

# ANGELINA COUNTY, TEXAS

## Green Infrastructure Plan





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### THE CONSERVATION FUND

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The Conservation Fund has launched the Lone Star State's most ambitious land conservation and sustainable tourism initiative: the **Texas Pineywoods Experience**. In its first phase, this \$35 million campaign has protected 30,000 acres of forestland and leveraged millions of dollars from public and private sources to promote economic growth in East Texas. Working with East Texas business and community leaders, the Fund — a top-ranked land conservation organization — is taking a Texas-sized step to reposition the Pineywoods and its unique natural and recreational assets as a premier outdoor destination. Working hand-in-hand with East Texans, we will conserve the region's vital natural areas.

**For more information about this project, please contact:**

**William L. Allen, III**

Director of Strategic Conservation  
The Conservation Fund — NC Office  
410 Market Street, Suite 360  
Chapel Hill, NC 27516  
919-967-2223 x124  
wallen@conservationfund.org

**Julie Shackelford**

Director of Programs  
The Conservation Fund – East Texas Office  
P.O. Box 4608, SFA Station  
Nacogdoches, TX 75962-4608  
936-468-5490  
julieshackelford@conservationfund.org

**Financial support for this plan and publication was provided by City of Diboll, Huntington Economic Development Corporation, Angelina County, City of Lufkin, Lufkin 4B Corporation, USDA Forest Service and other donors. The Conservation Fund would like to thank Ms. Ellen Temple, volunteer with Angelina County Vision 2020, and Jonathan Gerland with The History Center for their time in orienting the team to the region and assisting with the leadership forums.**

**Project Team Members:**

**William L. Allen, III** — Director of Strategic Conservation

**Ole M. Amundsen, III** — Strategic Conservation Program Manager

**Erik J. Meyers** — Vice President, Sustainable Programs

**Betty Russo** — Texas Pineywoods Experience, Project Coordinator

**Julie Shackelford** — Texas Programs Director

**Jazmin Varela** — Strategic Conservation Planning Information Manager

**Jo Gravely** — Freelance Photographer/Designer

**Photo Credits (left to right)**

Cover: Mark Bush, Jay Brittain/Temple-Inland, Dave Steiner, Jay Brittain/Temple-Inland

Leadership Forum Appendix: Jay Brittain/Temple-Inland, City of Huntington, Earlon Williams, Jay Brittain/Temple-Inland

Network Design Appendix: Jay Brittain/Temple-Inland, Jay Brittain/Temple-Inland, Walter Streich, Jay Brittain/Temple-Inland

Implementation Quilt Appendix: Jay Brittain/Temple-Inland, Mark Bush, City of Huntington, Gina Donovan

Dear Friends:

The communities of Angelina County are at a crossroads. According to a recent study conducted by the USDA Forest Service, East Texas' population is expected to grow to nearly one million people by the year 2030. Angelina County's abundance of natural resources and beauty, and its designation as a certified retirement community, suggests that much of that growth will occur right here. The natural question to be addressed is whether the County can accommodate that growth while maintaining its attractive quality of life. In order for the residents of Angelina County to maintain the natural and cultural resources that have long defined the region, we will want to embrace a new approach to both job creation and land conservation.

The Angelina County Green Infrastructure Plan is an effort to take a collaborative step forward in securing our region's future by focusing on our traditional strengths as a county with bountiful natural resources and a rich cultural history connected to our magnificent forests, winding rivers and meandering creeks. Our neighboring national forests, the Sam Rayburn Reservoir and the wild Neches River, are important assets that make Angelina County a special place. By connecting these assets together environmentally and economically, our Green Infrastructure Plan will help make our region a prime destination for visitors and will help provide a high quality of life for residents and retirees.

For the past year we have gathered together and engaged in a vigorous planning process in order to expand on the previous work of Vision 2020 and the Lufkin Comprehensive Plan. We have shared our thoughts on the special places we value in Angelina County. We have reviewed the ecological needs of the plants and animals that make East Texas a distinctive region. Our Green Infrastructure Plan offers a strategic approach to our county's landscape by linking vital tracts of forest, rivers and parkland for needs of both people and wildlife. By creating and marketing this Green Infrastructure Network, we can turn the natural, cultural and historic resources into the basis of a prosperous regional tourism economy.

This plan represents our communities' highest aspirations for our future. It is up to each of us to find our role and to help carry this vision forward into reality.

Very truly yours,



Wes Suiter  
Judge, Angelina County



Jack Gorden  
Mayor, City of Lufkin



Kenneth Williams  
Manager, City of Diboll



Ray Browning  
Huntington Economic Development Corporation, LLC.

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# INTRODUCTION

At the invitation of Angelina County and the Cities of Lufkin and Diboll, The Conservation Fund initiated a Green Infrastructure Plan for the greater Angelina County region starting in the fall of 2007. The goals of green infrastructure plans are to: (1) inspire communities to protect their important natural landscapes; (2) identify an interconnected “Network” of natural lands and waters that achieve multiple benefits; and, (3) identify lasting opportunities that result in the protection of natural assets through conservation and economic development strategies. A Green Infrastructure Network is an interconnected system of natural areas and open space that conserves ecosystem values, helps sustain clean air and water, and provides benefits to people and wildlife. Once designed, a Green Infrastructure Network provides a framework that can be used to guide future growth and land conservation decisions to accommodate population growth while preserving community assets and natural resources (Benedict and McMahon, 2006).

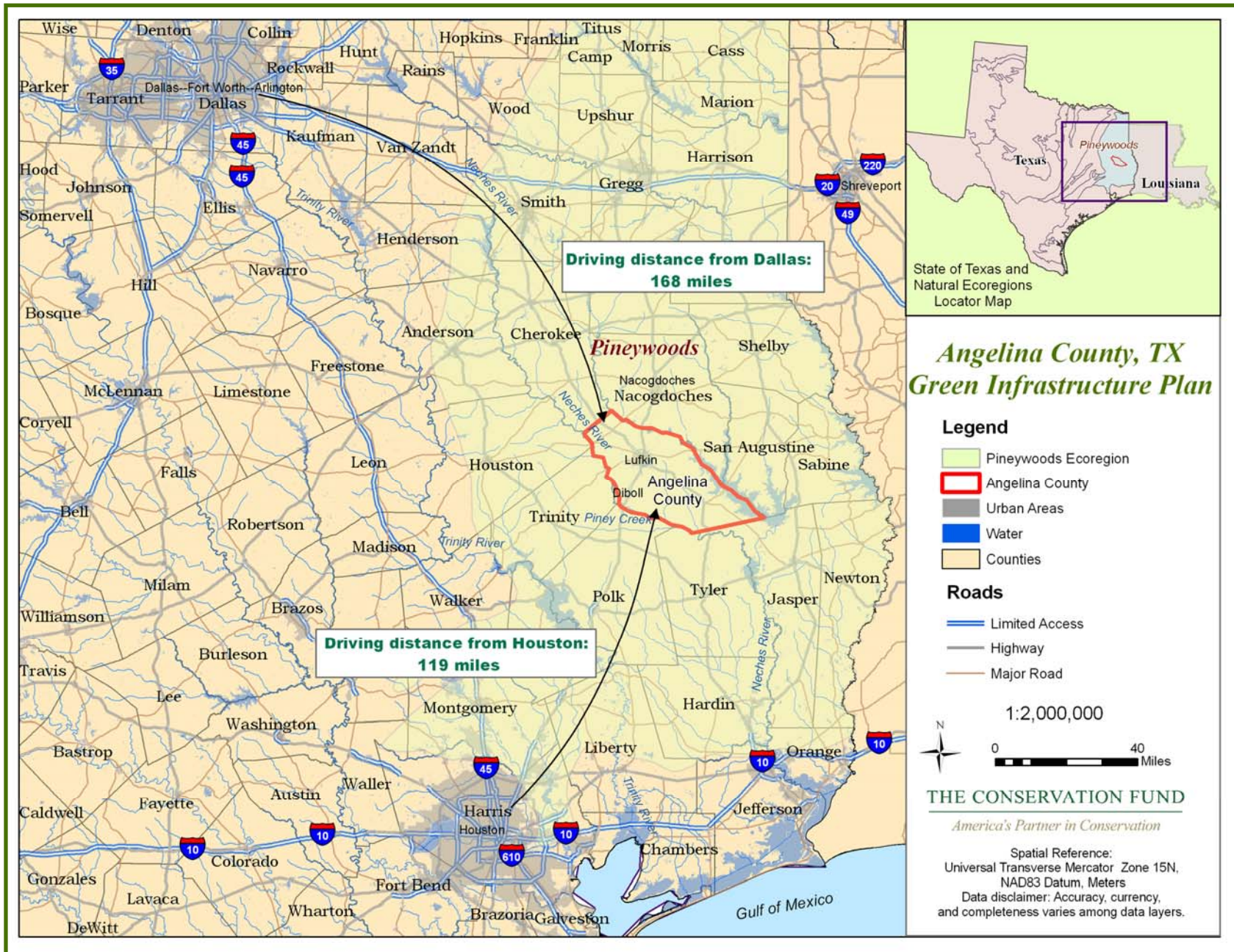
The landscape of Angelina County is an inspiring mosaic of ecological, cultural and historical resources. The region hosts a range of public lands including two National Forests, state Wildlife Management Areas and local parks. The county is well endowed with water resources, with its border to the south defined by the Neches River and to the north by the Angelina River flowing into the Sam Rayburn Reservoir. Outdoor life has been a large part of how residents earn a living and spend their free time. However, some of these public lands are not easily accessible to the communities and people who wish to use them. One of the main features of the Angelina County Green Infrastructure Network (Angelina County GI

Network) is linking together the highest quality lands in an integrated system that will benefit not only people but also plants and animals by providing a robust habitat.

The Angelina County GI Network includes public lands and private lands. The network was created by examining the highest quality lands, many of which are privately-held and in good ecological condition. The implementation of the GI Network will rest on the ability of private landowners to continue their exceptional stewardship of the land and to inspire fellow landowners to manage their lands in a similar fashion. Fortunately, federal, state and local programs are available that can help landowners protect and manage their land. The challenge is to ensure that landowners are aware of and taking full advantage of these programs.

The future of Angelina County will depend not only on the actions of its current residents but also on the ability to attract new people to the region as tourists, second home owners and year-round residents. The Angelina County GI Network identifies important natural resources that serve as the critical "hubs" for a nature-based tourism economy. Sectors of the local economy such as outfitters, guide services and canoe rental businesses need to be nurtured so that the county's business infrastructure is in place to accommodate the growing numbers of individuals interested in safely exploring the region's abundant outdoor resources. Angelina County's GI Network establishes an economic linkage between land use activities in Angelina County and the ongoing nature-based tourism efforts being undertaken in East Texas through the Texas Pineywoods Experience and other projects.





## THE STUDY AREA

Angelina County is located in East Texas, northeast of Houston. It is bordered by the Davy Crockett National Forest to the west, the Neches River to the south, the Angelina National Forest and Sam Rayburn Reservoir to the east, and by the Angelina River to the north. To ensure that connected natural features in neighboring counties were incorporated, the project study area extends five miles beyond the county line and captures both National Forests and most of the Sam Rayburn Reservoir. The total project study area covers 1.7 million acres and is completely contained within the broader Pineywoods Ecoregion.

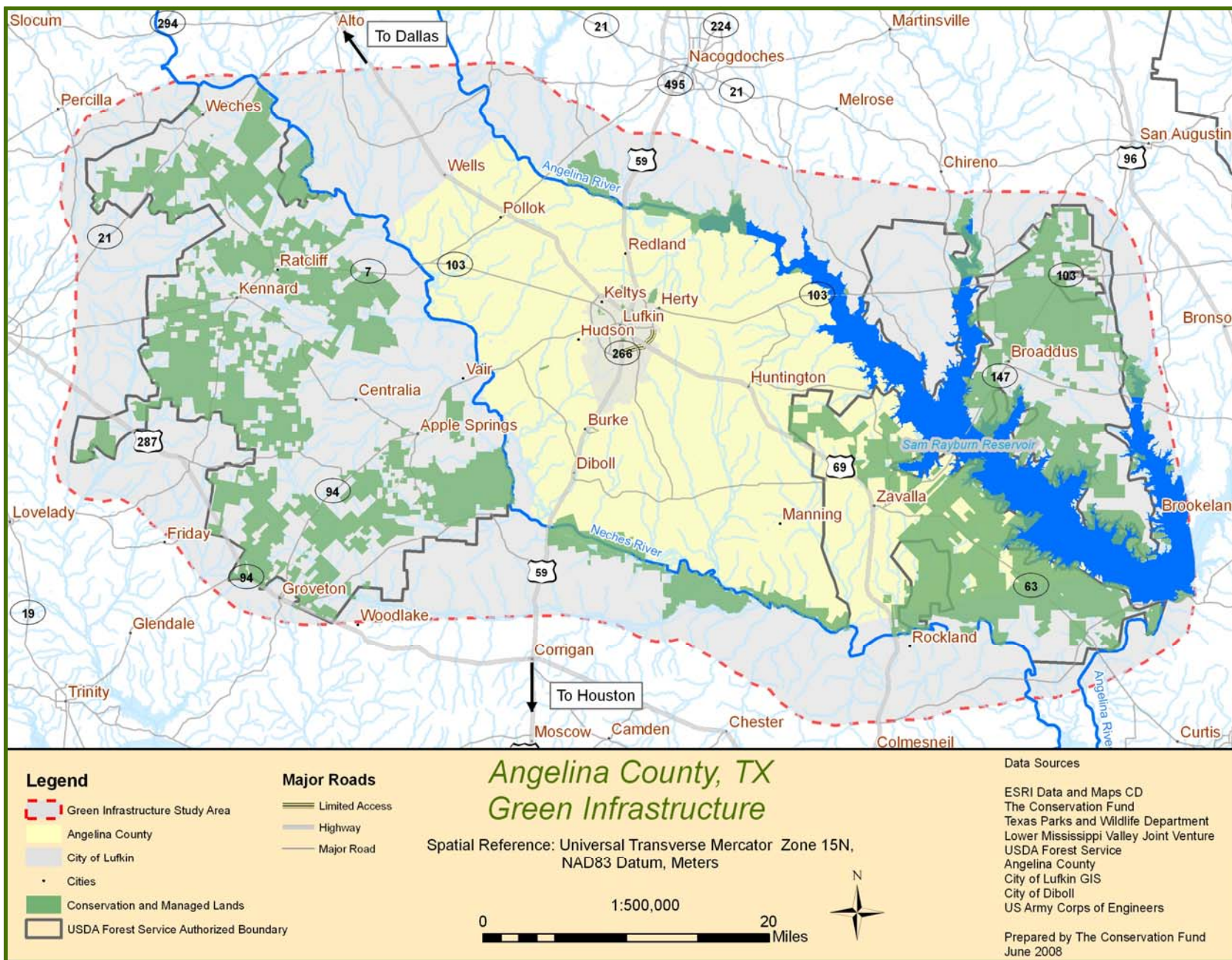
East Texas is home to four national forests, with the Davy Crockett National Forest and the Angelina National Forest being within the project study area. In a recent national study on development pressure on national forest lands, East Texas is projected to experience an increase in housing density on roughly 596,000 acres of private land adjacent (within 10 miles) to the national forests by the year 2030 (Stein et al, 2007, p.10). On a national level, the projected growth figures are of moderate ranking, meaning that between 10% to 24.9% of the adjacent private lands surrounding the national forests will experience an increase in housing density. A portion of the projected change will be raw land development, while another portion will be an increase in the number of houses in an area that has already been developed on a low rural density level. The take away message is clear, residential development will increase over time in Angelina County. The crucial point is how the residents and public officials of Angelina County choose to make the most of this opportunity. The Angelina

County Green Infrastructure Plan is aimed at helping communities guide this growth so that it benefits the county without diminishing the natural resources that have attracted people to this special region.

According to The Texas Land and Water Resources Conservation and Recreation Plan (TPWD, 2005), the Pineywoods region ranked medium in conserved status because of the relatively high percentage of publicly owned land and medium percentage of land under wildlife management plans. Pineywoods ranked high in terms of projected population growth. Much of the upland longleaf pine and hardwood forest habitats have been converted to loblolly plantations, which have limited conservation value, but if restored to longleaf pine or hardwood forests will provide valuable habitat. It is estimated that only 2% of East Texas remains as combined longleaf/slash cover (Texas Forest Service and USDA Forest Service, 2006). The primary threats to the natural lands are fragmentation and land conversion. The selloff of commercial timber holdings around the country has led to sales of large timber tracts in East Texas, which may be converted to other uses.

Texas Parks and Wildlife Department has identified the following priorities in the ecoregion: longleaf pine savannas and other unique plant communities, including bogs, hardwood slope forests and bay galls, should be preserved and restored where possible. The plan also recommends the conservation and restoration of remaining bottomland hardwood habitat as important for many wildlife species.





# LEADERSHIP FORUM

On September 25, 2007, the Fund project team convened an information session to introduce the green infrastructure concept and explain the potential value of a green infrastructure plan to interested citizens in Angelina County. Based on that session, local champions within the community articulated the desire for a Plan for the county. In early 2008, the Fund and local sponsors created a comprehensive list of stakeholders to form a leadership forum to help guide the planning process. More than 120 stakeholders representing public agencies, businesses and nonprofits were invited to attend the half-day meeting.

On March 5, 2008, 55 stakeholders attended the first Leadership Forum meeting. A wide range of local officials from the communities of Lufkin, Diboll, Hudson, and Huntington attended. The forum was seen as a working model for other East Texas communities as representatives from the cities of Jacksonville and Nacogdoches attended. The Texas Department of Transportation and the USDA Forest Service – two very important players in land use issues for the region – were also present. Other interests included representatives from timber, civic organizations, federal, state and local government, local hospitals, local school and college, Vision 2020, economic development groups and history/cultural organizations. The stakeholder pool offered sufficient diversity of expertise and organizational focus to ensure that major issues facing land conservation in the context of the Green Infrastructure Plan were not overlooked by the project team (see appendix for full list of attendees).

The forum commenced with an overview of the terms and concepts of Green Infrastructure including a presentation of a map gallery of natural resources, cultural resources and recreational resources. Maps were displayed highlighting the region's forest resources, wetlands, aquatic resources, and recreational and cultural sites. One of the central goals of the leadership forum was for local experts to review the mapping information collected to make sure that all of the relevant information was included. Because many of the cultural, historic and recreational resources had not been mapped, the Fund conducted an asset mapping exercise to try to more accurately capture these resources.

Following the asset mapping exercises, participants were divided into new teams for a brainstorming session on potential goals and outcomes for the green infrastructure planning process. Participants were provided with copies of the relevant goals from the Lufkin Comprehensive Plan and the Vision 2020 project. After drafting goals, the groups reconvened to present their goals to the entire audience. Participants were allowed to vote for their top six goals for the planning process. The Fund project team consolidated and synthesized the goals into a format for guiding the planning process.



Sam Rayburn Reservoir. Photo provided by USFS.



## GREEN INFRASTRUCTURE

### Plan Goals

1. Define the community's green infrastructure through an examination of current land use, natural resources, recreational resources, and cultural and historical resources for Angelina County.
2. Increase public awareness of the vital links between the economic needs of communities in Angelina County and the overall health of the region's ecosystems.
3. Showcase local interest in improving public access and providing recreational infrastructure for the enjoyment of the Neches River Corridor and Sam Rayburn Reservoir.
4. Articulate the importance of maintaining biodiversity and creating stream and land corridors for wildlife movement and human enjoyment to local communities, private landowners, and visitors.
5. Draw attention to the need to maintain and enhance current public park facilities (city, county, state and federal) and other green infrastructure across Angelina County.
6. Encourage and facilitate collaboration within major organizations and between different organizational sectors, such as public agencies and educational institutions, on environmental stewardship, nature-based tourism, and land use planning.

The final session of the Leadership Forum was a conservation values scaling exercise. Participants were asked for their personal preferences for community action in protecting the following resource types that often are incorporated into green infrastructure plans: forests, aquatic systems, wetlands, cultural and historic sites, recreation areas and natural heritage sites. The results were used primarily to guide the Fund's evaluation of potential options for the implementation quilt phase of the project.

In sum, the Leadership Forum provided crucial information on natural resources, cultural and recreational assets and overall guidance to the Fund team for the next step in the planning process — crafting a Green Infrastructure Network and identifying implementation opportunities.



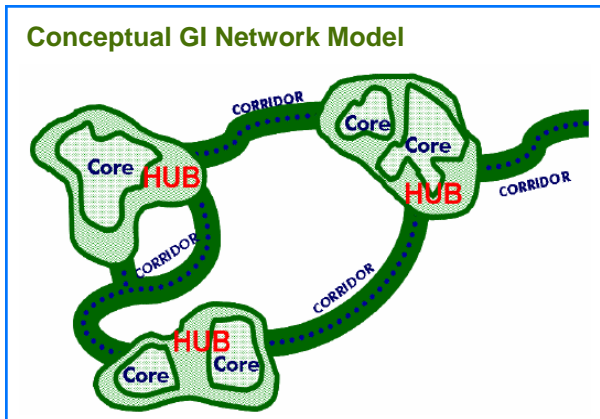
Neches River sandbar. Photo by Gina Donovan.

# GREEN INFRASTRUCTURE NETWORK DESIGN

The Fund project team studied the landscape of the region and focused on outlining key forests, wetlands and aquatic systems. For each of these three landscape types, the Fund project team examined the needs of key species that used these landscapes and whose presence indicated high quality habitat. Geographic information systems (GIS) layers that depicted natural resource features for each of the three landscapes were highlighted and combined to form the network's "core areas." These core areas are the building blocks of the overall network and are designed to meet the habitat requirements of species with broad ecological needs for a certain landscape type. To make the network robust, these core areas were increased in size by adding compatible land cover types forming a protective hub around either individual core areas or groups of core areas. Hubs provide breathing room for species, ecosystems and people. Finally, all of the hubs were connected together with corridors in a way that makes ecological sense in order to create a network, allowing for movement of wildlife and people.

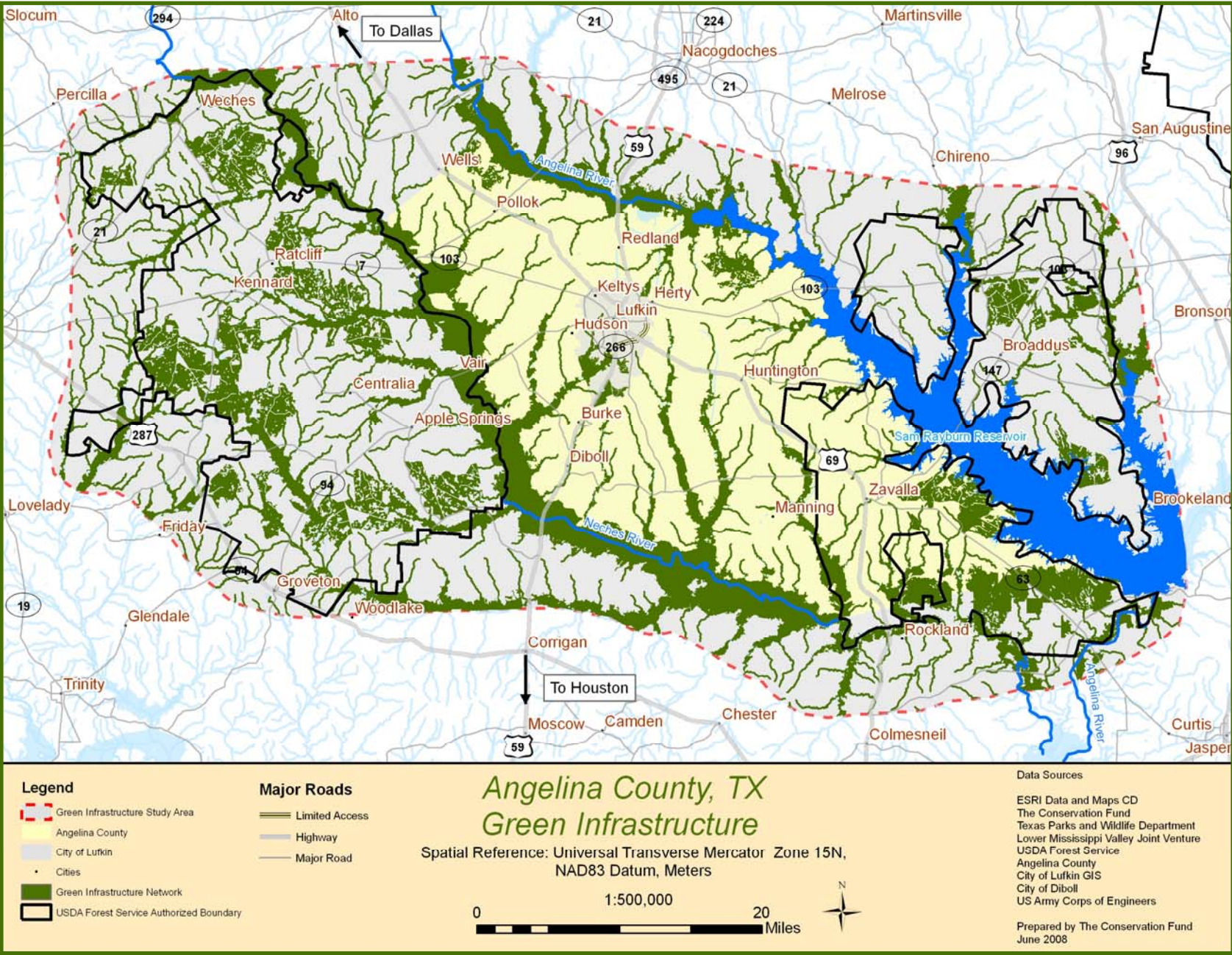
The process of creating core areas, hubs, and corridors relies on the latest scientific research and resource-use planning assumptions for the requirements of different species (Weber et al., 2006). These species include large mammals such as the Louisiana black bear, and forest birds such as the Summer Tanager and the Wood Thrush. The method by which GIS information is combined is similar to an elaborate recipe, with a series of steps completed in a certain order, using specific ingredients, and then flavored with the experience of the cooks.

To be sure the network used the most successful recipe of data and local experience, the Fund project team provided a technical team of local experts with a copy of the methodology used to form the network. A conference call was held on May 21, 2008, to collect comments and suggested modification. Representatives from the USDA Forest Service, US Fish and Wildlife Service, the City of Lufkin, and local recreational experts participated in the call. Following the technical review, the final Green Infrastructure Network was created.



| ANGELINA COUNTY<br>Technical Review Team<br>Invited Members |                              |
|---|------------------------------|
| Richard Donovan   | Neches River Keeper          |
| Robert Allen  | Texas Dept of Transportation |
| Bill Bartush  | US Forest Service            |
| Jonathan Gerland  | The History Center           |
| Jeff Reid   | US Fish and Wildlife Service |
| Jim Neal  | US Fish and Wildlife Service |
| Dorothy Wilson  | City of Lufkin, Planning     |
| Don Hannabas  | City of Lufkin, Parks        |
| Jane Packard  | Texas A&M University         |
| Vicky Taylor  | US Forest Service            |





## GI Network Summary

Our results show that Angelina County GI Network covers 430,000 acres or roughly 24% of the study area.<sup>1</sup> With the presence of the Angelina National Forest and the Davy Crockett National Forest, the US Army Corps of Engineers lands, state wildlife management areas as well as municipal parklands and land trust holdings, the study area has 385,000 acres of protected lands. **Most importantly, 41% of Angelina County GI Network for the study area has already been protected by federal, state, and local organizations.** The remaining 252,700 acres is undeveloped land held by private landowners. The implementation quilt offers a variety of strategies to work with private landowners to help them continue the sound stewardship of these crucial lands.

The corridors highlighted by the Angelina County GI Network are one of most important features of the entire planning effort, as they add value to the land already protected by public agencies. Corridors are also quite vulnerable, as they pass through a patchwork of public and private landholdings where private landowners have many different priorities for land use. The GI Network highlights 107,500 acres of land as possible corridors. **Most importantly, 73% of this land has a natural landcover that is appropriate for its function as a corridor.** Roughly 11,000 acres of the corridors would benefit from restoration work. The implementation quilt highlights several government programs for landowners seeking assistance to manage their property for environmental objectives.

As highlighted by the GI network, the Neches River is truly one of Texas' wildest and least-discovered natural assets, and it delineates the western and southern boundaries of Angelina County. Rising just east of Colfax in eastern Van Zandt County, the Neches River flows more than 400 miles into Sabine Lake, a fertile estuary near Port

Arthur, and ultimately into the Gulf of Mexico. The river's freshwater flood flows nourish the forests of the Neches River National Wildlife Refuge, the Davy Crockett and Angelina National Forests, the internationally-recognized Big Thicket National Preserve, and thousands of acres of private land. Not only is the Neches River valley rich with abundant trees, vegetation, wildlife, and birds, but also with culture, history, and recreational opportunities. Area paddlers host canoe trips and races on the Neches, bringing paddlers from across Texas and out-of-state, contributing significantly to local economies.

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<sup>1</sup>Surface water for the portion of the Sam Rayburn Reservoir that is within the study area (106,133 acres) has been removed from the GI Network acreage figure. The acreage figure for the Reservoir is a GIS estimate and the level of the Reservoir is subject to changes during flood season when 142,700 surface water acres may be

### GI SUMMARY

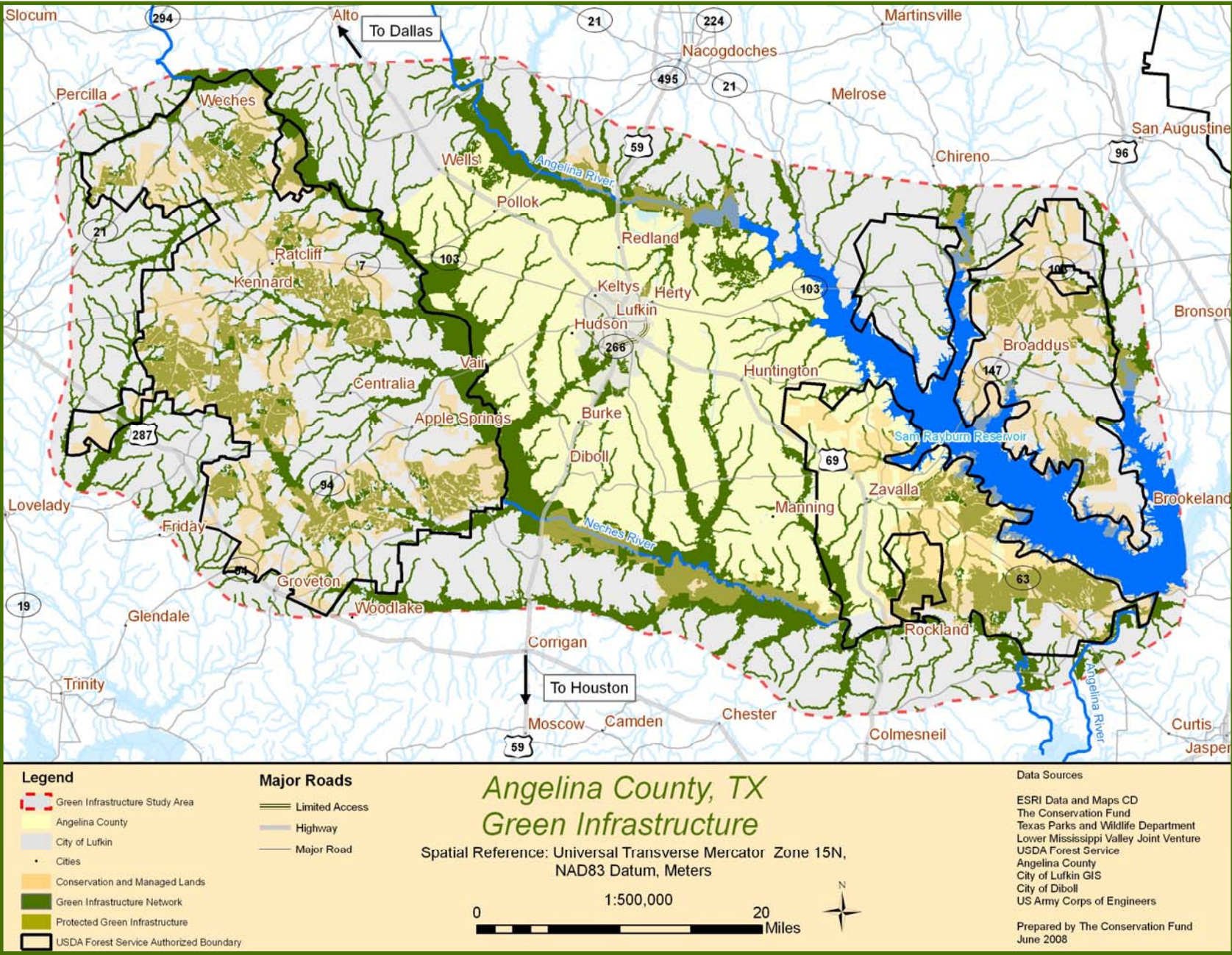
#### Study Area

Project Study Area — 1.7 million acres  
GI Network Status — 430,000 acres (24% of Study Area)  
Protected Public Lands — 177,300 acres (41% of Study Area)

#### Angelina County

Total County Acres — 546,160 acres  
Angelina County Green Infrastructure — 148,547 acres  
Without Lake — 115,797 acres  
Protected Public Land in Angelina County — 67,882 acres  
Protected Public Lands with GI in Angelina County — 32,298 acres  
Remaining Lands within GI in Angelina County — 83,498 acres

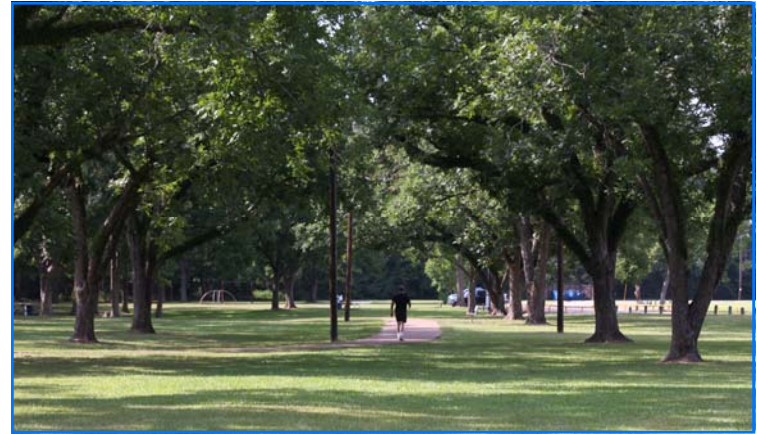






## City of Diboll

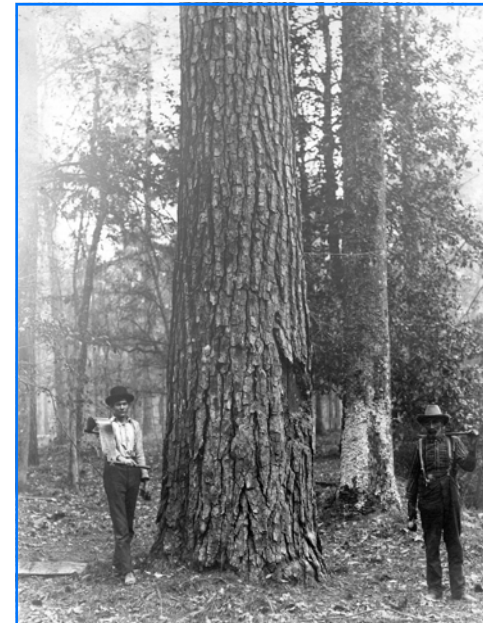
Shortly after crossing into Angelina County from the south, visitors pass through the City of Diboll and can stop at The History Center, an ideal place to get one's bearings in the region. The Angelina County GI Network highlights a potential corridor connecting Old Orchard Park and The History Center with the Neches River via the White Oak Creek corridor. This corridor from Diboll to the Neches River would benefit both local residents and visitors. As the use of Highway 59 from Houston will only increase over time, investing in welcome signs, visitor information, boat ramps and trails can make Diboll the gateway to the county's outdoor resources.



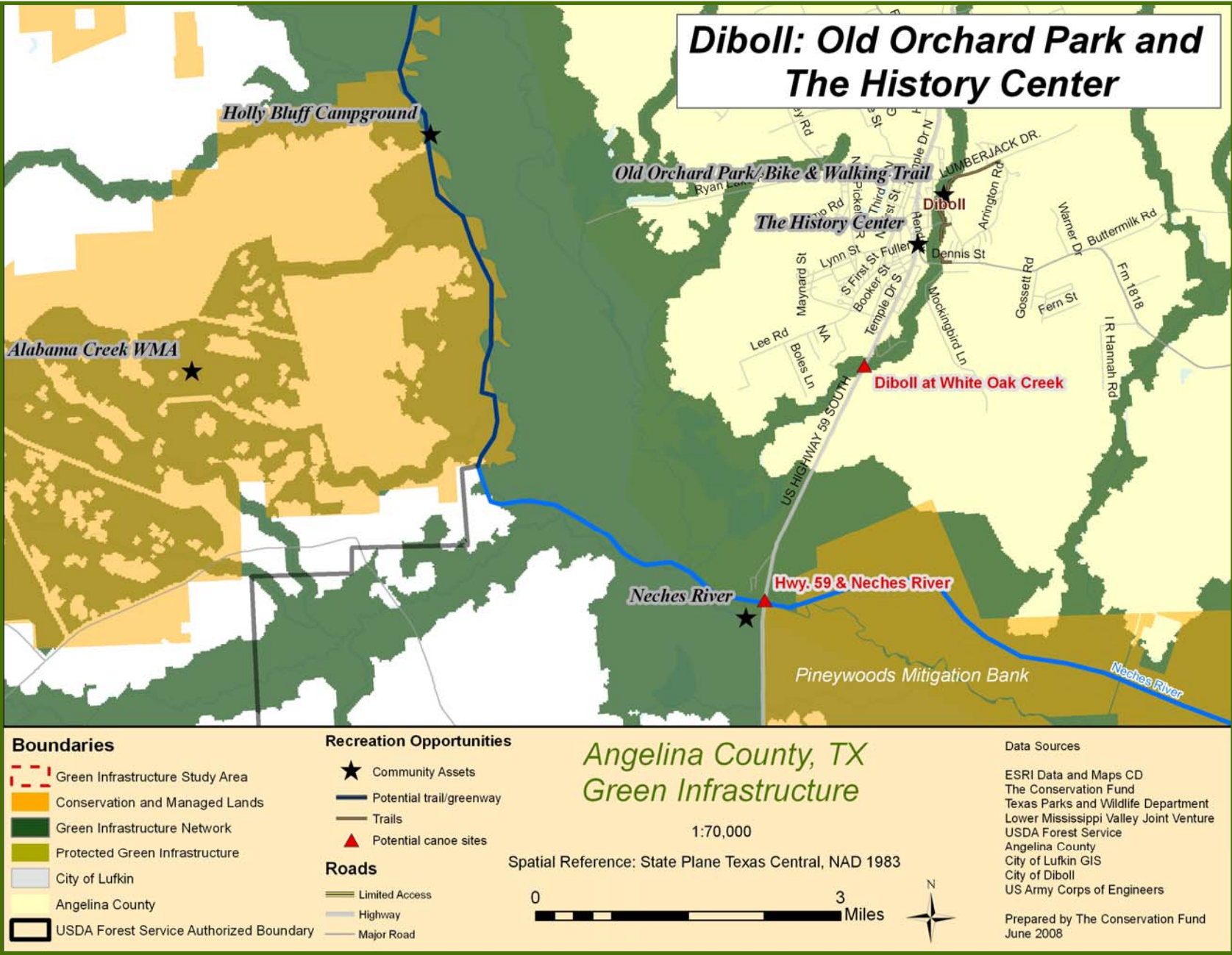
Jogger in Old Orchard Park. Photo provided by City of Diboll.



The History Center in Diboll, Texas. Photo provided by The History Center.



Southern Pine Lumber Company woods sawyers pose with a shortleaf pine near Lindsey Springs logging camp, Angelina County, 1903. Photo provided by The History Center.





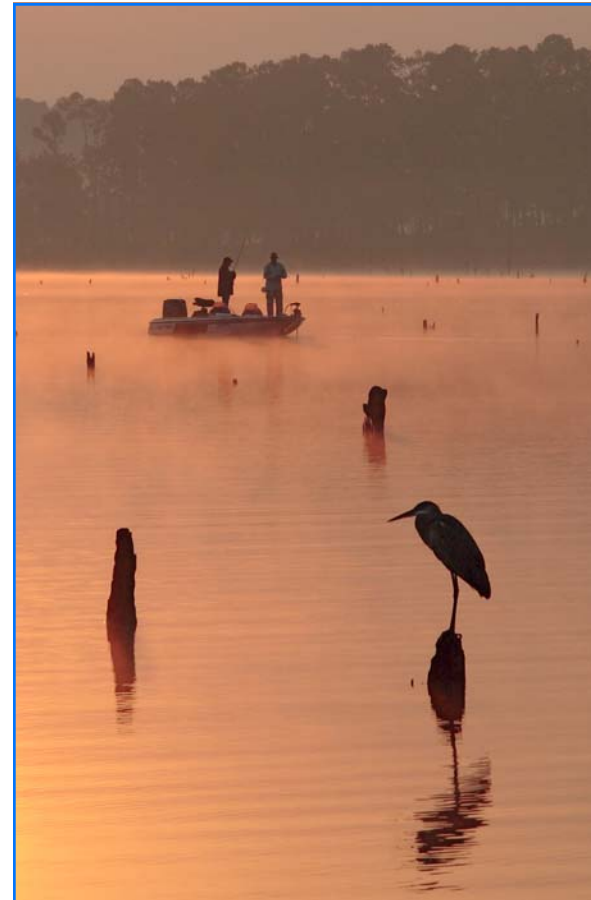
## City of Huntington

The Angelina County GI Network highlights several stream corridors and an abandoned railway line as opportunities to connect the City of Huntington with the Angelina National Forest and the Sam Rayburn Reservoir. In a 2002 study conducted by Texas A&M University, researchers established the economic impact of the use of the Sam Rayburn Reservoir by anglers to be \$15 million per year (Anderson, David 2002). One of the major boat access points to the Reservoir is the Cassels-Boykin County Park. Efforts are underway to upgrade the facilities at Cassels-Boykin to include building a new pavilion, expanding the boat ramps, and providing a handicapped-accessible fishing pier, additional parking and biking trails (Alford, Steve 2008). As the western gateway to the Sam Rayburn Reservoir, the City of Huntington is a central jumping off point for anglers traveling to the reservoir and stands to gain economically from improvements to the region's Green Infrastructure.



Centennial Park. Photo provided by City of Huntington.

Another opportunity is connecting Centennial Park with the abandoned railway line that runs southeast to Zavalla. The Texas Department of Transportation plans to expand U.S. Highway 69 and take part of the railway right of way for the road project. By providing TXDOT with a copy of the Green Infrastructure Plan, local officials could work to build a multiuse path as part of this highway project.



Lake Sam Rayburn sunrise near Cassels-Boykin County Park. Photo by Jonathan Gerland.





## City of Lufkin

One of the purposes of the Angelina County GI Network is to illustrate opportunities to connect the City of Lufkin with its surrounding natural resources of the Neches River and the two national forests. The methodology for crafting hub areas was modified to take into account the urban context of the city of Lufkin. The GI Network highlighted over 3,900 acres as either hubs or connecting corridor lands within the City of Lufkin. **Over 33% of the City's GI Network is also designated floodplains.** The GI Network contains 260 acres of city parkland. The remaining 2,363 acres is in private ownership.

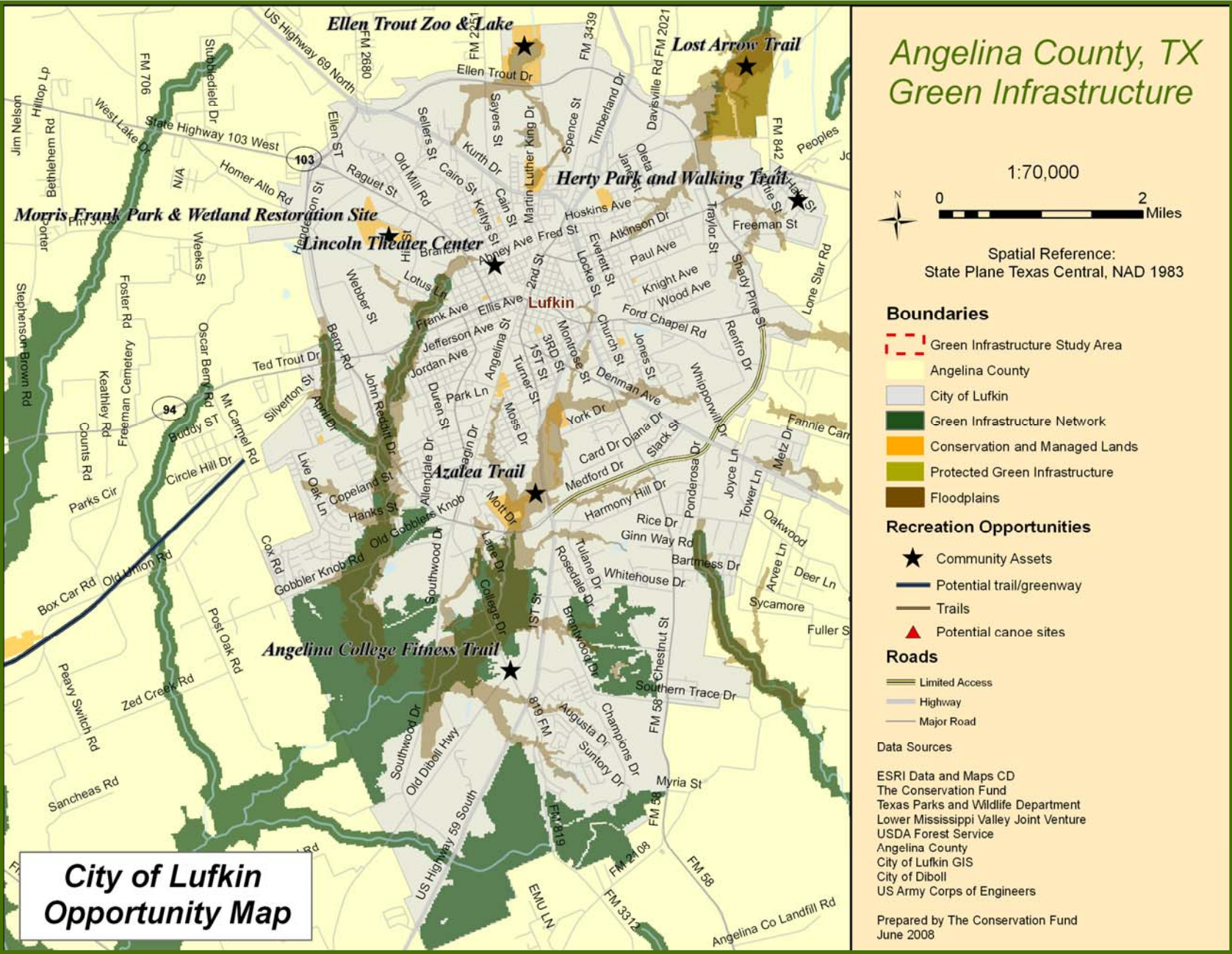


Azalea Trail at Kiwanis Park. Photo by Earlon Williams.

The Angelina County GI Network highlights several connections between city parks and other natural resources. The GI Network features a corridor from Kit McConnico Park's Lost Arrow Trail out to the Angelina River. In addition, the GI Network highlights a potential connection of the Azalea Trail and the Angelina College Trails through Hurricane Creek to the Neches River.



Museum of East Texas. Photo by Walter Streich.





# RECREATION OPPORTUNITIES

A top priority for Angelina County is to utilize the region's natural resources and assets, such as the Neches River and the Sam Rayburn Reservoir, to generate economic development. The forest products industry historically has been the main driver of economic development in the region. However, the stakeholders identified the need to develop other industries, such as nature-based tourism, as a sound economic driving force.

The stakeholders in the first Leadership Forum participated in an asset mapping exercise to identify regional assets. A large proportion of those assets identified were recreational areas and cultural sites. Some of these assets already exist, while others need to be developed. Attendees were divided into six groups and instructed to place sticky dots on a base map of the project study area locating important resources. The dots were numbered and linked to an index table that describes each point and the resource



Old Aldridge Sawmill in Angelina National Forest. Photo provided by USFS.



