

Sink Creek (Grady Early Property)

Community Forestry Project

San Marcos, Texas

FUNDING HISTORY

FY 2018 Community Forestry Program Funding \$423,333.33

FY2018 Non-Federal Cost Share \$423,333.33

FY 2018 Project Acres 102.17

Community Forest Funding To Date \$423,333.33

Total Project Costs \$1,270,000.00

Total Project Acres 102.17

GENERAL DESCRIPTION OF PROPERTY

- A Community Forest on Sink Creek (Grady Early Property) will permanently protect 102.17 acres of sustainably managed forestland that lies within the extraterritorial jurisdiction of the City of San Marcos, Hays County, Texas.
- The tract contains unique ecological features such as rugged hills, oak motts, and limestone karst cliffs. It is in the Edwards Aquifer recharge zone, an area that is not only critical to the integrity to water quantity and water quality in the region, but also the endangered species of the San Marcos River. The property contains dramatic limestone outcroppings that connect to the Edwards Aquifer, which underlies the property.
- The forest has landmark oak trees and the rest of the property contains both riparian and upland features that allow for a diversity of tree species and wildlife to exist.
- Sink Creek is an ephemeral stream where water rapidly disappears as it sinks into the fractured rock below in the streambed. During heavy rains, the property serves as a natural infiltration basin that holds stormwater until it can be absorbed into the aquifer. Sink Creek is also a source of water for Spring Lake (the headwaters of the San Marcos River). Artesian springs that emerge from the Edwards Aquifer feed Spring Lake. The San Marcos River flows through the City of San Marcos and into the Guadalupe River.
- In a region of fast growth, it is imperative to protect the ephemeral creeks and rivers that feed into the Edwards Aquifer; therefore, this property is part of the larger transportation greenways master plan, as well as the city's open space master plan. Restricting development in hydrologically sensitive areas protects valuable community forest resources that buffer and restore native plant communities of the Edwards Plateau. Restriction also protects waters entering the aquifer as well as the endangered species, both aquatic and terrestrial, endemic to the area.



Figure 1. Cliff face along sink creek on the Grady Early tract (photo by Kelly Eby).

CURRENT LAND USES and IMPROVEMENTS

The property infrastructure includes:

- Stock ponds, roads, and fencing
- Cattle leases
- Deer hunting leases and deer blinds
- Feral hog management
- Archeological (Texas State University partnership)
- Other-residential
- Ecological restoration
- Non-native species management of flora and fauna
- Wildlife habitat

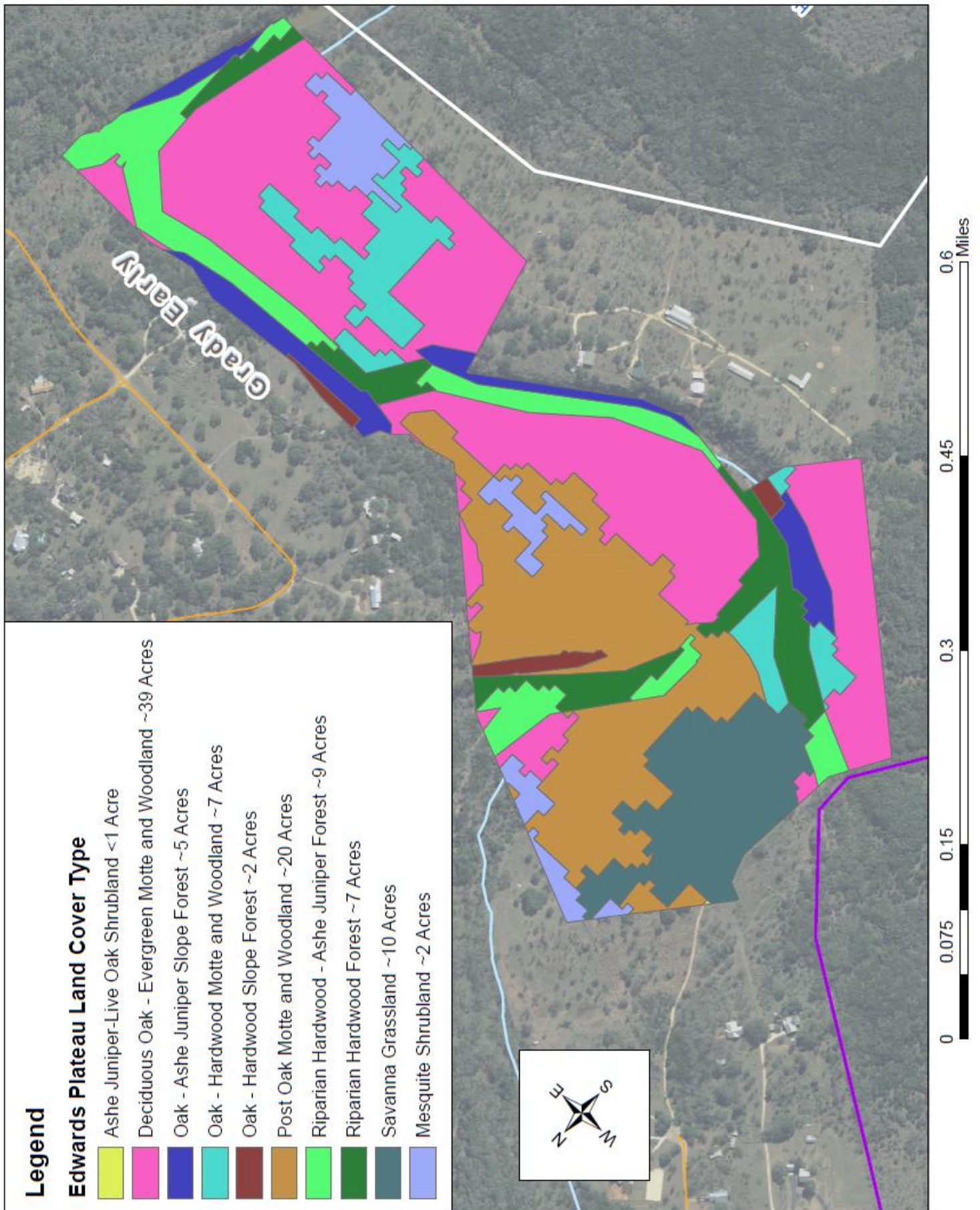
FUTURE IMPROVEMENTS

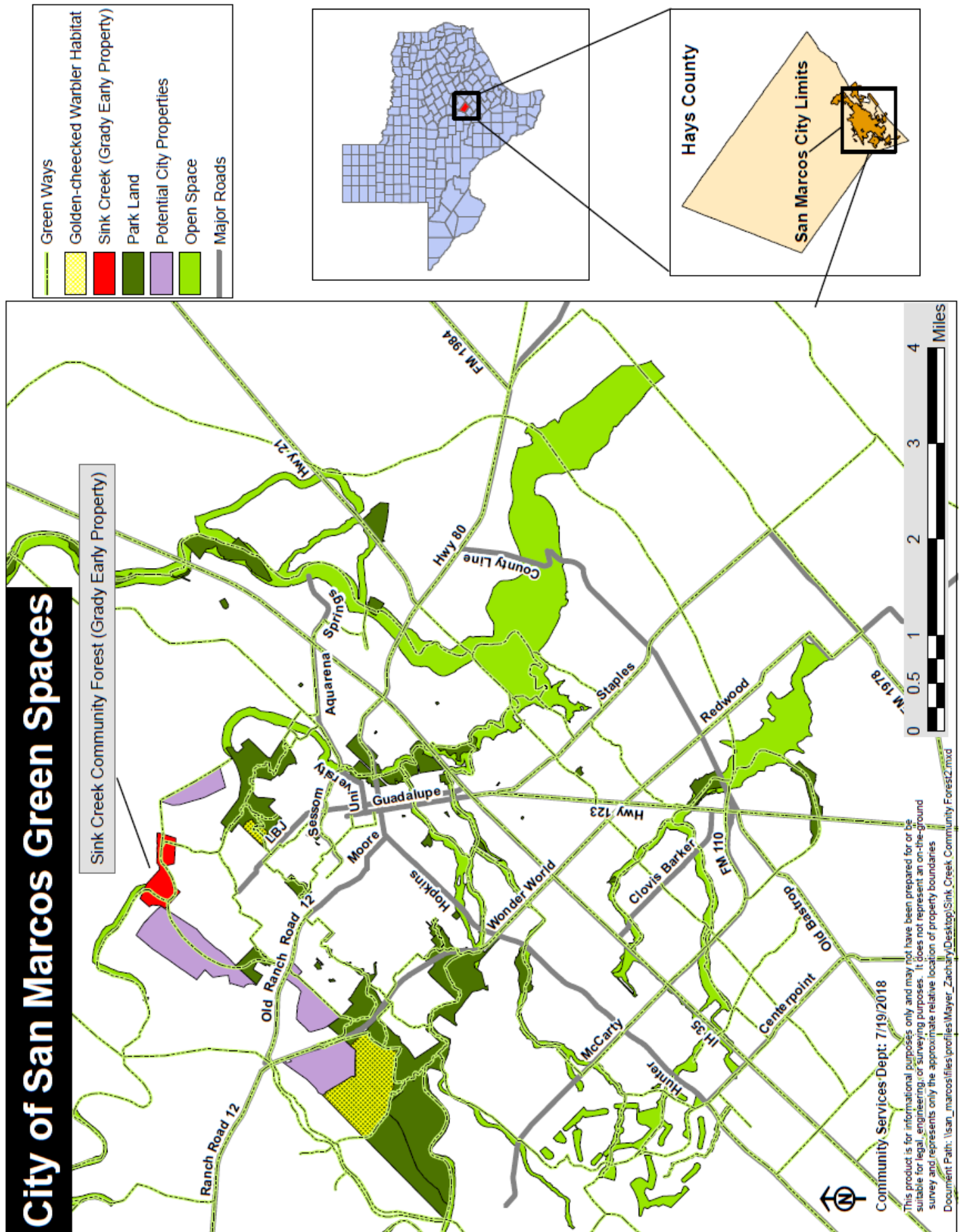
- Ecological restoration and added educational use/outreach
- Potential Golden-cheeked warbler habitat
- Wildlife habitat
- Non-native species management of flora and fauna (e.g., Ballonplant, Ligustrum spp., Chinese tallow, Johnson grass, nandina, Chinaberry, Japanese honeysuckle, Giant reed, Golden raintree, paper mulberry, Tree of heaven, KR bluestem, cowbirds, feral hogs).
- Educational facilities, restrooms, outdoor pavilion, benches, interpretive signage, trails and trailheads, and fencing.

FOREST TYPE-VEGETATIVE COVER - The tract contains ten different land cover types:

- **Edwards Plateau: Deciduous Oak - Evergreen Motte and Woodland** (This mixed woodland type contains significant variation, but deciduous oaks such as Texas oak, white shin oak, or Lacey oak (west) are often important in the overstory, together with Ashe juniper, plateau live oak, cedar elm, or sugar hackberry. The under story often contains Ashe juniper, plateau live oak, and Texas persimmon, agarita, mesquite, and Texas mountain).
- **Edwards Plateau: Oak - Hardwood Motte and Woodland** (This deciduous woodland or forest may contain a diversity of species in the overstory, including cedar elm, Texas oak, sugar hackberry, post oak, white shin oak, or pecan. Plateau live oak is often an important component, and Ashe juniper may be in the overstory as well. Understory may contain species such as prairie sumac, Texas persimmon, white shin oak, and elbowbush).
