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Old Trees Still Roughing It: Old-Growth Woodlands in the Cross Timbers

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On a private stretch of land in the Western Cross Timbers Region of Texas — the specific location of which shall remain undisclosed — I was taking pictures of trees, Post Oaks (*Quercus stellata*) to be exact. You might ask, why am I doing this? Surely there are more impressive trees to be found further east in places like The Big Thicket. Post Oaks of this region are relatively smaller than trees in other parts of the world, measuring to heights of only 6 to 15 meters. Yet, what they don't have in size, Post Oaks make up for in character and resilience. In fact, old-growth post oak woodlands occur in the Cross Timbers, a region that includes parts of Kansas, Arkansas, Oklahoma, and Texas. When I say "old-growth," I am referring to forests or woodlands that have remained uncut and relatively undisturbed since settlers first arrived. According to the Ancient Timbers Consortium, a collaboration of researchers, educators, state and federal agencies, and private landowners, the Cross Timbers Region "preserves some of the largest tracts of relatively undisturbed ancient forest and woodland left in the eastern United States." Thanks to extensive field work, the Ancient Timbers Consortium estimates that 890,474 acres within the entire Cross Timbers Region contains potential old-growth woodland sites. According to a past study conducted by Dr. Krista Peppers, the possible old-growth woodland sites still intact in the Western Cross Timbers Region of Texas alone could amount to roughly 15,345 acres.

The first question that comes to mind is, how have these woodlands survived for so long? The nature of the Cross Timbers Region itself answers this question. The Cross Timbers Region functions as an ecotone or transition zone between two major ecosystems. If you head eastward from the Cross Timbers, you will gradually enter hardwood and pine forests, while if you're traveling west you eventually reach the rolling plains and high plains. Caught at a crossroads, many eastern and western

Spacious Post-Oak Woodland with clearings of short-to-mid size grasses.
(All photos by the author)

Post-Oak Woodland with thick underbrush, predominantly greenbrier.

species of plants can be found in this region. The trees of this region are specifically accustomed to life on the edge. The greatest determining factor is the availability of water, and many trees in the Cross Timbers must express some level of drought tolerance if they are to survive on dry uplands, away from creeks, springs and any other sources of water. Most woodlands in the Cross Timbers are not suitable for extensive logging because tree seedling recruitment in this environment is slow to non-existent and few trees are large enough or have the right form to even be harvested for lumber. This condition partnered with less arable land available for agriculture—thanks to dry, shallow, and rocky or steeply inclined soils — gave early settlers little reason to cut down all of the original woodlands. Post Oaks in particular are perfectly adapted for the Cross Timbers, which explains why they are the most common oak species in the region to this day.

Post Oaks naturally occur all the way to the eastern seaboard of the U.S. where they are often found in sites that have poor soil conditions. Soils that are often dry, nutrient poor, or shallow prove too inhospitable for many tree species, but the Post Oak is hardy enough to stake its claim on such sites and thrive. Post Oaks are also fire adapted thanks to their thick, rough bark and branching pattern that allows for the development of a canopy situated just out of reach of fires that historically occurred frequently in the understory. Post Oaks are relatively long-lived, surviving for over 300 years in the Cross Timbers, according to the *The Flora of North Central Texas*. This trait makes them good subjects for dendrochronologists who want to learn about the local climate and fire history of the Cross Timbers Region, through the counting and study of tree-ring data preserved in living and dead trees.

I had the fortune of reaching Dr. David William Stahle out of the Geosciences Department at the University of Arkansas. Dr. Stahle is a dendrochronlogist who has conducted studies in different parts of the globe from Africa, to Mexico, and the United States. In oaks alone and in his words, "I have cited thousands of oaks, literally, and many hundreds in the Cross Timbers." So, suffice to say I was thrilled to share pictures of what I thought were examples of old-growth woodlands in order for him to be able to provide his expert eye and opinion. This is why I would wake up in the early morning hours to go take pictures of Post Oaks on the property which shall not be named. I'd put on my cap (on wet days a poncho), bring some water with me and go into the woods.

