Features

Jerry Hamby Staking a Bald Cypress in Houston (Photo by Susan Hamby)

Park by Park– Surveying the Trees of North Texas

By Jerry Hamby

When an abandoned golf course near my house in Houston was developed into a nature park called Exploration Green in 2014, I volunteered to help oversee an onsite tree nursery. For seven years I organized work events and the planting of 1,500 native trees in the park. After moving to Denton and joining the Elm Fork Chapter of Texas Master Naturalists in 2021, I was eager to expand my knowledge of trees, and within a month, I had an opportunity to do so when Rick Travis, Blackland Prairie Master Naturalist, invited me to participate in a tree survey at Coppell Nature Park. Rick and his wife Lisa lead forest ecology and tree identification training for Elm Fork's initial class training.

Survey Team on the Trail at Coppell Nature Park

The purpose of the Coppell survey was to provide an inventory of trees and selected plants in the 66-acre park. A little-known jewel in north Dallas County, Coppell Nature Park is a ten-minute drive from DFW International Airport. For our work Rick divided the park into six zones with the goal of covering them over a five-week period. Each weekly survey took approximately three hours to complete and involved the participation of ten volunteers (representing three area TMN chapters).

Survey Map of Coppell Nature Park

Yellow Passionflower (Coppell Nature Park)

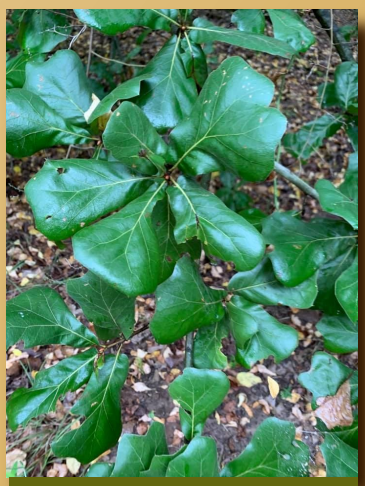
At first we hiked the trails that meander through the park, but during the last two weeks, we ventured deeper into the woods and down ravines to get a full count. In organizing the survey, Rick divided the identification of species into three categories–canopy, understory, and ground cover and vines. Rick led the way, identifying and counting trees while a designated counter walked behind and, clipboard in hand, tallied the results. To facilitate the process, Rick printed a list of species commonly found in North Texas. Only canopy trees were counted; understory and other species were noted as being present. Other volunteers helped Rick spot trees and low-growing plants that might be easily overlooked, such as the tiny yellow passionflower (*Passiflora lutea*) growing near Cottonwood Branch, the waterway that runs through the park. This delicate native plant is related to the more commonly known purple passionflower (*P. incarnata*) and is a host plant for the Gulf fritillary butterfly (*Dione vanillae*).

Park by Park–Surveying the Trees of North Texas (cont.)

This tree survey, like others Rick subsequently completed, had several goals, the most important of which was to provide baseline data. In the case of Coppell Nature Park, the Education Director of the Biodiversity Center, Cynthia Contreras, wanted to know how much of the woodland forest was native and where to address deficits (through future plantings). It turns out that the largest and oldest trees–particularly post oak (*Quercus stellata*), pecan (*Carya illinoinensis*), and eastern cottonwood (*Populus deltoides*)–are species commonly found in the Eastern Cross Timbers habitat that makes up much of the park. More recent forest succession was evident in the southeast corner of the park, where there was a high concentration of cedar elms (*Ulmus crassifolia*), accounting for almost one-fifth of the total trees.

Interpretive Sign
(Coppell Nature Park)

Rick's formal report on the survey also highlighted sections of the park where invasive species of trees and shrubs were crowding out native vegetation. Of particular note was a large infestation of privet, primarily *Ligustrum quihoui*, in one section of the park. There were other invasive species that were spreading throughout the park, including callery pear (*Pyrus calleryana*), heavenly bamboo (*Nandina domestica*), and Chinese pistache (*Pistacia chinensis*). Knowing where these invasive plants are most prevalent made it easier for Contreras and Park Department officials to formulate an eradication plan.



Blackjack Oak
(Pratt Nature Preserve)

In 2022 and 2023 Rick and Lisa completed several more tree surveys in which I participated, including three for Elm Fork Chapter projects–Beulah Acres, LISDOLA (Lewisville ISD Outdoor Learning Area), and Pratt Nature Preserve at Hickory Creek. In addition to providing data and recommendations to the stewards of those projects, the surveys gave additional Elm Fork Chapter members the opportunity to tag along for a crash course in tree identification. The survey of Beulah Acres was completed at the request of Project Manager Daniel Arenas Richieri, who had sought the inventory for educational purposes–he wanted to label sample trees for each species represented in the agroforest.

A highlight of the LISDOLA survey was finding a high concentration of Hercules club trees (*Zanthoxylum clava-herculis*), which are instantly recognizable by the corky protrusions and prickly thorns on their bark. This unique tree looms large in Native American lore. Known also as the toothache tree because chewing on its leaves or inner bark numbs the mouth, *Z. clava-herculis* was used by Native Americans and early settlers for medicinal purposes. It is also a host plant for the giant swallowtail (*Papilio cresphontes*) and other beneficial insects.

