

Thousand canker disease

Geosmithia morbida

Description

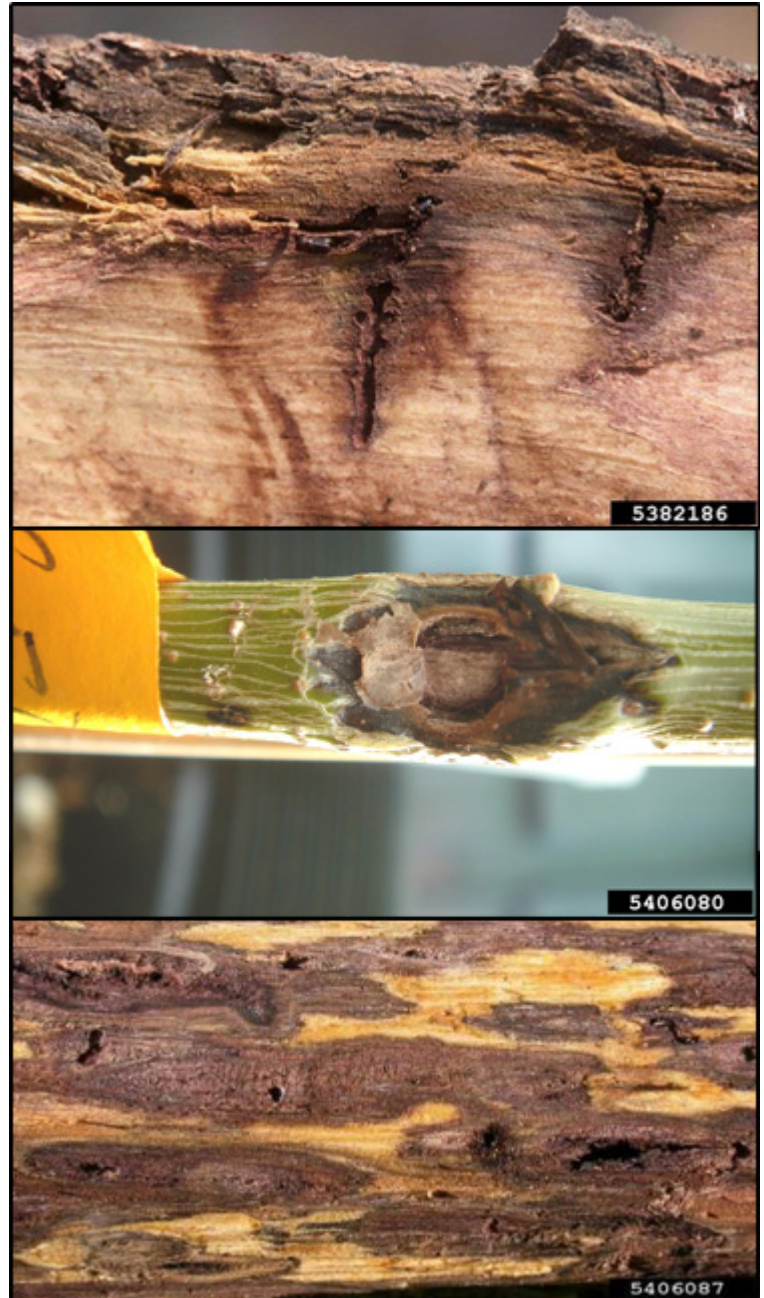
Native to the western United States and primarily affects black walnut *Juglans nigra*. The disease was first recognized until 2008 in Colorado while the pathogen, *Geosmithia morbida*, was not scientifically described until 2011. Possibly spread by the transportation of firewood and logs.

Identification

Off-white to buff in culture; not known to be plant pathogens; no sexual state known; yeast like phase; always found in association with the walnut twig beetle, frass, and galleries. Transmitted by the walnut twig beetle (*Pityophthorus juglandis*). Fungal spores are carried and introduced into the tree by the only known pathogen, adult walnut twig beetles during egg gallery construction.

Hosts

Native to the western United States. Black walnut (*Juglans nigra*) and black walnut hybrids are





most susceptible. California walnut (*Juglans hindsii*, *Juglans californica*) and Persian walnut (*Juglans regia*) are slightly susceptible. Arizona walnut (*Juglans major*) seems to be tolerant to the disease and considered the native host while Butternut (*Juglans cinerea*) and Pecan (*Carya illinoensis*) appear to be resistant to the pathogen.

Reproduction

Impact

Early symptoms of the fungus include yellowing leaves and thinning of the tree crown, followed by the foliage wilting and larger branches begin to die. The disease can kill trees within 3 years due to the coalescing of many cankers that form around every twig beetle feeding site. They are circular to oblong in shape and found in the phloem under the bark. This eventually kills the phloem and cambium tissue surrounding the gallery.

Monitoring and Rapid Response

Once the fungus has colonized the host tissue, it will continue to grow, and systemic and contact insecticides targeting the beetle do not prevent the progress of the disease. Prevention of the walnut twig beetle is essential to the early detection and rapid response to this disease.

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