Tree-eating beetle gains ground in US West, raising concerns

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In this Tuesday, July 9, 2019 photo Northern Arizona University researcher Matt Johnson sweeps tamarisk trees along the Verde River in Clarkdale, Ariz., in search of beetles that feed on the leaves. The beetles were brought to the U.S. from Asia to devour invasive tamarisk, or salt cedar, trees. (AP Photo/Felicia Fonseca)

Matt Johnson treks along an Arizona riverbank and picks out a patch of yellow-tinged tamarisks. He sweeps a cloth net across the trees, hoping to scoop up beetles that munch on their evergreen-like leaves.

He counts spiders, ants and leafhoppers among the catch and few beetles or their larvae.

"Their numbers are really low," the Northern Arizona University researcher said.

That the tiny beetles brought to the U.S. from Asia in an experiment to devour invasive, water-sucking tamarisks showed up at the Verde River in central Arizona is no surprise. But it's further evidence they're spreading faster than once anticipated and eventually could pervade the Southwest U.S, raising wildfire risks and allowing less time to uproot the tamarisks, also called salt cedars, and replace them with native trees.

Without those efforts, an already highly flammable tree will burn more intensely, and an endangered songbird that nests in tamarisk might not have a home.

The federal program to use the beetles to chew up tamarisk trees began as an experiment in rural Nevada in 2001 and was approved for more widespread use in 2005, as long as they were at least 200 miles (322 kilometers) from Southwestern willow flycatcher territory. It ended in 2010 as the beetles intruded on the birds' habitat. An unintentional release in southern Utah also helped the insects spread into Arizona.

Johnson believes the quarter-inch (6 millimeter) beetles hitchhiked to the Verde River on clothing, a backpack or a boat. Normally, they are wind travelers but would have had to catch quite a gust to get to the river from the closest drainage where they've been recorded, he said.

Johnson has sent samples to a geneticist in Colorado to determine if the beetles can be traced to a population north of Arizona or a subtropical one from Texas that multiplies quicker.

Arizona once was projected to be too hot for the beetles to survive, but they've evolved as they've expanded their reach. Dan Bean with the Colorado Department of Agriculture found even more this summer in far southwestern Arizona along the California border, where temperatures regularly top 100 degrees (38 Celsius).

The concern now is the beetles establishing themselves in the Gila, Salt and San Pedro watersheds, which have higher concentrations of flycatcher habitat.

The beetles aren't known to feast on anything other than tamarisks, though one beetle can't eat much on its own. In the thousands, they can consume entire trees, Bean said.

This January 2014 photo shows a tamarisk leaf beetle at a Colorado Department of Agriculture insectary in Palisade, Colo. The beetles who were brought to the U.S. from Asia to devour invasive tamarisk, or salt cedar, trees are now in a central Arizona riverbank. (Dan Bean/Colorado Department of Agriculture via AP)

The tamarisk leaves can grow back within the season, but repeated attacks can be fatal for the trees—a welcome result in places flycatchers don't live.

Dead tamarisks can litter the ground with leaves and increase wildfire risks. The trees already are notorious for burning hot and black, and beetle predation would provide more fuel.

Ben Bloodworth works with Rivers Edge West, formerly the Tamarisk Coalition, which has been tracking the beetles' movement for years. The group has mapped the beetles along the Green River in Utah, the Rio Grande and Pecos River in New Mexico and Texas, the Arkansas River in Colorado, the Colorado River—a major source of water for 40 million people in seven Western states—and other waterways.

"Eventually the beetles will be throughout the entire Southwest, and really what we need to do is, in areas where it's appropriate, get in ahead of the beetle (and) plant willows and cottonwoods and other native species that can provide habitat for the willow flycatcher," Bloodworth said.

The beetles and the songbird have been the subject of legal fights. The Tucson-based Center for Biological Diversity sued the U.S. Department of Agriculture and its Animal and Plant Health Inspection Service in 2013. The lawsuit alleged the damage caused by the insects through the beetle release program violated the Endangered Species Act, and argued the federal government should be held liable.

As part of a settlement, the USDA released a draft conservation plan in June for the flycatcher, which is found in parts of Arizona, California, Colorado, Nevada, New Mexico, Texas and Utah. Under the plan, the agency would aid existing conservation programs, contribute money and monitor beetle impacts. The public has until Aug. 8 to weigh in.

The beetles would not be in the United States if not for the tamarisk that thrives along riverbeds. The trees were brought here in the late 19th century for erosion control. Today they're loathed for crowding out native trees, though Greg Beatty of the U.S. Fish and Wildlife Service said the tamarisks' success is more a function of dammed rivers. Their reputation as water villains, he says, often is grossly overstated.

Without native trees, flycatchers were left to seek new nesting sites in tamarisks.

The trees' scent, akin to freshly cut grass, lures beetles. Once the insects arrive, the males use pheromones to attract other males and females. They use their mouths to scrape off plant tissue, and leave behind only the skeleton of the tamarisk's leaves.

As the foliage dies, the songbird loses cover from predators. If their original habitat isn't restored, the gains wildlife managers have had with flycatchers over the past decade or two could be erased, Beatty said.

The beetles can't be stopped as long as they have a food source.

"The toothpaste is out of the tube, Pandora's box has been opened, the genie is out of the bottle, whatever kind of analogy you want to use," Beatty said.