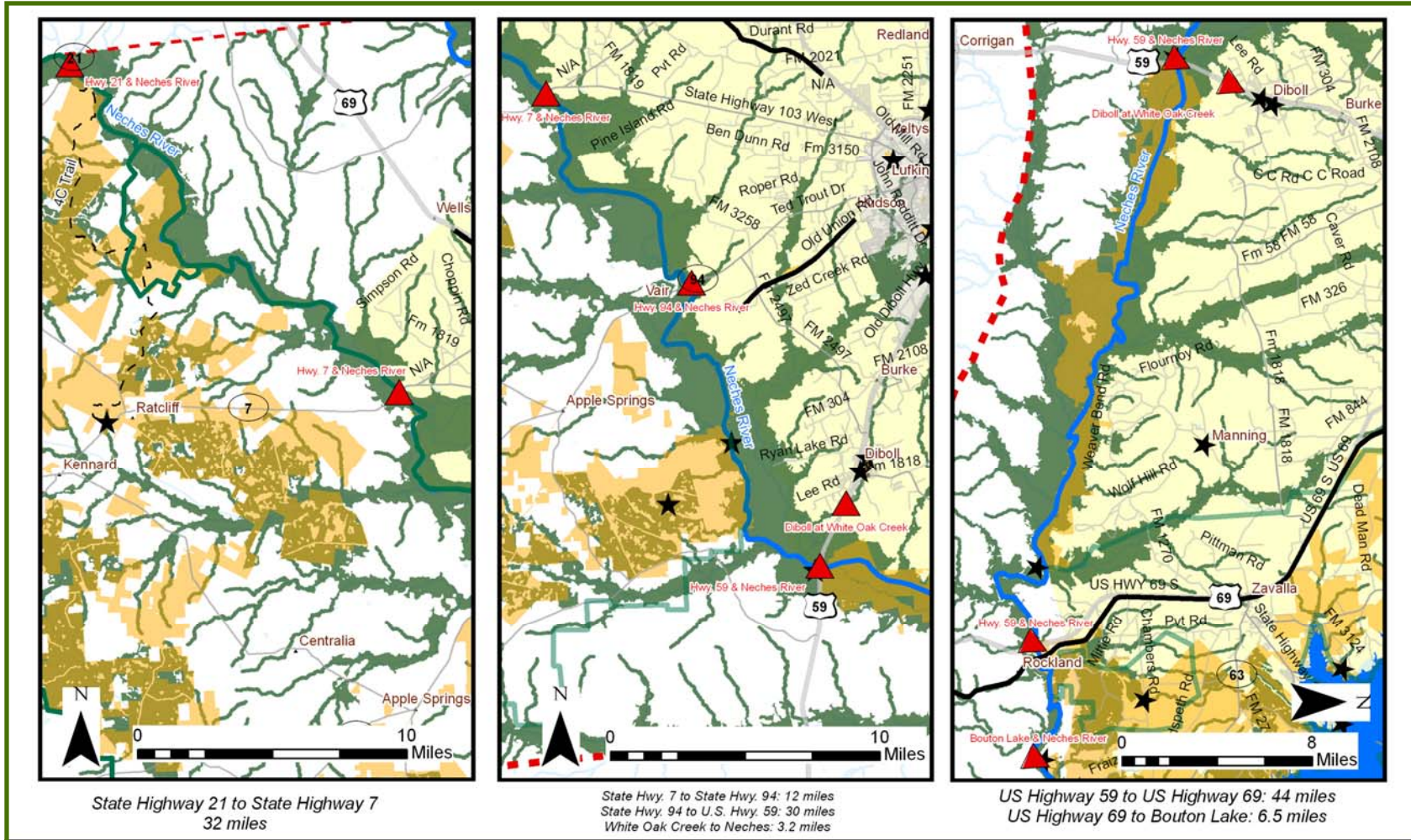
Boaters in the Angelina National Forest. Photo provided by USFS.

depicted. Participants were very enthusiastic about noting their special places of local interest including swimming holes, abandoned railway corridors, and canoe access points.

Participants placed over 104 points on the base maps among the six groups, with the largest category being recreational areas. In the process of transferring this information to a GIS map, 41 cultural asset sites were highlighted in the final asset map (see page 17). The reasons for the reduced number of asset points on the digital map are that several of the points were outside of the project study area, several overlapped locations of rare or endangered species, many sites were duplicates, and some points were not described in a level of detail where a physical location was possible to determine.

In addition to cultural asset sites, several participants noted sites for boat ramps and canoe launch sites. In addition, the Fund project team made recommendations for potential boat and canoe launch sites. In all, 7 sites were highlighted to improve the access to the Neches River and associated tributaries.





|   |  |  |  |
|---|--|--|--|
| <p><b>Recreation Opportunities</b></p> <ul style="list-style-type: none"> <li><span style="color: red;">▲</span> Potential canoe sites</li> <li><span style="border-bottom: 1px solid black; width: 20px; display: inline-block;"></span> Potential trails/greenways</li> <li>★ Community Assets</li> <li>- - - Trail</li> </ul> <p><b>Major Roads</b></p> <ul style="list-style-type: none"> <li><span style="border-bottom: 2px solid black; width: 20px; display: inline-block;"></span></li> <li><span style="border-bottom: 1px solid black; width: 20px; display: inline-block;"></span></li> <li><span style="border-bottom: 1px dashed black; width: 20px; display: inline-block;"></span></li> </ul> |  | <p><b>Boundaries</b></p> <ul style="list-style-type: none"> <li><span style="border: 1px dashed red; width: 20px; height: 10px; display: inline-block;"></span> Green Infrastructure Study Area</li> <li><span style="background-color: #ffffcc; width: 20px; height: 10px; display: inline-block;"></span> Angelina County</li> <li><span style="background-color: #cccccc; width: 20px; height: 10px; display: inline-block;"></span> City of Lufkin</li> <li><span style="background-color: #ffcc00; width: 20px; height: 10px; display: inline-block;"></span> Conservation and Managed Lands</li> <li><span style="background-color: #92d050; width: 20px; height: 10px; display: inline-block;"></span> Green Infrastructure Network</li> <li><span style="background-color: #6aa84f; width: 20px; height: 10px; display: inline-block;"></span> Protected Green Infrastructure</li> <li><span style="border: 2px solid green; width: 20px; height: 10px; display: inline-block;"></span> USDA Forest Service Authorized Boundary</li> </ul> | <p><b>Data Sources</b></p> <ul style="list-style-type: none"> <li>ESRI Data and Maps CD</li> <li>The Conservation Fund</li> <li>Texas Parks and Wildlife Department: An Analysis of Texas Waterways</li> <li>Lower Mississippi Valley Joint Venture</li> <li>USDA Forest Service</li> <li>Angelina County</li> <li>City of Lufkin GIS</li> <li>City of Diboll</li> <li>US Army Corps of Engineers</li> </ul> <p><b>Prepared by The Conservation Fund</b><br/>June 2008</p> |
| <p><b>Angelina County, TX</b><br/><b>Green Infrastructure</b><br/><b>Potential Canoe Sites</b></p> <p><small>Data Disclaimer: Distances between points are an approximation and should be field checked. Accuracy, currency, and completeness varies among data layers. Spatial Reference: State Plane Texas Central, NAD 1983</small></p>  |  |  |  |

Improving public access to the Neches River and the Sam Rayburn Reservoir is a crucial investment to optimize the County's waterways. There is reason to be confident. With the Cassels-Boykin County Park ground-breaking, a \$5 million improvement effort is underway (Alford, Steve 2008). This effort was lead by volunteers who saw the great potential of the reservoir. The next level of engagement for concerned citizens is to work on connecting parks such as Cassels-Boykin with the surrounding communities and national forests.

To assist with passive recreation, the Fund project team highlighted several abandoned railroad beds as potential trail corridors. As the GIS information documenting the railway lines and their ownership is not complete, additional research is required to document the railroad beds and assess their appropriateness for use as multiuse trail corridors. With the planned widening of U.S. Highway 69, parts of the abandoned railway line between the towns of Huntington and Zavalla will be consumed by the new roadway. The remaining railway line may offer opportunities for links with the national forest.

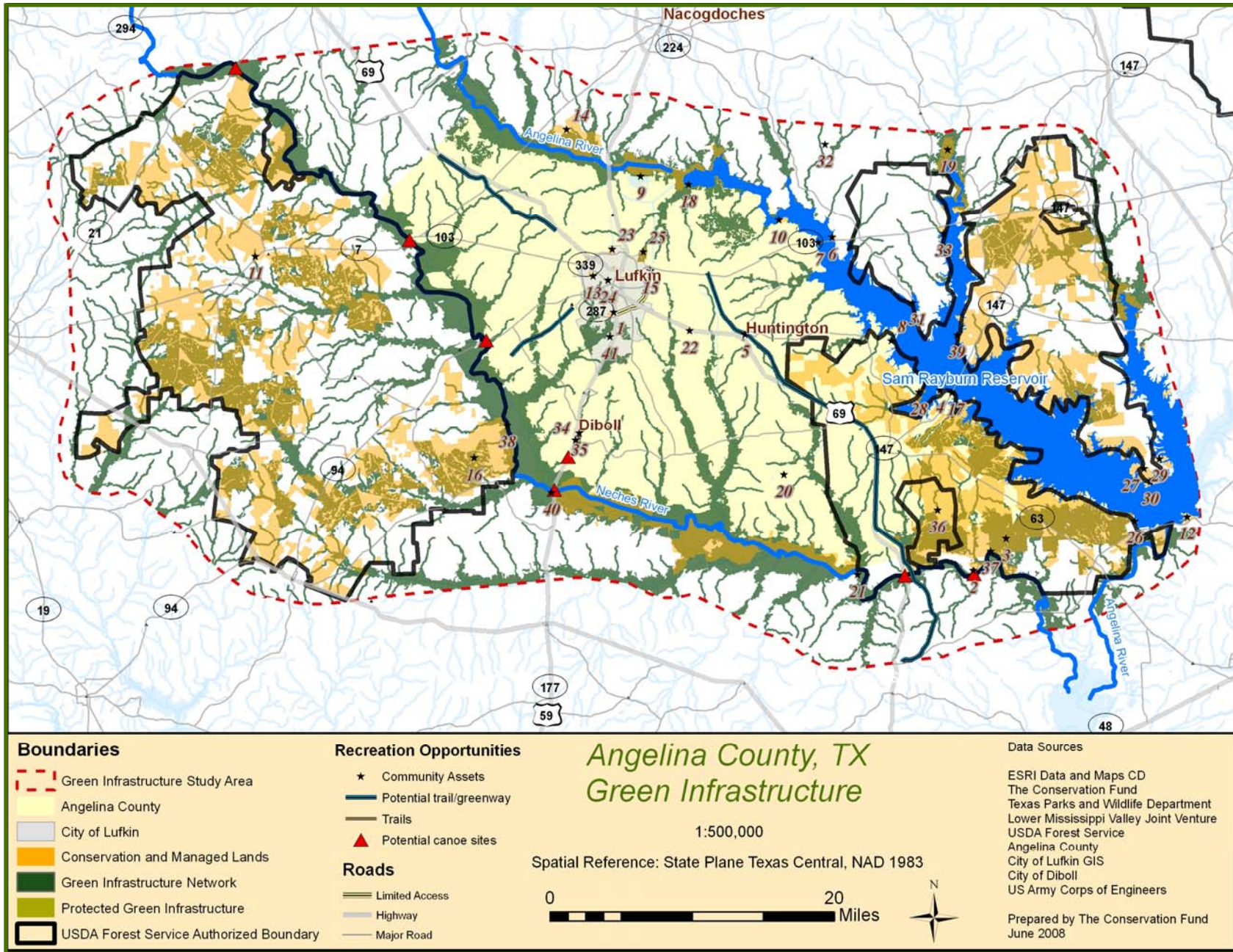


Paddling under the Neches River tree canopy.  
Photo by Mark Bush.

