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Headline:Tunnel crack bodes ill for trees' future
The creek in front of his childhood home is drying up, and this father worries it will lead to the death of his beloved hardwoods

Subhead:

Reporter:TY TAGAMI

Body Text:Robert Wilson loved his childhood home so much he bought it from relatives when his father died.

Wilson's father had built into the bedrock of a shady hillside above a stream. The house on Windsor Parkway, in Fulton County just north of the Atlanta city line, seems solid and comfortable. But it's the canopy of trees --- beeches, red oaks, poplar --- that Wilson cherishes. Many of them are more than 100 years old by his estimate, and irreplaceable.

So, he was troubled when he noticed in March that the stream, which had gurgled nearly every day since he was a boy, had suddenly gone dry. He worried his trees would die.

At around the same time, he said, he and his neighbors heard a rumble deep under their homes.

Atlanta's boring machine was digging the Nancy Creek tunnel, an 8-mile-long underground holding tank for sewage. Two weeks ago, officials announced a major milestone when one of two machines digging as far as 300 feet beneath the earth's surface finished a 3.1-mile leg of the tunnel. The second leg is expected to be completed in August.

When finished, the tunnel will take sewage from older pipes that leak into Nancy Creek, polluting it. What's good for Nancy Creek, however, has proven bad for Wilson's creek.

City officials have confirmed that the boring machine broke through a fracture in the rock, draining the underground pool of water that fed the stream in front of Wilson's house.

Wilson and his neighbors worry that the damage is permanent and that their trees will die of thirst, and their shaded idyll will become as sun-baked as a new subdivision.

"I grew up playing in this creek down here, collecting crayfish and salamanders," said Wilson, who is 47 and has two sons. One of them found a dried-up salamander in the empty stream bed recently.

If the trees died, Wilson said, "I'd be devastated."

Rob Hunter, the acting commissioner of Atlanta's Watershed Management Department, acknowledged the city was to blame. He said he was "reasonably sure" that a series of cracks along a 30-foot length of the tunnel wall were draining the source of the creek. Wilson and his neighbors want the city to plug the leak immediately, but Hunter said that is not possible.

He said the tunnel contractor plans to grout the cracks after the tunnel is completely dug out and a lining is installed in the fall.

Meanwhile, Wilson and his neighbors worry that the crack is lowering the water table and putting trees throughout their neighborhood at risk.

Little is known about the geology under the creek. And experts disagree about the extent of the damage.

City officials initially said their plan --- they were paying a homeowner near the top of the stream bed to run a garden hose night and day --- would suffice to keep the trees alive by preventing the water table from dropping too rapidly.

"The value of putting water back in the stream is that it restores the flow into the creek, so it reduces the amount of flow from the surrounding soils into the creek," Jack Raymer, a tunnel geologist with the city, said in an interview several weeks ago. Raymer, who works with the firm Jordan, Jones & Goulding, a consultant on the city's tunnel project, said water was leaking from the tunnel crack at approximately 15 gallons per minute. He said the hose was replacing water at a similar rate.

"So, all we've got to do is make sure that more water is coming in than is draining out," Raymer said.

But the residents got an expert of their own who said too little is known about the underlying rock formations to assert that the hose would work.

Billy Hall, a hydrologist with the firm NewFields, said the hose was merely a "cosmetic" fix because the streambed is carved through rock, so little of the water can be absorbed by surrounding soils. "It certainly wouldn't mitigate the problem," he said.

Hall also said the crack is losing water at a much faster rate. He said an engineer he sent into the tunnel estimated it was flowing at 20 to 50 gallons per minute.

A speedy drop in the water table could be disastrous for trees, according to Kim D. Coder, a professor of community forestry and arboriculture at the University of Georgia's Warnell School of Forest Resources.

As the water level drops in the soil, tree roots will follow it down, he said. If it drops too quickly, the roots can't keep up. The

trees can die immediately or they can weaken and succumb to disease or insects.

Coder said the healthiest trees might grow roots down fast enough to keep up with the water table if it drops slowly enough, and it doesn't drop too far. But, he said, the trees might face a second test when the crack in the tunnel is plugged.

The roots could drown when the crack is sealed, he said. If the water table rises quickly, he said, the roots won't be able to take in oxygen.

"The brand-new roots will be suffocated," he said.

Wilson said his neighbors were frustrated with the answers they were getting from city officials. He said they decided their best strategy was to pepper Mayor Shirley Franklin with phone calls and letters.

Last week, Hunter announced the city was taking a more aggressive tack, though he said it had always been the city's intention to do so. Hunter said workers would lay an irrigation network amid the trees, and turn on the water if a city arborist said it was necessary. (In an interview in mid-May, Hunter didn't say the city would be laying an irrigation system. But he did say the city's experts were "looking at soil moisture to make sure the trees are getting enough water" and "we will do what it takes to protect those trees.")

Wilson said he's satisfied that the irrigation system will work temporarily. But he said he's worried about long-term damage from the crack.

When a reporter asked Coder about that, he said there was a risk, however slight, that the water table would not rise again.

"If the spring did disappear, that's a complete change in the underground hydrology that can be permanent," said Coder, who does not know the residents and has not inspected the site. By the time the leak is plugged, the underground water may have diverted into a new flowing pattern, he said.

"It may have found new paths of least resistance."

Caption:

Keywords: