THE WESTERN CROSS TIMBERS;

SCENARIO OF THE PAST, OUTCOME FOR THE FUTURE

by

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Chapter I: Silence

Introduction

Woven into the thin, sandy soils, between the Fort Worth Prairie and the Broken Red Plains lies a vanishing band of vegetation called the Western Cross Timbers. It is a diverse woodland – some trees and low shrubs, tangled vines, sandstone streams, and sprinkled with open glades. The place has an unkempt appearance, but that is only for the person who does not look deep enough or fails to understand.

In my attempt to honor the land and the people of the Western Cross Timbers by writing this thesis, I first needed to become the student. How could I expect others to find value in these small oak trees and tangle of vines if I could not see the beauty myself? I started in a place where I did not see the merit of saving this particular vegetation or the crime in replacing it with a more manicured landscape. How could I tell the story of scraggly, little trees that would entice people to embrace this landscape? A recovery narrative was suggested, but recovering from what to what? Clearly there were more questions with the inception of this thesis than direction. Webster's defines a narrative as: telling a story usually from a defined point of view while adding sensory details with the purpose of getting readers involved in your story. Webster's also emphasizes that a narrative's success relies on the element of personal experience. In *Recovering Eden*, Carolyn Merchant describes a narrative as a partnership where one partner does not have dominance over the other. I liked the idea of being in partnership with the post oaks of the Western Cross Timbers while enchanting people with their story.

In order to tell the story, I wanted to become familiar with the local environmental history including physical location, the natural resources and how they have been valued or modified, the available technology, the cultural constructs, and what is it that makes change

occur in these communities of the Western Cross Timbers. But how would the telling of the Western Cross Timber narrative illustrate the values of the people who had come to live there, and would knowing the environmental history of their home encourage them to make different choices about its future? I hope by my words and enthusiasm, to enable the residents of the Western Cross Timbers to become more at home with their trees and as they are able to see them more clearly, they will see them more deeply. Johann Wolfgang von Goethe (1749-1832) employed a method called "delicate empiricism" to become familiar with a natural object. He advocated using an "extended, direct experience" to best accomplish this, but cautioned against making a leap from experiencing to judging an object if your purpose in knowing the object could be seen as self – serving. Goethe also wrote that "continuous, experiential contact with the object is necessary throughout the course of the investigation" (Seamon, 1998, p.4).

In order to attain the necessary level of intimacy for my research, field work in Young, Jack, and Wise County and then back to Tarrant County to view the ancient stand of Cross Timbers at the Fort Worth Nature Refuge was necessary. Secondly, to get a representative view of what the ecoregion was like, it must be juxtaposed against other comparative areas, which necessitated viewing the Eastern Cross Timbers also. Lastly, I wanted to be immersed in the Western Cross Timbers from the westernmost boundaries to the Eastern edge of the woodland. A trip to Oklahoma availed me of this perspective.

Since non – native *Homo sapiens* first stepped foot into the Western Cross Timbers, the dates ranging from the Clovis sites 14,000 years ago to more modest estimates of 7000 years ago, as a species we have been relentless in our quest to turn the native land into an irrigated, tamed landscape. David Nye in, "Technology, Nature, and American Origin Stories" postulates that, "how Americans subdued the earth has been so widespread that it can be called a master narrative, which is to say that it defined the white entitlement to the land" (Nye, 2003, p.1). Nye

goes on to say that while White Americans' story started in an Edenic space, they have continued to *improve* this Eden, this "unused" land with technologies such as the plow, irrigation, the railroad and steamboat. We have begun to ask how natural is nature and the answer appears to largely lie in our own "values and assumptions" (Nye, 2003, p.1). Nature appears to be impossibly tangled in human history more than an entity unto itself with its own timeline (Cronon, 1996). Trees of the Western Cross Timbers are competing with human desires for land occupation. They are living in an environment of air and water that is becoming more toxic and in a more unstable climate. This narrative of dominance is being added to daily as we continue our quest to tame the land.

Why might the ancient Cross Timber woodlands be important to us? Through their natural timeline, we can gather climate data, observe biodiversity that has been minimally affected by man, link us to our past as all historic artifacts do, and give us a chance to partner instead of conquer the natural world ("Urban Forestry Council," n.d.). Carolyn Merchant writes about an "equal relationship" between humankind and nature (Merchant, 2002). What does dynamically balanced mean instead of domestication in this relationship between man and nature? In exploring the value of profit in the Western Cross Timber woodlands, we attempt to balance the choices of capitalism and basic security needs. For our culture, capitalism may appear to serve all our security needs, but maybe not. Is there more value in retaining old growth woodlands then building more "ranchettes" and who gets to make that decision? Is it between commodity production and local subsistence security? It is only when we are able to step away from the capitalistic growth that encourages the depletion of natural resources into a mindset of appreciation and living in greater harmony with nature that we see what the land can mean to us. Living in total harmony with nature may realistically be beyond all of our ability, but we could certainly improve our current state of harmonics. A recovery narrative begins here.

West away from the Eastern Deciduous Forest, south of the Kansas plains, and east of the High Plains, lies the fragmented remnants of what is left of our Western Cross Timbers. This narrative will focus on the Texas Counties of Jack, Wise, and Young (Fig.1). For the next several pages, I hope to "frame the story that we could inhabit" (Tony Burgess, personal communication, December 28, 2007). My challenge is to do the hard work of balancing logic and compassion while not burying the Western Cross Timbers with my words. I hope to help form your conceptions of this landform by mixing my observations, experiences, and knowledge. Together we will walk through the stages of awareness with its romantic and sensory cerebral input, knowledge and assessment where the information will crystallize into patterns, and finally arrive at appreciation where hopefully a connection and profound respect will have occurred.

Figure 1.

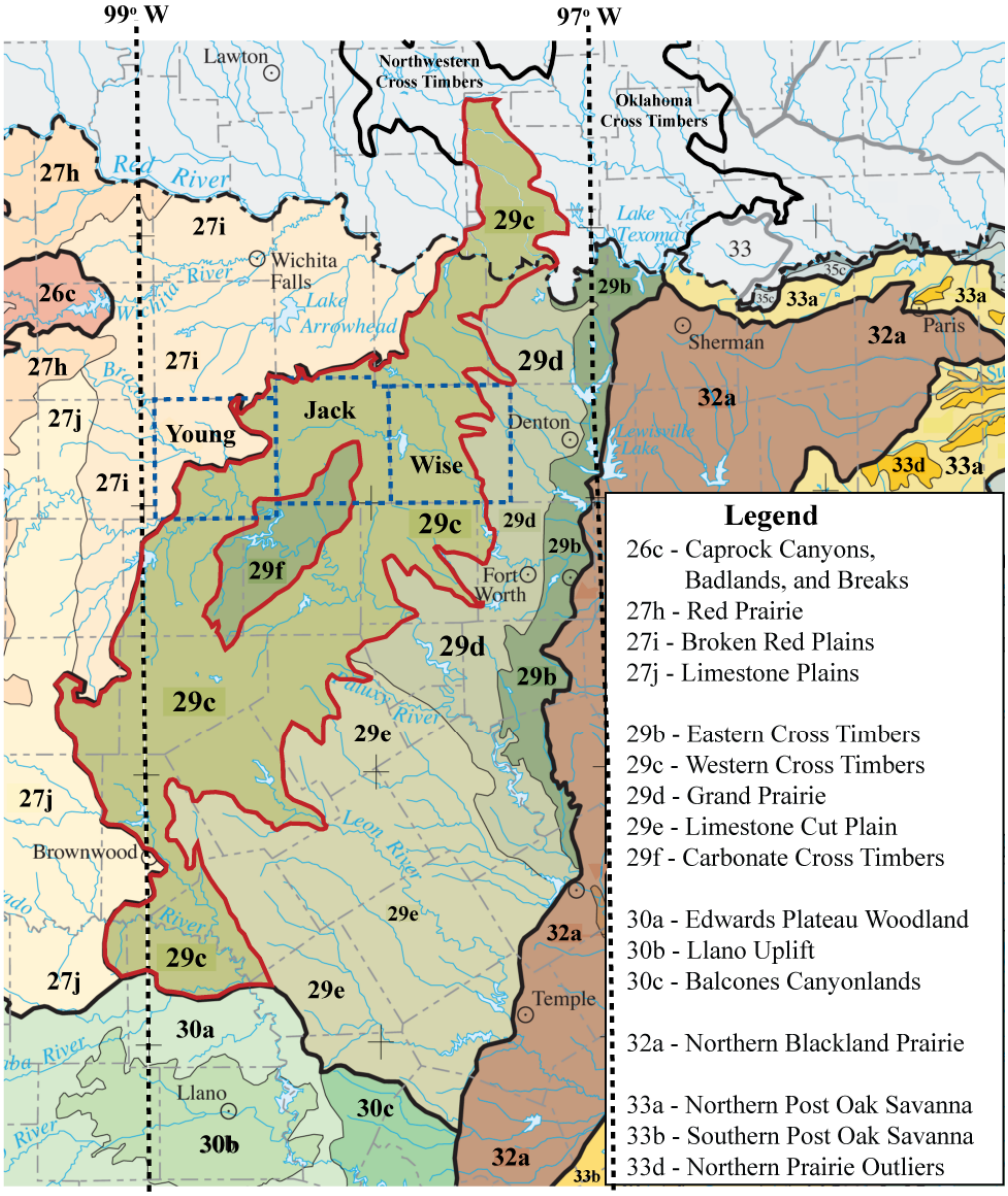

Fig. 1. The Western Cross Timbers in Texas and southern Oklahoma.
The Western Cross Timbers area is outlined in red. The Palo Pinto cedar brakes (29f) are completely surrounded by the Western Cross Timbers.

Adapted from Griffith, G.E., Bryce, S.A. Omernik, J.M., Comstock, J.A., Rogers, A.C., Harrison, B. Hatch, S.L., and Bezanson, D. 2004. Ecoregions of Texas (color poster with map, descriptive text, and photographs): Reston, Virginia, U.S. Geological Survey (map scale 1:2,5000,000). AND from Woods, A.J., Omernik, J.M., Butler, D.R., Ford, J.G., Henley, J.E., Hoagland, B.W., Arndt, D.S., and Moran, B.C. 2005. Ecoregions of Oklahoma (color poster with map, descriptive text, summary tables, and photographs): Reston, Virginia, U.S. Geological Survey (map scale 1:1,250,000).

Literature Review

"The way the water held the sunlight in the morning. It contained it, but never possessed it for its own. I will always hold you as the ocean holds the sunlight."

-The Great Divorce by C. S. Lewis

How many ways can you describe gnarly, stunted oak trees where the wind blows seemingly continuously and the rain is celebrated? Many gifted writers have written about the Western Cross Timbers. Joyce Gibson Roach describes the Cross Timbers as, "Where the horizontal perspective of open space all around and above prevails: not the vertical view of the woodlands where horizons are restricted and up and down are the only places to look" (personal communication, April 13, 2008). The Western Cross Timbers are a melding of woodland, savanna and prairie stretching from Texas to Kansas with Post and Blackjack oak being the dominant species. In 1992, there was an estimated 4.8 million ha of Cross Timber woodland found between 38N latitude of southeastern Kansas and 32N latitude of north central Texas (Hoagland, Butler, Johnson, Glenn, 1999).

Because valuable old growth forests are often equated with majestic trees of great statue, the small, gnarled trees of the Western Cross Timbers are often mistaken for trees of little worth. Despite being a large ecoregion, until Dr. David Stahle, University of Arkansas Tree Ring Laboratory, and Dr. Richard Francaviglia championed their cause, the woodlands of Post oaks and Blackjack oaks were largely without a voice.

In the mid-1900s, Dyksterhuis described the Western Cross Timbers as an area covering 4,116,000 acres with 2,436,000 acres being termed the main belt and 1,680,000 comprising the fringe area. The overstory of the Main Belt is similar to the overstory of the Fringe Belt, but the understories vary greatly. Also mentioned is a possible additional 150,000 acres on the fringes

of the woodland belts if you grouped the ecoregion by soil type (Dyksterhuis, 1948). Dyksterhuis defined the Western Cross Timbers he described the area they covered as extending 150 miles south from the Red River and that the Main Belt and the Fringe of the Cross Timbers together covered an area 150 miles long and from 25 (northern end) to 110 (southern end) miles wide (Sitton and Utley, 1997). In 1964, Kuchler estimated that the Cross Timbers covered 20 million acres or 30,526 square miles with small oak trees that were "not suited for lumber production" (Stahle, Therrel, Clements, 2003). In 2008, the area is much more of a fragmented mosaic. Most of the remaining tracts are broken into 40 to 1000-acre sections. Oklahoma has estimated that approximately 500 square miles of ancient Cross Timber woodlands remain largely in eastern Oklahoma (Stahle, et al, 2003). Today the Cross Timbers, Eastern and Western, cover approximately 26,000 square miles ("Cross Timbers," n.d.). The counties that include the Western Cross Timbers in their topography are Archer, Brown, Clay, Callahan, Comanche, Erath, Eastland, Hamilton, Hood, Jack, Johnson, Mills, Parke, Palo Pinto, Shackelford, Somervell, Stephens, Tarrant, Throckmorton, Wise, and Young ("Cross Timbers," n.d.).

To penetrate the pre-settlement extent of this timbered woodland, was not a simple task. The foliage was so dense that person, animal, or sun had a hard time making its way through. The pioneer who was crossing Texas heading west saw the bands of vegetation as either a hindrance to their travel or as a "relief to the monotony of the prairies and sees little in them worth remembering" (Hill, 1887, p.1). One who saw them neither as "walls of woods" or a hindrance was J. Pope in 1854. Standing at the north end of the Fort Worth Prairie gazing at the Cross Timbers, seeing the two ecoregions as one, said, "… but by far the richest and most beautiful district of country I have ever seen, in Texas or elsewhere, is that watered by the Trinity and its tributaries. Occupying east and west a belt of one hundred miles in width, with

about equal quantities of prairie and timber, intersected by numerous clear, fresh streams and countless springs, with a gently undulating surface of prairie and oak openings, it presents the most charming views, as of a country in the highest state of cultivation, and you are startled at the summit for each swell of the prairie with a prospect of groves, parks and forests, with intervening plains of luxuriant grass, over which the eye in vain wanders in search of the white village or the stately house, which seem alone wanting to be seen" (Sitton and Utley, 1997).

History tells us that in the 1800s, the term "Cross Timber" or "Cross Timbers" was used to refer to two bands of woodland whose southernmost border was in Central Texas and continued up in to Southern Kansas. The Western Cross Timbers "vegetative sub – region" ("Cross Timbers," n.d.) is immediately west of Fort Worth Prairie and is bordered by the Rolling Plains to the west, the red River of Cooke and Montague counties to the north, and the Lampasas Cut Plain to the southwest. The geographic region was also known by the name Upper Timbers. This was a reference to the area being of higher elevations than the Eastern Cross Timbers ("Cross Timbers," n.d.).

In beginning to write about the European encounter with the Cross Timbers, the natural place to start a literature review is with the eighteenth century Spanish explorers who called them the "Monte Grande" or Great Forest. In Mexico, "monte" can also mean scrubland, brush, or woodland (Graves, 1959). Because the woodlands crossed perpendicular to the region's river bottom forest, it is hypothesized that Anglo – Europeans coined the name "Cross Timbers". A third hypothesis as to the origin of the name lies with the many journeys that westward settlers made through the dense, almost impenetrable forest. Or the name could have derived from something as simple as being the namesake of a vegetation type in the Cross Timbers, the post oak *Quercus stellata*, which is also known as the Cross Oak (Francaviglia, 2000).

Where the name came from is debatable. What is consistent throughout historical accounts is the impenetrable nature of the woodland and the limited value of the timber. “The oldest ranchers in the western portion, in speaking of their earliest impressions, and from information obtained from others, state that the Cross Timbers fringe had undergrowth of shrubs and that tall grasses were common during dry periods, and that these tall grasses when afire, burned the limbs off the trees to a height that enabled a man on horseback to ride beneath their crowns” (Dyksterhius 1948, p. 333). So not all of the Western Cross Timbers was impenetrable; however the matted woodlands would have been more memorable than the adjacent open prairies. The Western Cross Timbers was born on the sandstone ridge tops, but was raised on neglect. As time moves forward, the cost of the Cross Timbers “being found” is ever increasing.

Monte Grande, or Grand Forest, also was a term that the early Spanish explorers used to describe the Eastern Cross Timber(s) or because of their lower elevation, the Lower Timbers (“Cross Timbers,” n.d.). In comparison to the Western Cross Timbers, the Eastern Cross Timbers were and are a smaller band of vegetation. Urbanization has eradicated even more of the Eastern Cross Timbers. The Eastern Cross Timbers sit between the Grand Prairie and the Blackland Prairie and are bordered by the eastern edge of Cooke County southward to the western fringe of the Hill Country (“Cross Timbers,” n.d.). The Texas counties where the Eastern Cross Timbers are most prevalent are Denton, Tarrant, Grayson, Cooke, Hill and Johnson.

