

IN MEMORIAM
Richard Paul Guyette
1947–2023



Photo credit: Joseph Marschall

Richard Guyette, Emeritus Professor of Dendrochronology at the University of Missouri (MU) Center for Tree-Ring Science, passed away on Tuesday, August 29th, 2023. Richard was a highly accomplished and creative scientist. He had worked his entire career, nearly 40 years, at MU where he pioneered multiple areas of tree-ring research.

From his early youth growing up in New York state, Richard was immersed in the outdoors and enamored by wilderness. Richard received a B.Sc. from MU in Anthropology in 1978. Around this time, his interest in tree rings was piqued while he was illustrating a children's book with drawings of old eastern redcedar trees. Soon after, Richard transferred to forestry at MU where he focused on wood and tree-ring science. MU forestry faculty had initiated tree-ring studies in 1968 focused primarily on changes in wood qualities through time. In these studies, there was little focus outside of wood properties or on absolute dating applications. Richard became the thrust of formal dendrochronology methods and new applications.

By the 1980s, Richard had been mostly self-taught in tree-ring methods. His first projects contributed to assessing climate change and European colonization history of Ste. Genevieve, the oldest permanent settlement in Missouri located on the Mississippi River. In Ste. Genevieve, Richard dated a large number of the French colonial houses contributing to its designation as a National Historic Park.

Richard completed his Ph.D. in 1991 working on dendroclimatology of Missouri using eastern redcedar (Figure 1). At the same time, he was working on establishing new methods and some of the first studies in dendrochemistry, particularly concentration measurements of lead, calcium, aluminum, and manganese. Soon after completing his Ph.D., he joined the MU faculty as a research professor of dendrochronology. As a dendrochronologist, Richard resided in the wood technology group in the School of Natural Resources. His initial studies were multi-faceted in ecology, forestry, archaeology, and anthropology.



Figure 1. Left: In the 1980s, Richard Guyette was studying multiple dendrochronology aspects of eastern redcedar. Here he is preparing to sample a 500-yr old eastern redcedar near Columbia, Missouri, USA. His vantage point of that tree was later depicted in his pen and ink drawing (right). Much like dendrochronology, Rich's artwork of trees involved high attention to detail. Photo: Uncredited

Multi-faceted research became a defining characteristic that Richard upheld his entire career.

Richard's first studies as a research professor focused on fire history and aquatic wood in remote areas of the eastern US and Canada. He worked on fire history and aquatic wood studies in southern Ontario, and dendrochemistry and fire history studies in Missouri. In the late 1990s, Richard began training graduate students who primarily made tree-ring applications in forestry and ecology studies. In 2004, he and collaborators formally established The Missouri Tree-Ring Laboratory, of which he was Director until his transition to Professor Emeritus in 2017. In 2021, the lab was elevated to a The Center for Tree-Ring Science and in 2024 was recognized as a Program of Distinction by the University of Missouri. Currently nine staff and numerous graduate and undergraduate students work at the Center.

Perhaps the most impactful line of Richard's work were his pioneering fire scar history reconstructions in the eastern U.S. and long chronology construction from buried subfossil oaks in central U.S. rivers (Figure 2). Both lines of work continue to be primary research areas for the Center for Tree-Ring Science. To date, over 170 fire-scar

history study sites have been established across 22 U.S. states and Canada. These fire history records have been instrumental in justifying and understanding the need for fire to be used for management objectives on state and federal lands. For the long oak chronology, an absolutely dated 1000-yr long chronology (AD 912 to present) and numerous floating chronologies cover over 4,000 years of the Holocene and late Pleistocene.

Intertwined with dendrochronology, Richard was a lover of wilderness, canoes, and art. Prior to his academic career, he lived in a remote mining cabin on the "back side" of Denali in Alaska. He was a skilled woodworker, whose efforts included constructing wooden boats and his home. Most notable of all, he was a renowned artist specializing in fine pen and ink drawings. He primarily drew realistic scenes of old trees, forests, and cultural sites (Figure 1). His artwork has been featured in multiple publications, including a commissioned series by Missouri State Parks and a large private body of work. In 2012, he made a series of drawings of bristlecone pines growing in the White Mountains of California, including the Methuselah tree. In his art, Richard strived to make the complex natural world more interesting,



Figure 2. Richard Guyette collecting samples from buried sub-fossil oak trees in northern Missouri, USA. Photo credit: Michael Stambaugh

appealing, and accessible to non-scientific audiences. Art and science were inextricably connected parts of his life and he gave presentations on the

importance of their interconnectedness. In 2014 at the WorldDendro conference in Australia, he gave one of the first audio presentations of tree-ring data converted to music.

Since his passing, Richard's legacy has been repeatedly evidenced. He left multiple lines of work that continue to be relevant to challenges facing forest ecosystems across North America. These lines of work include using tree rings to describe past Indigenous and early European uses of fire in North America, developing equations to measure and predict wildfire activity from climate, and extracting elements from tree rings to measure changes in pollution. Richard achieved international recognition as an expert dendrochronologist, and he remains one of the most published and cited fire ecology scientists in the eastern US. In 2019, he received the Herbert Stoddard Lifetime Achievement Award from the Association for Fire Ecology. In 2022, he received a second lifetime achievement award from the Ozark Area Community Congress for his devotion to regional ecocultural knowledge.

He is dearly missed by his colleagues and friends. At the Center for Tree-Ring Science, we are regularly reminded of his tremendous influence, creativity, and passion as we stand on the shoulders of this giant.

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