Sudden Oak Death (S.O.D.),
Phytophthora ramorum

Background Summary: In March 2004, USDA announced that Sudden Oak Death (S.O.D.) had been detected in several large commercial nurseries in southern California. These nurseries had shipped potentially infected stock to many states around the country, including Georgia. This update is designed to present additional images of symptoms induced by the SOD pathogen on various commercial nursery stock that have recently entered Georgia, and to present an updated SOD host list. Currently, there are no regulatory treatments that are efficacious for treating plants against this fungal disease.

Biology of *P. ramorum*: The spores that infect mature oaks very rarely come from the leaves of the oak tree, but are more likely to come from the leaves of an adjacent host plant. The spores of this disease can spread through splashing irrigation water or rain; it can also be spread on soil-contaminated pots, tools, machinery and on people's clothing and shoes. *P. ramorum* may be spread by spores on diseased areas of the foliage by wind-blown rain. *P. ramorum* is a water-loving mold and its infection is favored by a cool environment, wet conditions, or high leaf moisture such as are common during spring and fall in Georgia. These times of year are the most likely times to find symptoms of this disease in Georgia. It has been speculated that nurseries provide the perfect "micro-climate" suitable for this disease throughout the growing season.

Gallery of symptoms of *Phytophthora ramorum* on rhododendron, camellia and oak:

Fig. 1.

Fig. 2.

Symptoms caused by *Phytophthora ramorum* on camellia leaves (Fig. 1) and whole plant (Fig. 2). Margins of lesions are indistinct and diffuse, not sharply defined. Leaf lesions can progress down the petiole into the stems. Defoliation symptoms are also possible.
Photograph -Department of Environment, Food and Rural Affairs, UK

Symptoms caused by *Phytophthora ramorum* on rhododendron foliage (Figs.3-5). Look for lesions that have rather diffuse margins, in many cases with a lighter-colored central portion to the lesion.
Photograph by Bruce Moltzan, MO Dept of Conservation (Fig. 3) and University of GA (Figs. 4-5)

Fig. 3.

Fig. 4.

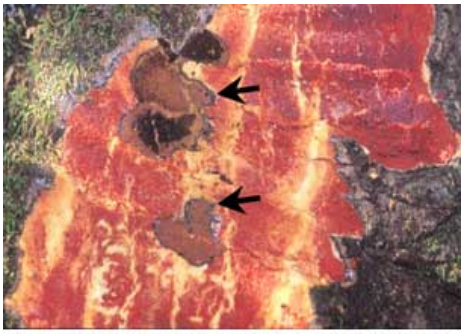
Fig. 5.

Fig. 6.

Fig. 7.

More foliar symptoms of *P. ramorum* on rhododendron (Fig. 6) and camellia (Fig. 7).
Photographs - Department of Environment, Food and Rural Affairs, UK

Ooze bleeds from a canker on an infected oak.
Fig. 8.



Black zone lines are found under diseased bark in oak.
Fig. 9.

Symptoms of *P. ramorum* bleeding cankers on trunk of oak, (*Quercus spp*) (Fig. 8). Bark removed (Fig. 9). This common Georgia native is not likely to be shipped as nursery stock to Georgia from SOD-infested areas, but might be a first victim of local disease spread.
Photographs - USDA Forest Service

Target these hosts for S.O.D. Surveys:

*SOD Host genera list (genera in red are common in some parts of Georgia)

Acer – maple
Aesculus - buckeye, horse chestnut
Arbutus - strawberry tree
Arctostaphylos - bearberry
Camellia - camellia
Hamamelis - witch hazel
Heteromeles – toyon
Lithocarpus - tanoak
Lonicera - honeysuckle
Pieris - fetterbush
Pseudotsuga - Douglas-fir
Quercus - oak
Rhamnus – buckthorn
Rhododendron - azalea
Rosa - rose
Sequoia - redwood
Trientalis - starflower
Umbellularia – bay laurel
Vaccinium - blueberry, huckleberry
Viburnum - viburnum

*Associated SOD Host genera list (genera in red are common in some parts of Georgia)

Abies – fir
Castanea - chestnut
Corylus - hazelnut, filbert
Fagus - beech
Kalmia - mountain laurel
Leucothoe - doghobble
Pittosporum – pittosporum
Pyracantha – firethorn
Rubus – blackberry, brambles
Syringa – lilac
Taxus - yew
Toxicodendron - poison ivy, poison oak, poison sumac

These lists are constantly being updated:

*The most current version is posted at: http://www.aphis.usda.gov/ppq/ispm/sod

What should you do if you think a tree or plant has S.O.D.? Anyone who purchased a plant in the genera of camellia, rhododendron, syringa, or viburnum in 2003 or 2004 originating from Monrovia Nurseries in California (distinctive green plastic pot with white lettering) or other California nurseries, or plants that are showing symptoms of SOD, please contact your local County Extension Service office for further instructions. If you are not sure of the origin of the plants you purchased in 2003 or 2004, please feel free to contact the Georgia Department of Agriculture and we will assist you in determining if the plants in question are at risk. Your cooperation in this important matter is greatly appreciated. For more information on SOD in Georgia, visit http://www.invasive.org/sod.cfm