# New disease after black walnut trees

Denver are declining rapidly.

The cause is a previously unknown disease, discovered and named just last year. Now called Thousand Cankers Disease, the pathogen has already felled walnut trees in every state west of Kansas except for Montana, Nevada and Wyoming. It typically kills trees within three years.

"The black walnuts in those states were brought in by pioneers or purchased as nursery stock, mostly to shade city streets. If thousand cankers spreads into Kansas, though, it will be entering the half of the United States where the eastern black walnut is a native tree. That could be disastrous – on the scale that Dutch elm disease was disastrous for the American elm," said Bob Atchison of the Kansas Forest Service.

Scientists are working to develop and test ways to address the disease. So far, their suggestions are: Detect and remove infected trees as quickly as possible, then quarantine the wood until the logs are debarked and properly cured.

"The situation places a special burden on the people of western Kansas," Atchison said. "Their maintaining a watch is vital because this spring, the disease had reached as far east as Rocky Ford,

"It's a burden on anyone who buys wood from out of state, too. An infected, harvested walnut log with its bark attached is an enormous threat to any state where thousand cankers hasn't spread."

The forester said the disease's visible symptoms emerge slowly. They include:

- Dark (canker) stains, running which may not be obvious early on, unless the bark's removed. They become massive in the end shaft" they surround. stages, particularly to the south and west.
- yellowing (thinning) of the upper
- Branch dieback. And, finally, tree death.

#### How could this happen?

The actual disease carrier is a tiny, brown bark beetle, smaller recently. It attacked, but caused little economic damage, to native walnut species in Mexico and the U.S. states of Arizona, California and New Mexico.

"Evidently, the beetle jumped its native distribution and wound up farther north, but how that happened is still a mystery," said plant pathologist Ned Tisserat, who discovered thousand cankers. "With this beetle came a fungus called geosmithia. It had never been reported as a pathogen on trees, so was brand-new.'

ever, the change could be an ex- nuts, and accomplishes important ample of an even bigger problem: ecological tasks. Besides, it grows global warming, which may be expanding the beetle's comfort tree." zone northward.

Juglans nigra, or black walnut. The nut-producing hardwood had no resistance or immunity to either pest.

seen butternut canker. I've had pdf.

MANHATTAN – Basically, the oak wilt on my own property and eastern black walnut trees in Col-seen other catastrophic problems. orado Springs and Boulder, Colo., This one potentially could match are gone. The black walnuts in any of those - go toe-to-toe in terms of damage. We'd better stop it in the West.'

Tisserat is well aware of what's at stake. From 1984 to 2004 he was a plant pathologist and became an Extension program leader at Kansas State University. He's been at Colorado State since 2004, working in CSU's Extension Service and as the university's Integrated Pest Management coordinator.

"I lived 20 years in eastern Kansas and had beautiful black walnuts on my property," he said. "I just cringe at the thought of what could happen to it."

Colorado and New Mexico scientists found the first-known cases of 1,000 cankers in the early less than 10 years ago.

"They thought the widespread declines they were seeing in black walnuts were related to drought," Bob Atchison said. "They didn't get worried until the drought broke, but the declines remained. Then states to the north began to report similar problems."

Why are the walnuts dying?

Despite their twiggy name, the immigrant beetles usually attack trunks and branches that are more than three inches across, the forester said. Every one of them bores a bark entry hole no bigger than a pinprick.

Once inside, each beetle immediately starts to develop its part of what will become whole galleries of tunnels just under the bark. That network alone is damaging to wood and tree, Atchison said.

But, the ride-along fungus becomes even more aggressive. It colonizes on the spot and starts to work around its beetle's tunneling. The fungus kills enough tree tissue from outer bark into the cambium to create brown-black blotches of dead cells (cankers) that end up several times the size of the "mine

"The beetle galleries and cankers expand throughout the tree • Wilting leaves and flagging and become so numerous that they branches that in time lead to a kill whole branches and finally girdle the trunk – hence the name thousand cankers," Atchison said. "It's kind of like a death from a thousand cuts, but the tree actually dies because it can't maintain a flow of nutrients.'

Researchers have found up to than the "I" in the U.S. penny's 30,000 adult beetles under the "In God we trust." Known as the bark in sample logs as small as 6 walnut twig beetle (Pityophtho- by 18 inches, he said. A popularus juglandis), the insect was little tion of that size averages out to 90 more than a nuisance pest until beetles per square inch, which, in turn, translates into an equal number of much larger cankers.

> "It's an amazing sight," he said. What's really at stake?

"All of this concern may seem strange for the middle of the great American prairie, but Kansas is the gateway to the eastern forests," Atchison said. "Besides, Kansas' native black walnut is the most economically important tree species we've got. It produces more than 400 million board feet of high-quality hardwood every year. It's a renewable resource that ben-Some scientists theorize, how- efits wildlife, produces valuable up to be one great-looking shade

Kansans who recognize thou-The bark beetle and its disease- sand canker symptoms in a black causing hitchhiker didn't have to walnut tree or want information travel far to meet a new host – the about the disease can contact their count or district Extension office. They also can call the Kansas Forest Service office at (785) 532-3300. A description and photos of "I don't mean to be Chicken the disease are at www.ext.colos-Little," Tisserat said, "but I have tate.edu/pubs/insect/0812\_alert.

### Kansas weather climate offers plenty of ups and downs

and with good reason.

"We have some justification for that," said Mary Knapp, who serves as the state climatologist. "Our state is in the Continental Climate Zone – which mostly means the oceans and Great Lakes are so far away that they can't have a tempering effect on our weather."

Kansas can be much hotter and much colder than the coasts, said Knapp, who is in charge of the state's Weather Data Library based in Kansas State University Research and Extension. But zone also is determined by an area's latitude, altitude and other climate affecters.

"For example, there's an Alcomes to handling the weather, pine Zone next door in the Rock-Kansans are a pretty tough crowd ies. The California Current brings Alaska's cold ocean waters down our west coast, keeping temperatures more moderate than would be expected in southern California," she said. "On the other hand, the Gulf Stream takes the Gulf of Mexico's warm waters up our southeast coast and eventually makes it possible to grow bananas and Christmas gardens in Great Britain.'

Information about Kansas weather is available on the Weather Data Library Web site: www. ksre.ksu.edu/wdl/. "Weather Wonders" audio reports are available on the K-State Research and Extension/Kansas Radio Network site at www.ksre.ksu.edu/radio/.

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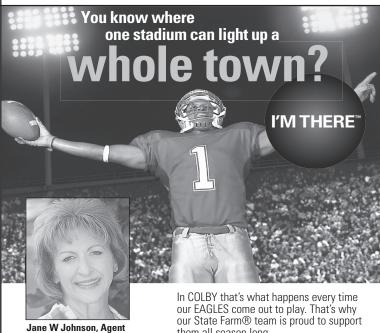
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