oak Galls

Galls on oaks may be caused by gall wasps, or gall midges. Oak Phylloxera cause leaf distortion. Multiple samples of heavily galled oak leaves have been arriving at the Plant Health Clinic with Jumping Oak Gall. Spots with a brown center, purple margin, and a yellow halo appear on the upper leaf surface. A tiny gall, the size of a pin head is found on the underside of the leaf. Heavily encrusted leaves turn brown and can die and prematurely fall from the tree. The Jumping Oak Gall is caused by *Neuropterus saltatorius*, a tiny dark wasp belonging to the Cynipid group of wasps. These small wasps are harmless to people. The Jumping Oak Gall has two generations a year. Females emerge in the spring from the ground and lay eggs on the leaves. The eggs hatch, male and females' mate, and the females lay eggs, resulting in the second-generation galls. The galls get their name "Jumping galls" because when they drop off the leaves to the ground the larvae inside hit the insides of the gall causing it to jump to find crevices in which to overwinter. Gall wasps do no lasting harm to healthy mature trees. There are about 600 species of gall wasps in the United States. Depending on the species, roots, stems, twigs,

leaves, buds, or flowers are attacked. The galls are formed as a response to the wasp's laying an egg on the plant tissue, stimulating the plant to produce the gall in response to the injury. The result is food and shelter for the wasp larvae that live protected inside the gall. Lawn insecticides may reduce populations since these small wasps spend part of their life cycle in the ground.

### Oak Galls by Keiddy Urrea

En la clínica de plantas en estos últimos días hemos recibido varias muestras de hojas del árbol de roble infestadas con la enfermedad llamada "agallas saltarinas del roble". Las agallas que caracterizan a esta enfermedad son causadas por un insecto llamado *Neuropterus saltatorius*, el cual es una pequeña avispa de color marrón oscuro que pertenece al grupo Cynipid, sus tamaños son de la cabeza de un alfiler. Estas pequeñas avispas son inofensivas para los humanos. Los síntomas de esta enfermedad empiezan con pequeñas manchas con centros marrones y bordes morados con halo amarillo alrededor. Pequeñas agallas aparecen en el envés de las hojas. Las hojas que están muy infestadas de agallas pueden morir o caer prematuramente del árbol. Estas pequeñas avispas producen dos generaciones de insectos al año por medio de reproducción sexual y partenogenética. Las hembras emergen desde el suelo en la primavera para depositar sus huevos en las hojas de los árboles de roble. Los huevos se maduran originando hembras y machos, los cuales luego se reproducen. Las hembras ovipositan huevos nuevamente originando la



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segunda generación de insectos. Las agallas del roble reciben su nombre “agallas saltarinas” porque cuando las hojas caen al suelo, las larvas que están dentro de la agalla golpean la agalla causando que esta salte y estas caigan en las grietas del suelo para sobrevivir durante el invierno. En los Estados Unidos hay aproximadamente 600 especies de avispas que producen agallas, dependiendo del tipo de planta y tejido de la planta a la que atacan. Las agallas se forman en respuesta al daño que causa la oposición de huevos en el tejido de la planta. El beneficio para la avispa es la protección dentro de la agalla y la comida que obtiene para la larva de parte del árbol de roble. La aplicación de insecticidas al los pastos puede disminuir la población de estas pequeñas avispas puesto que estas pasan parte de su ciclo de vida en el suelo.

### **Oak Jumping Gall-*Neuroterus saltatorius***



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

### **Oak Jumping Gall-*Neuroterus saltatorius***



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

### **Oak Roly-Poly Gall-*Andricus* spp.**



Photo by Mike Hamilton, University of Arkansas Cooperative Extension

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### Fusiform Oak Apple Gall- *Amphibolips acuminata*



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

### Oak Ball Gall-*Callirhytis perfoveata*



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

### Oak Apple Gall-*Amphibolips* spp.



Photo by Steven Katovich, USDA Forest Service, Bugwood.org 5424272

### Oak Fuzzy Bead Gall-*Callirhytis furva*



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

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**Oak Wool Sower Gall-*Callirhytis seminator***



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

**Oak Leaf Spindle Gall-*Andricus chinquapin***



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

**Oak Horned Gouty Gall-*Callirhytis cornigera***



Photo by A. Steven Munson, USDA Forest Service, Bugwood.org

**Oak Gouty Gall-*Callirhytis quercuspunctata***



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

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## Oak Vein Pocket Gall

Vein Pocket Gall, caused by the larval stage of tiny flies in the Cecidomyiidae family of gall midges is one that we see frequently in oak leaf samples. Galls are elongate, pocket-like swellings along veins and midribs of the leaves. The female gall midge lays eggs on the newly emerging leaves in the spring. After the eggs hatch, the maggots move to the leaf veins where they begin to feed. The feeding causes the plant to start forming galls around the feeding sites. Within a few days the maggots are entirely enclosed within the galls, where they remain protected from predators until they emerge as mature larvae about mid-spring. Upon emergence, the larvae drop to the ground and remain there until next spring when they fly up to the newly emerging leaves as adult flies and begin the cycle again. Control is difficult and not usually necessary. However, since the mature larvae spend most of the summer in the ground, lawn insecticides may reduce the population.

## Oak Vein Pocket Gall Maggot- *Macrodiplosis quercusoruca*



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

## Oak Vein Pocket Gall-*Macrodiplosis quercusoruca*



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

## Oak Phylloxera

Oaks in Arkansas have many pests, including Oak Phylloxera, *Phylloxera quercus*. These are tiny insects that feed on the sap of oak leaves. Phylloxeras are closely related to aphids, but smaller and lacking the two rear cornicles (horns) on the abdomen. Many phylloxera species cause plant galls. However, Oak phylloxera doesn't cause galls, but causes leaf puckering, leaf distortions, small necrotic yellow to brown feeding injury spots, and defoliation. Although healthy mature trees are little impacted by phylloxera, small trees are weakened by their feeding activity and subsequent leaf loss. Vulnerable trees may be protected using systemic insecticides such as

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Merit or Bio Advanced Insect Control for Trees and Shrubs, or insecticidal soaps or malathion.

### **Oak Phylloxera-*Phylloxera quercus***



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

### **Oak Phylloxera Immatures-*Phylloxera quercus***

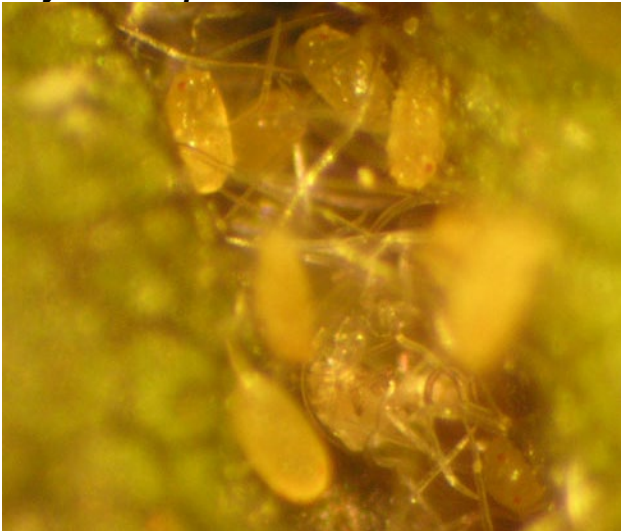


Photo by Sherrie Smith, University of Arkansas Cooperative Extension

This bulletin from the Cooperative Extension Plant Health Clinic (Plant Disease Clinic) is an electronic update about diseases and other problems observed in our lab each month. Input from everybody interested in plants is welcome and appreciated.

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