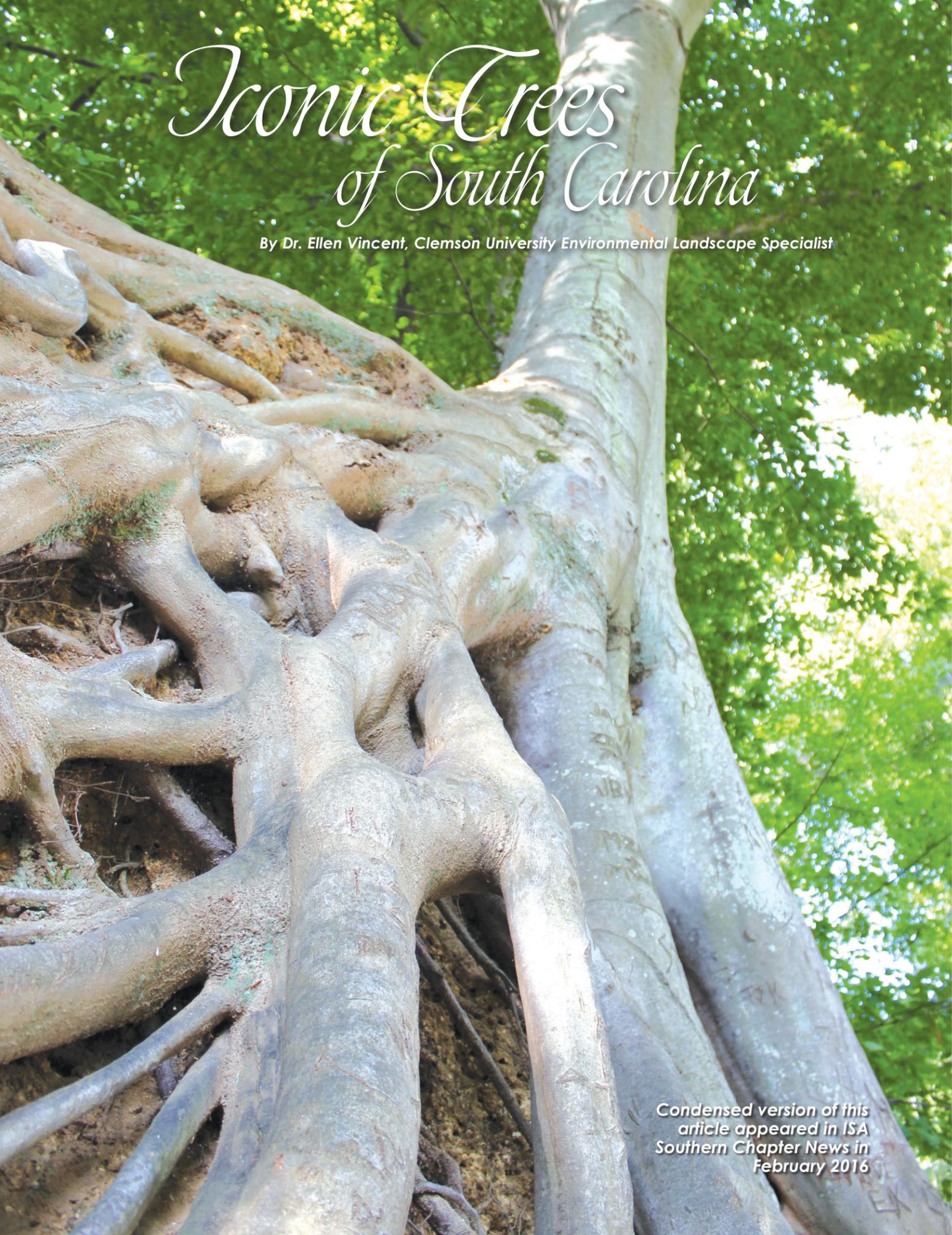


Iconic Trees of South Carolina

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South Carolina is home to a cadre of special status trees. They tower and soar, weep and drape, and draw tourists and locals alike to their unique architecture. Maintenance personnel perform diligent soil health care to keep these treasured trees standing tall.

