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Bugs wiping out coastal redbays

Green understory of many coastal forests turning brown as trees die

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BOB SOFALY/THE (BEAUFORT) GAZETTE
Laurel Weeks, interpretive program manager at Hunting Island State Park, checks on dead and dying redbay trees. An Asian beetle is attacking the trees, leaving behind a fungus that kills them.

Like brown teardrops streaming down nature's green face, thousands of dead and dying redbay trees line the roads and trails of Hunting Island State Park.

Experts worry that the destruction of these trees, which live in the shadows of loblolly pines and palmettos along the coast, could be a harbinger for the entire Southeast. Damaged redbays have been found in 32 counties of South Carolina, Georgia and Florida. The Asian insect causing the problem — the redbay ambrosia beetle — has no known predators, and scientists have been reluctant to spray pesticides for fear of killing beneficial bugs.

In some areas, the entire understory between the tall Sabal palmettos and the ground-clinging saw palmettos is brown with wilted redbay leaves. Volunteers counted 2,068 dead trees within 30 feet of roads and trails in February. By the time the beetle is through with the island, experts suspect it will wipe out the entire redbay population.

“It’s very sad to see it,” said Laurie Reid, an entomologist with the S.C. Forestry Commission. “People visit a state park expecting to see green trees.”

‘IT LOOKS LIKE A FIRE HIT’

The beetle first showed up in traps at Port Wentworth in Savannah in 2002, likely arriving earlier in redbay wood used in packing crates carrying goods from Asia. A fungus left behind by the beetle spreads throughout redbays’ vascular system, causing leaves to wilt and the tree to die.

Scientists weren’t sure what was killing the trees until 2005. Technically called laurel wilt, the disease won’t get the attention accorded the Southern pine beetle, which attacks a cash crop, or the wooly adelgid, which is wiping out majestic hemlocks in the mountains.

Redbay’s wood, only occasionally used in furniture, has little economic value. The redbay leaf has the same aromatic attributes as the bay leaves used in cooking, but most of the commercial bay leaves are from species grown in California or the Mediterranean. Landscapers working in urban areas like the redbay for its extreme drought tolerance, but they can find other species.

“You don’t really notice it because it’s an understory tree, but it does add a lot of green to the forest,” said Laurel Weeks, interpretive program manager at Hunting Island.

It’s one of eight major tree species in maritime forests on South Carolina’s coastal islands. While redbays can grow to 60 feet tall, most are in the 15- to 25-foot range. It is most common along the coast, but its natural range reaches the Midlands.

It’s one of those evergreen species you don’t notice — until its leaves die and stay brown year-round like they have at Hunting Island.

“It’s awful,” said Robert Lee, a former Lowcountry resident visiting Hunting Island from Knoxville, Tenn. “It looks like a fire hit. It used to be so lush and green.”

THE DAMAGE IS DONE

Even if it’s not important economically, the redbay plays a large role in the ecosystem, Reid said. Songbirds, quail and deer feed on the leaves and the small black fruit. More importantly, the Palamedes swallowtail butterfly lays its eggs exclusively in the redbay, and several other species of swallowtail prefer the redbay to other trees.

Forestry and agricultural scientists from South Carolina, Georgia and Florida, along with federal officials from Washington, have been monitoring the redbay disease since 2004.

“We’re trying to find out the biology of the beetle, find out where the beetle is and where it isn’t,” Reid said.

In its native Asia, the beetle isn't a problem because it attacks only stressed trees. Here, it attacks healthy trees, speeding its spread.

Limited to three counties in 2004, the beetle now is in 32. It spreads about 20 miles per year with no help. But strong winds or careless campers taking firewood to their next stop could speed the spread. Signs have been posted at Hunting Island asking campers not to take redbay wood off the island.

Spots of dead redbay leaves already dot the new hiking trail at Edisto Beach State Park north of Hunting Island, and Hilton Head officials have been dealing with the disease for a couple of years.

While the beetle and the fungus have shown up in similar tree species, damage has been limited. Florida officials hope it doesn't spread to avocados, an important cash crop.

In recent months, scientists have tested pesticides on infected areas in Georgia and Florida. That might be the only hope for the species in the Southeast.

At Hunting Island, the damage already is done. The State Park Service is debating whether to cut the dead trees and burn them on site or shred them and leave small piles of pulp throughout the forest. Neither solution deals with the hole left in the forest.

"It does fill a niche in the maritime forest," Weeks said. "We don't know if something is going to come along to take its place."

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REDBAY DISEASE

An Asian beetle is threatening to wipe out an entire species of tree along the Southeastern coast.

The victim: Redbay (Persea borbonia) is an evergreen tree that can reach 70 feet in height and 3 feet in circumference. Most are much smaller, filling in the understory of maritime forests. Long, slender leaves; reddish-brown bark; small, dark blue fruit. Found on Gulf and Atlantic coastal plains from Texas to Delaware. Wood used sparingly in furniture. Aromatic leaves used in cooking.

The culprit: Ambrosia beetle (Xyleborus glabratus), less than one-tenth of an inch long. Native of southern Asia. First noticed in the Southeast in 2002 in a trap near Port Wentworth, Ga., so beetle likely arrived at the port on a ship from Asia. Create few problems in native habitat.

The damage done: Beetles feed on trees, leaving behind a killing fungus that causes redbay leaves to die on the stem, often staying on the limbs. In Asia, fungus only has impact on trees already stressed by drought. In U.S., fungus kills previously healthy trees.

What can be done: Very little. Ambrosia beetles have no known predators. Insecticides that would kill the beetle also would kill many beneficial insects. Campers have been asked not to transport redbay firewood away from areas where it is cut to slow the spread of the beetle.

Percent of mortality of infected redbay trees: Nearly 100 percent in South Carolina infestations

Spread of disease: By the end of 2006, it was in five counties in South Carolina, 15 counties in Georgia and eight counties in Florida. Researchers in South Carolina expect it to spread about 20 miles per year and have added Charleston to the list of infected counties this year. Beetles blown by wind have been found up to 80 miles from previously known populations.

Number of dead redbays counted along roads and trails at Hunting Island State Park last month: 2,068

Ecological impact: Redbay is one of eight major tree species in the maritime forest at Hunting Island and fills out the green understory for many Southeastern coastal forests. Birds and other small species eat the tree's fruit. Palamedes swallowtail butterfly lays its eggs exclusively in redbay.

Economic impact: Minimal, unless the disease spreads to similar species, such as Florida avocados.

— Joey Holleman