## ANGELINA COUNTY Asset Table

- |  |  |
|--|--|
| 1. Azalea Trail  | 20. Old Mill site in Manning             |
| 2. Bouton Lake and Old Aldridge Mill historic site   | 21. Fort Teran and Old Spanish Fort site |
| 3. Boykin Springs  | 22. Homer Community                      |
| 4. Cassels-Boykin County Park  | 23. Ellen Trout Zoo & Lake               |
| 5. Centennial Park   | 24. Lincoln Theater Center               |
| 6. Etoile Park   | 25. Lost Arrow Trail                     |
| 7. Ewing Park  | 26. Ebenezer Park                        |
| 8. Hans Creek Park   | 27. Pineywoods Conservation Center       |
| 9. Kurth Lake  | 28. Monterey Park                        |
| 10. Marion's Ferry Park  | 29. Powell Park                          |
| 11. Ratcliff Lake & Recreation Area and 4C Trail   | 30. Rayburn Park                         |
| 12. Twin Dikes Park  | 31. Shirley Creek Park                   |
| 13. Morris Frank Park & Wetland Restoration site   | 32. Oil Springs                          |
| 14. Stephen F. Austin State University Experimental Forest & Alazan Bayou Wildlife Management Area | 33. Ralph McAllister Park                |
| 15. Herty Park and Walking Trail   | 34. The History Center                   |
| 16. Alabama Creek Wildlife Management Area   | 35. Old Orchard Park                     |
| 17. Bird Watching site   | 36. Longleaf Ridge                       |
| 18. Backwater Fishing  | 37. Rockwall Cemetery & Church           |
| 19. Backwater Fishing  | 38. Holly Bluff Campground               |
|  | 39. Jackson Hill Park                    |
|  | 40. Neches River                         |
|  | 41. Angelina College Fitness Trail       |







## Gateway to Angelina County

Within Angelina County, the GI Network covers 115,500 acres<sup>2</sup>. Over 28% (32,298 acres) of the GI Network is already protected by the Angelina National Forest, a wetland mitigation bank facilitated by The Conservation Fund, land trust holdings, municipal parkland, and US Army Corps lands associated with the Sam Rayburn Reservoir. **For Angelina County, the remaining lands in the GI Network total 83,498 acres held in by a mix of private landowners – both individuals and businesses.** For Angelina County, focusing the implementation efforts on these private lands will be crucial for its future not only as a forest products center but also as a growing nature-based tourism destination.

To encourage nature-based tourism, Angelina County may benefit from focusing on the gateways into the county. By protecting the distinctive character of these entry points, a visitor's first impression is of a region that offers something unique. One of the most exciting opportunities is the Highway 59 gateway into Angelina County as it crosses over the Neches River. The City of Diboll is particularly well

positioned to advertise the county's recreational opportunities, as is the south side of Lufkin along U.S. Highway 59. A stopping point such as a new or existing visitors center could serve as a nature-based tourism "clearinghouse" for Angelina County recreational opportunities.

In addition, U.S. Highway 69 enters the county from the south directly into the Angelina National Forest. State highways 94 and 103 are also visible gateways. In fact, Highway 103 connects both the Davy Crockett and Angelina National Forests.

These access points provide potential "education" opportunities for visitors and residents alike by promoting features such as canoe launch sites and public recreation areas through attractive, interpretive signage.

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<sup>2</sup>GIS estimate of 32,750 acres for the surface water of the Sam Rayburn Reservoir was removed so the acreage figure for the Angelina County portion of the GI Network is dry land.



Aerial view of the winding Neches River.  
Photo by Jay Brittain/Temple-Inland.



National forests are key points for nature-based tourism in Angelina County. Photo provided by USFS.



Road in the woods.  
Photo by Jay Brittain/Temple-Inland.

# IMPLEMENTATION QUILT



The options for implementation of the Angelina County’s GI Network are similar to the diversity of an intricate pattern of a quilt. Every planning context, like every quilt, is unique. An Implementation Quilt is the framework for matching available resources — such as planning tools, existing programs, funding opportunities and people — to the needs of the green infrastructure network. For Angelina County, the quilt is a strategy that identifies what tools could be used, who could use them, and when the activity could be undertaken and how it could be financed. The quilt underscores the principles of Green Infrastructure that natural resources and working lands (lands with active timber harvesting or farmlands) should be identified and protected prior to development.

The Angelina County GI Network highlights both lands that are currently protected by conservation agencies as well as lands that are owned by private owners. These private landowners have been outstanding stewards of the land, which is why these lands are generally in good ecological condition. A number of federal, state and county programs reward private landowners for managing their land to benefit wildlife, improve water quality, protect scenic views and provide passive recreational opportunities. A strong theme in the implementation quilt for Angelina County is to help private landowners within the GI Network learn about these programs and be rewarded for their stewardship of the land. These implementation tools include conservation easements, funding programs for best management practices, funding for restoration of habitat, and tax abatement programs. Again, it is anticipated that much of the GI Network can and should remain as privately-owned lands. The GI Plan can provide tools to help landowners remain land stewards.

The implementation tools for Angelina County’s quilt include funding programs for upgrading public facilities, water quality improvement for recreational uses, voluntary landowner programs that promote protection of green infrastructure, and land acquisition endeavors with willing landowners. The toolbox also includes refining regional land use planning policies and funding programs to allow the users of these tools — federal, state, and local government as well as non-governmental organizations (NGOs) — to more effectively protect Angelina’s County’s GI Network.

## Second Leadership Forum

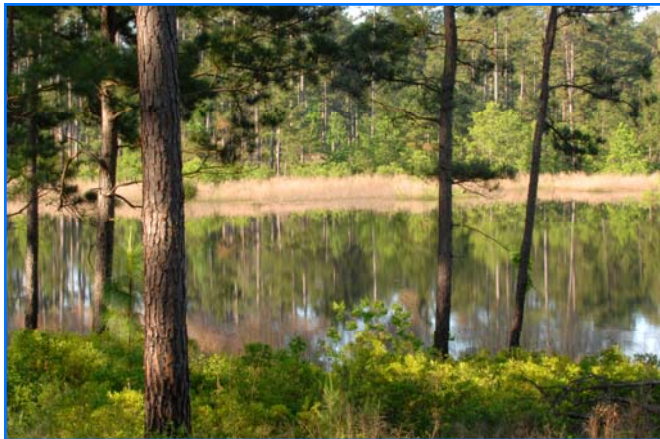
To build momentum for implementation, a second Leadership Forum was held on July 25, 2008, to review the Angelina County GI Network design and consider implementation recommendations. Over 30 stakeholders, representing a wide range of organizations, convened for a half-day forum. Public officials from Angelina County and its cities attended. The USDA Forest Service had four representatives at the forum, demonstrating a keen interest in the GI Network by one of the region’s largest land stewards.

The Fund project team provided an overview of the methods used to create the Angelina County GI Network. A map series displaying the GI Network at the project study area scale, as well as more detailed maps for the Lufkin, Huntington and Diboll, were well received. The methods used to determine corridors and their overall vulnerability attracted the attention of several participants. Participants were pleased with both the GI Network design and the recreational opportunities map.

Next, the Fund project team provided an overview of an Implementation Quilt. Leadership forum participants were very interested in forming a “Friends of the Davy Crockett and Angelina National Forest” group and submitting a proposal to complete a Clean Water Act Section 319 Watershed Protection Plan for the Neches River (more details on these ideas later in the report). Finally, Jane Packard from Texas A&M University facilitated a lunch-time conversation on implementation issues, helping participants discuss in greater detail their interests in implementation options.

The following section provides the Fund’s recommendations on the best Implementation Quilt opportunities based on feasibility, potential long-term benefit, and cost. A comprehensive overview of federal, state, local and private programs is available in the Implementation Quilt Technical Appendix.

The map on page 24 illustrates areas of strategic interest and communities that will benefit from Implementation Quilt Opportunities.



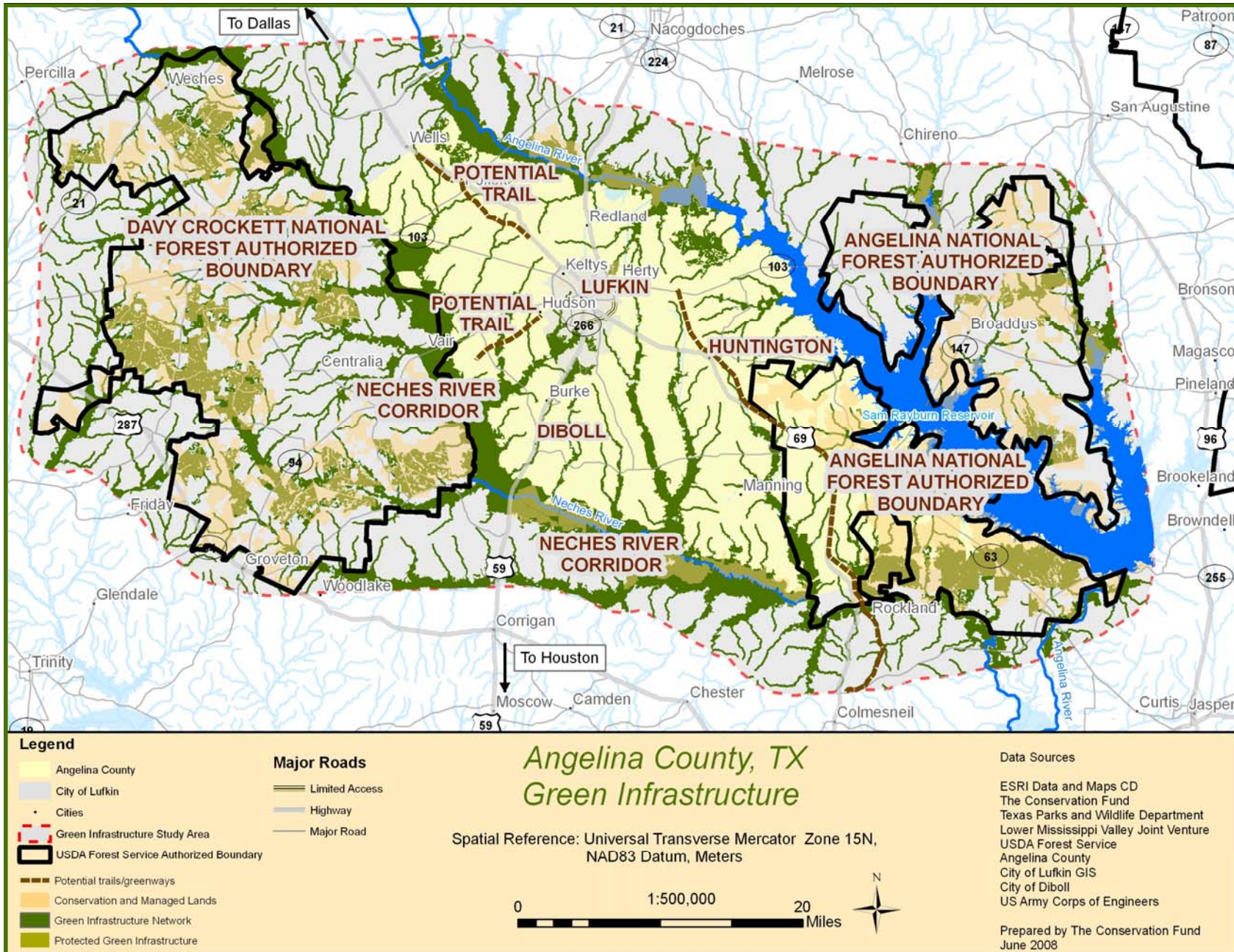
Boggy Slough along the Neches River. Photo by Jay Brittain/  
Temple-Inland.

