



Photo 1: This focal point white oak in this landscape began losing its leaves in the early summer. Initial diagnosis included Oak Wilt, Anthracnose, and Two-Lined Chestnut Borer. Each of these issues may cause foliage loss in oaks.



Photo 2: Examination of the fallen foliage revealed small irregular spots on the upper surface of the leaves and irregular surface (bumps) on the lower leaf surface. The likely cause of this problem is cynipid wasp gall (CWG). Note: red oaks (lower left corner and, seemingly, other white oaks) in the area were not affected.



Photo 3: A closer view of the upper surface of the leaf. These spots may be confused with fungal spots or anthracnose.



The Plant Doctor's LANDSCAPE TIPS

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OAK CYNIPID WASP GALL

INTRODUCTION:

Oaks (*Quercus* sp.) comprise an important group of trees important to Michigan landscapes, forests and ecological systems. There are a variety of pests and diseases that can affect the health of our oak trees. Some problems are nuisance, non-serious problems while others can be lethal and everything in between.

This past summer, I was contacted by Fran, a homeowner, who was very concerned about an oak tree in her front yard. Apparently, her oak tree was losing many leaves over the course of the summer. She had consulted three different experts and received three different diagnoses regarding the health of her oak tree; these diagnoses included oak wilt, anthracnose, and Two-Lined Chestnut Borer (TLCB). Understandably, she was very upset because each of these diagnoses implies different prognoses as well as different management inputs. Furthermore, many of the other oaks in the forested area where she lived could be impacted by the malady. I agreed to help her out.

When I arrived at Fran's home, I quickly witnessed her concern — a primary focal point oak near her home had been losing leaves and was becoming sparse in foliage from the top of the tree downward (Photo 1). Many of the leaves that had defoliated were curled/rolled up, brownish grey and crisp (Photo 2). Close examination of the foliage disclosed small spots on the upper side of the foliage (Photo 3) with corresponding bumps on the lower surfaces of the leaves (Photos 4). Although I could not immediately identify the problem, these leaves did not exhibit symptoms that I would assume to be consistent with oak wilt, anthracnose or TLCB. Because of the protrusions on the underside of the leaves, I presumed that the primary cause of the spots was of insect origin, likely a small insect gall. My initial reaction was that a midge or some other insect was the likely culprit. I assured Fran that most of these insect galls were not all that harmful to oak trees. Upon returning to my lab and perusing my references, the most probable identification of the infestation was a Cynipid Wasp Gall (CWG).

CWGs have been reported on oaks throughout the United States. Some have been reported to cause some defoliation in oaks, which is apparently the phenomenon experienced with Fran's tree. Interestingly, only this one white oak tree appeared to be affected by the CWG; other white oaks and the red oaks in the area were not conspicuously affected.

CYNIPID WASP GALL:

Many of the similar appearing gall makers on oaks are lumped into a general category called gallflies, a term used to describe tiny insects


that initiate galls on oak. Of the gallflies, there are more than 700 species of gall wasps reported on oak; most are non-stinging wasps. Some gallflies are true flies (midges). One of the more common CWGs is also known as the “jumping oak gall,” caused by the wasp, *Neuroterus saltatorius*, the presumed instigator of the CWG in this article. In the late spring and early summer, tiny galls form on the underside of white oak leaves. The galls are stimulated from plant tissue when the insect releases powerful growth hormones. By summer, the tiny galls or mustard-appearing seeds drop to the ground; close examination of the lower leaf surface will reveal a concave, pockmarked indentation where the tiny gall once resided. If one is very lucky, and I mean very lucky, the tiny galls that have fallen to the ground may appear to be moving or jumping due to the activity of the insect inside the gall-hence, the name “jumping oak gall” (Photo 5).

It is easy to understand why CWG may be confused with Oak Wilt, Anthracnose, and TLCB. Two problems (oak wilt and TLCB) stimulate leaf loss resulting in sparse branches in the upper portions of the tree. And, anthracnose causes leaf spots/blotches and curling.

MANAGEMENT OF CYNIPID WASP GALL:

Galls that affect oak foliage rarely have any adverse impact on the overall health of oak trees. Furthermore, the population of the culprit insects varies greatly from year to year. Hence, controls are generally not warranted. However, in very, very unique instances, the CWG, jumping oak gall, has been reported to cause tree stress and death in California.

Because some galls may adhere to leaf surfaces (Photo 4), where the insect may overwinter, it may be advisable to rake and properly dispose of leaves in a variety of fashions. For example, proper composting of infested foliage should destroy the CWGs. Maintaining a vigorous, healthy tree with proper nutrition and occasional supplemental water (when needed) may also be advised.

Perhaps, only in very rare instances would an insecticide be recommended; insecticides may cause more harm by destroying beneficial insects that may parasitize or prey on CWGs. With reference to the tree in Photo 1, there was sufficient green foliage to maintain the health of this tree into the fall of 2013 and beyond, despite some foliage loss during the summer (Photo 6). 

For more information, please feel free to email David Roberts at robertsd@msu.edu or contact a professional plant health care provider. The author, MSU and MGIA do not endorse any particular products. If using pesticides, be sure to read and follow label directions.

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Photo 4: Close examination of the lower leaf surface revealed concave areas where the tiny galls once resided. Note that some galls are still attached.



Photo 5: Although 100s of wasps may cause similar galls on oak leaves, one of the more common ones is the Jumping Oak Gall, caused by *Neuroterus saltatorius*. If very lucky, we may actually see the gall move or “jump” from the activity of the insect inside the tiny gall. This group of Jumping Oak Galls was photographed by Donald Owen, California Department of Forestry and Fire Protection. From Invasive.org.



Photo 6: Most CWGs infestations do not require treatment. In another view of the tree in Photo 1, taken in October 2013, there is obviously plenty of green foliage to maintain good health of this oak tree.