Earliest mention of the Cross Timbers was in a document dated July 4, 1772 and is provided by Bolton in a translation from 1914. The words translate as, “Two leagues southeast from here begins the Monte Grande (Big Forest) called Galvan, which extends to the east-northeast. Since it contains some large hill, and because of the great quantity of oaks, walnuts, and other large trees, it is a place difficult to cross…” (Dyksterhuis, 1948, p.332). In 1778, De

Mezieres again uses the term “Grand Forest” to describe a place that serves as a “guide” and as a “refuge” for travelers. Dyksterhuis remarks that ironically the term “Grand” no longer is used to describe the woodland belts, but the strip of prairie that lies between (Dyksterhuis, 1948). Thomas Nuttall (1786 – 1859) was a naturalist who was one of the first to publically draw correlations between the Cross Timber vegetation, soils, and climate (Francaviglia, 2000). Any review of the origin of the Cross Timber name would not be complete without mention of Washington Irving’s 1831 contribution. His is one of the most often quoted descriptive term, “forest of cast iron”, when referring to the Cross Timbers. Washington is quoted as saying, “I shall not easily forget the mortal toil, and the vexation of flesh and spirit, that we underwent occasionally, in our wanderings through the Cross Timbers. It was like struggling through forests of cast iron.” (Hoagland, et al, p.232) Accompanying Washington Irving on his journey was a gentleman named Ellsworth. In Ellsworth’s journal he writes, “…it is a mixture of wood and small prairies… The fires of the Prairies, extend through the cross timbers, and the scrubby oak, whose branches are proverbially tough, naturally, become doubly so, by being burnt… I never saw a man more impatient, to be out of them, than Mr. Irving” (Dyksterhuis, 1948, p.332).

When Colonel Stiff came upon the Western Cross Timbers from the western prairies in 1840, he described what he saw as, “In turning to the northeast, something much resembling an irregular cloud is dimly seen. This is a skirt of woodland…called the Cross Timbers…” (Dyksterhuis, 1948, p.332). Scholar Edward Kendall (1845) remarked in 1841, “We were now fairly within the limits of the Cross Timbers…The immense western prairies are bordered , for hundreds of miles, on their eastern side, by a narrow belt of forest land, well known to the hunters and trappers under the above name.” The washes and dense understory led Kendall to further write, “The growth of the timber is principally small, gnarled, post oaks and black jacks, and in many places the traveler will find an almost impenetrable undergrowth of brier and other

thorny bushes" (Dyksterhuis, 1948, p. 333). Captain R. B. Marcy, a surveyor with careful topographical notes, wrote in his 1853 journal that, "At six different points where I have passed through it (Cross Timbers), I have found it characterized by the same peculiarities: the trees, consisting principally of post – oak and black – jack, standing at such intervals that wagons can without difficulty pass between them in any direction" ("Cross Timbers," n.d., p.1). Surveyors scouting for land suitable for Indian reservations recorded many of the earliest observations of the Cross Timbers. In 1854, W.B. Parker said, "The timber is short, stunted oak, not growing in a continuous forest, but interspersed with open glades, plateaus, and vistas of prairie scenery, which gives a very picturesque and pleasing variety." Parker also saw the Western Cross Timbers as a refuge of sorts, "Below stretching as far as the eye could reach, lay the apparently interminable forest of the Cross Timbers, like a barrier, on passing which we were to be shut out from civilization, its joys and cares, for many, many weeks" ("Cross Timbers," n.d., p.1). Whether the surveyors and pioneers saw the Cross Timbers as a nuisance, barrier, or sanctuary, they all described with consistency the nature of the vegetation, the soils, and the geology.

Writing in 1926, William Tharp gave an early account of the vegetation, including the Cross Timbers, found in Texas east of the 98th meridian. Tharp expounded on the work of earlier botanists who thought of the Cross Timbers as merely the western fringe of the great Eastern Deciduous Forest formation and more specifically described the woodland as "part of the oak-hickory forest or Quercus-Carya Association of the deciduous forest formation" (Dyksterhuis, 1948, p.328). Tharp was the first to comprehensively describe and thus bind together the anomaly of the treed overstory contained within a scrubby grassland, Tharp added to the description by differentiating a region farther west within the Western Cross Timbers known as the *Quercus stellata* Consociation, the most xerophytic portion. He added to the delineation by noting the rainfall throughout the Association in Texas varied from 45 inches in

the east to barely 30 inches in the west (Dyksterhuis, 1948). Tharp described the soil as uniformly sandy with horizons of red, yellowish, or sometimes grayish clay underlying the sand (Dyksterhuis, 1948). To further explain the role of the soil structure, Tharp said, "The well–known coarseness and porosity of such soils suggest corollary water relations as the controlling factor in its geographic distribution" (Dyksterhuis, 1948, p.328). Bruner (1931) termed the ecoregion of the Cross Timbers as "Oak Hickory savannah". Given the area's climate, one would expect largely grasses, but given the porosity of the soil, trees are permitted to grow and in some cases become the dominant vegetation (Dyksterhuis, 1948). In 1938, Weaver and Clements noted that the soil structure affects the water available to vegetation and thus determines the boundaries between the area ecoregions. Weaver and Clements went on to say:

> Extensive areas of oaks, the Cross – Timbers, occur as two massive belts through central Texas and extend more or less broken into Oklahoma. These have usually been regarded as portions of the oak-hickory forest, but this is hardly true in the climax sense. They are composed almost wholly of post oak and blackjack which are usually not true climax dominants. On careful examination, the Cross – Timbers have proved to be chiefly oak savanna, in which the grasses are climax dominants. The soil is typically light and sandy, and the oaks are relicts from a moist phase of the climatic cycle that have been able to maintain themselves against the competition of the grasses by virtue of the favored chresard of the sandy soil (Dyksterhuis, 1948, p. 328).

This explanation was connected with their paradigm that only one stable climax should exist within a region. The idea of Cross Timber woodland as "relict" and prairies as "normal" has given way to a more ambiguous understanding of what kind of vegetation "should" be in this region, given what we understand know about climate changes.

Today the Cross Timbers and Prairies Ecological Region of Texas is the dominant ecoregion in North Central Texas. The Blackland Prairies to the east are distinguished by the color and texture of their clay soils and the prairie type vegetation. According to the Cross Timbers Urban Forestry Council, the Tallgrass Prairie, the Eastern and Western Cross Timbers and the Blackland Prairie, which early settlers referred to as "beauty and harshness altogether," is almost gone with less than 1% of the original ecoregion intact ("Cross Timber Ecosystem, n.d.). To the south lie the Southern Texas Plains which are set apart from the Cross Timbers by the thorny brush that has resulted from generations of grazing. North of the Cross Timbers, are the Central Oklahoma/Texas Plains where winter wheat is seen more than corn and soybeans and oil and gas production are the predominant land use. As you travel west, the little blue stem grass gives way to more side-oats grama and the drought resistant post oaks become spaced farther apart as the climate gets drier. If seedling establishment decreases, the density of the stand usually decreases (Tony Burgess, personal communication, February 22, 2008) and the stand becomes smaller in stature as you got closer to the Central Great Plains. Amid the "open grasslands and brushy rangelands" ("Cross Timbers," n.d.), Kendall (1845) found, " The growth of timber is principally small, gnarled post oaks and black jacks, and in many places the traveler will find an almost impenetrable undergrowth of brier and other thorny bushes. Here and there he will also find a small valley where the timber is large and the land rich and fertile, and occasionally a small prairie intervenes, but the general face of the country is broken and hilly, and the soil thin" (Dyksterhuis, 1948, p. 333). Also in North Central Texas, plant communities from the east and the west are found in relatively close proximity depending on the soil, climate, and geology (Diggs et al. 1999).

Surface rocks of the Western Cross Timbers were deposited either during the Cretaceous Period (145 – 65 million years old) or the Pennsylvanian Period (300 million years old) (Sitton

and Utley, 1997). Dyksterhuis defined the Western Cross Timber area as the, “Main Belt of sandy soils with gentle relief developed upon Cretaceous outcrops covering 2,436,000 acres, and a Fringe of rocky and gravelly soils with rough relief developed upon Pennsylvanian outcrops covering 1,680,000 acres” (Dyksterhuis, 1948, p.373). “The cross timbers are located on the Osage Plains of the Central Lowland Physiographic Province. The Osage Plains are characterized as irregular plains with local relief from 30 to 90 m. Major landforms in the region include low, east–facing cuestas, river bluffs, tablelands, gentle slopes, and deep ravines” (Hoagland, 1999, p. 234).

North Central Texas and the Western Cross Timbers used to be on the southern edge of the North American continental seas. Due to the ebb and flow of the waters, multiple layers of Cretaceous sediments were deposited resulting in the “fossil – bearing limestone” we find today (Diggs et al., 1999). While most of the surface rock in the Western Cross Timbers today is from the Cretaceous Period, farther to the west at higher elevations with greater erosion, older rocks from the Pennsylvanian period are exposed (Diggs et al., 1999).

Paluxy Sandstone from the Cretaceous Period, at first glance, looks like something unidentifiable that you would find in a dorm room at the end of the semester. It has an almost shaggy appearance on the underneath side, the look and feel of sand consistent with sand used for building a sand castle, but without the weight of wet sand, and can be the most beautiful colors – think West Texas sunset. Whether you hold the sandstone in your hand or give it a place of honor on your bookcase, sand particles will easily displace themselves. As clay is added to the Paluxy Sandstone, the sand particles become more secure in place and the colors appear more muted. Some strata of this formation are mostly clay. The rock fractures more than it abrades when it is disturbed. In contrast, much of the Pennsylvanian rock of the western edge of the Western Cross Timbers looks and feels more permanent, and erodes into more angular

landforms. The texture of rocks on a Young County ridge retains a grainy feel, but are not as friable in nature and weighs heavier in the hand. The Pennsylvanian colors don't have as wide a spectrum as the Paluxy sandstone, unless you count the variety of lichen that have attached onto the rock's surface. The Western Cross Timber Paluxy sandstone is more of a "near shore" depositional formation as it fell out closer to shore with the ebb and flow of water. The more shallow areas, the offshore of the continental seas, are where the shale and marly limestones were formed (Scott, Benson, Shaffer, Oboh – Ikuenobe, 2003). The shell hash limestone of the Walnut Formation, just above the Paluxy, was formed when severe storms piled shells in heaps on the ocean floor (Burgess, 2008).

The very existence of the Cross Timbers today directly correlates with the geological formations which produced the sandy soils that gave rise to the oaks (Dyksterhuis, 1948). These sandy soils formed from the Trinity Group (Paluxy, Antlers, and Twin Mountain –Travis Peak sands), which are the oldest of the Cretaceous layers in the area. The structure of this soil is loose and finely grained as is fitting for sands that are from "shallow water or near shore deposits" (Diggs, et al., 1999, p.20). "The Cross Timbers became adapted to the sandlike outcroppings and the mantle rock of Cretaceous formations. This location favoring tree growth was in contrast to the soils containing calcium carbonate of the "treeless intervening prairie" (Dyksterhuis, 1948, p.334). Hill (1887) noted of the Western Cross Timbers that, "Sometimes it is sharp and definite, while again it merges into local forest areas occupying other arenaceous formations than those of the Cretaceous" (Dyksterhuis, 1948, p.334).

Standing on the limestone-capped, sandstone bluff with the rounded and blunt hills fading into the background, a person can gaze in one direction to the Fort Worth prairie and its open grassland and to the other direction see the oak woodland and savannas of the Cross Timbers. Soils will differ in composition depending on how temperature and rainfall have

affected the weathering and leaching of the soil horizon. The sandstone of the Western Cross Timbers has been exposed to more "geological erosion" than the harder limestone strata of the prairie and thus may be of lower elevation. The woodland and prairie were not present in the Cretaceous. The topographic anomaly is that the general elevation trend from southeast to northwest is one of higher elevations going from the Gulf to the Llano Estacado. The softer Western Cross Timbers rock has eroded lower than the western edge of the Fort Worth prairie, which contradicts the general elevational trend in the region (Burgess, 2008). Soils in this ecotone are not uniform, but largely the prairie limestones have eroded to become the clay soils of the mid–grass prairie, while the sandstones of the Cross Timbers have evolved into fine sandy loam soils (Dyksterhuis, 1948). Edward Everett Dale in his memories of a Cross Timber boyhood recalls heavy flat stones that the children called "iron rocks" which was a commentary on their weight and also to distinguish the rocks from the red sandstone rocks of the Eastern Cross Timbers that they climbed on when the soil had washed away in an area (Dale, 1966).

Cross Timbers soils were formed on the stratum of the Cretaceous Woodbine and Trinity (Sitton and Utley, 1997). These soils formed from either the underlying rock or from material that was transported in from other areas. The sandy layers of the Cross Timber soil have significant pockets of clay and sandy clay soils. This enables "glade – like prairies" to form on the more clayey soil seemingly as an archipelago in the sandy-soiled woodlands (Diggs, et al., 1999). Soils are named and classified on the basis of the physical characteristics of their horizons which vary from black and calcareous to fine textured sands in North Central Texas. The U.S. Department of Agriculture, Bureau of Chemistry and Soils in 1938 defined the soils of the Main Belt of the Western Cross Timbers as belonging to the Windthorst – Nimrod Soil Association of the Zonal Red and Yellow Podzolic soils (Dyksterhuis, 1948). Today, according to the Soil Survey of Wise County, Texas, the soils of the Main Belt of the Western Cross

Timbers, loamy soils of eroded uplifts, are classified as the Windthorst Series. Details of the soil's chemical analysis found the upland prairie soil lacking in phosphoric acid. Windthorst sandy loams had 0.050% of nitrogen, and an average pH of 6.7, while the Nimrod fine sands had a pH of 6.6 (Dyksterhuis, 1948). A soil's pH is important in gauging the availability of minerals and nutrients for plant uptake. When the soil becomes too acidic, for example by rainwater leaching, nutrients and products such as herbicides become bound in the soil. What does become available in acidic soil are more toxic substances. When the pH is corrected to a general optimal level of 6 -7, then the solubility of substances and absorption by plants increases. The pH of the soil is crucial to an agrarian based society.

Hill in 1887, Bruner in 1931, and Dyksterhuis in 1948 noted the close association between the soils and the vegetation in the Cross Timbers (Hoagland, et al., 1999). The deeper and coarser textured the soil, the better the support is for trees. If the soil is heavier in structure and derived from shale, then savannas with closely packed pods of trees are seen (Hoagland, et al., 1999). Alfisols, the youngest in the U.S. Soil Tazonomy, are the most commonly found soil order in the Cross Timbers, with Inceptisols, the most abundant soil order, occasionally being seen (Hoagland, et al., 1999). Due to the loose nature of the Windthorst and Nimrod soils, water erosion is commonly seen in the form of gullies, especially when the land is under cultivation (Diggs, et al., 1999). Because of the fine sand composition of the Nimrod soils, wind erosion is observed (Dyksterhuis, 1948).

As with the land commonly referred to as the Dust Bowl, the sandy upland soils lost their crop growing potential relatively quickly under intense agriculture production. The soil was left exposed to the elements where the "accumulated organic matter of centuries was oxidized in less than a decade" (Dyksterhuis, 1948, p.339). The once fertile sandy loam of the Windthorst series yielded to "exposed soil-parent material of white, almost sterile, weakly

cemented sand of the Trinity group of Cretaceous strata" (Dyksterhuis, 1948, p.339). Similarly when a clean – tilled crop such as peanuts are grown on Nimrod soils, the topsoil is quickly blown across roads and onto roadways as it is lifted from the fields (Dyksterhuis, 1948).

Despite differing soil series, most sources show that the dominant vegetation of the Western Cross Timbers was fairly uniform throughout its extent in Texas, but several different types of vegetation could be found in almost any area. As grazing has occurred, different soils have shown varying degrees of sustainability for original flora (Dyksterhuis, 1948). Dyksterhuis classified vegetal types based on physiognomy and soil type. His four groups of the Western Cross Timbers are as follows: (a) the post oak – blackjack oak – greenbrier type of Podzolic soils (alfisols) with gentle relief (*Quercus – Smilax*); (b) the post oak – blackjack oak – mesquite type of immature Reddish Prairie soils with rough relief (*Quercus – Prosopis*); (c) the mesquite type of mature Reddish Prairie soils with gentle relief (Prosopis); (d) the old – field type of eroded Podzolic soils (alfisols) with gentle relief, characterized by treeless relief and dominated by annual species of *Aristida* (old – field) (Dyksterhuis, 1948). The *Quercus – Similax* type is named for the prevalence of oak and greenbrier. This vegetal type is seen on Red and Yellow podzolic soils characterized by rolling relief. Post oak and blackjack oak comprised roughly 26% and *Smilax* made up 10.4% of the vegetation (Dyksterhuis, 1948). The Quercus – Prosopis type, has been called "Cattails and Cactus" to illustrate that mesquite is found in the more arid regions of the southwest and that oaks are found in the more humid regions of the northern and eastern Western Cross Timbers. Mesquite was introduced and thriving in this 1940s transect, while the oaks at 11.7% cover, are near their limit (Dyksterhuis, 1948). The Prosopis type is seen at the northwest limit of the Western Cross Timbers fringe. This area was originally treeless as a prairie, but now is inundated with mesquite and has no oaks or greenbrier (Dyksterhuis, 1948). The fourth and final vegetal type in the Western Cross Timbers is the old –

field type. The land here is usually agricultural land that has been eroded and then abandoned. It is Podzolic soils (alfisols) of rolling relief. There are less than .5% oaks seen in this type as annual *Aristida* grasses are the dominant cover (Dyksterhuis, 1948). The vegetation is a reliable indicator of soil and land use (i.e. grazing, agriculture) history.

Living anywhere within the Western Cross Timbers means you will experience sweltering summers and mild winters. Mild winters do not mean the absence of the occasional blue norther though. In *Goodbye to a River,* John Graves describes the winter weather occurrence as, "There is less talk of a 'norther' these days…In the country, though, a front is a fact still. There it's a blue line across the horizon, and a waiting, sweaty hush. And a hit like a moving wall, and all of life scurrying for the southern lee of things" (Graves, 1959, p. 99).

The Western Cross Timbers are located within the "moist – subhumid-mesothermal climate" as described by Thornthwaite (1931, 1941) (Dyksterhuis, 1948). Budbreak and the flowering out of plants occur when the warm, moist winds arrive from the Gulf, usually in mid to late March. Legend has it that when the mesquite bloom out, usually in March, then the last killing frost has occurred. The growing season within the Cross Timbers ranges from 180 to 240 days long (Hoagland, et al., 1999).

John Graves describes the Western Cross Timber winters as, "Winter there comes in waves, and keeps coming in waves till spring. For four or five months the wind rasps back and forth across West Texas like a giant fiddlebow – north, then south, cold, then warm, so that even the meteorologists don't know what overclothing to carry to work in the mornings. From Canada down across the Great Plains the cold, from the Gulf the wet warm or the cold blown back up at you wet, and always hard…" (Graves, 1959, p.98). The first killing frost typically occurs in mid to late November depending on the location in the Western Cross Timbers, but the period of freezing temperatures rarely lasts for more than a day. Average snowfall in the

northern extreme of the Cross Timbers is 4 inches and the frost penetration is no more than 6 inches. In the southern end of the Western Cross Timbers, the snow usually measures no more than 2 inches per year with a frost penetration depth of less than 3 inches (Dyksterhuis, 1948). The entire Cross Timber area is prone to tornados, hail storms (Hoagland, et al., 1999), and violent thunderstorms.

Water sources have always been the axis of the community – where it goes so do people and thirsty plants. The water of the Cross Timbers, while always having the right of way, used to run clearer and stronger. Mary Austin in *The Land of Little Rain* wrote with wistfulness, "It is the proper destiny of every considerable stream in the west to become an irrigating ditch. It would seem the streams are willing. They go as far as they can, or dare, toward the tillable lands in their own boulder fenced gullies – but how much farther in the man-made waterways. It is difficult to come into intimate relations with appropriated waters; like very busy people they have no time to reveal themselves. One needs to have known an irrigating ditch when it was a brook…" (Austin,1903, p.81). The matted, native grasses held the soil in place and were less eager for the water than tropical, imported plants. The native vegetation of the Western Cross Timbers has adapted to the nuances of the North Central Texas climate. In their survival, plants can not only provide us streams instead of irrigating ditches, but also with valuable historical data about the environment.

Drought cannot only affect individual plants, but can also alter the composition of the Cross Timber vegetation (Hoagland, et al., 1999). Even though woody plants are more stressed by drought than herbaceous plants, a lack of rainfall in 1886 – 7 contributed to a shift from a mixed grass prairie vegetation to a short steppe species within the Cross Timbers (Hoagland, et al., 1999). Mean annual precipitation falls approximately one inch for every 15 miles traveled

from the eastern part of Texas to the Western Cross Timbers western fringe where the annual rainfall is 24 inches (Diggs, et al., 1999).

During typical years, the annual rainfall will barely exceed what the plants need for survival once evaporation has been factored in (Dyksterhuis, 1948). Given the amount of rainfall, some water does become runoff or is able to percolate down below the depth that it is useable to plants (Dyksterhuis, 1948). Not only does vegetation benefit from the percolation of water through the sandy stratas of the Western Cross Timbers, but given the southwesterly flow of the water from the Western Cross Timbers toward the Metroplex, the vertical strata leakage from the outcrop rainfall gives drinking water in the Trinity Group Aquifer additional purification (Ashworth, 1983). In the Western Cross Timbers, April and May are the months of greatest rainfall; and November through January are the months of least precipitation. Aside from the winter months, July, August, and sometimes September are often times of the most severe drought, when the highest temperatures sometimes reach 110 degrees (Dyksterhuis, 1948).

As drought and frost can damage plants, “fire induced mortality” is also a danger to the Western Cross Timber vegetation. Fire has historically played a “role in the maintenance of the cross timber vegetation mosaic” (Hoagland, et al., 1999, p.239). Differing from the Native American management of fire, European settlers began to practice fire suppression which allowed woody vegetation to expand and decreased the footprint of the savannahs and prairies (Hoagland, et al., 1999). The “rate of canopy closure” in the Cross Timbers increased as the progression of fire typically stopped at the fringe of the Cross Timbers oak savannahs (Hoagland, et al., 1999). This along with intensive grazing gives the post and blackjack oaks a decided advantage over the grasses (Dyksterhuis, 1948). When the belts of the Cross Timbers do burn, responses to vegetation burning include increased biomass of little bluestem, higher

mortality of specimens under 4 cm in diameter (Hoagland, et al., 1999), and little undergrowth of shrubs (Dyksterhuis, 1948). Dyksterhuis noted that "occasional fires with abundant fuel are regarded as a part of climax conditions in accepting grasses as the climax dominant" (Dyksterhuis, 1948, p.372). At the Fort Worth Nature Center and Refuge, the restored prairie has a noticeable absence of oak woodland and an abundance of native grasses such as Little Bluestem.

More than by fire, "grazing by domestic livestock was the primary cause of the modification of Cross Timbers vegetation" (Dyksterhuis, 1948, p.374). Spanish explorers brought cattle to the area by 1788 (Hoagland, et al.,1999). Dyksterhuis noted that livestock showed a preference for certain plants, possibly based on flavor or odor that correlated with protein or phosphorus contents at various times of the year (Dyksterhuis, 1948). In 1899 a questionnaire was given to ranchers about grazing capacity. While reporting decreases of 30 – 50%, their answers reflected the Cross Timbers counties had a capacity of 1 cow for every 6 – 10 acres. In the 1950s, the ratio was 1 cow every 12 – 20 acres (Dyksterhuis, 1948). Dyksterhuis did note that pastures of native species have a larger carrying capacity than ranch pastures (Dyksterhuis, 1948) and cited Smith's work in 1940 concerning the classification of range plants. Smith studied plants' behavior (coverage) under grazing conditions and found one of four conditions: plant species increased, species decreased, species invaded or species remained unchanged. Smith concluded that Little Bluestem played the role of a decreaser in the Western Cross Timbers grazed landscape, Post oaks showed an increase when the land was grazed, and annuals such as Rough Buttonweed were invading species during the degeneration of the Cross Timbers range land (Dyksterhuis, 1948). This illustrates that livestock grazing, while reducing the fuel load for fires, is the major factor that determines vegetation type and rate of coverage of the Western Cross Timbers. Also, when the landscape has been altered by overuse it makes the

demarcation of ecoregions even more difficult as the former savannahs may appear to look like woodlands.

Another effect of open canopy savannah morphing into a woodland is the impact it has had on wildlife. The black – capped vireo (*Vireo atricapillus*) prefer to nest in open savannah vegetation where mottes of young oaks are scattered in with brushy areas. Today with the maturation and increase in trees in the Cross Timber savannahs, the vireo has been pushed farther south to the limestone oaks of the Edwards Plateau (Tony Burgess, personal communication, February 25, 2008).

This change in species occupation, a shift from woodland habitat, for species such as the passenger pigeons (*Ectopistes migratorius*) and black bear (*Ursus americanus*), to more savannah type habitat for white-tailed deer (*Odocoileus virginiana*) and humans (*Homo sapiens*), followed the European settlement of the Cross Timbers. Edward Everett Dale wrote in 1966, describing the Eastern Cross Timbers, about observing cottontail rabbits, fox squirrels, and 'possums. He also noted finding raccoons and skunks, foxes, jack rabbits, snakes, and many birds including turkey buzzards, crows, mockingbirds, quail, turtle doves, hawks, screech owls, and whippoorwills (Dale, 1966). According to the Cross Timbers Urban Forestry Council website, other animals who are actors in the Western Cross Timber landscape today, while preferring the open prairie uplands of the Cross Timbers to the more heavily wooded areas, include Bison and prairie dogs. The Fort Worth Nature Center and Refuge notes that, black – footed ferrets, burrowing owls, mountain lions, black bear and of course turkey, which have been important as far back as the Native Americans (Tony Burgess, personal communication, February 25,2008) are also present. The vegetal coverage and configuration of the land greatly influence wildlife populations.

Most of the Western Cross Timber plant species have well-defined areas of growth. Driving down the highway at 70 miles an hour, it is still possible to identify the vegetation by the topography of the landscape and the appearance of the soil. In 1844, Josiah Gregg wrote, "The Cross Timbers vary in width from five to thirty miles, and entirely cut off the communication betwixt the interior prairies and those of the Great Plains. They may be considered as the 'fringe' of the great prairies, being a continuous brushy strip, composed of various kinds of undergrowth; such as black-jacks, post-oaks, and in some places hickory, elm, etc., intermixed with a very diminutive dwarf oak, called by the hunters 'shin-oak.' Most of the timber appears to be kept small by the continual inroads of the 'burning prairies;' for, being killed almost annually; it is constantly replaced by scions of undergrowth; so that it becomes more and more dense every reproduction. In some places, however, the oaks are of considerable size, and able to withstand the conflagrations. The underwood is so matted in many places with grape-vines, green-briars, etc., as to form almost impenetrable 'roughs,' which serve as hiding-places for wild beasts, as well as wild Indians…" (Gregg, 1844-5, p.200).

Dyksterhuis noted the differences as one travels north to south and east to west in the main belt and fringe area of the Western Cross Timbers. The difference is much more marked traveling east to west, even in a distance as short 50 miles. Some the changes one sees are the smaller statue of the mature trees, the surface relief changes from rolling to rugged hills interspersed with open savannahs, and cultivated fields yield to more cacti and mesquite. Gathering vegetation samples in Young County on the Wildcatter Ranch's "Red Trail", one could literally walk through the distinct ecotones of the Western Cross Timbers fringe. As an example, at the top of a ridge one would walk through an upland of gritty, sandy loam soil over sandstone with a microphytic crust. These rocky uplands were a savannah woodland with some open grassy areas and thickets of mountain cedar. Some of what was observed were Post and

Blackjack oaks, cacti, Little Bluestem, and lichen covered rock. The walk then traveled from the upland through the bedrock of the an upper riparian terrace to the foot slope where the cedar got denser along with Net – leaf hackberry, Cedar elm, and more Post oaks. The soil on the slope was getting a little too rich to see many Blackjack oaks. The next step was onto an alluvial terrace with its still deeper soil. The terrace was a more open woodland with loamy soil. Growing were Live oak, Ash juniper, more Cedar elm, Soapberry, and sedges. Being a depositional flood plain, there was more clay in the soil and thus the grasses were becoming taller. Near the edge of the Brazos River, one discovered the wetland with its red hued vertisol soils. The wetland soils were not sufficiently wet to be called hydric though. Among the Cedar elm and Black willow, were growing found sunflowers, Giant ragweed, Balloon vine, Buttonbush, Amorpha, New Deal weed, and Sump weed. Walking over the hump terrace to the river bank, one could witness an invasion of salt cedar or tamarisk. Standing at the bend in the Brazos, it was easy to feel the heritage of a once wild Texas river. (Scientific names are listed in Appendix A.)

Despite only a 2 inch decrease in rainfall from the east to the west of the Western Cross Timbers, a vegetal change is attributed to the change in soil composition from sandy loam to a higher clay content and thus a lower percentage of rain and soil depth available to plants (Dyksterhuis, 1948). The Cross Timber fringe is rockier and is not often farmed except for small plots of livestock feed production. Buffalo grass and annual forbs were the dominant species in the 1930s (Dyksterhuis, 1948). Today sideoats grama has surpassed buffalo grass in frequency (Burgess, 2007). The Main Belt, with its sandier soil, is more widely used for production of cash crops and livestock (Dyksterhuis, 1948) and the dominant species are the post and blackjack oaks and again the annual forbs (Dyksterhuis, 1948). The sandier soil also is conducive to the sprigging of Bermuda grass for pastureland. Bermuda grass, being a warm

season grass with an active growing season of June – August, has become a favorite for ranchers to use as pasture herbage. When other grasses have slowed down due to the summer heat, Bermuda grass with a moderate amount of fertilizer will continue to provide livestock fodder ("Bermuda grass,", n.d.).

Once the intended use of the field, agriculture or grazing, is past and the field is abandoned, then secondary succession usually occurs. The rate of the subsere progression depends on several factors: the amount of grazing that originally occurred, proximity of a succession seed supply, and the severity of the erosion. If the erosion is moderate and a seed supply is close and the field was not overgrazed, then 14 years is about the average for secondary succession to occur. The stages of subsere are "the weed stage, the annual threeawn stage, the splitbeard bluestem stage, and finally the little bluestem stage" (Dyksterhuis, 1948, p.374). In the very sandy Aquilla soils of Todd Island at the Fort Worth Nature Center & Refuge, fields that were abandoned over fifty years ago are still in the grassy stage with very few young oaks colonized from the adjacent old-growth woodland (Burgess, 2008). The identification of these old fields is aided by their angular perimeters, few oaks, and the presence of washout gullies (Dyksterhuis, 1948). In spite of the gullies, the weeds, and the gnarled trees, John Graves called the Western Cross Timbers, "harshly handsome landscape" (Graves, 1959, p.269).

With the shift toward more of the Western Cross Timber land being converted to rangeland or manicured urban landscaping, the "native" landscaping is becoming less and less "desirable". Some of the herbaceous plants are not good forage and the gnarled, stunted post and blackjack oaks provide limited appeal. Of course there is some debate about what was the "native" landscaping of the Cross Timbers – were grasses predominant, was the forest savanna-

like, were the woody species dominant or was the savannah the original condition (Dyksterhuis, 1948).

The paleovegation of the Cross Timbers is closely linked to the beginnings of the North American Grasslands. The grasslands were birthed and driven to increasing aridity by such events as the "Miocene uplift of the Rocky Mountains, growth of the Antarctic ice sheet, and the cooling of oceanic waters" (Hoagland, et al., 1999, p.235). Oak and hickory began to take over for the pine, spruce, and fir species, followed by prairie vegetation on the southern plains, and then the oak savannahs came in about 200 years later (Hoagland, et al., 1999). It is hypothesized that the climate continued to get drier in this Late Holocene period and the oak species moved in to replace the existing hickory (Hoagland, et al., 1999).

The composition of the Western Cross Timbers varies regionally and from location to location. As a whole it is a conglomeration of upland deciduous woodland, prairie, and open areas with grassy understories representing the region between the great eastern deciduous forest and the southern Great Plains (Stahle, et al., 1999). The more dominant species of the Western Cross Timbers are: Post oaks, Blackjack oaks, Red Cedar, Little and Big Bluestem, Indian grass, Sideoats grama, Greenbrier, and Sumac. There are Post oaks in several locations that are between 200 – 400 years old. This is largely because the Post and Blackjack oak timber was too hard and small to be commercially viable as lumber. When it was removed it was usually for the purpose of "improving" a field and the oaks were either not salvaged or possibly used as fence posts (Dyksterhuis, 1948).

The oaks, Blackjack and Post, may constitute up to 90% of the canopy cover or overstory of the Western Cross Timber woodland (Hoagland, et al., 1999). Post oaks are usually two to three times more numerous, but basal area values between the two oaks are "roughly equivalent" (Hoagland, et al., 1999, p.238). These two oak species can't survive well in shade,

do not like competition, usually reproduce from root sprouts, and rarely appear as commercial nursery stock (Hoagland, et al., 1999). The differences between the two oak species are numerous as well. Post oaks while preferring soil higher in organic matter will grow in myriad nutrient and moisture conditions. Their growth rates are directly correlated to the levels of precipitation (Hoagland, et al., 1999). The Blackjack oak will tolerate less fertile soil than most other species, but has a higher mortality rate and reproduces more slowly than the post oaks (Hoagland, et al., 1999). The third actor in this scenario is the Eastern Red Cedar (*Juniperus virginiana*). The Red Cedar accelerates the closing of the canopy in savanna vegetation. This species is spread easily by birds depositing seeds which germinate quickly and in the absence of fire, invade the grassland with woody species (Hoagland, et al., 1999).

The woody understory of the Western Cross Timbers includes Chittamwood, Redbud, Roughleaf Dogwood, Mexican Plum, Common Hackberry, Cedar elm, Grapevines, Scarlet Sumac, and Common Greenbrier. Hickory, while frequently found in the Eastern Cross Timbers, will be infrequent in the Western Cross Timbers (Burgess, 2008). As with the overstory, the composition, density, and individual species size will vary by location, region, and competition. In 1948, Dyksterhuis wrote, “that ecologists could understand the cross timbers only in context of regional environmental gradients” (Hoagland, et al., 1999, p.237).

The herbaceous contribution to the Western Cross Timbers mosaic includes Little bluestem, Big bluestem, Indiangrass, Sideoats grama, Small panicgrass Switchgrass, and Purpletop. Little bluestem is usually the dominant grass in the herbaceous understory if the tree canopy is open enough for grasses.

Driving through any state but Nevada, Oregon, or Puerto Rico, as long as the soil is poor and the sun is shining, you will see on the gravelly prairies, or the sandy savannahs, or in abandoned fields the perennial prairie grass, Little bluestem. Depending on the season, the 2-3

foot tall erect grass will have yellow flowers and gray – blue to green foliage which turns tawny-coppery in fall, or a reddish - brown seed color. There are no petals, but when the anthers dangle they are yellowish (Burgess, 2008). Because it easily adapts to poorer soil textures and has low fertility requirements, it can be seen almost anyplace that is not shaded by trees or where it has to compete with taller grasses for sunlight ("Plant Profiles," n.d.). Seeds can remain dormant in the soil for years waiting for the optimal growing conditions. With a root depth of a minimum 14 inches, little bluestem has a high drought tolerance and is able to do most of its growing during the summer and fall months ("Plant Profiles," n.d.). The species is tufted at the base with a graminoid growth habit. The leaves are alternate in arrangement, usually at the lower half of the culm. Propagation is by seed (Hilty, n.d.). As a gift to livestock, little bluestem is a favorite animal fodder that grows in most counties in Texas. Little bluestem often accompanies buffalo grass, the low - growing and drought tolerant grass, but is unable to thrive where the oaks provide a dense canopy. (See Figure 2)

Fig. 2. Little Bluestem - *Schizachyrium scoparium*

From http://www.illinoiswildflowers.info/index.htm John Hilty

Are there more statuesque trees than the trees that the wind and drought have bent into gnarled and twisted trunks? Are there other forests that are more inviting for nestling a house among, or taking an afternoon hike, or autumn foliage viewing than a Cross Timber woodland? Probably, but that depends on your perspective. The blackjack oak, or "poor – land trees" (Dale, 1966, p. 5), is a tree in the red oak family meaning that the leaf veins continue past the edges of the leaf resulting in three, tiny, needlelike projections ("Blackjack oak," n.d.). The tree with its characteristic black, cobblestoned bark usually grows to a height of about 30 feet, but can reach 60 feet high. It can also be identified by its canopy to appear as a partially opened umbrella with the stays formed by dead lower branches that the tree often retains. The blackjack leaves are simple, alternate, are 4 – 8 inches long (can depend on the growing conditions), with a dark green color above and a paler green underneath (Seiler, Jensen, Peterson, 2008). An easy way to identify the leaves is that they look like a pair of out – stretched arms welcoming you home. The striated, light brown acorns which grow to a size of about ¾ inch are fodder for deer, wild turkey, squirrel, and quail, but not for cattle as the tannic acid can be poisonous (Seiler, et al., 2008). The wood of this oak species is very dense, so much so that early settlers complained about how the wood would quickly dull a saw blade. The wood however is a good source for rot resistant fence posts and for a good hot fire, like the one necessary for slow – cooked Carolina BBQ. It is native to the eastern United States with Central Texas (Seiler, et al., 2008) being at its western most limit of growth. It is an upland deciduous oak and one of the dominant overstory trees in the Western Cross Timbers of Texas and Oklahoma and therefore is capable of growing on barren sandy soils. (See Figure 3)

Fig. 3. Blackjack Oak - *Quercus marilandica*

Picture courtesy of Virginia Tech Department of Forestry/College of Natural Resources.

The other dominant woody oak species of the Western Cross Timbers is the Post oak. This tree is one of the small - medium size specimens of the white oak family rarely growing higher than 40 feet with an average diameter of 3 feet ("Post oak primer," 2007). The size of the Post oak is influenced by the growing conditions. The species can reach 105 feet tall and 5 feet in diameter or be 400 years old and not be over 20 feet tall ("Post oak primer," 2007). The Post oak canopy ranges from 2 – 15 meters high (Burgess, 2007). It is native again to the eastern United States and is at its western most limits in the Cross Timbers of North Central Texas. While the Blackjack oaks cobblestoned bark is darker and wavier, the Post oak's bark is ashen

gray - brown in color going from scaly to blockier in later years (Seiler, et al., 2008). The leaves are five – lobed and appear as a cross, unless of course growing conditions have created an anomaly. Post oaks are some of last trees to leaf out in the spring and some of the last to loose their leaves in the fall. The tough, alternate, simple leaves are 3 – 8 inches long usually with 3 – 5 lobes. They are a shiny, darker green above and a gray to brown – hairy underneath (Petrides and Petrides, 1998). In the fall, the Post oak leaves are the color of cooled hot chocolate on meandering branches. The broken stag tops of the ancient trees are as good as the back of hands in divulging maturity. The acorns are 1/2 to 2/3 inches long and are more ovoid in shape than the blackjack oak's fruit ("Post oak primer," 2007). The Post oak will not begin to bear its fall ripening acorns until the tree is about 25 years old ("Post oak primer," 2007). While the acorns are sparser in numbers, they are higher in fatty acids than some of the other oaks (Petrides and Petrides, 1998). Since it is a tree commonly found in the Western Cross Timbers, Post oaks grow under semiarid conditions and prefer sandy, well – drained soils. They will not tolerate flooding or even being well watered in a manicured landscape. Whether the Post oak is a survivor or an opportunist, growing at a rate of 2 inches every 10 years, it does not recover well from being transplanted or other forms of root disturbance ("Post oak primer," n.d.).

Fig. 4. Post Oak – *Quercus stellata*

Picture courtesy of Virginia Tech Department of Forestry/College of Natural Resources

Dr. Don Smith, associate professor of biological science at UNT, is trying to adapt Post oaks to urban life by applying powdered fertilizer and root stimulator to the base of the Post oak. He hopes to use his technique to minimize damage to the campus trees during a construction project, by helping to increase the production of new roots and thus root hairs where the water and minerals necessary for the trees life are absorbed from the soil. Dr. Smith's goal is to stand under a Post oak canopy on campus and not be able to see the sky (Koisti, 2000).

While the Blackjack and Post oak acorns are too bitter for human consumption, the pecan, hickory and walnut's fruit are available fodder in the Western Cross Timbers. In addition to the nut bearing trees, there are also dewberries, mulberries, blackberries, plums, persimmons, grapes, sumac, mesquite beans, wild greens, and rosehips (Dale, 1966). Granted that these delicacies found favor more with Native Americans and early settlers than to today's palate, the fruit and nuts can provide important sustenance. Historically, Cross Timber plants such as redroot, horehound, and stillingia have been used as medicinal treatments (Dale, 1966). Plants that may not be viewed as valuable are poison oak, poison ivy, stinging nettles, and sand burrs (Dale, 1966). Another useful byproduct of the Cross Timbers are the various cooking woods. Elm smoke will give slow – cooking food a bad flavor, ash while burning fast, does a good job as a cooking wood, the mesquite are favorites of Mexican cooks, and live and white oaks cooking usefulness only being beat out by the nutwoods like walnut and pecan (Graves, 1959). "The Indian never concerned himself, as the botanist and poet, with the plant's appearance and relations, but with what it can do for him. It can do much, but how do you suppose he finds out; what instincts guide him" (Austin, 1903, p.84). With water conservation becoming increasing important, using the native, or what we have come to know as "native", plants not only will save water, but will enhance our survival.

Chapter II: Echoes

Historical Context

"Wherever they have lived, people have drawn directly and indirectly on nature's energy and have used it, directly and indirectly, to satisfy their wants."

-Elliott West

Humans and the land have always had a relationship, usually hierarchal, ideally equal. The historic timeline of the Western Cross Timbers is characterized by nature, Native Americans, settlers with European agricultural methods, production and economic records, ranching, more settlers, resettling of Native Americans to reservations, and finally settling into a new relationship with the land. The Southwest, including the Western Cross Timbers, served as a borderland. This southwest region has historically separated the Angelo -American culture from the Hispanic, Native American culture farther south and west. The Western Cross Timbers has been a meeting place for modern technology and the land, the European settlers and the Native American, the deciduous forest of the east and the Great Plains of the west, and the disenfranchised white southerners and a new post-Civil-War life. As recently as 200 years ago, the North American landscape would have looked much different with swaths of woodland stretching from coast to coast. While in other regions, the trees were being converted into board feet with amazing swiftness; the salvation of the Cross Timbers was the gnarliness of its timber.

Humans began to make a place for themselves in the Cross Timbers approximately 7000 years ago. The first settlers and stewards of the land were the Native Americans who were a hunting and gathering society. Whether they settled in the Cross Timbers proper or used it seasonally is debatable. The tribes varied in their choice of locations, some choosing the open prairies and others selecting the woodlands. If timbered areas such as the Cross Timbers were

close by, the tribes may have chosen this location for a food source and protection. Because the woodlands are prairies were so mixed in this geographic area, it seems to have been convenient for people to move from one habitat to another as food sources dictated. Several tribes moved from their river-valley farms farther east to hunt bison on the prairies and then the Cross Timbers in autumn (Tony Burgess, personal communication, February 25, 2008). Due to the lack of appropriate technologies, few people were settled in the Western Cross Timbers before European settlement (Bascope, 2007).

Native American tribes in the Western Cross Timbers have largely been groups of people who were hunter -gathers. They moved with the animals and plant foods, traveling with the seasons and the water. While it is unknown why, there is little evidence of corn or plant material found in archeological excavations here(Bascope). The soils and general nature of the Western Cross Timbers may have further encouraged the nomadic lifestyle vs. the agrarian style. But with the advent of farming and the ability to store food, communities developed, and agricultural calendars were developed based on where one lived in regard to the 100^{th} meridian. The 100^{th} meridian was historically significant in making rainfall estimates for vegetation choices - more arid to the west of the longitudinal line and more verdant options to the east.

Whether the Indians possessed European horses because they tamed wild ponies or because there was a domestic source, the horse became more natural to the tribes than their own two legs. But with the advent of the horse, the economy of the plains and Cross Timbers changed. Enter the white settler. Jared Diamond argues that the Native Americans were no match for the first European settlers with their "capacity of settled agriculture and ranching" that was learned 10,000 years ago, with their variety of domesticated animals (horses and cattle), and with the diseases they imported to North America (Ashworth, 1983). According to Walter Prescott Webb, the technologies that help to conquer the Indians were the Colt six – shooter for

mounted fighting, barbed wire defending the crops from loose livestock, the windmill providing water for livestock at homesteads, a John Deere plow to break prairie sod, the railroad transporting people as well as livestock to markets, and the combine harvester for more efficient grain farming (Merchant, 2002). The progression from a nomadic society, to one of small homesteaders, to a more capitalist agribusiness was happening. While sources disagree widely on when the Indians first inhabited the continent, on the eve of European occupation, it is estimated that there were between 1 and 18 million Native Americans inhabiting North America (Merchant, 2002). This uncertainty partially stems from their foraging life ways, which left almost no footprints for us to discover (Bascope, 2007). After conquest the tribe's only hope of survival was to rely on the government's promises in the Constitution to honor treaties and to stand by commitments to protect them. When you add the decided European advantages with the U.S. Government's actions, the battle for dominance was soon to be over.

In the United States, there has been a long and passionate history relating to the land and its owner. The Federal Government got more deeply involved in 1862 when it enacted the Homestead Act to address 70 years of dispute over disposition of publicly held land. It was intended to increase the land being used for agriculture outside of the original 13 colonies, but evolved into a program fraught with natural resources control, specifically water. It stated that if a land owner settled on land for 5 years and made improvements such as a home, plowed timber acreage for cultivation, or even fencing, then they would be given title to the land for a $10.00 fee. Although this Act remained in place until 1976 (1986 in Alaska), most of the productive land had been claimed, largely by wealthy land speculators, before 1862. Additional federal land was given to the railroads to encourage the construction of public transportation. For $2.50, or $5.00 if it was a "hard rock mining claim", you could stake a claim to mineral land in 1872 or 2008. In 1877, the Desert Land Act enabled one to claim 640 acres for a $1.25 fee if the land

was irrigated within 3 years. One year later, the Free Timber Act allowed people to cut timber on public lands for private uses. This is still practiced today in areas such as the LBJ National Grasslands in Wise County, TX. The view of timber was expanded in 1873 by the Timber Culture Act that informed settlers of the plains that planting trees would encourage rain to fall. It was not until 1891 - 1905 that the Forest and Wildlife Reserves were created and an organized management of public domain lands began.

Prior to 1836, Texas land was largely Spanish and Mexican land titles. The process of land distribution in Texas was different than the typical homestead practices that settled the Great Plains. From 1836 - 1900 land in Texas was used by the state government for public projects such as schools, to pay debts, and for rewards such as for military service. If you inhabited land before 1836, the land was issued to you through a process called *headrights.* When the United States annexed Texas in 1845, Texas retained its public lands and distributed them through the state. A family or individual was given a land certificate, desirable land was located by the holder of the certificate, conditions were met (i.e. improvements), and then the future owners applied for a patent with the state ("TX Land Office," 2008). With Indian attacks constantly a threat, especially by the Comanche, compiled with the Cross Timber landscape, the region remained thinly settled in 1858 (Francaviglia, 2000).

Two groups of people had different opportunities to own and manage land, the Native Americans and the African Americans. The Dawes Act of 1887 was a program where the Federal Government took the Indian tribal land given by treaties, surveyed it, and then divided it up into 160-acre plots to be given back to individual Indians enabling them to make a living, hopefully by farming. The intent was to destroy the tribal society and assimilate individual Indians into American society as propertied individuals (Burgess, 2008). After 25 years of being held in trust by the government, it would become the personal property of a Native American

family. This was irrelevant in Texas, since there remained only a single reservation (Alabama-Coushatta) (Burgess, 2008). African Americans, largely former slaves before the Civil War, were given an opportunity to own land with the Creation of the Freedman's Bureau in 1865. "Forty acres and a Mule" was a saying that addressed what they were given – land that had been confiscated from southern land owners during the Civil War and livestock that was no longer of service to the military. One of the earliest forms of reparation for slavery was then rescinded the next year by President Johnson responding to the objections of former white land owners ("Land and Freedom," n.d.).

No story of the Western Cross Timbers should be told without the role of the Native Americans being recounted. For the purpose of this account, their story begins with an acknowledgment of their legal status as a Sovereign Nation in 1823. Also in 1823, the Christian Doctrine of Discovery was quietly adopted into U.S. law by the Supreme Court in the celebrated case, *Johnson v. McIntosh*. "Writing for a unanimous court, Chief Justice John Marshall observed that Christian European nations had assumed "ultimate dominion" over the lands of America during the Age of Discovery, and that - upon "discovery" - the Indians had lost "their rights to complete sovereignty, as independent nations," and only retained a right of "occupancy" in their lands. In other words, Indians nations were subject to the ultimate authority of the first nation of Christendom to claim possession of a given region of Indian lands."(Newcomb, 1992, p. 2) This 1823 decision allowed Native Americans to occupy land in the U.S., but not to hold title to it.

President Andrew Jackson, taking office in 1829, began quickly to push through decisions affecting the Indian Nation, seemingly in defiance of Justice Marshall. In the 1820s, Jackson was instrumental in divesting 5 southern tribes of their land in exchange for land in the west. As early as 1817, tribes had been refusing to leave their lands by peaceful or warlike

means. In 1830, the Indian Removal Act was passed which hastened the removal of Indians to land west of the Mississippi and gave greater authority to the President Jackson to enact such relocations. From 1831 to 1842, tribes were marched under military guard and some in chains, often dying along the way, to find new homes in mostly Oklahoma and Texas. They went with the promise that they had finally arrived at the land they could call their own ("PBS," n.d., p.3). The westward movement created pressures on tribes, such as the Caddo, who were already settled in eastern Texas and Oklahoma. This chain reaction pushed more people westward toward the Cross Timbers in search of food and living space (Burgess, 2008).

Then in 1831, to further erode the status of sovereign nation, the U.S. Government changed the status of the Native American tribes to Domestic Dependent Nation. Since the U.S. Government only made treaties with other nations, and had made hundreds of treaties with the "First Peoples" from 1776-1871, the status change was perplexing. Whether the Indian governments went by the name tribe, band, or council, there was governance in place in every community before the European settlers arrived (Newcomb, 2004). The western travel writer Samuel Bowles expressed the prevailing opinion of the day when he wrote, "We know that they are not our equals, that our right to the soil…, is above theirs" (Merchant, 2002, p.145).

Other dates of significance to the Indian Nation history are the establishment of the Bureau of Indian Affairs in 1824 to improve the quality of life of Native Americans and to be an advocate in protecting the Nation's assets. Reservations were established from 1880 – 1890s on land that the white people did not want. The Apaches became the last of the Southwest Indians to surrender in October 1886. As described above, in 1887 the Dawes Act continued the effort to mold Indians into farmers by placing them on their own homestead plots (Merchant, 2006). According to Carolyn Merchant, the "process of civilization was the major narrative of Western culture" (Merchant, 2002, p.144). Owing to the "success" of the Dawes Act, 90 million acres

were lost from the original reservation holdings over the next 50 years and with that loss of land the Native American population was dwindling and assimilating. This was allowed to happen when Indian land was left after the allotments to Indian families ultimately resulting in the loss of 2/3 of the original land held by the First People (Merchant, 2006). After amendments in 1891 and 1906, the Dawes Act was abolished in 1934.

The funneling of Native Americans was similar to the hunting of buffalo as they were driven to a smaller and smaller area of land and then finally driven off the cliff to their death. William Prescott Webb describes how the bison and the Indians grew up together, lived together, and died together (Merchant, 2006). The medals offered by General Phil Sheridan in 1875 went to reward the hunters who killed on the average of 100 bison/day or approximately 100,000 dead bison /year. In 1867, the U. S. Army issued an order to kill every buffalo possible as assurance that the Indians' survival would be further threatened. Between 1860 and 1880, the bison were wiped out for sport, their hides, or for spite (Merchant, 2006). And with the bison, went the Indians. This extinction through bison largely applied to the Plains Indians. The Cherokee and Caddos of the Cross Timbers, who were not as dependent on the bison, were less affected by this effort of extermination. This complexity of narratives in the zone where eastern tribal cultures interfaced with western plains cultures is a unique feature of the Cross Timbers region. The easily told general narratives that apply to large areas of The West do not apply well to Cross Timbers, where different tribes, Spanish, French, and American peoples interacted in unstable ways for three centuries. The marginal, borderland nature of the Cross Timbers meant that it did not root the general narratives that applied to the cultural core areas of the East, West, and South (Burgess, 2008).

During the 1850 – 1870, the Comanche, Kiowa, and Kiowa Apache chiefs were reported by the U.S. government to "run rampant" through North Central Texas thus necessitating the

need for the army to send explorers like Randolph Barnes Marcy to the West. Their primary task was to find land for Indian relocation and to meet with tribes convincing them to accept the move. In his 1854 expedition, Marcy did locate suitable reservation lands, but also was able to make casual observations of Indian encounters, and appraise the land's value for farming, ranching, and natural resources (Parker, 1990).

As a white settler living in the Western Cross Timbers of North Central Texas during the mid to late 1880s, daily life would have meant dangerous travel on stagecoach routes and U.S. Army Forts as neighbors. Arguably processing a different perspective, life would certainly have been threatening to Native Americans as well. Local Young County history recounts "possibly the most dangerous stretch of travel anywhere in the 1860s and 1870s" traveled through their county and along this route, "graves of unfortunate pioneers killed by Indians dotted the landscape" ("Wildcatter," n.d.). Famous Kiowa chiefs such as Kicking Bird, Lone Wolf, and Santana were reported to lead raids such as the Warren Wagon Train Massacre and the Battle of Little Wichita River in Western Cross Timber counties ("Wildcatter," n.d.). In Young and Jack counties, Fort Belknap and Fort Richardson were located to help keep the peace with local Indians and to protect the white settlers. There was also one of only two Indian reservations, the 68,000-acre Brazos Indian Reservation, ever located in Texas in Young County. On this reservation, also known as the lower reservation, 2000 Indians made their home. Some of the tribes represented were Anadarko, Caddo, Cherokee, Choctaw, Delaware nation, and the Tonkawa. Young county history also acknowledges that trust was never established between the locals and the Indians, even the peaceful agrarian ones and therefore men like Charles Goodnight were celebrated for their prowess as an Indian scout and fighter. Goodnight was cited as being a protector of "the pioneer's most deadly enemy, the Plains Indians" in events such as the Elm Creek Raid in 1864 ("Wildcatter," n.d.).

The Elm Creek Raid took place in Young County in October of 1864. This attack was executed by 600 – 1000 warriors of the Comanche, Kiowa, and Kiowa Apache tribes. The attack took place along Elm Creek against settlers' homes. It is unclear how many Indian causalities there were, but eight white men and five Texas Rangers were killed in the raid. Taken hostage were six women and children. Another Elm Creek Raid occurred three years later. In the 1867 attack, three 19 year old boys were killed. The raids and massacres continued until 1875, when the absence of the bison and other food sources, the increased presence of the military, and the weariness of the defeated warriors became too much and the final First People were settled onto a reservation ("Wildcatter,' n.d.). To the Indians, it was a winner takes all game – you either won or you lost. John Graves said in *Goodbye to a River*, "It seems clear that The People were good haters. So were the whites, though…) (Graves, 1959, p. 139).

With the United States Military moving in to survey the new lands for the pioneers and then to provide for their safety, the white soldiers could be considered the earliest "settlers" of the Cross Timbers frontier. The military literally blazed the trail for the future settlers that would arrive on foot, via horseback, or by wagon. The roads they built connected and established settlements in the Western Cross Timbers beginning in the late 1840s ("CTUFC," n.d.). It was at this time, with a seemingly inexhaustible supply, that the wood of the Cross Timbers began to be in high demand for firewood and construction.

To focus on one tribe's experience, the Caddos were a peaceful, agrarian tribe who resided or hunted in the Western Cross Timbers after being relocated from their traditional homeland to the east. In fact this tribe provided the name for Texas (Tony Burgess, personal communication, February 25, 2008). To quote Lillie Whitehorn, "I don't say that I know this; I'm just going to tell you the way I hear it"(Elkins, 1995, p.9) and for me, the way I read and feel the history. Jack County served as the border between the Caddo tribe and the Comanche

(McDaniel, n.d.). The tribe can trace their roots back to about A.D. 800. From 9500 B.C. to 500 B.C., there is a trace of evidence that the tribe was a hunting/gathering band in the Southwest. Most archeologists agree that the Caddo did not inhabit the Western Cross Timbers until the nineteenth century after being pushed out from their homelands east (Bascope, 2007). At some point, the tribe became more settled into permanent communities centered on farming and pottery making (Elkins, 1995). Hindsight enables perfect vision and had the Caddo tribe known what building highways heading west or steamboats traveling down the Mississippi would have meant, they might have known that the western migration was coming. Until this time, the main European pressure was from Spanish settlements moving north to San Antonio and northeast toward East Texas. For over a century the Caddos were in a buffer zone between Louisiana French and Mexican Spanish. The strong westward Anglo-American migration was new to them (Burgess, 2008). In the early 1820s, the US Government signed treaties with different tribes that in effect promised land that was inhabited by other tribes and that forced historically warring tribes into being neighbors. Surveyors were widely scattered among Indian land, a disturbing sign for tribes as what came next would be white settlers. The annual $10,000 annuity that the Caddo tribe was to receive under a treaty in 1835, often never made it to the tribe due to great distances separating the communities and agents and interpreters who had few ethics. The Caddo people were peace-loving and continued to attempt to live in harmony with the white settlers. This was achievable until 1845 when the U.S. annexation of Texas further opened up the land. By 1849 the number of settlers outgrew the land that was available to them. White man history tells of the Elm Creek Raid and the Warren Wagon Train Massacre. Native American history records battles where the Caddos and other peaceful tribes joined the U.S. Military against the Comanche and where white families trusted their children's illnesses to Native American medicine.

Also in 1845, Major Robert S. Neighbors was appointed as an Indian Agent for Texas. Neighbors was known as a fair and determined man and had a technique for working with the Indians that was unheard of – he visited them in their homes, learned their language, and collected their stories. When Texas authorized two Indian reservations, Neighbors became a federal agent and grew to like and respect tribes such as the Caddo. Marcy and Neighbors found an unoccupied tract of land along the Brazos River for the Indians. Despite the bitter water and quicksand banks, the valley offered fertile soils and natural divisions of woodland and river between the white settlers and Native Americans. As soon as the reservation was available, the Caddos moved onto the land in 1855. A blacksmith, government farmer, and schoolteacher soon followed. Z.E. Coombes was the Brazos Reservation schoolmaster. While students were being educated and crops were growing in the fields, Texas settlers prepared for war. Walter Prescott Webb summarized the emotions of the whites heart's by writing, "There could be no peace; there must be war. The Indians had to go" (Elkins, 1995, p. 326). As Reservation schoolmaster Z.Z. Coombes recounted on March 25, 1859, "This morning Narchixcox killed his wife and child and was killed by his own gun… Narchixcox was a firm, a true and a good friend to the Whites… My own impression is this: That having been long since tired of the troubles, anxiety, and starvation of a life at enemy with the Whites and being freely of opinion that peace could no longer be maintained…" (Coombes, 1962, p. 59). The Indians could reside on the reservations, but once the land was no longer needed by the tribes, then it reverted back to the state of Texas and its inhabitants.

White men began lusting for the available land that the Indians occupied and the white settlers that had lived as neighbors to the Caddos were replaced by less knowledgeable men. John Graves quotes Houston as saying, "…if he could build a wall across Texas which would keep all the Indians securely to the west, the God – damned Texans would crawl over it from

their side…" (Graves, 1959, p. 50). Major Neighbors likened the tribes to the children of Israel crossing the Red Sea and shepherded them from the Brazos Reservation to "safety" in Oklahoma in 1859. What they took with them was not their crops or their livestock, but their bags must have been full of resentment, fatigue, and a pride in who they were. Mary Hunter Austin says that, "… the homesickness of an Indian is often unto death…" (Austin, 1903, p.63). Neighbors had domesticated the "wild" Indians with the best of intentions. When you adopt an animal from the wild, you often train that animal to trust all who are like you – a false sense of security that may not have served his friends well. With the best of intentions, Major Neighbors took tribes, who must have felt bewildered by the broken promises and multiple moves, from the Brazos Reservation in the Western Cross Timbers of Texas north to Oklahoma. For this noble effort, Major Robert Neighbors was shot in the back a month after he returned to *land of the Philistines* by a man who felt he cared too much for the First Peoples (Elkins, 1995, p. 349). Ten Bears of the Root Eaters spoke these words, "…The Texans have taken away the places where the grasses grew the thickest and the timber was the best. Had we kept that, we might have done the things you ask. But it is too late. The whites have the country which we loved…" (Graves, 1995, p.113). The treatment of the First Peoples was tolerable because it was common. With white settlers intent on amassing the land, taming the nature, discarding what was used up, and looking for the next conquest, Native Americans, while adopting a common human response to some natural resources, were still of the mindset that the earth was something to be learned from, not owned. The question begs to be asked, which side was the savage one?

The Native Americans needed to be moved in order to improve the land, just as the Western Cross Timber woodlands needed to be cleared in the name of taming the land. Woodlands provided building material, palatable food, and safe haven, but could also cause disorientation and impede passage. To remove the forest was akin to progress. When a family

removed timber, they created board feet for construction of a house. When they cleared a matted, unkempt forest of twisted, impassable oaks and developed it into a cultivated field, this was considered civilized. Early settlers to the Cross Timbers viewed the dark wooded land as evil. Turning it into pastureland was akin to transformation into the light. The push to settle the west and the Cross Timbers allowed the woodlands to be viewed as the enemy. Woodlands became pastureland seemingly overnight because of this insatiable appetite and the need to feed families.

People in Europe were attracted to North America in the seventeenth and eighteenth century partly because their own supply of timber was dwindling – again the conquer, use up, and move on principal. For thousands of years, trees have been society's primary building material and fuel source to "reshape the earth for its use" (Perlin, 1989, p. 25). Timber had been used for everything from furniture to windmills to arrow shafts to fence posts. Even the wood from the Cross Timber gnarled oaks was valuable in changing inedible items into food sources and metals into farming tools. Consequently during a time in the 1880s before the advent of barbwire for fences, land that was heavily populated in post oaks and cedars was of more value than fertile prairie (Sitton and Utley, 1997).

By using a disguise of uselessness, the Western Cross Timbers were saved from the demise of the eastern forests being cut for pulp wood and building material, and thus enabled some old growth woodland to, although greatly fragmented, remain. Cross Timber land was cleared with fire and ax. By the mid 1800s, there were 30,000 sawmills in the U.S. and by 1867; timber was America's second largest industry (Merchant, 2006). With this frenzied movement toward cleared fields, settlers may have discovered their short-sightedness. Once the woodlands were leveled for agriculture, the soil became more vulnerable to erosion, more open to the heat of the summer sun, and had decreased ability to retain water. With the resulting deterioration of

the soil, a decline in agricultural production followed. With less organic matter, the farmer's yield was decreased as the soil's ability to nourish the seeds was exhausted. This was one of the factors that drove farmers in the Western Cross Timbers to constantly need to acquire more land to produce the same amount of crop yield. Conversely when the fields were left fallow, vegetation and soil health returned. Not only does the removal of the trees affect the soil, but also the sediment load in bodies of water, the climate, and the force of the wind. When trees are present, the air temperature can be a little cooler and the wind's force is diverted.

Another player who didn't fit into the new European settler's vision of the promised land were the bison. Because they were not able to be domesticated, herded, and could not be owned, the only option was replacement. Bison hides also had monetary appeal in the international market economy that added to their demise. The bison successor was the horse, longhorn, or the ox. Oxen had advantages over horses as they lived longer, were sturdier, and in hard times the meat was edible, but horses were more useful for swift travel. The horse, cow, hog, and goats were imported from Europe with the waves of settlers. These species of animals, along with the crops they brought, made the new land seem just like home. Cattle were recognized in Young County as big business as early as 1877 when cattlemen grouped together to form the Stock – Raiser's Association of North-West Texas which is still in existence today ("Wildcatter," n.d.). Farmers would fence in their crops and leave the branded livestock to roam. The cattle would graze on the grasses that grew in the upland post oak forest during the summer and then migrate down to the river bottoms in the fall (Sitton and Utley, 1997). Once the hearty fields of native grasses were depleted by the cattle, secondary succession brought the goats. The abundance of oak trees in the Western Cross Timbers, with their native mast crops of acorns, helped hogs flourish. The acorns were also good food for other wildlife that served as food sources such as the squirrels and deer (Dale, 1966). Native Americans, with their limited numbers and plenty of

space around them, never had to be concerned about sustainable range management or species extinction from over – hunting.

The original vision by the state of Texas in settling the Western Cross Timber was for there to be communities of small farmers instead of larger holdings where wealth could be concentrated into fewer owners. Since the only federal lands were the two Indian Reservations, the settlement policies of the northern plains were not followed in Texas (Tony Burgess, personal communication, February 25, 2008). The process seemed not to be the outcome of unregulated real estate speculation or a more orderly disposition of discrete parcels, but land distribution based on one's ethnicity, one's wealth, and position in the community.

By the 1890s, there was little land left that could be called "frontier". The land had been claimed and settled such that what was left was broken into a mosaic of bits and pieces. The land that legends described as, "teeming with wildlife and fertile soils began to turn to one of wasted resources and inefficient use" (Merchant, 2002, p. 127). It was much easier to take up new land than to try to convert worn – out soil back into agriculture because of the time, labor, and money required. As soil began to loose its value as a growing medium for crops, the land could become pastureland, and then at the end of its usefulness to livestock, it was allowed to revert back to, although altered, its natural state. The Cross Timber woodland continually tried to reinstate itself by pushing up sprouts to compete with the domestic crops or abandoned disturbed land. Annual forbs came in almost immediately, then the grasses and greenbrier after two or three years, and then after two or three more years the trees would become the major competitors. As long as there were grasses intertwined with the soil, then the brief and powerful Cross Timber rainstorms, the hail, or the neglect could not deal an eroded blow. Although the perennial grasses formed a persistent natural garden, the land was already casting only a slight shadow to its pre-agricultural self.

One of the types of soil found in the Western Cross Timbers is Windthorst ("Soil Survey," 1989). Once the perennial native grasses were removed, farmers found the Windthorst soils could be a challenge in crop cultivation partly due to its low fertility. The neutral, fine, sandy loam soil is found on gently undulating ridges ("Soil Survey," 1989). The surface layer was approximately 10 inches thick before agriculture became the precursor to erosion. Farming Windthorst soils sustainably was beyond the skill of most settlers, and seldom made economic sense. Most of the Windthorst soil currently is utilized as pasture or rangeland given its moderate permeability and its high rate of soil blowing and erosion. It is not well suited to urban uses given its weak nature, but serves mightily as wildlife habitat ("Soil Survey," 1989).

"Cycles of plowing and planting and cultivating and harvesting followed seasonal rhythms for decades more, but storms of change from world economics and politics soon altered the lives of farm families far more profoundly than the weed, or weevil, or the wandering hailstorms of spring" (Sitton and Utley, 1997, p. 257). In the late 19th – early 20th century, the economy switched from subsistence to a market economy. As sons of large families went out to seek their fortune on their own land, the family farm quickly became too small to divide many more times. Changes in production methods, reproduction rates, and consciousness all accelerated this shift in economies (Merchant, 2002). Technology was able to take resources from nature and transform them into a commodity for the farm family to sell. Capitalism was quickly becoming a mode of production right along side of ranching and farming.

