



What to do.

If you suspect you have an exotic invasive pest or think you have an infestation, please contact the Clemson University Department of Plant Industry or your local Clemson University Cooperative Extension Service office.

For more information on invasive species, visit our website or find us on social media.



A partnership to protect your agricultural & natural resources.

Who we are. What we do.

The Department of Plant Industry, a part of Regulatory Services in Clemson University's Public Service and Agriculture, helps prevent the introduction of new plant pests into South Carolina as well as the spread of existing plant pests to non-infested areas.

Plant pest surveys, inspections, quarantines, control and eradication programs are among the tools used to safeguard the state's agricultural and natural resources.

We help horticultural businesses - such as nurseries, greenhouses, transplant growers and turf grass producers - as well as farmers, agricultural industries and South Carolina consumers in shipping plant material intrastate, interstate and internationally.

Inspections and certification services help ensure that plants are pest-free, which is essential for movement of plant material to other states and foreign countries.

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Walnut Twig Beetle, Thousand Cankers



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Eastern black walnut.

Black walnut (*Juglans nigra*) is an essential component of Southeastern forests and provides an ecological as well as economic benefit to South Carolina. The dark wood is popular in crafting furniture, and the walnuts make tasty treats.

The native range of black walnuts does not extend into the Lowcountry, but they are planted in residential landscapes throughout the state, especially in older neighborhoods.

Characterized by their dark, deeply furrowed bark, black walnuts have large compound leaves with 15-23 leaflets. They have numerous male catkins and terminal female flowers that ripen into round, semifleshy fruit that contain the sought-after nut.

Close to home.

Unlike most of our regulated invasive pests, the walnut twig beetle is believed to be native to the US. The beetle was first recorded in Arizona, and feeds harmlessly on the Arizona walnut. However, the beetle soon jumped hosts to the black walnut planted in the West where researchers first described thousand cankers disease. In 2010, both the beetle and the disease were found in the native range of black walnut. Since then, regulators have made positive identifications of this invasive disease complex in 4 Eastern states: Pennsylvania, Virginia, Tennessee and North Carolina.

Walnut twig beetle is a great example of how a domestic pest can become invasive when introduced to new areas. Moving host material across regions of the US can be just as risky as foreign trade.

An unassuming beetle.



Pityophthorus juglandis, the walnut twig beetle is hard to spot; at less than 2 mm in length, the adult is smaller than a grain of rice. The tiny, yellowish-brown beetle belongs to the Scolytidae family and is one of the few beetles in the *Pityophthorus* genus that feeds on hardwood tree species.

The adult beetles typically tunnel into branches larger than two centimeters in diameter and overwinter in the bark cavities. Infested branches are covered in tiny pin-sized holes bored by beetles. The larvae feed underneath the bark of the walnut tree and then emerge as adults in the early summer.



A devastating disease.



Walnut twig beetle carries spores of the fungus *Geosmithia morbida* on its wing covers. The fungus then spreads from the tunnels throughout the wood of the walnut as a canker.

During an infestation, beetles introduce the fungus numerous times, producing thousands of cankers. These cankers eventually girdle the tree's nutrient-transporting tissues, starving it of nutrients. The complex, known as thousand cankers disease, leads to crown dieback, yellowing of the upper leaves, the wilting of leaves and dark amber stains along branches and stems. Thousand cankers disease ultimately results in the death of the black walnut.



Inspect to protect.



DPI field staff place Lindgren funnel traps in wooded areas likely to harbor walnut twig beetles in order to detect if it is present in South Carolina. Field staff also inspect any declining black walnuts for thousand canker disease.