- **Edwards Plateau: Savanna Grassland** (Grassland condition varies for this mapped type, but many areas contain non-native King Ranch bluestem as an important species; Bermudagrass is also frequent. Common native grasses include little bluestem, sideoats grama, silver bluestem, Texas wintergrass, purple three-awn, and common curlymesquite. Trees and shrubs are usually present, and may include plateau live oak, Ashe juniper, mesquite, agarita, and/or cedar elm).
- **Edwards Plateau: Post Oak Motte and Woodland** (Post oak and plateau live oak are often the most important overstory dominants of this mainly deciduous woodland, and cedar elm, blackjack oak, Texas oak, and sugar hackberry are often present. Ashe juniper and mesquite may be present as small trees or shrubs).
- **Edwards Plateau: Ashe Juniper-Live Oak Shrubland** (Ashe juniper and plateau live oak are the most frequent dominants of this evergreen shrubland. Plateau live oak and/or Ashe juniper may form a sparse canopy and Vasey oak (west), white shin oak, shin oak (west), agarita, Texas persimmon, Texas mountain-laurel, mesquite, and Lindheimer's pricklypear may be common in the understory).
- **Edwards Plateau: Riparian Hardwood - Ashe Juniper Forest** (Ashe juniper, redberry juniper, and plateau live oak are frequent dominant trees of this broadly defined mixed forest, mapped along narrow upland drainages. American sycamore, sugar hackberry, cedar elm, and mesquite may also be components).

