

Live Oak Trees Struggle For Growth Survival

The majestic live oak is losing its battle for survival to suburban sprawl and the encroachment of taller trees, a new UF study finds.

An icon in American history and literature, broad-crowned live oaks thrive in open savannas but are dying off as they are crowded and overshadowed by the encroachment of taller trees, said Francis Putz, a UF botanist and the study's co-author.

It is an irony of nature that the successes of reforestation and urban forestry threaten live oaks, which in the past maintained the elbow room they needed from logging, cattle grazing and frequent fires, said Putz, whose work was published in the June issue of *Forest Ecology and Management*.

"We are confusing our natural savanna heritage with forested landscapes and the tragedy is that the forest is killing live oaks," he said. "If we allow other trees to grow up too close to the live oak, the live oak will die. Our research clearly establishes this fate in

both rural and suburban landscapes."

The live oak's broad crown, with long arching limbs that spread horizontally rather than vertically, as most trees do, give it a distinctive architectural makeup, said Tova Spector, who did the study with Putz as part of her master's degree in ecology. "Trees that grow straight and tall crowd the live oaks, causing their crowns to die back," she said.

"Once their branches begin to grow horizontally, live oaks seem unable to reverse this trend by growing upwards," said Spector, who mapped and measured crown densities in both closed-canopy and savanna-like tree stands in Alachua County, Florida.

Sweet gum, black cherry and magnolia are among the culprits, but the worst offender ironically is laurel oak, which resembles the live oak but is not nearly as sturdy, killing more people in the South than any other tree, Putz said.

The live oak's deep roots, relatively short stature and strong wood help it to withstand the high winds and strong storm surges that topple other trees during hurricanes, Spector said.

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Kristen Bartlett

Botany Professor Francis Putz holds a sapling of a laurel cherry, a tree native to Florida, in front of a large live oak on campus. Putz is researching increased deaths of live oaks from crowding by other trees, including the laurel cherry.

Spector also measured changes in savannas and woodlands, live oak habitat, from 1955 to 1999, using aerial photos of rural parts of Alachua County. She found that these open habitats declined from 70 percent cover to less than 33 percent, mostly because of the establishment of pine plantations.

Putz said he believes more than half of the live oaks in the city of Gainesville alone are in danger of being destroyed by encroaching trees, a process that can take anywhere from 10 to 30 years and is most rapid in the suburbs where lawns are fertilized.

Preserving a single live oak can add as much as \$30,000 to the value of a house, Putz said. Furthermore, having a live oak nearby is good protection against hurricane damage.

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