The plow was an example of how the Cross Timber's land products became cash. With varying degrees of self-sufficiency, the early settler farms supported the family. In *The Cross Timbers: Memories of a North Texas Boyhood*, Dale remembers buying very little from the grocery store. His family's only purchases included sugar, coffee, soda, syrup, salt, and pepper (Dale, 1966).

With the agricultural revolution, man had begun to shape the environment by taking back some of the decisions that nature used to dictate. This was easier if you lived east of the 1ooth meridian or 20-inch rainfall line, rather than the arid west. Settlers were fooled into thinking that the land west of the 100th meridian made good farmland or that 160 acres would raise many cattle by the anomaly of several wet years (Merchant, 2002). Most of the Western Cross Timber counties lie longitudinally between the 96th and 98th lines. West of this line life becomes more difficult if you are a farmer or a rancher. As settlers wore out the soil of the sandy-land post oak uplands, they quickly learned the harsh lesson that farming in the arid Western Cross Timbers was untenable. George Perkins Marsh wrote in 1801 that, "… Man is everywhere a disturbing agent. Wherever he plants his foot, the harmonies of nature are turned to discords" (Merchant, 2002, p. 127).

Families made the decision of when to plant in a process similar to children running in circles attempting to get lock step with a merry-go-round before jumping on. Agricultural direction was gleaned from the signs of the weather, the stages of the moon, and from Farmer's Almanacs. Farmers today recount stories of their grandfathers keeping daily journals largely filled with weather history. Bubba Browser puts it much more colorfully, "Cotton breeds with the earth, and the peas and things, just like a woman breeds with a man. And if you catch that earth and it ain't right, it ain't gonna receive nothing, and you can't make nothing" (Sitton and Utley, 1997, p.146). During Cross Timber summers, the dinner table was bounty laden, but the winter offerings were a bit slimmer with potatoes and food that had been put up or dried during the summer as the main staple. The Native Americans, according to the reservation schoolmaster Z.Z. Coombes, were planting English peas, mustard, lettuce, okra, cabbage, and radishes (Coombes, 1962) partly for sustenance and partly to learn how to fit the model of American farmer instead of savage. The water wells of the Western Cross Timbers had a

reputation of being mineral laced, but families found it to be nonetheless effective as a refrigerator (Dale, 1966). Small homesteads subsisted in the sandy post – oak uplands well into the 1920s with only the four “essential elements of corn, hogs, ax, and fire” (Sitton and Utley, 1997, p.18). When a family purchased land, they spent the first years not only growing and harvesting their crops, but in ‘improving their new property” by cutting down myriad trees for home construction, clearing away greenbrier and grapevine, and planting a fruit orchard (Dale, 1966).

Everything from farm implements to labor was divided among neighbors in the Cross Timber towns. Neighbors knew each other and each other’s business. They relied on each other not only in time of need, but for everyday occurrences. Harvesting crops without machinery meant that community members rotated through all the fields as a group until everyone’s crops had been brought in for the season. The end of harvesting was a time for celebrating good fortune and good friends.

Children also were expected to join in to harvest crops, which meant school was secondary. In the late 1800s and early 1900s, Texas school laws provided free schooling to all children 8 – 16 years of age (Dale, 1966). If children were able to attend school five to six months out of the year, it was considered a good year for education(Dale, 1996). Some terms, the children never became students, at least not in the classroom. The price of missing school was going for three cents a bushel for gathering corn.

While women seldom worked in the oilfield as roughnecks or wildcatters, labor was more than equally divided on the homestead. Usually all the housework, tending the gardens, milking the cows and goats, and being a harvest hand during the season, fell to the women. On men’s daily “to-do” list, were lumberjack duty, planting the crops, harvesting the crops, and maintaining the livestock. Females would have to be credited as settlers of the frontier in

addition to males. Their roles were not only a supportive one to their husbands, often it became a primary one if a man died or simply was not capable. Pioneer women were of hardy stock and similar in nature to the compliment today, “renaissance man”. Mary Austin in her book *Land of Little Rain* has a delightful quote that is descriptive of these pioneer women, “In our kind of society, when a woman ceases to alter the fashion of her hair, you guess that she has passed the crisis of her experience” (Austin, 1903, p. 243). You would guess that these women would never again come up against anything that was too big for them. There were some women though that as soon as the family fortune was made in Cross Timber resources, moved back to the big cities like Fort Worth for additional spending opportunities.

Despite the outflow of affluent women, the population of Texas increased four fold from 1835 - 1847 to 142,000 and had reached 600,000 by the early 1860s (Sitton and Utley, 1997). The settlers who came to Texas and to the western Cross Timbers were Scotch – Irish, Germans, and Czech in descent. Newcomers to the area would often have had their way paid by those settlers who had come before, made their way, and then sent money home for additional family members to make the journey (Sitton and Utley, 1997). Few families came with hordes of slaves as most of the pioneers were middle class farmers or ranchers (Sitton and Utley, 1997). People were of the ilk that they did for themselves without the help of slave labor. Texans were still stinging from the war for independence from Mexico, so there were few Hispanics as part of the work force or as fellow settlers. African Americans played a minor role in the settling of the Western Cross Timbers, as there were so few of them present. The exception was the outstanding service of the buffalo soldiers (Graves, 1959). The major settlement of the Western Cross Timbers was happening not long before the onset and simultaneously with the Civil War.

When the last Native Americans were moved to Oklahoma in 1859, this opened up additional land to settlers. After the Civil War, white Southerners felt disenfranchised and were

looking for a way and a place to recover that was outside of Northern purview (Meinig, 1998). A “pure blooded, homogeneous population” of Anglo – Saxon, native-born Americans had been present in the South and the white Southerners were hoping to re-establish this “kingdom” (Meinig, 1998, p.220). There were places in Texas (Lubbock) that were actually sustaining efforts to discourage the migration of African-Americans out of the fear that they wouldn’t adopt the traditional “Southern Way of Life” (Meinig, 1998, p.221). There is little mention of African- American homesteaders in the literature during this time of Western Cross Timber settlement. The draw of unsettled and unspoiled Texas land where Black labor could continue to be used was much more appealing to white Southerners than troubling with freed slaves and Reconstruction governments back home (Meinig, 1998).

In 1929, Texas agriculture was valued in excess of $11 billion. This exceeded the value of Texas oil production times three (Sitton and Utley, 1997). Beginning in Young County in 1872, wildcatters were punching holes in the ground in hopes of striking it rich. The Graham brothers drilled the first gas well to 400 feet (“Wildcatter,” n.d.). It was not until 1920, that the McCluskey #1 begin to turn the tide on who could produce the most revenue in Texas. The well returned to its elated owners over $1,ooo,ooo in eight months (“Wildcatter,” n.d.). As cotton production was declining in Wise County due to the county’s spent soil, natural gas production was quickly taking over for the county’s (Bridgeport) lignite coal use (England, n.d.). And in Jack County, wildcatters struck oil in Bryson in 1923 (McDaniel, n.d.). If cotton was king in the 1920s, oil and gas became the successor to the throne beginning in the 1930s. So to go from a landscape with no fences where the cattle were branded and given free-range and farming was largely subsistence, to a climate of cultivating the land for a cash crop outside of a family’s daily needs or receiving oil and gas royalty checks only because of right of land ownership, was a significant step.

Whether you were a Scotch-Irish or a Czech, the settlers of the land were changing from a yeoman class to a landed gentry's class beginning in the mid 19th century. Whereas bison skinners left plies of bones and loggers left slash, the new class of gentrified settlers were not giving back to the land or replenishing the resources in their efforts to "improve" their holdings. The land owner's identity was, for the first time in history, being divorced from the land, while retaining its income.

Chapter III. Grace and Patience

A Local and Personal Perspective

"Listen to the mustn'ts, child. Listen to the don'ts. Listen to the shouldn'ts, the impossibles, the won'ts. Listen to the never haves, then listen close to me…Anything can happen child. Anything can be." –Shel Silverstein

The third and final chapter of my thesis becomes more personal, both in the interviews and my first person voice. I want to briefly refer to personal experience that can't help showing itself in my writing. My sense of place has always been well planted in the East. Trees are magnificent, and stately enough in girth that they were hard to hug. Land elevations are the Smokies, not caprock and bluffs. And the carpeting of the fields was green grass, not little bluestem tufts. In hoping that my readers could see the Western Cross Timbers in a different light, I discovered I needed to walk down that path first. So this has been an epiphany of sorts for me. Listening to the stories of the people who called the Cross Timbers home was, like a long hot shower, indulgent. Traveling by car and feeling a sense of comfort when I caught the first twisted and gnarled post oak along the road and then realizing that I was home, was enlightening. Experiencing the sense of community in small Western Cross Timber towns was affirming. So, my corner of the world has now expanded to include a strand of North Central Texas vegetation - well maybe all but the greenbrier. I am still working on that species as it can be the bane of a city gardener's existence with its tenacity, long root, and apparent appetite of organic remedies.

And finally, I had such grand ideas in formulating and researching this paper. The passion that I felt was sure to flow through my paper and inspire others as William Least Heat-Moon and John Graves had done for me. What was so clear in my mind's eye, somehow did not

often translate to the paper. Expectations are harsh proofreaders. I will trust Barbara Tuchman in *Practicing History* when she promises that, "one learns how to write in the practice there of" (Tuchman, 1981).

The beginning of the Western Cross Timber's story is rooted in igneous activity and 600 million year old Precambrian rock. Throw in an uplift or two, a few continental sea surges from the Gulf, the travels of eroded sediment, some earthquakes and volcanoes and you get lignite, metal ores, petroleum resources, salt, limestone, Pennsylvanian and Cretaceous sea rocks, and fertile soils (Hentz, 2008). You also get the woodlands that Washington Irving, Joyce Gibson Roach, and I call the Western Cross Timbers. This ecoregion was a destination for pilgrims looking for home or a First Peoples' memory of a home removed. The region with its fragrant air, soil that gave root to a family's sustenance, and trees tempered and bowed, that seemed to surround you with their twisted branches, must have been remarkable.

Where we are today, and in this chapter, is the plot of the story. The Cross Timber communities have a solid foundation, not only in Precambrian rock, but also in their people. There are challenges presenting themselves though: "big city folk" are moving in so that you don't always know your neighbor anymore, some market economies are rooted in petroleum reserves, and two of the counties have had stagnant growth trends in recent years.

The next chapter of the story has yet to be determined by the people who call the Western Cross Timbers home. Counties whose economies are driven by ranching must look at range management and the increasing cost of fertilizers for worn out soil. Counties where oil and gas are economic drivers may need to think about economic and political efforts to demonize carbon emissions in the near future, and how eventually these mineral resources will become less available. And counties that are homogenous in race, education, and ethnicity may face challenges in a changing community composition.

Jack, Wise, and Young are three adjacent Texas counties in that traverse the entire width of the Western Cross Timbers. Each has its own particular character, but as adjacent counties, shares some commonality. In order to know the Cross Timbers, one must know the small communities nestled within the post oaks. Using U.S. Census data, county extension agents, Chamber of Commerces, interviews, and personal experience, what follows is a glimpse of the each of the three counties.

Having spent 10 years working in the oil and gas business in Young County, I know this county best. The people who live in this county, farthest west of the three, are 96% Anglo and 97% were born in the United States. Their median income is $9000 below the state's average and 14% of the residents have a bachelor's degree of higher. From 2000- 2006, the county's overwhelmingly Republican population has grown 0.4 % with a population density of 19.2/sq. mile (See Table I). The Chamber of Commerce reports that the 2008 projected population is 18,263, which is a 1.3% increase over the last two years. As population trends have demonstrated, the number of residents track with the vitality of the local oil and gas opportunities, which over the last two years has been robust. Residents drive 18 miles to work, usually to oil and gas jobs. During the down times in the petroleum industry, manufacturing steps in as the largest industry sector. The Chamber proudly described the new businesses that were coming to the county seat in the next few years – Holiday Inn Express, The Dollar Store, and a new strip shopping mall. The Young County Chamber representatives said their biggest challenge was "keeping up with the growth" of new businesses. The strength that the Chamber representative chose to mention was the proximity to the Metroplex for amenities, but far enough away from the "hustle and bustle" and with "few chain stores" to keep the county's "small town feel". To help with the air quality, 35% of the county remains in Western Cross Timber vegetation. Primarily wheat is planted in 35% of the fields that are under cultivation and

65% remain as pasture land. The average size farm is 675 acres and the individual farming the land is probably a 58-year-old male. With their county being divided between sandy loam soil and the heavier red clay soils of the Broken Red Plains, add in 27" of rainfall yearly, and mesquite, their biggest nuisance species, grows well (Griffith et al. 2004). There have been four oil booms in Young County, the first, from 1917 – 1930, saw a surge of 30,000 people into the county. The local historian, Dorman Holub, in a May 2006 email, states that oil is either feast or famine, mostly famine. Up until 1970, the county was known for its ranches and oil business. Today the area continues to embrace its ranching roots, but also its frontier stories and regional tourism. Recreation is a major draw to the county with Possum Kingdom Lake and the Wildcatter Ranch. Young County is a community with a proud, colorful history of Indian raids, oil wildcatters, and pioneer forts – the stuff movies are made of – and an active faith- based community. The people are warm, but one definitely has an advantage as a native son or daughter. Community is what the residents embrace most they say – as compared to the "Metro-mess."

An aversion to the Metroplex, except during the Christmas shopping season, is probably shared by the population of Jack County. In 1910, there were 11,817 people living in the county. Today the US Census Bureau reports a 2006 estimate of 9,110, but the Chamber of Commerce in Jacksboro feels that is a bit overstated and estimates the 2008 population at 8,705 residents. Interesting that Jack County, the only one of the three that is entirely within Western Cross Timbers, has the lowest population (Tony Burgess, personal communication, April 1, 2008). A resident of Jack County has a 92% probability of being white and a 97% chance of being born in the United States. There are 9.6 people living every square mile. Obtaining a college degree of any type, puts a resident in the minority of 13%. Jack County residents earn an average of $35,000 and 77% drive their own car 28 miles each way to work. Despite having 0% of

residents bike to work and 2% who walk, the air quality in Jack County is excellent. Less than 4% of the citizens are unemployed and males largely work in the mining sector while females are most often a teacher or an administrative assistant. Petroleum, gas, and stone products are the big industry sectors in the county today.

Table 1. Comparison of Three Western Cross Timber Counties

COUNTY	YOUNG	JACK	WISE
Size (sq. miles)	922.33	916.61	904.61
Average Farm Size (acres)	675	674	183
Largest Industry Sector	oil & gas	oil & gas	oil & gas
% Land in Western Cross Timbers	35%	80%	ca. 65%
Population (2006)	18,021	9,110	57,891
% Population growth since 2000	0.04%	4.00%	18.60%
Ethnicity - (% Anglo)	96%	92.4%	96.2%
Avg. Household Income	$32,808	$35,074	$46,223

Source: U.S. Census Bureau and County Extension agents.

The county in recent history has been an oil and gas community and is striving for more diversification in their business community such as “dinner and a movie” options, bowling alleys, and business support services operations. Jack County is also improving its school facilities because that is what new residents would “expect.” Cattle ranching started the county’s

economy and is still important today. Farmers in Jack County own an average of 674 acres and on the average are 57-year-old men. Less than 10% of the county is under cultivation, but if it is cultivated, it is probably planted in wheat or sudan. The main soil type is Exray – Truce – Bonti which is loamy and stony soil underlain by sandstone and shale. The oaks on the 80% of the land that remains in Western Cross Timbers love this growing medium and the 30 inches of rainfall each year. In the 80% of the county that is in pasture land, you probably have thistles and Bull Nettle growing, unfortunately. Jack County is a safe place not only for the 80% Republican citizens, but for everybody. Tarrant County is where most new residents came from, most likely to escape to good, clean country living, to hunt and fish or to enjoy Fort Richardson State Park. The Chamber enthusiastically told me there is "land to be had", for a reasonable price and to remember that Jack County was within driving distance of Fort Worth if I wanted to get that "small town feel" for a weekend getaway.