## ANGELINA COUNTY

### Top Twelve Implementation Quilt Opportunities

1. Establish a Friends Group of the National Forests to generate broad support for the Texas national forests by advocating for issues that impact the national forests, informing elected officials and mobilizing additional funding resources. (in progress)
2. Continue strategic land acquisition with willing landowners on both fee acquisition and the use of conservation easements to enhance the GI Network, with a particular emphasis on the Neches River corridor and inholdings within the Authorized Boundaries of the National Forests.
3. Pursue Texas Parks and Wildlife Department Outdoor Recreation Grants and/or Small Community Grants for GI Plan opportunities for Lufkin, Diboll and Huntington.
4. Apply to the National Park Service’s River, Trail and Conservation Assistance Program to develop a recreational and paddle trails regional plan for the county. (Proposal submitted July, 2008)
5. Investigate the feasibility of the development of a Watershed Protection Plan with Texas Commission on Environmental Quality and the Texas State Soil and Water Conservation Board.
6. Collaborate with the Angelina College Small Business Development Center to serve as an incubator for nature-based tourism small businesses.
7. Work with the Texas Pineywoods Experience to link Angelina County with other Pineywoods communities, especially along the Neches River, to form a broad regional nature- culture and history-based tourism coalition that can market itself as a unified region.
8. Explore the use of abandoned rail lines for recreation with Texas Department of Transportation and other stakeholders.
9. Submit the Angelina County GI Network to Texas Department of Transportation for transportation planning purposes and establish a GI Plan point of contact to respond to TXDOT information requests about the Plan.
10. Explore the designation of the Neches River as a National Wild and Scenic River corridor.
11. Explore the use of local development ordinances to strengthen current landscape, tree and development guidelines.
12. Create a developer “check-off list” where municipalities require proof from developers that they have fulfilled all required federal and state laws impacting development (e.g. Clean Water Act Section 404 requirements, stormwater requirements).







# CONCLUSION

With this plan, Angelina County now has a well-defined vision for Green Infrastructure that will help the county and its communities guide their future. The Angelina County GI Network is based on maintaining biodiversity and offers recommendations on the best locations for corridors of wildlife movement and human enjoyment. The Plan proposes boat launch sites to improve access to the Neches River. The plan offers several recommendations to maintain current public facilities such as the creation of a “Friends of the National Forest” group to help public officials set priorities. It is hoped that the conversations started at the Leadership Forums and distribution of this plan will help increase the public awareness that a healthy ecosystem can translate into a healthy economy.

The implementation of the Angelina County GI Network will require significant collaboration among federal, state, local and non-profit partners working together with private landowners, developers and citizens. The Fund hopes that the Angelina County GI Network serves as a framework for future strategic conservation, helps direct assistances to private landowners to guide their stewardship of land, and provides a pathway for Angelina County to reach its full potential.

*“History may well judge our generation not so much for wealth and progress but for how much of the natural world we allow to survive.”*

— Richard M. Donovan, Paddling the Wild Neches



Chambers Park playground. Photo by Earlon Williams.



Dogwood blossoming in Angelina County. Photo by Jay Brittain/Temple-Inland.



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## **Personal Correspondence**

Robert Allen, Texas Department of Transportation

Tom Church, I-69/Trans-Texas Corridor Study

Jason Collins, City of Lufkin

Jan Davis, Texas Forest Service

Duane German, Texas Parks and Wildlife Department

Jonathan Gerland, The History Center

Bob Gottfried, Texas Parks and Wildlife Department

Kenneth Johnson, Angelina County Appraisal District

Amy Kiester, Lower Mississippi Valley Joint Venture

Keith Kraemer, Angelina County Appraisal District

Jim Neal, US Fish and Wildlife Service

Todd Nightingale, Texas Forest Service

Bob O'Connor, Massachusetts Executive Office of Energy and Environmental Affairs

Claude Ross, Natural Resources Conservation Service

Doug Sharer, Natural Resources Conservation Service

Hughes Simpson, Texas Forest Service

Dr. Mark Steinbach, Texas Land Conservancy

Aaron Wendt, Texas State Soil and Water Conservation Board

Dorothy Wilson, City of Lufkin

# LEADERSHIP FORUM

## technical appendix



# LEADERSHIP FORUM technical appendix

| SEPTEMBER 25, 2007, INFORMATION SESSION |           |                                     |
|---|-----------|-------------------------------------|
| Participants                            |           |                                     |
| First Name                              | Last Name | Affiliation                         |
| Susie                                   | Cardwell  | Chamber of Commerce                 |
| Richard and Judith                      | Clower    | Civic Leaders                       |
| Jonathan                                | Gerland   | The History Center                  |
| Mary Jo                                 | Gorden    | Civic Leader                        |
| Jack                                    | Gorden    | City of Lufkin                      |
| Don                                     | Hannabas  | City of Lufkin                      |
| Jack                                    | Hicks     | Vision 2020                         |
| Jerry                                   | Huffman   | Angelina County Chamber of Commerce |
| Carol                                   | Moore     | Civic Leader                        |
| Paul                                    | Parker    | City of Lufkin                      |
| Larry                                   | Phillips  | Angelina College                    |
| Ellen                                   | Temple    | Vision 2020                         |
| Mary Ann                                | Whiteker  | Hudson ISD                          |
| Kenneth                                 | Williams  | City of Diboll                      |
| Dorothy                                 | Wilson    | City of Lufkin                      |
| Keith                                   | Wright    | City of Lufkin                      |

## MARCH 5, 2008, LEADERSHIP FORUM

### Participants

| First Name       | Last Name  | Affiliation                           |
|------------------|------------|---------------------------------------|
| Jane             | Ainsworth  | Ainsworth / Alvis                     |
| Rick             | Ainsworth  | Trail at Kit McConnico Park / Builder |
| Robert           | Allen      | Texas Department of Transportation    |
| Trent            | Ashby      | Community Title Company               |
| Jim              | Brody      | Temple Inland, Inc.                   |
| Bob              | Brown      | TU Electric, Retired                  |
| Ray              | Browning   | Huntington CEBAB                      |
| Alisha           | Burrow     | Chamber of Commerce / LCVB            |
| Susie            | Cardwell   | Chamber of Commerce / Vision 2020     |
| David            | Collmorgen | TX Department of Transportation       |
| Wayne            | Corley     | TLL Temple Foundation                 |
| Don              | Dietz      | Campbell Group                        |
| Tyane            | Dietz      | Lufkin Work Force Board               |
| Dave and Charlie | Dolben     | Temple Inland, Retired                |
| Dick             | Donovan    | Neches River Keeper                   |
| Rufus            | Duncan     | Lufkin City Council / Builder         |
| Rachel           | Emrick     | City Arborist                         |
| Lynn             | George     | Angelina County                       |
| Jonathan         | Gerland    | The History Center, Diboll            |
| Jack             | Gorden     | City of Lufkin, Mayor                 |
| Mary Jo          | Gorden     | Community Leader                      |
| Michelle         | Green      | Planned Parenthood                    |
| Betsy            | Gregson    | City of Huntington                    |
| Don              | Hannabas   | City of Lufkin, Parks                 |
| Mike and Jackie  | Harbordt   | Temple Inland, Retired                |
| Trey             | Henderson  | Angelina Hardwood                     |
| Jimmy            | Horton     | Jackson Hill Marina                   |
| Jerry            | Huffman    | Chamber of Commerce                   |

| First Name | Last Name | Affiliation                         |
|------------|-----------|-------------------------------------|
| Maxie      | Hurst     | ABC Huntington State Bank           |
| Dr. Eric   | Jones     | Aspen Power                         |
| Phil       | Jowell    | Jacksonville 2020                   |
| Heather    | Kartye    | Chamber of Commerce                 |
| Marie      | Kocyan    | Private Citizen                     |
| Aron       | Kulhavy   | City Planner, Nacogdoches           |
| Don        | Langston  | Lufkin City Council / Builder       |
| Larry      | Lasiter   | Goodwin-Lasiter                     |
| JP         | McDonald  | Museum of East Texas                |
| Tony       | Moline    | Angelina Beautiful Clean            |
| Ellie      | Mootz     | Lufkin Landscape Taskforce          |
| Paul       | Parker    | City of Lufkin, City Manager        |
| James      | Slack     | First Bank and Trust of East Texas  |
| Valena     | Spradley  | Commercial Bank                     |
| Wes        | Suiter    | Angelina County, Judge              |
| Jack       | Sweeny    | Temple Inland, Inc.                 |
| Vicki      | Taylor    | US Forest Service                   |
| Ellen      | Temple    | Infrastructure Comm. of Vision 2020 |
| Cherri     | Teutsch   | Angelina Beautiful Clean            |
| George     | Thannisch | Angelina Beautiful Clean, Retired   |
| Barbara    | Thompson  | City of Lufkin                      |
| Jim        | Wehmeier  | City of Lufkin Economic Development |
| Maryann    | Whiteker  | Superintendent, Hudson ISD          |
| Kenneth    | Williams  | City of Diboll, City Manager        |
| Dorothy    | Wilson    | City of Lufkin, City Planner        |
| Keith      | Wright    | City of Lufkin, Assistant Manager   |
| Buddy      | Zeagler   | TLL Temple Foundation               |

**JUNE 25, 2008, LEADERSHIP FORUM**

**Participants**

| First Name        | Last Name | Affiliation                        |
|-------------------|-----------|------------------------------------|
| Robert            | Allen     | TX Dept. of Transportation         |
| Bill              | Bartush   | US Forest Service                  |
| Louis             | Bronaugh  | Angelina & Neches River Authority  |
| Marian V.         | Brown     | Concerned Citizen                  |
| Wayne             | Corley    | TLL Temple Foundation              |
| Charlie and David | Dolben    | Benefactor / Temple-Inland Retired |
| Richard           | Donovan   | Neches River Keeper                |
| Rachel            | Emrick    | City of Lufkin, Arborist           |
| Jonathan          | Gerland   | The History Center                 |
| Jack              | Gorden    | City of Lufkin, Mayor              |
| Lisa              | Haglund   | Angelina & Neches River Authority  |
| Don               | Hannabas  | City of Lufkin, Parks              |
| Jerry             | Huffman   | Chamber of Commerce                |
| Gay               | Ippolito  | US Forest Service                  |
| Heather           | Kartye    | Chamber of Commerce                |

| First Name | Last Name   | Affiliation                          |
|------------|-------------|--------------------------------------|
| David C.   | Miles       | Card-Miles Ent., LLC                 |
| Todd       | Nightingale | Texas Forest Service                 |
| Paul       | Parker      | City of Lufkin, City Manager         |
| Jeff       | Reid        | US Fish & Wildlife Service           |
| Kenneth    | Reneau      | Angelina & Neches River Authority    |
| Fred S.    | Salinas     | US Forest Service, Forest Supervisor |
| James      | Slack       | First Bank & Trust of East Texas     |
| Wes        | Suiter      | Angelina County, Judge               |
| Vicki      | Taylor      | US Forest Service                    |
| Ellen      | Temple      | Infrastructure Comm. of Vision 2020  |
| George     | Thannisch   | Retired                              |
| Mary Ann   | Whiteker    | Hudson ISD                           |
| Kenneth    | Williams    | City of Diboll, City Manager         |
| Dorothy    | Wilson      | City of Lufkin, City Planner         |
| Keith      | Wright      | City of Lufkin, Assistant Manager    |

# NETWORK DESIGN

## technical appendix



# NETWORK DESIGN technical appendix

Outlined below is the technical method for creating a green infrastructure network with core areas, hubs and corridors. Core areas and hubs were delineated for forest resources, wetland resources, and freshwater aquatic resources.

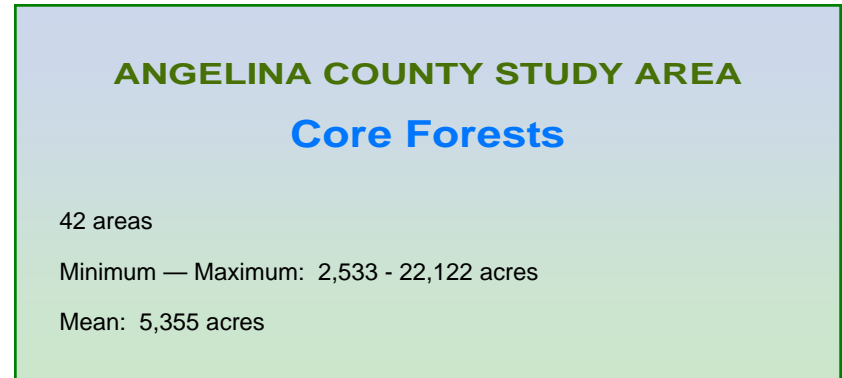
## CORE FORESTS

Core forest areas are large tracts of unfragmented habitat suitable for the conservation of native plant and animal populations and the maintenance of ecological processes (Benedict and McMahon, 2006). The first step in identifying core forest areas was to delineate forest cover using the 2001 National Land Cover Dataset (NLCD). Although longleaf pine stands exist in the region, they have not been formally identified in GIS data, making it difficult to identify these patches in the core forest land.

