

Caddo Lake suffers as giant salvinia surges

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Capt. Ron Gibbs, owner of Graceful Ghost steamboat tours, takes a tour Thursday of areas of Caddo Lake overrun with giant salvinia. Photo: Michael Cavazos

CADDO LAKE — Capt. Ron Gibbs couldn't win for losing.

First, the 2011 drought drained the lanes for the Graceful Ghost steamboat tours he launched from Uncertain.

"Now, it's the giant salvinia," he said this past week outside Big Pines Lodge, where he spirited his Ghost to ply the salvinia-free, moving waters of Big Cypress Bayou.

"This year, we have sufficient water, but we can't get in there because of the non-native, invasive species."

The more still waters in nearby Caddo Lake have become increasingly choked by the invading giant salvinia plant, which under ideal conditions can explode from a two-leaf sprig to a 40-square-mile mat in three months. The Turtle Shell tree break, once a mysterious hall through which the steamboat has chugged for years, is unnavigable.

"I can't even get a pontoon boat in Turtle Shell," Gibbs said. "And that's the most beautiful place. The last time I took the steamboat through Turtle Shell, we were pushing such a mass of giant salvinia I had to stop. My crew had to get out around the bow and push it away."

Shoving giant salvinia aside is a temporary remedy, though more permanent fixes are slow to show progress in the war that's happening at more bodies of Texas water than Caddo Lake.

Back with a vengeance

Giant salvinia was detected in Toledo Bend Reservoir in 1998. It was identified in Caddo Lake in 2006, according to Lee Eisenberg, a water resources specialist with the Texas A&M AgriLife extension service stationed at the Caddo Lake National Wildlife Refuge headquarters.

"We thought we were as prepared as we could be," said Robert Speight, a 45-year lake area resident who runs the salvinia response program for the Cypress Valley Navigation District. "And we probably were as prepared as you can get. But, you cannot overcome this thing with spraying or harvesting or anything. We tried, we tried hard. We built a two-mile long fence across the lake."

In 2008, Hurricane Ike blew apart that structure, which had been placed in hopes of preventing salvinia on the Louisiana side of the lake from migrating into Texas waters.

That same year, Eisenberg said, about 3,000 acres of the state's largest natural lake were taken over by the mats, which can plunge four feet deep and resemble a green field from the surface.

Flooding in 2009 pushed much of the salvinia downstream into the Red River, and a hard freeze the following winter left about 200 acres of the plant.

Lake lovers in the meantime battled the plant by spraying herbicide, direct harvesting and even growing and releasing the plant's natural predator, the giant salvinia weevil.

"Up till late 2011, when we started getting water in the lake from rains again, (salvinia) stayed dormant," Speight said.

He drew an imaginary arc with his finger over a map of the lake off the Uncertain docks and next-door refuge. Much of it used to be the Graceful Ghost's daily haunt.

"All of this is about 95 percent covered with salvinia — about 7,000 acres," he said. "We've had what's amounted to a growth explosion."

The rapid spread of the plant is an unhappy byproduct of the return of normal lake levels at Caddo; that and relatively warm winters that don't kill out the plant.

It's no longer confined to Caddo, either.

Speight said Lake O' the Pines has had four outbreaks.

"Each time they find it, it's around boatramps," he said. "And they've been able to contain it."

The plant has been found in the Sulfur River upstream of Lake Wright-Patman, in Lake Murvaul, Lake Gilmer and the cooling lake for the Pirkey Power Plant in Rusk County, he said.

Triple trouble

As if the thick, choking mats were not bad enough — blocking light from aquatic life and sucking up all the oxygen dissolved in the lake — what happens on the lake bottom might be the most alarming.

"Because of this explosion of salvinia — growing and dying, growing and dying, growing and dying — the rate of siltation hurried up," Speight said. "We could lose part of our backwater areas in a few decades."

Silt, tiny pieces of decaying debris, can blanket the floor of a lake in ever-rising levels of worthless mush. Siltation, if severe enough, creates a phenomenon known as a dead lake.

It does serve a purpose, converting swamps into marshes in a natural process that takes more than a century.

"What I'm seeing in these backwaters," Speight said, "is exponential silting on the bottom."

And the topside is no picnic.

Water exits a lake three times faster from transpiring salvinia leaves than it would evaporate under direct sunlight, Speight and Eisenberg said.