Wise County is a bit of an anomaly within the Western Cross Timber triad of counties; not only because they largely voted Democratic up until 1968, but because the population has gone from 48,792 residents in 2000 to 57,891 in 2006, a 19% increase. Before that, Wise County has seen a 148% growth rate from 1970 - 2000. The Chamber of Commerce admits that their biggest challenge is locating rental properties for the new residents who are moving there. There are 63.7 people living every square mile and 96% of the residents are white while only 5% are foreign born. The county is 65 miles south of Oklahoma and 35 miles north of Fort Worth, which may explain its rapid expansion as a bedroom community for the Metroplex and why its air quality is rated among the dirtiest in the nation. County residents drive an average of 33 miles to work, and their salaries average highest among the three Cross Timber counties, $46,223 – the only county among the three whose average is above the Texas statewide average. Still just 13% of the population has some type of post secondary degree. According to the

Handbook of Texas online, the Wichita Indians were said to be the first settlers of the county, while immigrants from Tarrant County constitute the largest group moving there today. In the late 1800s, the railroads came to Wise County. With the available coal in Bridgeport, a working class of Hispanics was brought in as miners. The county's extensive coal reserves supplied the area until 1910 when a natural gas pipeline was laid (England, 2008). Agriculture has historically been the major industry in Wise County, only to be surpassed in recent history by oil and gas production. County farmers have produced wheat, peanuts, beef, and corn and overproduced cotton. If you are farming Wise County land today, you probably are a 55-year-old man working a 183-acre farm of alluvial or sandy loam soil underlain by a clay subsoil. There is a 248-day growing season with 29" of annual rainfall necessitating irrigation of only 1.5% of the farms. There are over 3300 acres in fruit orchard production as well. During 1949, Wise County was a major milk producer in the state. In addition to the 1,000,594,525 barrels of oil taken out of the ground from 1949 - 2004, the county manufactured glass, limestone, and gravel. In 2007, Mitchell (Devon) Energy built a 110-acre gas processing plant in the area because 60% of the company's gas runs through this county. If residents are not enjoying the recreational opportunities on Lake Bridgeport or Eagle Mountain Lake and have to work, they probably have a construction or an oilfield job if male and an education or administrative job if female. Wise County may have been forward thinking in 1940 in helping to set aside land as the LBJ National Grasslands to demonstrate sustainable land practices to the county's residents on previously worn out land. According to John Beck at the LBJ Grasslands office in a phone conversation on April 6, 2008, the county had little to do with the formation of the grasslands other than being the fortunate host. In response to the 1930s drought, the state and the federal government under the Bankhead-Jones Farm Tenant Act of 1936, agreed to purchase land that had been degraded by farming cotton in Wise County, and attempted to restore the land's health

by the use of native grasses. The National Grasslands area currently gives people a venue for hiking, camping, equestrian activities, and merely enjoying the outdoors. The character of the county is changing rapidly with the huge influx of new residents. Property purchased ten years ago has quadrupled in value. A Chamber representative who had lived in Wise County his whole life proudly described the county's phenomenal growth, but was quick to add that they were a "real accepting community" with a "small town atmosphere." Newcomers are welcome, but only once you demonstrate your desire to be a part of the community. Friday night high school football is a great place to start, even if you are not a fan.

All three Cross Timber communities shared an economic dependence on oil and gas that they felt was too limiting and were working to diversify. The counties have all experienced the "feast or famine" of petroleum resources that Dorman Holub described. But won't there always be another feast? Many items in our society are hydrocarbon based – the energy that powers our technology for food, homes, transportation, and industrial production. Our produce is fed and sprayed with hydrocarbons. Our abundant plastics are derived from petroleum. Oil provides significant energy/unit. For our present society, there is no other source, renewable or not, that can provide all of our current energy needs. We, and the rest of the world, have created our Achilles heel-oil dependency. With largely a bear market for energy, consumption has been encouraged to the delight of the Western Cross Timber oil companies. But prosperity is combined with a "not in my backyard" mentality, and the pipelines and refineries have been more difficult to locate.

When the oil is gone and there is no next feast, what will we do? Because oil has 'always' been available within our lifetimes, some of these Cross Timber communities are locked in a consensus reality that oil and gas will last and therefore their lifestyle will too.

Several interviews were conducted in 2007 with men who had worked in the oilfields all their working life – usually from the age of 14 or 15. Here are some of their comments paraphrased:

I never remember a time when I did not know that I would be an oilfield hand. I think it started out as the lack of having the will to make a conscious decision. Most people who go to work on rigs come straight out of high school and don't ever give college a try. I tried a civilian job when I was a student for about a year and just couldn't make anything near the kind of money I could working the rigs. I considered going to graduate school, even took the law school entrance exams and made good enough scores to get into law school. But a combination of a new family and student loans were too much to turn my back on a big paycheck.

The highest position on the rig is the driller and they just got a raise this past week to 28 dollars an hour. They work 7 days on, 7 days off. They work 7 days and 12 hour shifts and so when overtime kicks in, they make time and a half for over 40 hours a week. That's up to 40 dollars an hour for the driller. THAT is a draw.

You get 7 days on and 7 days off. Where else can you get that? There are some people who work all year for week off. So really you end up working 6 months a year. I mean really, it is a good job.

I am not so sure about all this attention that the environment is getting lately. You will have to figure this out on your own. The only part that makes sense to me is the part about protecting our drinking water. I've always lived in the country. And groundwater protection is something I believe is important to everyone and anyone who maintains other wise is what we call a nest fouler - that is just foolishness.

A lot of people need to avail themselves to the only opportunity they'll have given, given the lack of opportunity that is caused by not having a good education, not having a lot of breaks

in life. We see a lot of that in the oilfield. Some would go as far as feeling indebted to the oil field industry.

A replacement for the financial draw of the oilfield will be difficult as will the "indebtedness" to funding a new way of life.

Most experts agree that at this point conservation and volunteer efforts will not be enough. You can't conserve what you do not have. We can continue to spend $13,000,000/hour on oil imports ("NRDC," 2008) or we can choose to change our current lifestyles or we can engage in a war with China over diminishing oil supplies. Our life after petroleum must be looked at through the lens that technology is problematic, not problem solving, and that the root of our dependency is sociological.

In Wise County, the quality of the good clean country air is already questionable according to scorecard.com. Today, we are at 380 ppm of CO_2 compared to the other gases found in the Earth's atmosphere by volume (Pidwirny 2007) This is significant in that the atmospheric ppm of CO2 is increasing and is in part due to human actions. According to Dr. Williams with Shell Oil Company in a lecture delivered November 2007, best projections are that if we altered our behavior today, we probably couldn't contain the pollution at 450 ppm. We may be able to stop the trend at 550 ppm if we act now. There exist today significant economic, technical, and political challenges to decreasing CO_2 and airborne irritants such as ozone, and carbon monoxide, in the air we breathe. So respiratory illnesses will apparently continue to rise in frequency along with the quest for good clean county air.

So although small Western Cross Timber towns have historically oil-and-gas-based economies, there are also strong ties to agriculture done by aging, but dedicated farmers. With two of the counties' farms averaging about 675 acres each, the average size farm in the 3 county region is over 500 acres each. With few exceptions, the county's farms are owned by an

individual or a family. One Sunday afternoon I spoke with two men, “Mr. Marsh” and his son “Bobby Marsh”, who had been farming in a Western Cross Timber county for four generations. They viewed our meeting, I believe, with a bit of skepticism – not knowing how invested I was prepared to be in their lives or was I merely asking questions. Before I left that evening, they had welcomed me into their homes, given me a tour of their properties, showed me their hobbies and pictures of their grandchildren, and given me the gift of their friendship. I only felt a disconnect with them when I pointed out some magnificent, old post oak trees that remained around the site of an old homestead. This seemed to be of no consequence to them. I would imagine that the sense of place they feel in this sandy soil earth is as necessary to them as the air that fills their lungs. Mr. Marsh began farming this county in 1920 at 15 years of age with horses and a threshing crew. Bobby followed in his footsteps because his standard to measure the world was that of his daddy. He acknowledges that, “We have worked awfully hard, but this life has been good to us.” Mr. Marsh did question why anybody with a choice would choose to move to this county – he personally favored Hawaii. Farming has allowed his family members to be their own bosses, an advantage he noted over the oilfield, but lamented the exorbitant costs of farming today. For instance because of the increased price of natural gas, fertilizer has gone up 400% since 1990. They are getting more for their cattle than ever before, but between the feed increases, the cost of fertilizer, and diesel over $4.00/gallon, they are also making less than ever before. Bobby said, “I think we have produced ourselves into the idea that if we come up with a better yield in grain or if we cross breed these cattle it will make ‘em weigh more, then we can produce ourselves out of a slump. When Daddy started farming, 20 bushels/acre was a pretty good crop. Now we need to count on 40 and we probably need 50 to make a profit. We are producing more, but we have produced ourselves a surplus.” One can not help think Bobby’s comment sounds reminiscent of Timothy Egan’s description of farming just before the Dust

Bowl in his book *The Worst Hard Time*. "Farmers had two choices: they could cut back, hoping supplies would tighten and prices would rise, or they could plant more as a way to make the same money on higher output. Across the southern plains, the response was overwhelming: the farmers tore up more grass" (Egan 2006 p. 59). Our land using economies are often encouraged, either implicitly or explicitly, to overproduce by offered subsidies or the lack of production limits. To me, it sounds dangerously like the 1920s may live again.

Both men, and their wives, have always had to take second jobs to be able to afford the occupation of farming. Bobby admits that he could make a living running cattle, just not the living he wants. Both question whether the fifth generation will be able to afford their lifestyle, with farming and two outside jobs, given the skyrocketing price of land and the taxes. Mr. Marsh said the way they keep from growing crazy with the worry over farming, is to work. "It is what your great-grandfather and your grandfather, and your daddy have done and you don't know any different." They quietly followed their description of what cures all with, "The American farmer could bring the world to its knees, in one season. All we would have to do is to stay home – not to work." I doubt the two men I spent the afternoon with would do that, despite the size of their operating loan.

To encourage and assist farmers, the three counties have a federal program in common, the CRP or Conservation Reserve Program. In the 1930s, Hugh Bennett worked with the Roosevelt administration to devise a plan that could pull people out of one of the worst abuses of the land in US History, the Dust Bowl. Mr. Bennett, "thought if he could rest the land in some of these blowing prairie states, nature might have a shot at a comeback. Bennett was trying to change agricultural history" (Egan, 2006, p.159). Mr. Bennett advocated communities forming "farming districts" which would set guidelines for all residents to practice a "strict set of conservation rules, rotating crops, fallowing land, abandoning tear-up-the-earth methods of

plowing" (Egan, 2006, p.225). In the mid 1990s, the United States Department of Agriculture established a program, CRP, that sounds like it could have been authored by Mr. Bennett. The program provides assistance to farmers and ranchers who pledged to practice conservation methods with their land in exchange for rental payments and technical assistance. The CRP helps land owners address natural resource concerns in an "environmentally beneficial and cost – effective manner" ("CRP," 2007). Some of the benefits to the community include reducing the sediment load in area streams and rivers by decreasing soil erosion, increasing crop production potential by naturally restoring farmland's fertility, protecting water quality and wetlands, and establishing wildlife habitat ("CRP'" 2007). A Young County farmer brought the CRP program to my attention when he questioned if the program was even still around. According to the Farm Subsidy Database, it is, but just barely. The health of the program in the three aforementioned counties follows: Young County has the most consistent participation with a 10 year rental payment total of $456,388. Jack County participation has been steadily increasing with a ten year total of $71,536. Wise County had consistent participation for four years and then no activity since 1999 for a total rental payment history of $7,122. Since I was unable to get a response from Wise County, the cause of the lack of participation is unknown – bad experience, change in county management, disinterest… Other counties report good results for a government program with a specifically targeted audience. Is there a major downside to the managed rental of fallowed or nonproductive land? Allowing the land and the community a respite might be regenerative opportunity for both. If Western Cross Timber farmers wanted to consider other options for their farm, field rotation, community supported agriculture, organic farming, having a federal land subsidy might afford them that luxury. And then when applied to the larger community, the time may allow for creative brainstorming about programs such as supporting local agriculture.

Not long after arriving in the Western Cross Timber communities, one can experience the inherent tension that permeates the local culture. The largely Anglo population is most comfortable with their loyalty to the rural Southern values on which they were raised. The Cross Timber population of African-Americans, Hispanics, and other ethnic groups is small. This lack of diversity and a division among the "haves" and "have not's" is pronounced and is a weakness these communities may find in building strong futures. Sometimes what we love best may be the biggest impediment to healthy change (Tony Burgess, personal communication, April 18, 2008). Great strides can be made in these small town communities if they continue to embrace who they are, while visioning who they could be with a more diverse mindset, and then celebrating both as an opportunity for greatness.

Texas counties in the Western Cross Timbers are not the only ones with perplexing reactions to the Western Cross Timbers. On an immersion learning trip to Oklahoma, one of the destinations was the Wichita Mountain National Wildlife Refuge. The refuge is known for the ancient Cross Timbers that grow on the property. In the Visitor's Center, the Western Cross Timbers were described as a "dense natural barrier", "frustrating western travelers", "marking Native American boundaries", "tangled greenbrier vegetation" and "early settlers avoided them". What can public opinion be when this is the language that is used in talking about the Western Cross Timbers? What if the descriptive words read instead – "arching, beautiful branches of the Blackjack oak" or "provided protection for early settlers and Native Americans" or "guided settlers home with their boundaries" or "served as a haven for wildlife"? Would public opinion of the Western Cross Timbers be different?

How would people respond to the faithful support the Cross Timbers offered? Surprisingly few people even know what the Western Cross Timbers are. William Least-Heat Moon might say about this oblivion, "to live so uninformed before such grandeur is the

hallmark of a true native son" (Heat – Moon, 1982, p.227). Residents may not know what the Cross Timbers are, but the name must sound familiar. Listings for Cross Timbers include an oil and gas company, a church, a real estate business or a winery, maybe a golf course or a youth orchestra, or possibly roofing material or even a bike race. But what all these have in common is their namesake –scruffy-looking mottes of oaks that upon closer examination are worth a longer look. Quoting Mary Hunter Austin, "To understand the fashion of any life, one must know the land it is lived in and the procession of the year" (Austin, 1903, p.59). Then one has reason to commit to a sense of place. To stop, to go quiet and use our five senses to know the Western Cross Timbers - the aromatics of the cedar, the stark outline of the winter oaks, the cobble stoned roughness of the bark, the tartness of the sumac, or the wind moving the stands of little bluestem - that is when we can know the greatness of the place instead of the usefulness of the place.

Bill McKibben in his article for National Geographic, *A Deeper Shade of Green*, comments on the well established paradigm: "We judge just about every issue by asking the question, Will this make the economy larger" (McKibben, 2006, p.33)? Today nature is bought and sold as a commodity. William Cronon describes a situation where we can not even agree on a nature worth protecting – "Whose nature?" (Cronon, 1996). As Americans today we are out of touch with nature, and get caught attempting to defend an ideal of nature which often puts us into conflict with people who feel their connection to the land is stronger than one built on "ideals". The argument does not need to be between a "for" or "against" Nature, but an acknowledgement about the progression of what has been taken from the land.

How about Nature as the central affective component of the narrative? Trees were not created for our use, but more for a shared life. Humans need trees for air quality, to keep our soil in place, to provide shade and a quality of aesthetics to our life, for food, possibly for medicinal

cures, building supplies and for fuel. Trees need us for – well, not quite an equal relationship. So human emotion should run from thankful to grateful in our reverence and care for the trees. Instead our response is one of casual stewardship where we often don't think long about what trees are tied with orange tape. Our deforestation is and will have significant consequences on our environment. Trees' only revolt is in the form of refusing to be classified either as vegetation type or as a species. Post oaks are a great example if you have ever attempted to gather their leaves for typing. There seemingly are more hybrids than typical Post Oak leaves. At times the deforestation of the Cross Timbers is done in the name of prairie restoration. The First Peoples burned the landscape more often than did the Anglo-American settlers, to enhance their hunting/gathering foraging, consequently there appeared to be more grass and less trees on the prairie landscape that is now being called "native" (Tony Burgess, personal communication, February 15, 2008).

In the Western Cross Timber landscape, everyone wants a piece of the sky. The Cross Timber oaks, found just east of the 100th meridian, thrive on neglect. The harder the wind blows, the scarcer the rain, and the poorer the soil, the more the vegetation feels at home. The Cross Timber oaks remind one of the Hopi tribe. "Hopis live where almost nothing else will, thriving long in adverse conditions: poor soil, drought, temperature extremes, high winds" (Heat – Moon, 1982, p.175). Both species are patient and clever. So an oak acorn drops and with the right lack of soil fertility or rock outcropping, with not too much rain, and maybe a feral hog thrown in, the vulnerable seedling is on its way in the competition for sunlight. Increasingly though as the Western Cross Timbers are becoming more urbanized, the competitors are lawn sprinkler systems, drilling sites, and strip mall parking lots. So whether the aged Post oaks are watching over a neighborhood or a well site, they practice it with a grace accumulated over many years.

The grace of the Post oaks sometimes does not transfer to the human population as they watch over the change happening to their communities. The dispossession may feel akin to what the Indians felt 150 years ago. The connection may have been broken long ago between the person and the land, but when the land is being altered by others, there can still be a negative visceral response. It seems we are on a mission to change the inherent *unchangeability* of our land, which makes having an attachment to place very difficult. We are temporary society – if something doesn't work, replace it. With our quest for more, our hearts will find it hard to embrace what our minds have already moved on from.

To evoke change is a most basic human quality. Where we are headed may not be a destination, but an attempt to capture a feeling, a quest that is always just beyond our reach - or a place you believe in, but never get to. Enter the phenomena of relocations to the country, the buying of land in the "small town" communities of the Western Cross Timbers, the quest for the improved quality of life, and the continual moving to remoteness. The insular remoteness may be ultimately a source of strength for the communities and, at least initially, appeals to the idealized visions of out-of-town real estate seekers.