Lisa and Rick Travis Surveying the Trees of Pratt Nature Preserve

Hercules Club
(LISDOLA)

Park by Park—Surveying the Trees of North Texas (cont.)

At Pratt Nature Preserve, Rick observed a high number of (mostly) Texas ash trees (*Fraxinus texensis*), 148, constituting seventeen percent of the total tree population. All ash species are susceptible to the emerald ash borer (*Agrilus planipennis*), an invasive beetle that destroys almost every ash tree in its path. Post oaks accounted for forty-four percent of the trees at Pratt (a total of 393 trees). Project Manager Dinah Stults knew that the park was densely wooded but was surprised that the eight-acre site contained nearly 900 canopy trees. Sharing the survey results with the Hickory Creek Town Council helped Stults bolster the case for protecting the site from future development.

Crossing Stewart Creek (Grand Park)

Rick and Lisa's most ambitious survey of 2023 took place at Grand Park in Frisco. Between April and June, Rick led volunteers through twelve sections that he defined using Google Maps. This new public green space covers 275 acres, but there are plans to extend the park to more than 1,000 acres, an area larger than Central Park in New York City. Frisco's Parks and Recreation reached out to Rick for input into the Grand Park master plan. Because the park is largely undeveloped and is bisected by Stewart Creek, most of the areas surveyed were densely wooded or sloped toward the waterway. We accessed those sections via the only trail in the park, the two-mile Big Bluestem Trail, which opened to the public in late 2022.

150-Year-Old Bur Oak (Grand Park)

Bois D'arc Foundation Block (Grand Park)

The final count of 5,700 canopy trees represented twenty species, eighteen of which are native to North Texas. More than eighty percent of the trees counted were cedar elm, sugar hackberry (*Celtis laevigata*), and ash (genus *Fraxinus*), suggesting that most of the forest is relatively young. While there weren't many oaks in the park, Rick estimated that one of the few bur oaks (*Quercus macrocarpa*) we spotted was at least 150 years old, and he recorded several other major Cross Timbers species, including 185 American elms (*Ulmus americana*) and 174 Osage orange trees (*Maclura pomifera*). This latter species, which is also called a bois d'arc, is known for its ability to resist rot and insect damage. Remnants of the early twentieth century Wollenreich homestead, buried deep in the woods near Stewart Creek, bear witness to this fact. Although the roof and most of the walls of the house have collapsed, the floor beams still rest on completely intact bois d'arc foundation blocks. Because the homestead site represents a danger to the public, these ruins will need to be stabilized or removed.

Navigating the Dense Understory of Grand Park

Park by Park–Surveying the Trees of North Texas (cont.)

Whit Dieterich, Armed with a Machete, at Grand Park

In preparing his final report to Frisco Parks and Recreation, Rick ranked sections of Grand Park according to their ecological valuations. He labeled areas that contained a high density and diversity of native flora as being of highest value while areas dominated by non-native and invasive plants were deemed to be of low value. He recommended that park amenities, including a proposed Nature Learning Center, be developed in the areas of lowest ecological value and that the sections of highest value be preserved for their biodiversity and aesthetic value.

To demonstrate the importance of two sections, in particular, Rick organized a series of BioBlitzes and highlighted the results in his formal report. Over the course of several weeks, 102 participants uploaded approximately 7,000 observations on iNaturalist, including 300 species of flora and 600 species of fauna. One of the events was led by Sam Kieschnick, Urban Wildlife Biologist with the Texas Parks and Wildlife Department. An area of particular interest is a large prairie meadow on the southeast side of the park. On the day I visited the meadow, hundreds of butterflies and bees covered the native wildflowers and grasses. While most of the volunteers who worked with Rick on the survey and BioBlitzes were members of the Blackland Prairie Chapter, Elm Fork Master Naturalists Susan Hamby, Whit Dietrich, and I were regular participants.

My work with Rick will come full circle in late April when he leads a tree survey at Furneaux Creek Nature Trail (in Carrollton). It was my early association with Project Manager Richard Johnson that led to my working with Rick. When I met Richard in 2021, he was looking for help in creating an inventory of the trees along Furneaux Creek and asked if I was interested. I am looking forward to completing a job that is long overdue, and it will include an element that harkens back to my volunteer work in Houston. Like most natural sites I have visited, Furneaux Creek has its share of invasive plants, and one species that I spotted during my first visit is Chinese tallow (*Triadica sebifera*). In the forests of east Texas, there are more than 340 million mature Chinese tallows, and while this highly aggressive species is not as problematic in North Texas, its presence is a reminder of why tree surveys are so important, especially in protecting native species from plants that threaten to displace them.

Prairie Remnant at Grand Park

All photos by Jerry Hamby, with the exception of noted photo by Susan Hamby