- **Edwards Plateau: Riparian Hardwood Forest** (This narrow, deciduous forest is mapped along first-order drainages and may contain cedar elm, plateau live oak, Texas oak, sugar hackberry, American sycamore, green ash, pecan, or boxelder as important overstory trees. Ashe juniper, elbowbush, Texas persimmon, whitebrush, false-willow, little walnut, or buttonbush may be present in the shrub layer).
- **Edwards Plateau: Oak - Ashe Juniper Slope Forest** (Deciduous oaks such as Texas oak, Lacey oak (west), white shin oak, and chinkapin oak share dominance with Ashe juniper in this mixed woodland or forest, and plateau live oak is often a component. Other deciduous trees such as cedar elm, netleaf hackberry, escarpment black cherry, and Arizona walnut may be in the canopy. Understory species may include red buckeye, Texas redbud, and roughleaf dogwood, along with Ashe juniper).
- **Edwards Plateau: Oak - Hardwood Slope Forest** (A fairly wide diversity of deciduous trees such as Texas oak, Lacey oak (west) white shin oak, chinkapin oak, bigtooth maple (local), Texas ash, escarpment black cherry, Arizona walnut, cedar elm, American elm, and sugar hackberry may be in the overstory of this mainly deciduous forest. Plateau live oak is often an important component, and Ashe juniper may be in the overstory as well as the understory).
- **Native Invasive: Mesquite Shrubland** (Mesquite is most often the dominant species of this broadly defined system, which occurs throughout most of the state, except in east and south Texas. It is typically mapped on former prairie or savanna soils. Codominants vary by region, but lotebush, juniper, sugar or netleaf hackberry, pricklypear species, and agarita are common associated species).





ZONING DESCRIPTION

- Sink Creek Community Forest Property is currently not zoned.
- Since it is outside of the city limits, the property lies in the ETJ and about 10% of it is in the floodplain. The City of San Marcos has adopted stringent codes for development in flood plains. It is still possible for the tract to be plotted and zoned for residential property, though city oversight may be limited because of its location. Any amount of impervious cover or conversion to non-forest uses would threaten the Sink Creek watershed and Edwards Aquifer.

COMMUNITY BENEFITS

- The San Marcos community benefits from this property, as it protects a valuable area within the Sink Creek watershed. The population of San Marcos is constantly growing with an estimated at 63,071 of 2017. The median household income for residents of San Marcos is \$30,000, near the poverty line. The median age is 23-24 years old. 46% is white, 44% is Hispanic, 5% is black, and 5% is other.
- The Sink Creek property is one hour from Austin, Texas (metro population 2,112,172), one hour from San Antonio, Texas (metro population 2,473,974), and three hours from Houston, Texas, the nation's sixth largest metropolitan area with over six million people. Roughly 14 minutes from downtown San Marcos, the property would provide underserved communities access to the Sink Creek Community Forest
- The San Marcos area has been continuously inhabited for over 10,000 years. The protection of this land protects the headwaters of the San Marcos River, which is considered to be the heart of the community.
- Getting people out in nature and into parks and open spaces is important, as the sedentary lifestyle of the United States is contributing to overweight populations, anxiety, and chronic diseases. Studies have shown that having trees and nature nearby is critical to a person's choice to go outdoors and be active.
- San Marcos community forest Tree Canopy Coverage (TCC), in accordance with the Texas Forest Service Urban Tree Canopy analysis in 2012, was 16%. I-Tree analysis of 2017 satellite imagery puts the TTC at 23.1%, with a margin of error +/- 1.33%. For this region, the ideal target would be 30%. Sink Creek Watershed TCC is 62.2% with a margin of error +/- 1.53%. The majority of trees grow on the Edwards Plateau and not on the Blackland prairie. It is important to protect the trees on Sink Creek, as it directly affects the quality of health and life in San Marcos.