Do you ever wonder why people in urban orbs seek land in rural areas? Maybe it is trying to capture a memory from a time in your life when things were right, or to create a better living environment to raise children, or to fulfill a dream to own your own ranch. This search creates three distinct divisions of people in small town rural communities: *Born Heres, Belong Heres*, and *Come Heres*. Born heres are obviously native to the town by rite of birth or family lineage. Residents tell me that Belong Heres are people who align themselves with the way things are in the community and Come Heres are ones who move to the area and never give up the habits from where they originated. The fear with Come Heres is that they may want to make unwanted changes, as they don't take the time to become part of the community. Belong Heres

are able to express appreciation for what is already in place and aren't seeking changes to suit their personal needs. Belong Heres are able to join in community improvement efforts without making the natives, or Born Heres, feel threatened. You can be a *Wanna Belong Here*, an internal pressure, and not ever become a Belong Here. Long time residents tell me that Belong Heres are rare and are identifiable right away – it is a natural instinct, "either you have it or you don't". An example given was that Born Heres have been living next to well locations for years. When a Come Here moves to town, they quickly deem this "neighbor" unacceptable and independently of the community move forward to effect change while disregarding the possible negative impact to local employees. Small towns do, and should, pride themselves on their welcoming attitudes. There does seem to be an invisible line though – one that they are wary of you crossing until they have named you a Belong Here.

Tom Pilkington in his book, *This Stubborn Soil: Texas Earth and Texas Culture*, writes, "There is for each of us, an ideal home and an actual home. The ideal home we carry in the mind and in the heart: we belong to the actual home and it belongs to us, whether we want it or not. Lucky are those for whom the actual and the ideal fuse in one magical place" (Pilkington, 1986). Two of the people I interviewed for this paper had bought land in the Western Cross Timbers either with the intention of moving there or establishing a business in a Cross Timber community; in essence they were trying to find that ideal place to locate a home or a business. In my interviews, I appreciate the lack of abstractions and the chance people took in being vulnerable to me in telling their stories. Their stories follow.

A man and his wife, I will call them the Mortons, hoped to find a place in the "country". Fond family memories from the past seemed to be rooted in a home place in the county where family members could gather. Land values were good and the Mortons found the perfect place with the added benefit of enough land to buffer next door neighbors. Roads, electrical service,

and house plans quickly followed. All along they loved knowing the land was there and that they owned a piece of "it". The landscape of the Western Cross Timbers is a beautiful, peaceful place that people are drawn to and then once they are there, they wonder what to do with their piece of land. The Morton's original plans did not include where they would be employed, but soon an opportunity came up to open a business in a Cross Timber town – the ideal fusing. They had acumen to spare as the new business was in a field where they had been very successful in the past, but they are not prepared for the lack of community support. Mr. Morton lamented that the town is not embracing them by saying, "We just can't get a foothold in the community flow." When I asked him about the stand of mature Cross Timber oaks on his property, he just knew the land was "wonderfully wooded," but had not been aware of the significance when they purchased the land. Mr. Morton did say the trees were "pretty neat" and would use the Cross Timber pitch as sales opportunity if they ended up selling the land to shore up the business. During our conversation there was true bewilderment. In spite of doing all that they knew to be sound business practices, hard work, and long hours, their business was not doing well. My hypothesis is that they had crossed that invisible line in the community too quickly and maybe without becoming Belong Heres.

The second person that was gracious enough to grant me time for conversation was another business owner, Mrs. Roberts. How Mrs. Roberts and Mr. Morton differed was that Mrs. Roberts was not a resident, nor did she desire to ever live in the area where her business was located. They both had businesses located in the Western Cross Timbers, an ecotone that neither were previously familiar with, and they were both perplexed as to the reactions, or the lack thereof, of the local community. Mrs. Roberts went so far as to compare herself to the Western Cross Timbers in both sharing the "Crucible of Adaptation". She elaborated by saying the trees of the Western Cross Timbers were at their arid limit where you would expect to see

strong selection pressure to survive and adaptations just to survive. While she could empathize with the Cross Timber oaks, she was out of her comfort zone living to survive. When I asked Mrs. Roberts if she would ever want to live in the community, she smiled and said no, but she may buy land here as an investment. She just did not feel the connectedness of her urban lifestyle into this more rural model – what she was looking for was the beautiful landscape with the city amenities. Mrs. Roberts went on to say, "The land protects us from ourselves. We don't want to see the lights of the city, but we want to be close enough to the city's amenities to eat out or go to a movie when we want." I liken her comment about the land protecting us from ourselves with God protecting us with unanswered prayers.

Speaking of her home in the Western Cross Timbers, in a conversation in February 2008, Joyce Gibson Roach says, "You get a feeling if you are in a place that is not a part of you. There is no feeling when you are where you belong – when you are home. It is a subconscious emotion. The feeling when you are where you don't belong is a restless, conscious feeling that something is not right".

With education, Ms. Roberts has come to feel more affection for the land to go along with her strong sense of land stewardship that she feels because of duty to her grandkids. The emotional connection in her sense of place does not extend to the local residents though. Her description of the people ranged from having "potential", to "backwards", and finally settles on "alien." "I can't get into peoples' heads to figure them out…I have no involvement in the local community – no casual contacts, all business relationships. I am not a local resident. I do not feel close to this community and do not want to change that." Mrs. Roberts went on to say that the local people were "unfriendly." Coming from a culture where business and friendships are intertwined, working with a business in this community has proved difficult. This experience with "hard to infiltrate" small towns is not unique to the Western Cross Timbers, but certainly

can be defeating. What one person finds so charming about small town life, others can find off-putting.

So what's next? Rachael Naomi Remen says, "What we believe about ourselves can hold us hostage. Over the years I have come to respect the power of people's beliefs. The thing that has amazed me is that a belief is more that just an idea – it seems to shift the way in which we actually experience our lives and ourselves. According to Talmudic teaching, 'we do not see things as they are. We see them as we are.' A belief is like a pair of sunglasses" (Remen, 1996, p.77). Which "sunglasses" would most honor and care for the land, and how do we encourage people to put them on? Here is a chance for these small Western Cross Timber communities, whose identity today is tied to what they can get from the land, to become leaders in showing us how our identity can be one with the land. A member of one of the founding families in these Western Cross Timber communities said in a conversation with me, "Our world was pretty simple. We had/have excellent schools and our church ties are strong. Family is involved in everything and serves in all the different positions of the church – like a small school's athletes. The advantage over Ft. Worth is that there are fewer people and you need all the people to keep the town going – all work together." They have the infrastructure – closely knit, faith-based small communities with a work ethic tied to the land, whether that is tied through farming the soil or owning the land where a royalty check is generated, and they have agricultural expertise with the land to transform themselves into less of a petroleum based society - their past may be our future. To quote C. S. Lewis, "I have been loathe to put off opportunities and chances which may not come again."

There are no easy answers or pointed fingers in this recovery narrative, only first steps. The solution to the change to make our world a healthier one may ultimately be a government mandated one, but it can begin with individual actions. Our planet simply can't keep pace with

the rate that we are growing or our short- term appetites. Wendell Berry's words to us might be, "The point -- the only interesting point -- is that we have not quit. Ours is not a fight that you can stay in very long if you look for victory as a sign of triumph or on loss as a sign of defeat. We have not quit because we are not hopeless" (Berry, 2002, p. 245).

We must keep the remaining Cross Timbers in place. The fable of The Goose that Laid the Golden Egg tells of a man and his wife who had the good fortune to possess something great, and because they did not appreciate it and wanted more, they lost everything. The Western Cross Timber vegetation is so well suited for the climate and soils of the area. The trees provide us with welcome shade in the summer, soil stability with their roots, and vital CO2 absorption with their leaves. The Cross Timber native vegetation feeds the soil and requires no fertilizers to thrive, only neglect. To lose the Western Cross Timbers would be losing a piece of our natural heritage. Could we view our relationship with nature as a partnership instead of a management issue or a power struggle? If we continue to use our technology such as helicopter hunting or more selective and potent fertilizers to overcome the environment, then we will have to keep moving to find more unspoiled land and nature will patiently wait to reclaim the land that she has let us borrow. The land holds the accumulated memories of the Western Cross Timber communities more accurately than any historian can. I heard once that time is a friend to all things good. I hope so.

Wendell Berry asks us: Where do we spend our money and do we know them? What do we know about our local economies and are we supporting those local economies or is our major economic activity to outsource our production to others? There is importance in knowing who feeds and clothes you and feeling some gratitude and responsibility towards them (Berry, 2001, p. 40). Isn’t it an advantage to be a patron of a local business who shares the same fate as you do in your local community (Berry, 2001, p.30)? What would it look like to shorten the

distance between the producer of goods and the consumer of goods, and isn't now a good time to find out with the price of truck diesel over $4.00 a gallon and our air being the dirtiest it has even been? There are two initiatives that could be inserted here as possibilities during the community brainstorming sessions: Community Supported Agriculture and the Slow Food Movement. Each focuses on celebrating the production and consumption from local food sources and the tenets of eating good food in sustainable and fair ways. Community Supported Agriculture shares tenets with organized religion – both pledge to support an operation (farm or church) by assuring salaries are paid, encouraging others to join your movement of faith or agrarianism, and all share in the risks and bounty of the operation. The Slow Food Movement encourages people to slow down long enough to enjoy what and who is around you. And if that can be done during a locally- produced communal meal, all the better. (See Appendix B for supporting local options or starting your own chapter.)

Imagine with me a moment what it could look like: First embrace a community of diversity both with the people and with the plant species. Monoculture is self-limiting if you are a local economy, a man or a woodland. Ethnic and racial diversity brings valuable perspectives and opportunities to understand opinions other than your own. A successful community should have a broad education base, not everyone needs a college education, but everyone needs some type of education. An education may look like training in solar panel installation or the nuances of making goat cheese. This learning could take place by local apprenticeships, web-based learning, or by travel to a university/trade school. It may be that the college graduates serve as the clearinghouse for information or are the soil scientists, or the water quality testers (Tony Burgess, personal communication, April 1, 2008). Then a segment of the population could be the agrarian workers, and some who had gone to trade school might be the machine operators and mechanics. Of course there would be people to teach and care for the children. A society

would need to honor their old and listen to the knowledge they have accumulated. Middle age workers have a wealth of experience and discipline to be honored. Retain your young people, and teach your children a sense of place within the community so that they grow up with a respect for the land and a love of community.

Secondly, begin to practice permaculture. Bill Mollison describes permaculture as a design system for creating sustainable human environments (National Sustainable Agriculture Information Service website). That is a way to say, be intentional about community development, practicing good land stewardship, utilize, but do not rely too heavily on technology to solve all problems, and be wise in housing choices. Also it means getting to know the land for something other than recreation. Permaculture can work with all systems from the most degenerated to the best maintained to develop the truest possible replication of a natural ecosystem. There must be a goal of symbiotic relationships between all components of a system – animals, humans, and nature (Diver, 2002). Heirloom seed banks and tapping local garden lore is an example of practicing permaculture. Since the Western Cross Timbers are in an area where historically hunting occurred instead of agriculture, there are no crops native to this area. Heirloom varieties have adapted themselves to local growing conditions and become "native" in their growing requirements (Tony Burgess, personal communication, February 15, 2008). Biodiversity and growing crops as part of, or in collaboration with a larger community instead of individual plots, hedges the bet or spreads the risk in case of drought and prevents the abuse of land in the resulting desperate situations (Tony Burgess, personal communication, February 15, 2008). Of course this may mean no more strawberries in January.

Lastly, communities will find the solution in the strength of their social capital – their people and the quality of their relationships. Through building strong local networks we can reorganize our socioeconomic systems to flourish with more self – reliance, lower energy needs,

and healthier environments. This reorganization requires changing the way resources are allocated to and within a community. Models of this "Great Commons" theory could look like Central Park in New York City or the LBJ National Grasslands in Wise County – vibrant centers of gathering community in great outdoor, publicly supported spaces. The "new' communities would look different from our current models as they would stress sufficiency, but not exclusivity. Equity, while obviously difficult to achieve, would be a primary goal for community inhabitants. Micro enterprises, led by visionary, lifelong learners, would be empowered to compete against big, distantly-owned business in establishing vibrant local economies. Admittedly, this utopian model would be fraught with difficulties and the need for re - thinking old ways in its inception. But what are the alternatives – farms that do not support families any longer, absentee landowners who drive property values up so that taxes become unaffordable or small towns that lose local merchants so that families locate elsewhere? Treating such possibilities as inevitable is as good as validating them. We don't have to accept them – we can choose to change them. Wendell Berry says, "A man who is willing to undertake the discipline and the difficulty of mending his own ways is worth more to the conservation movement than a hundred who are insisting merely that the government and the industries mend their ways" (Berry, 2001, p.74).

Who will survive the changes that fewer today will disagree, are coming? We will survive. But we are not good at making immediate modifications to our behavior for a long – term gain in the future. And if we are unable to understand the reason for us to effect change, it is even more difficult. So start small, but start, as no change is insignificant. Grow a garden with native or adapted plant species and grow your education. The key to our survival is cooperation, not competition. Build a community – get to know your neighbors. Help to reverse

centralization by dispersing and supporting markets in local communities. Be thoughtful before you move away from it all, as the place to be might be just where you are.

Are the Western Cross Timbers a place that will remain recognizable to generations to come? If we ever have the vision and desire to rebuild the land, we must have a model to work from. If people can shape the land on which they live, it seems only right that the land can shape its inhabitants as well. In a reciprocal agreement, if the land is cared for, it will be in a position to care longer for its people. For all the starkness and harshness of the landscape, the Western Cross Timbers will give you deep peace, an admiration for the resiliency of nature, and a sense of enough. So if there is a punch line to this narrative, it is these Western Cross Timber communities are the place where real change can begin – change that can be an example of the greater community. Sometimes all that is needed is a sense of possibility.

Figure 5.
A Closing Look

Appendix A. Vernacular and scientific names of plants**.**

Nomenclature follows Diggs, G. M, Jr., et al. (1999).

Amorpha - *Amorpha fruticosa*
Ash Juniper - *Juniperus ashei*
Balloon Vine - *Cardiospermum halicacabum*
Buttonbush - *Cephalanthus occidentalis*
Cedar Elm - *Ulmus crassifolia*
Giant Ragweed - *Ambrosia trifida*
Little Bluestem - *Schizachyrium scoparium*
Plateau Live Oak - *Quercus fusiformis*
NetLeaf Hackberry - *Celtis laevigata* var. *reticulata*
New Deal Weed – *Baccharis neglecta*
Post Oak – *Quercus stellata*
Blackjack Oak - *Quercus marilandica*
Salt Cedar - *Tamarix ramosissima*
Soapberry - *Sapindus drummondii*
Sumpweed - *Iva annua*
Sunflower - *Helianthus petiolaris*
Big bluestem - *Andropogon gerardii*
Indiangrass - *Sorghastrum nutans*
Sideoats grama - *Bouteloua curtipendula*
Small panicgrass - *Panicum oligosanthes*
Switchgrass - *P. virgatum*
Purpletop - *Tridens flavus*
Grape vines - *Vitis mustangensis* and other species
Scarlet Sumac - *Rhus glabra*
Common Greenbrier - *Smilax bona-nox*
Hickory - *Carya texana*
Chittamwood - *Sideroxylon lanuginosum*
Redbud - *Cercis canadensis*
Roughleaf Dogwood - *Cornus drummondii*
Mexican Plum - *Prunus mexicana*
Common Hackberry - *Celtis laevigata*
Buffalo grass - *Buchloe dactyloides*
Rough Buttonweed - *Diodia teres*

Appendix B.

The Slow Food Movement

http://www.slowfoodusa.org/

To join:
http://www.slowfoodusa.org/join/index.html

To support local chapters:
http://www.slowfoodusa.org/contact/index.html#37

Community Supported Agriculture

http://www.nal.usda.gov/afsic/pubs/csa/csa.shtml

To support local initiatives:
http://www.localharvest.org/search-csa.jsp?map=1&lat=32.701611&lon=-97.382250&scale=8&ty=6&co=1&nm=&zip=76109

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ABSTRACT

THE WESTERN CROSS TIMBERS
SCENARIO OF THE PAST, OUTCOME FOR THE FUTURE

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Woven into the thin, sandy soils, between the Fort Worth Prairie and the Broken Red Plains, lays a vanishing band of vegetation called the Western Cross Timbers. It is diverse woodland – some trees and low shrubs, tangled vines, sandstone streams, and sprinkled with open glades. The place has an unkempt appearance, but it is a place where our history is rooted. The Western Cross Timbers is unknown to many people, some of who live under the trees' canopies. My thesis begins as a framing narrative and hopefully culminates as a recovery narrative for the residents of 3 North Central counties, Jack, Wise, and Young. Through field study, vegetation sampling, literature reviews, and interviews, this thesis attempts to tell the story of the Western Cross Timbers. And through this story, the communities who call the Western Cross Timbers home, can see the potential they hold for future greatness.