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## Outdoors

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### Live Oak Ages Stump Experts

By Jeff Dennis  
Outdoor Correspondent

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The citizens of Beaufort are celebrating 300 years of their city's charter with the Three Century Project that culminates with a tri-centennial day on January 17, 2011. They held a Live Oak Symposium on April 29 in Beaufort to recognize the significance of Beaufort's treescape and to recognize some of the area's largest trees as reported by residents. Local arborist Michael Murphy welcomed Professor of Dendrochronology Henri Grissino-Mayer from the University of Tennessee, who spoke about the science of tree rings.

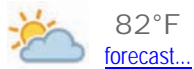


Michael Murphy of Beaufort welcomes Professor Henri Grissino-Mayer to the Lowcountry. PHOTOGRAPHS BY JEFF DENNIS

Grissino-Mayer displayed several cross sections of old trees on the podium and declared that the aging of trees through the study (or counting) of tree rings is a very exact science. Grissino-Mayer said, "A dendrochronologist can give you the exact age of a tree by studying the tree rings. It is not to the closest decade; its exact year can be determined." The professor was recently summoned to Augusta National Golf Course to age an

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oak that was toppled before the Masters, and he dated it as being from 1875.

The father of dendrochronology was Dr. Andrew Ellicot Douglas of Arizona, who studied sunspots (solar activity) and was able to connect the history of sunspots with data recorded on tree ring data. The fact that something as delicate as sunspots could be recorded on long-lived trees meant that much more might be recorded there. Ends up trees are nature's ultimate record-keepers for climate such as drought, flood, temperature change and even wildfire activity.

Evidence of repeated fires in the coastal plain of the Southeast is recorded as "fire scars" in tree rings, with a timeline that shows these fires were common from 1700 to 1930, which is about the time the Smoky the Bear campaign came to be, showing one of the long-term effects of man with the cessation of natural fires. Fire scars show that these fires tend to travel in the same direction, likely due to predominant winds in the area.

Why is a "marker" like fire scars important to dendrochronology? Cross dating of tree ring data can provide a sawtooth graph known as a "reference tree ring chronology", which Grissino-Mayer says is akin to DNA matching or even fingerprint matching. This means that even a cross-section of an old log that has suffered decay on the outside of the trunk and rings, can be added to or matched up with the tree ring chronology of other trees from the area. Given that bald cypress trees may live 1000 years, this chronology data can go back with accuracy for a very long time.

Live Oaks Hide

Their Age

Preservation Tree Care of Beaufort began in 1994 when Master Arborist Michael Murphy moved to the Lowcountry from New Jersey. Murphy said, "Old live oaks are a national treasure and are a signature of the Beaufort treescape. A broad formula for aging live oaks might be that they 'grow' for 100 years, 'live' for 100 years, and 'die' for 100 years." With the Angel Oak on John's Island being "untouchable" when it comes to measurements like trunk diameter, and canopy spread, the tree's true age is not known, but it is thought to be 300 to 400 years old.

Why can't dendrochronology bring its accuracy to live oaks? Our legendary live oaks are quite susceptible to "injury" and "tissue damage" which limits the study of its tree rings. A cross-section of a tree is available only if the tree is cut down, or if a tree bore is twisted into the tree to extract a core sample, which can supply access to the tree rings. Cutting down a live oak to age it does not make sense, and neither does boring into one, since they are known to sustain damage from less intrusive procedures like pruning that exposes tissue.

Grissino-Mayer said, "I have been a tree person all my life. I love the study of tree rings, and given a cross-section from an old live oak I will study it at our Laboratory of Tree Ring Science. But I won't bore into the historic trees of Beaufort to determine their age, especially when that might do them harm." The professor was invited to visit Thomasville, Georgia, known for its large live oaks and pristine quail woods, to "core" a live oak to determine its age. Grissino-Mayer said, "I turned down that invitation because sometimes it's best NOT to know."

Beaufort resident Murphy said, "These live oaks hide their age much like a Southern Belle might." While it is hard to state the age of the oldest living live oaks accurately, it can be agreed that they are old. Live oak allées and landmark riverside sentinels inspire reverence from visitors and locals alike. Some trees like the "Secession Oak" in Bluffton, which today wears a tremendous canopy, offered shade to colonial planters who aspired to have South Carolina independent of England. Similar live oak tree stories make up the fabric of the history

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Jeff Dennis is a Charleston native and may be reached at [www.Lowcountryoutdoors.com](http://www.Lowcountryoutdoors.com).

A Modern

Sherlock Holmes

Professor Grissino-Mayer and his exact science of dendrochronolgy has made him very much in demand to solve certain mysteries. He once flew to Oxford, England, to verify if a their music museum indeed had a \$20 million Stradivarius violin in its collection. The violin had not been handled since 1891, and Grissino-Mayer was able to determine that the wood came from the late 1700s and, therefore, was authentic.

Offering a very brief comment on the climate change debate, because dendrochronology is arguably the best science to study long-term climate data, Grissino-Mayer said, "I am a fence-sitter on the subject of climate change due to inconsistencies I see in my own data."

This modern day detective of tree ring aging can be found on television channels like the Discovery Channel, the History Channel, the Learning Channel and the National Geographic Channel bringing his message from trees of the past to a contemporary audience.

— JBD

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