In Greenville, SC, in the upstate, are two iconic trees. The first and most well-known is an American beech (*Fagus grandifolia*) or "Roots Tree". This unique specimen displays its stunning root system on a steep bank that overlooks Falls Park and Swamp Rabbit Trail under the SC Governor's School for the Arts. Photo shoots regularly occur in front of the dramatic root system-and people inevitably appear miniature in comparison to these thick roots. USA



Today featured the tree in a March 2014 interview with Dale Westermeier, Deputy Parks and Recreation Director (<http://www.usatoday.com/story/news/nation/2014/03/16/greenville-american-beech-root-tree/6503721/>). The origin of the tree is guessed at, some suspect it was part of the old Furman arboretum while others think it might be a stray start along the roadside it overlooks. The tree is approximately 70 years old and 58 feet tall. There are 15.6 feet of exhilarating roots visible to pedestrians. Fortunately for the Governor's School and City of Greenville this work of art requires virtually no maintenance. The main threat to its well-being is, of course, people. Attempts to curb carving and climbing are displayed in signage informing people of the Municipal Code protecting trees. The steps that used to run alongside the tree have been blocked to reduce easy access to the roots.

A less known tree in Greenville that receives honorary status is the live oak (*Quercus virginiana*) at Holmes Park. Drew Smith, Superintendent of Beautification for the City of Greenville watches over this 53 feet tall treasure that has a 70 foot spread. Smith is also an ISA Certified Arborist, Qualified Tree Risk Assessor, and current President of the non-profit organization Trees SC. He has tracked the origin of this tree back to 1918 but knows little else about its origin. The tree is in a city park that contains a playground heavily used by a local school as well as residents. Regular maintenance practices include a quarterly visual inspection; pruning deadwood; and applying mulch. The double ground mulch is delivered by truck but parked away from the drip line and loaded into wheelbarrows. A three member crew spreads the mulch



to a depth of two inches using rakes and pitchforks. All mulch is pulled well back from the trunk to avoid contact. Specialty care includes cabling heavy branches as a preventive measure and air fracturing to add organic matter to the soil. Schneider Tree Care is hired to perform this soil service. A touch of spray paint vandalism is the only offense this tree has suffered to date under Smith's watch. Smith has seen mothers congregate under the tree branches during the heat of summer while their children run freely about the playground nearby. Smith's main recommendation to others involves managing foot compaction and he will continue to provide mulch to prevent soil compaction.





The **Centennial oak** is an award winning bur oak (*Quercus macrocarpa*) on Clemson University campus. At 66 feet tall with a spread of 124 feet and a 15 foot trunk circumference it is a centerpiece of the university. This is a Champion Tree of SC and it also received the Heritage Tree award in 2009 from Trees SC. Talk on the college campus reports that it was recently featured on ESPN where ties to Clemson's champion football team were drawn. The tree, which is shrinking in size, is considered to be declining. Paul Minerva, Arborist for Clemson University Landscape Services tends this masterpiece and explains, "This is a State Champion tree that is adored. It is declining so we will give it every ounce of attention we can. We want to keep it around for as long as we can." Minerva is an ISA Certified Arborist, Qualified Tree Risk Assessor, Municipal Arborist, and Tree Worker. All four members of Clemson's arborist team are Certified Arborists. The tree is visually inspected weekly by the landscape services crew who monitor the five soil moisture meters buried in the soil. The moisture meters tell the crew if the tree needs water. A visual inspection by the campus arborists occurs twice per month. Twice per year, at the end of summer and again during dormancy, the crown is cleaned and dead wood is removed. Bartlett Tree Experts are hired to perform an annual inspection which includes a soil test; then a customized nutrient application based on the soil analysis. Preventative treatments for borers (ambrosia beetle specifically), phytophthora suppression, and soil treatment to suppress leaf chewing and sucking insects are also performed annually by Bartlett. Campus crews use wide tire gators to deliver shredded bark mulch to the space which is then spread two to three inches deep by hand with rakes. Fresh mulch is added every two years and the older mulch is incorporated into the soil during an air spading process which again is performed by Bartlett. Roots are invigorated via the air spade to a depth of 6-12 inches. Biochar (charcoal) is added at this time as well. In 2014 the soil organic matter level was a desirable 7.5%. Props are installed to support overextended low heavy branches and cables help support weaker crotches and heavy branches. Vandalism has occurred to the lightning protection system due to climbing. Cables were being ripped out of the ground and Minerva suspects people were using the cables to climb into the tree. A Futon mattress was once found perched on a limb.