LANDSCAPE CONSERVATION - The tract has been under management for decades, with the goal to continue maintaining and enhancing this diverse, healthy community forest.

- The property is part of long-term project to connect all of the city's greenspaces together. Both the city greenways transportation master plan and the development code require all developed properties to put in a trail system that connects all the city's green spaces.
- **ECONOMIC BENEFITS from NON-TIMBER PRODUCTS** – The tract has thriving populations of white-tailed deer, wild turkey, and small game and provides recreational hunting opportunities via annual leases.
- **THREATENED & ENDANGERED SPECIES HABITAT** – Populations of the federally endangered Golden-cheeked warbler (GCW) and Black-capped vireo occupy nearby properties, which are a suitable nesting habitat. Sink Creek Community Forest could provide a forested corridor connecting GCW Recovery Areas.
- **FISH, WILDLIFE, PLANTS & UNIQUE FOREST COMMUNITIES** –The Sink Creek tract lies within the Upper San Marcos Watershed with springs that feed Spring Lake and the San Marcos river. The San Marcos Springs, are the second largest artesian springs in the Western United States. Conserving the Sink creek tract will support critical habitat for five endangered species: the Fountain darter, the Texas Blind Salamander, the San Marcos Salamander, the San Marcos gambusia, the Comal Spring Riffle Beetle, and the Texas Wild Rice. Much of the flora and fauna are endemic only to this area, one the most biologically diverse ecosystems in the U.S. The



Figure 2. One of the heritage oaks on the Sink Creek Property. The tree exceeds 60 inches in diameter at breast height. (Photo by Kelly Eby).

community forest will facilitate protection for 102.17 acres of Edwards Plateau and promote restoration efforts for additional acreage in the future.

- Protecting the community forest will help trap and filter sediments, nitrates, heavy metals, *E.coli*, and agricultural waste from entering the Edwards Aquifer and Spring Lake. It will support improved water quality in the Sink Creek Watershed.
- The recharge zone and Sink Creek have undergone significant changes due to land use and land cover. Growth has increased demand, which in turn, has caused Aquifer levels to drop. Non-point source pollution from runoff of disturbed agricultural lands and developing properties has also increased. Conversely, forested land has decreased by 15-20% between 1992-2006.
- A number of important pollinator or host plants grow on the tract, including wafer ash, western soapberry, goldenrod, frostweed, and antelope horn milkweed.
- The tract provides an important buffer habitat for Golden-cheeked warbler and Black-capped vireo. It also protects important species of concern, including Painted bunting, Northern Bobwhite, Yellow-billed Cuckoo, and Vermillion Flycatcher. Other species of interest that may be present within the habitat include Bell's Vireo, Pyrruloxia, Black-chinned Sparrow, Say's Phoebe, and (rare) Cactus Wren.
- The tract contains several areas designated by Texas State University as "Special Archeological Sites." These areas are excluded from normal forest management activities.
- WATER SUPPLY and WATERSHED PROTECTION – The tract protects an important part of the watershed of Sink Creek as well as Spring Lake, the headwaters of the San Marcos River. The river is also a recreational destination of high ecological value.
- The Community Forest of Sink Creek will benefit the water quality by permanently protecting 102.17 acres of land that buffer over 1.2 miles of Sink Creek's riparian corridors. Sink creek contributes to the quality of public water supplies of the communities in central Texas that lie over the Edwards Aquifer recharge zone.
- PUBLIC ACCESS – Sink Creek Community Forest will provide educational resources as well as public access to the forestry.
- SCENIC - The tract offers enchanting and peaceful views of Sink Creek and its limestone cliff rock outcrops.