The Cross Timbers is often described as a landscape that is a mosaic, or kaleidoscope of prairies, forests, grasslands and woodlands and in this particular case it felt like I was wandering through a park-like maze of Post Oaks, Blackjack Oak (*Quercus marilandica*), Cedar Elm (*Ulmus crassifolia*), and other woody species. Often times the open spaces that were covered in short-to-midsize grasses would offer me the perception of a way through, only to lead me to vegetative dead-ends, in green walls of Elbow Bush (*Forestiera pubescens*), Poison Ivy (*Toxicodendron* spp.) and Greenbrier (*Smilax* spp.). If you go for a walk in the woodlands of the Cross Timbers you soon realize what so many previous explorers, settlers, historians, and writers have commentated on, the rough almost impenetrable nature of the place. Without satellites, convenient roads and highways, or even reliable maps, I'm sure navigating this region proved a daunting challenge.

A post oak showing characteristic signs of age with dead branches, branch stubs, and tree cavities.

In my meandering way, I managed to photograph some oaks for Dr. Stahle. He verified that the property did possess "legitimate old growth Cross Timbers." Most of the oaks on the site appeared to be, according to Stahle, anywhere from 75 to 240 years old, with one individual being possibly 250-300 years old. Usually these oaks are considered old-growth once they reach the 150-year mark. The oldest trees in the area could date back to the early 1700s. Places like this are living libraries, records of the past, and thanks to people like Dr. Stahle those records can contribute to our knowledge of the past, and in turn our present.

These old-growth woodlands in the Cross Timbers Region of Texas are under constant threat from agriculture, urban development, and the spreading encroachment of junipers and mesquites throughout the landscape. Dr. Allan Nelson, a botanist out of Tarleton State University, cited a few examples of habitat degradation in places like Palo Pinto County, where historic overgrazing on ranches has led to "mesquite, prickly pear, and juniper invasion," and Comanche county where spaces have been cleared for pecan orchards, among other crops. The examples that Dr. Nelson provides are common occurrences throughout the Cross Timbers Region. Fortunately, there are various organizations (nonprofits, municipal, state and federal) that preserve some of the remaining old-growth woodlands or old individual trees of the Cross Timbers Region of Texas. There are several places open to the general public to visit including the following: The Fort Worth Nature Center, Mineral Wells State Park, and LBJ National Grasslands. One location that will be a possible site for old-growth woodlands is Palo Pinto Mountains State Park (PPMSP), just west of Strawn, Texas.

An outlook over Tucker Lake in Palo Pinto Mountains State Park, Strawn, Texas.

I have James Adams to thank for allowing me to see the park before the opening. Seeing a park before construction begins is truly an interesting experience. I also appreciate James "Jimmy" Shipp who enthusiastically guided me through the park, showing me several sites that are potential candidates for old-growth woodlands and old trees. Jimmy's enthusiasm was contagious as we took the UTV around the park and as he has expressed to me, "This is such a beautiful area for a park, and showing it off is very near the top of the list of things I most enjoy doing here." Speaking of "showing it off," according to Adams, "Proposition 5 provided the constitutional amendment that established a more predictable funding source for Texas State Parks," which is why PPMSP is back on schedule to open officially in 2023. Within the foreseeable future, visitors will be able to experience the Cross Timbers region firsthand and see some spectacular views of the region.

Thanks to reliable input from Dr. Stahle, it is likely that the oaks Jimmy and I did find are not old-growth, but within the 5,000 acres that the park now contains, old-growth Cross Timbers could be growing relatively undisturbed and old-growth woodlands in the Cross Timbers don't have to be dominated by Post Oak, necessarily. Towards the end of that hot summer day, Jimmy took me under the cool shade of some towering wild pecan (*Carya illinionensis*) groves. With the placement of their branches they seemed to form this large open space, domed by an impressive pecan canopy. These bottomland forests have thrived historically along many of the creeks that head southeastward across the Cross Timbers Region, including Palo Pinto Creek which flows through the park. There are still many opportunities for recreation and research in this park; there are potentials to be explored. The genuine excitement I saw in Jimmy about the Cross Timbers Region, along with the opening of this new state park, should boost the appreciation and conservation of the valuable natural resources that are to be found in the Cross Timbers.

