

Let's Make Sure Our Oak Trees are Here To Stay

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White oaks, water oaks, turkey oaks, pin oaks, black-jack oaks, and many more oak species all grow and flourish in the southeastern forests. Most of these oak trees are a major part of the region's forest ecosystem. Wildlife depends on the delectable acorns for food and the trunk hollows for shelter. Other wildlife species depend on the stems and leaves for building and repairing their homes.

Humans also enjoy the wonderful pleasures of oak trees . . . we manufacture the wood for a variety of timber products, but we also have non-traditional uses for oak trees. The aesthetics alone bring us a special sense of serenity. Just imagine that beautiful live oak – approximately 80 years old – firmly established in your front yard. Weekends spent sitting on a swing, nicely constructed on one of the mature branches extending out

from the trunk, make memorable moments for you and your family. What would happen if these unique oak species were gone?

Remember the American chestnut tree and how it was an integral part of the eastern U.S. forests? Now these trees barely exist because of a non-native pathogen. A similar fate could occur with oak trees. A new invader has appeared on the West Coast that may eventually pose a threat to our eastern oaks:

Phytophthora ramorum, the cause of "sudden oak death" disease. While not native to North America, the actual origin of this fungus-like organism is uncertain. Most scientists, however, speculate that the pathogen originated in Asia. Wherever the source may be, sudden oak death and other ramorum diseases are wreaking havoc in the Pacific Coast states of California and Oregon.

In 1995, tanoaks in coastal areas of Marin County, California, were the first trees to illustrate symptoms of sudden oak death disease. These infected tanoaks showed fading foliage that turned brown and clung to branches as moisture and nutrients were blocked from reaching the crown. Closer inspection also showed dark colored sap oozing through cracks in the bark beneath irregular, coalescing lesions. Soon, nearby coastal live oaks were found with similar symptoms . . . then California black oaks and Shreve's oaks. Hundreds of trees were killed as this mystery disease spread to other areas of the central California coast. It was not until five years later that the cause of sudden oak death was positively identified as a new species, *Phytophthora ramorum*. By then it was clear that this pathogen was also causing other diseases such as dieback and leaf blight on many shrubs such as evergreen



Photo by Dana McReynolds



Fishing for Sudden Oak Death: As a lure for *Phytophthora ramorum*, rhododendron leaves are placed in mesh bags and deployed in streams, creeks, and rivers. After approximately 10-14 days, the leaves are monitored for symptoms of infection: water-soaked brown or black lesions. The bait leaves are removed from the bags and tested at diagnostic laboratories to determine if the sudden oak death pathogen is present.

huckleberry, manzanita, and rhododendron, as well as trees such as bay laurel, Pacific madrone, bigleaf maple, and California buckeye. By 2002, the pathogen had made its way into southwest Oregon.

The immense concern about the spread of *P. ramorum* was not just confined to the West Coast; eastern forests were also under careful watch, especially after greenhouse testing of many oaks and other common eastern forest plants showed susceptibility to this infection. The worst fears were confirmed in 2004 when it was learned that potentially infected plants had been accidentally shipped across the country from a West Coast nursery that were later found to be *P. ramorum*-positive. As a result, the pathogen escaped quarantine and was eventually found in nurseries in 22 states, including Alabama. While many infected plants were intercepted before leaving the nurseries, others were sold and most likely planted in backyard landscapes. The risk of introduction into vulnerable eastern forests prompted nationwide early detection surveys. Alabama has hosted these annual surveys since 2004. The good news is that since the initial surveys began, no detection of *P. ramorum* has been found in Alabama outside of nurseries, even in the highest risk areas.

Early detection surveys for sudden oak death are generally implemented in the spring (March) and fall (October) when cooler and moister conditions favor the pathogen. In Alabama, surveys are a collaborative effort between the Alabama Department of Agriculture and Industries, the Alabama Forestry

Commission, Mississippi State University, and the USDA Forest Service. High risk sites are identified based on forest composition, climate, and proximity to nurseries that may have received infected plants. Next, rhododendron leaves are placed in mesh bags and deployed in streams, creeks, and rivers as a lure for *Phytophthora* species. Sensitive to the smallest populations of the pathogen, this baiting method can successfully detect the organism several miles downstream from known infection centers. After approximately 10-14 days, the leaves are monitored for symptoms of infection: water-soaked brown or black lesions. When symptoms are sufficiently developed, the bait leaves are removed from the bags, replaced with fresh ones, and tested at diagnostic laboratories at Mississippi State University. Scientists analyze the symptoms using several DNA and traditional plant pathology methods to determine if the sudden oak death pathogen is present. If discovered early, the probability of successful eradication is very plausible.

The words of that distinctive verse, "Chestnuts roasting on an open fire..." open the popular holiday song, *Merry Christmas to You*. Today, very few of us have ever seen chestnuts, or remember those tasty edibles enjoyed during that festive season. We certainly do not want a similar situation for our oaks . . . only reminiscing through sentimental songs and historical documents of the days of old where these lovely trees once flourished in our natural ecosystem. Sudden oak death disease has the potential to create that outcome, but with committed

and concentrated efforts we can prevent such a gloomy end. The surveys are just one method of preventing the spread of this disease; halting the transportation of infected nursery stock is another. No matter what the efforts are or to what extent, every accomplishment counts. Each of us, not just scholars from universities or foresters from agencies, should become actively involved in making sure that our oak trees are here to stay. 🌲

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