SUPPORTING PARTIES

- a) City of San Marcos b) Texas State University c) U.S. Fish & Wildlife Service Partners with Golden-cheeked warbler habitat d) Trust for Public land, letter of support e) The Meadows Center f) San Marcos Greenbelt Alliance, letter of support g) San Marcos River Foundation, h) San Marcos Habitat Conservation Program i) San Marcos Parks and Recreation Department and the City Urban Forester.
- The Urban Forester will oversee the land management and restoration activities and assist with acquiring grants to restore and manage non-native flora and fauna. The Meadows Center, Master Naturalists, University, and San Marcos Greenbelt Alliance will work on educational programming, and the Texas Forest Service will assist in further development of the community forestry program, as well as the development of sustainable land management goals.
- To date, community involvement has been through proposals brought forth to City Council, the San Marcos River Foundation, the San Marcos Greenbelt Alliance, and the recently adopted Planning Code SMTX, City Comprehensive Plan, and Transportation Master Plan.

CONSERVATION INITIATIVE STRATEGY, or PLAN – Community Forest of Sink Creek has been identified as a Significant Geographic Area (SGA) for the Upper San Marcos Watershed (Sink Creek Watershed) by the Watershed Protection Plan and The Blanco and Upper San Marcos Watershed Strategic Conservation Prioritization Report, produced by the Meadows Center at Texas State University. This supports efforts by the City of San Marcos, Hays County Habitat Conservation Plan, and the Edwards Aquifer Habitat Conservation Plan. Community forests are considered a critical area to conserve by the Texas A&M Forest Service Urban and Community Forestry program. Moreover:

- The tract is within the Sink Creek Watershed, a Very High Priority geographic area that protects environmentally sensitive lands upstream of Spring Lake and ranks highly within the following Conservation Priority Values outlined in the Conservation Prioritization report: degree of threat, economic benefit to forestland, proof of readiness, public benefit, watershed protection, ecological benefit, and strategic initiative.
- The tract is part of a ring of greenspaces around San Marcos's core which features the springs, riparian areas, a recharge zone, and greenway (trails), forming an almost continuous loop around the city.
- Conservation of Sink Creek is consistent with the goals and objectives of the USFS Revised Land and Resource Management Plan to acquire habitats to sustain diverse reptiles, amphibians, and migratory birds.
- In order to provide more favorable conditions and habitat for a number of rare plant and animal species, the City of San Marcos is working with government agencies and non-profit organizations to restore over 1,500 acres of community forests and associated riparian habitats.
- **COMPLEMENT PROTECTED LANDS** – Protecting this tract will add to the already protected 2000+ acres of native hill county property, thus providing an important connection that completes the protective ring of community forest and greenspaces around the City of San Marcos.

THREATS

- For the past several years, San Marcos was named the fastest growing city in the United States. Land has undergone fundamental changes due to fragmentation and conversion. In addition, forested lands are decreasing, due to residential and commercial development. Ranches and larger properties are being broken into smaller properties and vegetation is being stripped.
- Large tracts of land are being subdivided. Farms and ranches in the Edwards Plateau are being converted from forest use to non-forest use, due to increased population growth (37% population increase between 1997-2012). The I-35 corridor has seen a population increase of 47%, between 1997-2012.
- **ADJACENT LAND USE** – Sink Creek Community Forest faces the threat of fragmentation into smaller parcels for real estate sale, as well as conversion to non-forest uses, including increasing agricultural use (e.g., conversion to pasture).
- Large tracts of land around the property are being purchased and converted for residential use. La Cima a development west of these is 600 acres, is now currently construction for a new, master planned community.
- Between 1997 and 2012 on the Edwards Plateau, the number of properties under 99 acres in size grew by more than 35 percent, indicating increased land fragmentation (TxLandTrends.org)
- Between 1997 and 2012 along the I-35 corridor, the number of properties under 99 acres in size grew by more than 30 percent, indicating increased land fragmentation (TxLandTrends.org)
- Population growth from 1997-2012 increased 37% on the Edwards Plateau (TxLandTrends.org)
- Population growth from 1997-2012 increased 47% on the I-35 corridor (TxLandTrends.org)
- Property values of rural tracts in Hays County have nearly doubled in the last decade. As a result, large forest holdings are being broken up into smaller parcels.
- **ABILITY to DEVELOP** – The tract is moderately developable, with electrical access and some well-maintained, though unpaved, roads. Seven acres of the property is classified as floodplain and the creek splits the property in half. Development is still possible, though not ideal. Roughly, 75 percent of the property lies within the 500 year flood plain.