Aside from these select locations where different agencies are conserving old-growth woodlands, most of the Cross Timbers Region in Texas is privately owned. This fact presents a unique opportunity for landowners in the region. First, most of the counties in the Cross Timbers Region are rural. Second, a major source of revenue for landowners and rural communities often comes from hunting, including both direct and indirect costs for services and products. As I have been informed by the Eastland County Extension office, hunting

produces a large portion of income for private landowners in Eastland county and in surrounding counties in the Cross Timbers Region. Third, some of the largest sources of funding for conservation efforts in the state come from hunters. I am specifically referring to the Pittman-Robertson act, a federal law that collects excise taxes from hunting related firearm purchases which are distributed to the states "based on number of hunters and land area"; this allows for the state of Texas, according to TPWD, to rake in "the maximum distribution allowable under the program," translating into millions of dollars for conservation efforts throughout the state. There is an invested interest for state agencies and private landowners in conserving lands that are beneficial for wildlife in the Cross Timbers Region, including old-growth woodlands.

A post oak showing signs of old age with branch stubs and twisting, crooked limbs. Leftover barbed wire surrounds the trunk where this tree once functioned as a living fence post.

The crazy thing is most people are not aware that portions of the Cross Timbers still contain old-growth woodlands. These trees are not towering redwoods or giant sequoias, but they are still here after all these years, hanging on with hard tenacity. It is important that this information is spread and understood by landowners in this region. Landowners are free to manage their properties as they see fit, but not knowing what you have before putting management decisions to action could prove tragic. Some old-growth woodlands are gone now, simply because a landowner didn't know what they had. Dr. Stahle informed me of an old-growth woodland he had sampled back in 1982 along the Leon River in Comanche county, with some chronologies going back to 1730; some of those trees were over 250 years of age. Yet, as noted by Stahle, "These old stands of post oak are getting more and more scarce. In fact, that stand near the Leon River is now a cleared field, unfortunately." It has been over a decade since Dr. Peppers estimated the extent of old-growth woodlands in the Western Cross Timbers Region of Texas—in 2004—and since then there have been no new studies of the regions remaining old-growth. Since that time, more land has been cleared for

fracking, pipelines, and wind turbines along with the usual suspects of urban development and agriculture; in Stahle's words, "the erosion of ancient Cross Timbers has continued." In light of this, as Dr. Stahle suggests, "accurate mapping of old growth Cross Timbers is so important. It is the essential first step in the conservation process." It is important for landowners and land managers to know the present extent of these old-growth woodlands. If some landowners discover that portions of their lands contain these ancient spaces, they may be inclined to preserve them for various reasons. It would be interesting to see landowners in the region use this information as a marketing tool for attracting hunters to their own properties. I could see banners or wooden signs along highway 6, or even billboards on I-20 advertising, "Call for Hunting Trips in Authentic Old-Growth Cross Timbers" or "Walk in Ancient Cross Timbers, don't miss this Opportunity!" I could also understand landowners who would prefer such knowledge not to be made public, for the sake of privacy. Yet, landowners can't take advantage of this personal, ecological, or economic opportunity if they don't know these old-growth woodlands to exist in the first place, much less on their own lands. Learning what we have as residents of the Cross Timbers is the first step in being able to appreciate and preserve these ancient woodlands for future generations. The point I cannot emphasize enough is that old-growth woodlands are still here in the Cross Timbers, and people should know this fact.

For landowners who want to know what signs to look for in identifying potential old-growth sites in the Cross Timbers, there are several characteristic visual traits which are often the markings of old post oaks. Dr. Stahle provides a list of attributes which can indicate old-growth: "Twisted stems, dead tops and branches, canopies restricted to a few heavy limbs, branch stubs, fire and lightning scars, leaning stems, exposed roots or root collars, and hollow voids are all hints of significant age." Knowing this, as I walk around in these woodlands, I start to think about everything these wizened old veterans have experienced and witnessed firsthand. These oaks have the bark to prove the number of fires they've passed through, the storms they've weathered, the droughts where they carried on. Their battle for survival has left many visible scars, but under the pressures of life they have endured with an august stature, a kind of rugged dignity. These Cross

Post oak showing signs of age and also bearing a wide canopy.

Timbers woodlands have seen so much and if we are fortunate, some of these old trees will still be here, still roughing it!

Raleigh Darnell grew up in the Cross Timbers Region and is a graduate of Sul Ross State University (bachelors in Natural Resource Management and masters in English). He has done field work for the Department of the Interior and the U.S. Forest Service, and his education and work have taken him to Hawaii, Nebraska, West Virginia, and Texas.

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