First Report of Laurel Wilt, Caused by Raffaelea lauricola, on Redbay (Persea borbonia) in Texas

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DISEASE NOTES

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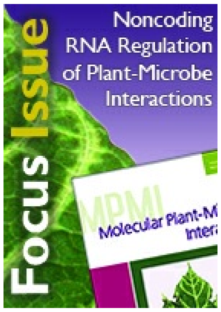

ABSTRACT

Laurel wilt, caused by *Raffaelea lauricola* T.C.Harr., Aghayeva, & Fraedrich, a fungal symbiont of the redbay ambrosia beetle (*Xyleborus glabratus* Eichhoff), is responsible for extensive mortality of redbay (*Persea borbonia* (L.) Spreng) and other Lauraceae native to the United States (Fraedrich et al. 2008). The beetle and fungus were introduced into the United States near Savannah, GA, from Asia around 2000, and since then the disease has been spreading rapidly through the southern United States. In March 2015 dead and dying redbay trees were observed in Hardin County, TX, in an area southwest of Lumberton (30.22404° N; 94.23572° W). The trees exhibited wilt-like symptoms (i.e., limp and dead leaves, and streaks of black discoloration in the xylem) and small insect entrance holes

characteristic of *X. glabratus*. Samples of the discolored wood were plated on malt extract agar (MEA) amended with cycloheximide and streptomycin (CSMA) (Harrington et al. 2010), and a fungus with the unique mucoid growth and budding conidia the size and shape of *R. lauricola* (Harrington et al. 2008) was routinely isolated. The sequences of a portion of the large subunit (28S) rDNA of eight isolates (C3681-4, C3690-3, Iowa State Univ.) from symptomatic trees were identical to that of all other U.S. isolates of *R. lauricola* (GenBank Accession No. EU123077) (Harrington et al. 2008). For each of two isolates, three container-grown redbay saplings (165-cm mean height, 1.6-cm mean diameter at groundline) were inoculated with MEA plugs containing mycelium and conidia (Fraedrich et al. 2008). Three additional redbay saplings were mock inoculated with sterile, MEA plugs, and all plants were placed in a growth chamber at 28°C/25°C (day/night) with a 15-h photoperiod. Inoculated plants began to exhibit wilt symptoms within 11 days, and at 28 days all inoculated plants had xylem discoloration and completely wilted. Control plants remained healthy and had no discolored xylem. Pieces of sapwood from 15 cm above the inoculation points were plated on CSMA, and colonies with the unique mucoid growth and budding conidia of *R. lauricola* were recovered from all wilted plants but not from control plants. A survey for symptomatic trees was conducted in areas around Lumberton in May 2015, and the pathogen was isolated from wilted redbay trees at three additional locations in Hardin and Jasper counties, ranging from 3 to 23 km west and northwest of the original location. The vector was routinely captured in Lindgren traps with cubeb oil lures at several sites around Lumberton. The discovery of laurel wilt in Texas represents another major jump in the distribution of this disease, approximately 300 km to the southwest from Ruston, LA, and 530 km to the west of a five-county-area in southern Mississippi (Laurel Wilt Infestation Map, http://www.fs.usda.gov/main/r8/forest-grasslandhealth). The vector may have been transported with air currents, or moved with infested timber, firewood, or wood chips. Hardin and Jasper counties have forest product mills, similar to other areas of satellite outbreaks found far from the advancing front of the disease (Bates et al. 2013; Fraedrich et al. 2015). Laurel wilt and *X. glabratus* are now within 550 km of the Mexico border, which has an abundance of native species in the Lauraceae and major avocado plantings.

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[Abstract]

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