Minerva takes his obligation to this tree and the community seriously and recommends consulting with other qualified professionals to be sure that the



iconic tree receives royal attention. In addition to his own highly trained crew and Bartlett researchers; local experts who consult on the Centennial oak include Don Ham, Emeritus professor of Forestry and Karl Pokorny, owner of Trees South. "Stay informed, use high quality resources" is his advice. "The more eyes the better on a treasure like this. Less likely that something will get missed."

ANGEL OAK

Visiting the **Angel oak** (*Quercus virginiana*) may be as close as we get to Atlantis or Shangri-La. The age is a mystery and it is reputed to be ancient. Stories claim it is over 1500 years old or the oldest living thing east of the Mississippi. Danny Burbage, Assistant Director of Parks for City of Charleston is a Certified Arborist and Tree Risk Assessment Qualified. Burbage has discussed the age of the tree with celebrated arborists Don Ham (SC), Kim Coder (GA), and Ed Gilman (FL) and he says they all agree that the stories are not likely true. The best guess, Burbage reports, is that the tree is 300-500 years old. The overall size of the tree is 65 feet tall with a dbh of 8.5 feet, and a shade area of 17,200 square feet. The largest limb circumference is 11.5 feet and the longest limb is 89 feet long. As old as this tree is it is still growing. Between 6-12 inches of new shoot growth appear per year with no fertilizer or water regime. "It is an old and beautiful tree" Burbage reminds us.

Maintenance on the Angel oak involves monthly visual inspections by both Burbage and Bartlett Tree Experts. Burbage performs a 10-15 minute walk around at this time. The lightning protection system and cable support systems are inspected annually and



repaired if needed. An insecticidal soil drench is applied once per year as a preventative measure. Dead wood or other pruning is performed as needed. Old mulch is turned into the soil with an air spade which aerates the soil to their desired depth of approximately six inches. This treatment increases pore space and prevents soil compaction. New mulch is generally applied annually. Coarse pine bark is spread three inches deep and continues well past the drip line. Props that support low heavy branches are monitored and with the help of a structural engineer sometimes moved or adjusted. Burbage relies on the scientists at Bartlett to steer his maintenance regime; yet he claims it is "Mainly the watchful eye" that also governs the space.

Though the Angel oak is a destination and almost always has visitors, vandalism is not an issue. Perhaps it is the close circuit television transmission that feeds into the neighboring staff and sales building that keeps harm at bay. Or maybe this is due to the chain link fence that encases the five acre park and is locked tight after hours. And then there is the five-beam motion detector on the fence that is linked to a police substation five minutes away that averts violence. An arborist attending one of Danny Burbage's classes once was apprehended by police at the Angel oak after hours. He explained that he just had to touch The Tree.

During tourist season up to 100 people at a time can be counted standing on Angel oak soil. Visitors are local and international and include many professional and budding photographers as well. Danny Burbage has glanced at the faces of these visitors over the years and thinks "It is the emotional experi-



ence that moves them." More than one professional arborist has stated "I will come to work on this tree for free for the honor to climb in it." Special events are not allowed under the Angel oak though an exception is made once per year when the Charleston ballet performs with the Charleston symphony during Piccolo Spoleto. Dancers, by the way, are not confined to the ground during this performance either. Honors abound for the Angel oak and include the Heritage Tree award in 2004 from Trees SC and the Heroes of Horticulture Award by The Cultural Landscape Foundation in 2007.

Danny Burbage understands that the role of steward comes to him in this job and that he must be observant and responsive as this iconic tree is special to the community.