New Hampshire
Department of Agriculture, Markets & Food

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Thousand Cankers Disease

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There never seems to be a shortage of pests or diseases that pose serious health risks to our native flora. Research scientist recently discovered a new deadly disease termed "Thousand Cankers Disease" killing off Black Walnut (*Juglans nigra*) trees in California and seven other Western states. Fortunately, the disease has not yet been found any further east than Colorado; however, the native range of Black walnut trees extends throughout North America with populations occurring in the Northeast and parts of Canada.

Evidence links the disease to a relatively small native bark beetle that, on its own, causes little damage to the host trees, but when it carries with it an aggressive fungus the outcome is usually dismal. The culprit is the Walnut twig beetle (*Pityophthorus juglandis*), which is native to Mexico, Arizona, and New Mexico. In its native range, this tiny insect, being about the size of a grain of rice, does not kill its usual host, Arizona walnut (*Juglans major*), although it can cause dieback on twigs and smaller branches of stressed trees. However, the beetle appears to be spreading north into other regions

where it has been found attacking a new host, black walnut (*Juglans nigra*). On this host the beetle is more aggressive, attacking larger diameter branches and causing major branch dieback. In addition, the insect has developed an association with *Geosmithia* spp., a fungus known to associate with bark beetles of hardwood trees. In some cases the beetle also caries with it a second fungus (*Fusarium solani*) associated with canker development on the trunk and main branches.

In the early stages of the disease symptoms appear as dark staining of the bark that extends well into the living woody tissue resulting in a yellowing and thinning of the upper canopy and wilting of leaves; flagging branches; die back and ultimately the death of the entire tree, all within three years. Peeling back portions of dead bark will reveal well-developed beetle galleries and blotches of fungal-stained wood and bark. The fungus girdles the tree essentially killing it with a thousand cankers. The beetles generally attack the trees from mid-April through mid-September. At the end of summer, the beetles and the fungus that they carry move into the lower part of the trunk to hibernate.

The only effective prevention to date is early detection and rapid response. Removal and destruction of infected trees is paramount. Prune dormant trees and burn, or remove pruning debris from the area. Do not transport infected trees, firewood or lumber to unaffected areas. Insecticides are only effective if applied directly to the beetle and would need to be done before the beetles bore into the tree. Even if the insecticide kills the adult beetles and larvae, the fungus may continue to spread within the tree.

Be vigilant and contact the New Hampshire Department of Agriculture, Markets & Food Plant Industry Division if you suspect your Black walnuts may have Thousand

Cankers Disease. For more information, contact the Division of Plant Industry, NH Dept. of Agriculture, Markets & Food at PO Box 2042, Concord, NH 03302-2042, tel. 271-2561, fax 271-1109, email: dcygan@agr.state.nh.us.