"You've got all these leaves," Speight said. "And all the salvinia and other plants and other vegetation are draining the water you need. ... And nobody seems to be addressing it in the state."

Speight sits on the state's water planning group for Northeast Texas, called Region D. He's heard all the back and forth about Dallas interests pushing to build Marvin Nichols Reservoir on the Sulphur River.

"Why go destroying ecosystems, building lakes, when you are not saving what you have here?" he asked.

Weevil work

One hundred thousand weevils, grown in an aquatic greenhouse on the refuge, were first seeded onto the mats in 2011.

"We know they over-wintered," Speight said. "We just hope they are out there in the (cypress lake) trees somewhere."

Another 100,000 weevils were unleashed on the plant in 2012.

"We've released them once this year and are preparing to release the first part of (this) week," Eisenberg said.

For this year's releases, the team has focused on the west end of Bird Roost, a huge tree brake near where the northwest portion of Caddo hooks south to its extreme shore.

"And we hope they stay there," Eisenberg said. "The idea coming from A&M is to super-stock — put a lot of weevils in one area and get the ball rolling, so to speak."

Lake denizens are wondering about those weevils. Gibbs said many are asking whether a caterpillar is eating the things that are supposed to be eating the salvinia.

"There's lots of predators that would eat the weevil if they had the chance," Eisenberg said, checking off water bugs, crawfish and frogs among them. Even fire ants roam the island mats, as do ground beetles.

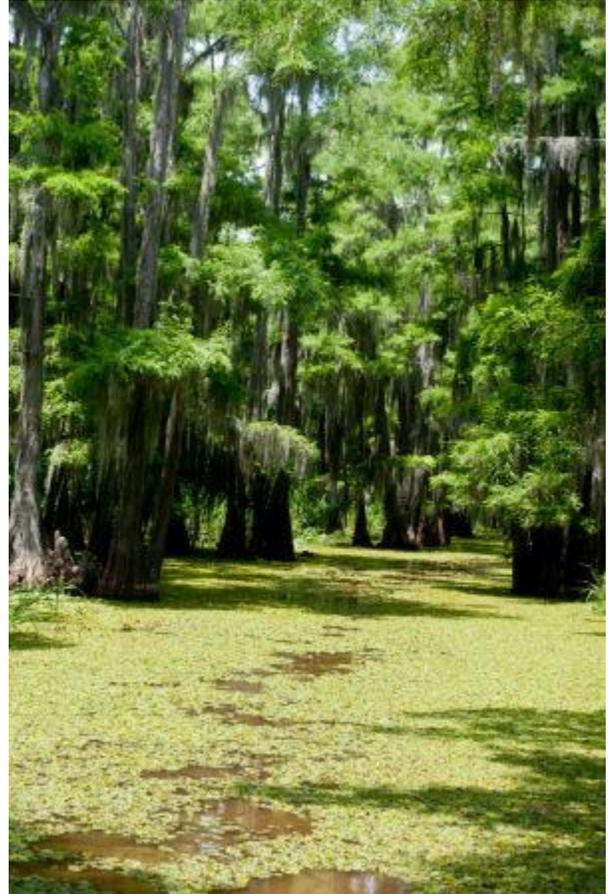
Back at Big Pines, Gibbs has built a long dock for passengers to await the Graceful Ghost's five daily departures. The restaurant, which reopened a little more than a year ago to rebound from a fire, is playing second mate with light foods designed for eating aboard.

This area of Caddo, actually the stream that feeds it, looks as pristine as ever with moss-draped cedars and tall pines lording it over the roughly 100-yard-wide current.

"No salvinia here," Gibbs said. "It's all downstream from here."

About Salvinia

- Giant salvinia (*Salvinia molesta*), a floating fern from southern Brazil, is one of the most problematic aquatic plants in Texas.
- It damages aquatic ecosystems by outgrowing and replacing native plants that provide food and habitat for native animals and waterfowl. It also blocks out sunlight and decreases oxygen concentrations to the detriment of fish and other aquatic animals.
- Giant salvinia infestations often expand very rapidly. It can double in about a week under the right circumstances.
- Before it was found in Texas, giant salvinia was known to cause significant problems in other areas around the world, including Australia, New Guinea, New Zealand, Zambia and Zimbabwe.



Source: *Texas Parks & Wildlife Department*