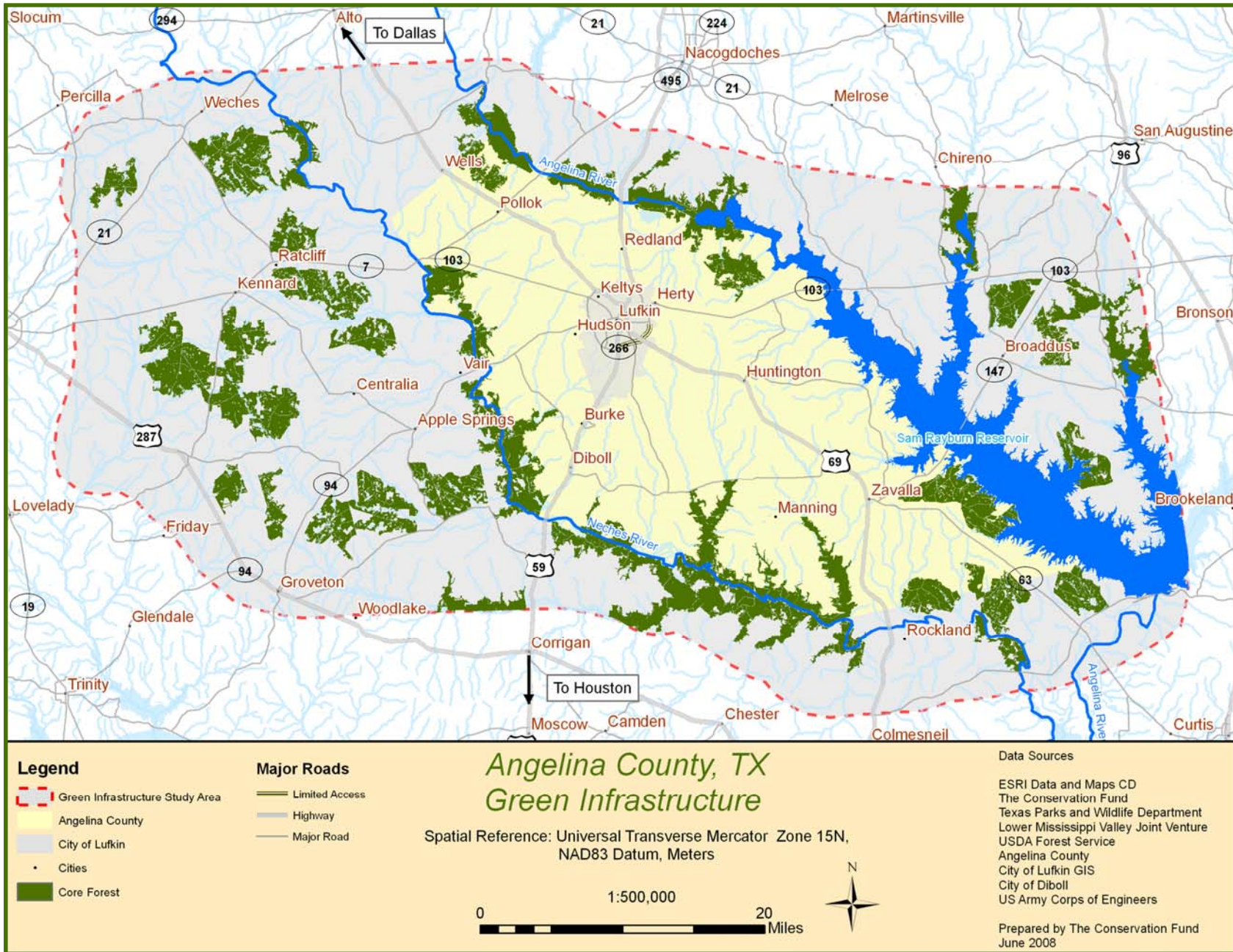
Next, the Fund project team selected the Louisiana black bear (*Ursus americanus luteolus*) as a focal species because it requires a wide range of forest conditions that are likely to overlay with the requirements of other species. The Louisiana black bear's preferred habitat is in river basin bottomland hardwood timber, as the hardwood forests furnish acorns and other nuts. A 2005 Management Plan prepared by the Texas Parks and Wildlife Department indicates that the black bear prefers remote forests and requires a minimum core forest area of 1,000 hectares (2,500 acres).

As roadways are often barriers to wildlife movement and a source of disturbance for interior forest dwelling species, a 1/2-mile buffer was assigned along major roadways and those forested areas within the

buffer were removed. The US Fish and Wildlife Service considers remote forests where timberlands are at least 0.8 kilometers (0.5 miles) from major roads (2 and 4 lanes). After the buffer area was removed, only contiguous patches of forest of 1,000 hectares (2,500 acres) were selected as core forests. While this analysis did result in the selection of some pineland stands that are sub prime habitat for black bears, the Fund project team believed these lands have value as habitat to other species including the federally endangered Red Cockaded Woodpecker (*Picoides borealis*).







## CORE WETLANDS

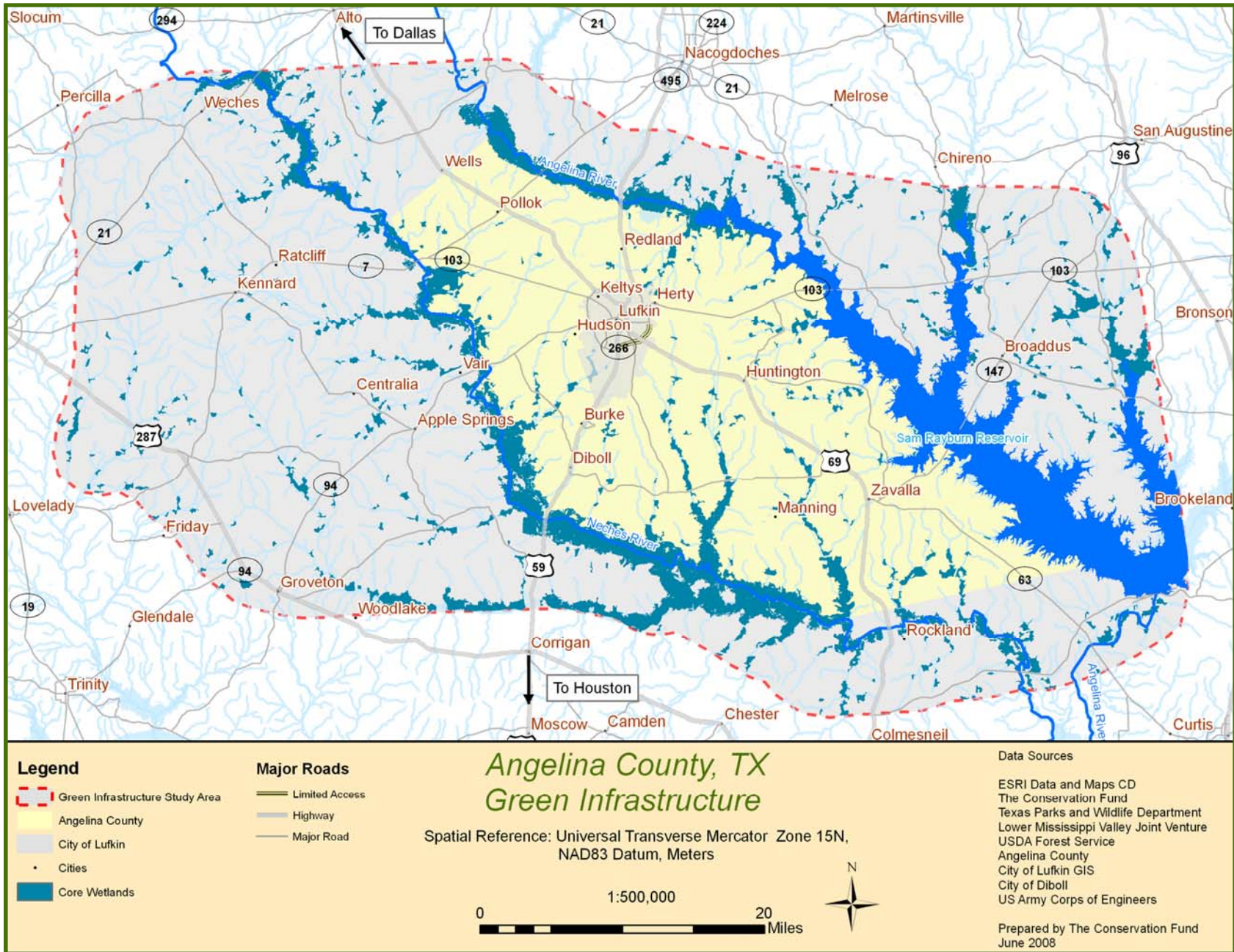
Core wetlands are contiguous natural areas with at least 10 hectares (24.7 acres) of relatively unimpacted wetlands. The Fund project team removed areas affected by roads and edge effects by using the same threshold used in core forest 0.8 kilometers (0.5 miles) from major roads (2 and 4 lanes). The next step was to locate wetland habitat areas that are at least 90 meters wide (Weber, 2007). Areas that meet the above criteria and are more than 10 hectares of wetlands would be considered core wetlands.

The Lower Mississippi Valley Joint Venture (LMVJV) developed a habitat grid of forest breeding birds associated with forested wetlands in the West Gulf Coastal Plain (LMVJV, unpublished). The LMVJV established species of concern for the West Gulf Coastal Plain according to the Partners in Flight's (PIF) North American Land Bird Conservation Plan. These species warrant inclusion on PIF's Watch List, due to a combination of threats to their habitats, declining populations, small population sizes, or limited distributions (Rich, 2004). This is a suite of focal species that face various threats and have different habitat requirements. The species listed in the box to the right were used as focal species for delineating suitable core wetland habitat.

| CORE WETLANDS                           |                          |
|---|--------------------------|
| Focal Species to Determine Core Habitat |                          |
| HIGH DENSITY SPECIES                    | LOW DENSITY SPECIES      |
| Acadian Flycatcher                      | Hooded Warbler           |
| Red-eyed Vireo                          | Kentucky Warbler         |
| Prothonotary Warbler                    | Great Crested Flycatcher |
| Yellow-billed Cuckoo                    | American Redstart        |
| Summer Tanager                          | Yellow-throated Vireo    |
| Blue-gray Gnatcatcher                   | Yellow-throated Warbler  |
|   | Northern Parula          |
|   | Wood Thrush              |
|   | Cerulean Warbler         |
|   | Scarlet Tanager          |
|   | Eastern Wood-Pewee       |
|   | Swainson's Warbler       |

| ANGELINA COUNTY STUDY AREA           |
|--------------------------------------|
| Core Wetlands                        |
| Minimum — Maximum: 25 - 58,837 acres |
| Mean: 343 acres                      |
| Total: 1367,946 acres                |







## CORE AQUATIC SYSTEMS

Core Aquatic areas contain the highest quality waterways in the project study area. All major water bodies in the project study area exceed fecal coliform bacteria (FCB) densities established under the federal Clean Water Act. However, some of the streams that exceed FCB densities also possess other high quality attributes including biodiversity value. Core aquatic areas are defined by including all non-impaired streams as defined by 303(d) list under the Clean Water Management Act (Texas Commission on Environmental Quality, 2000), and ecologically significant river and stream segments (Texas Parks and Wildlife Department, 2002).

Ecologically significant streams are designated by the Texas Legislature. These stream segments are considered as being of unique ecological value following nomination of a stream segment by a regional planning group. By so doing, a state agency or political subdivision may not obtain a fee title or an easement that would destroy the unique ecological value of a designated stream. Characteristics of ecologically significant streams include displaying an overall high habitat value and biodiversity, fringed by habitats that perform valuable hydrologic function, border public conservation land, high water quality and host federally listed threatened and endangered species.

Next, the Fund project team selected streams that were unchannelized and unimpounded, and were not constrained by dams, road crossings (except for bridges), or other stream blockages. Core aquatic areas were greater than or equal to 30 hectares (98 acres).

Finally, the Fund project team added floodplains created by the Lower Mississippi Valley Joint Venture. These are primary and secondary floodplains. Primary floodplains were identified as floodplains that contain a primary stream (e.g. Neches River is a primary stream, stream orders are determined utilizing a method that uses hierarchical tributaries). Secondary floodplains contain a secondary stream.

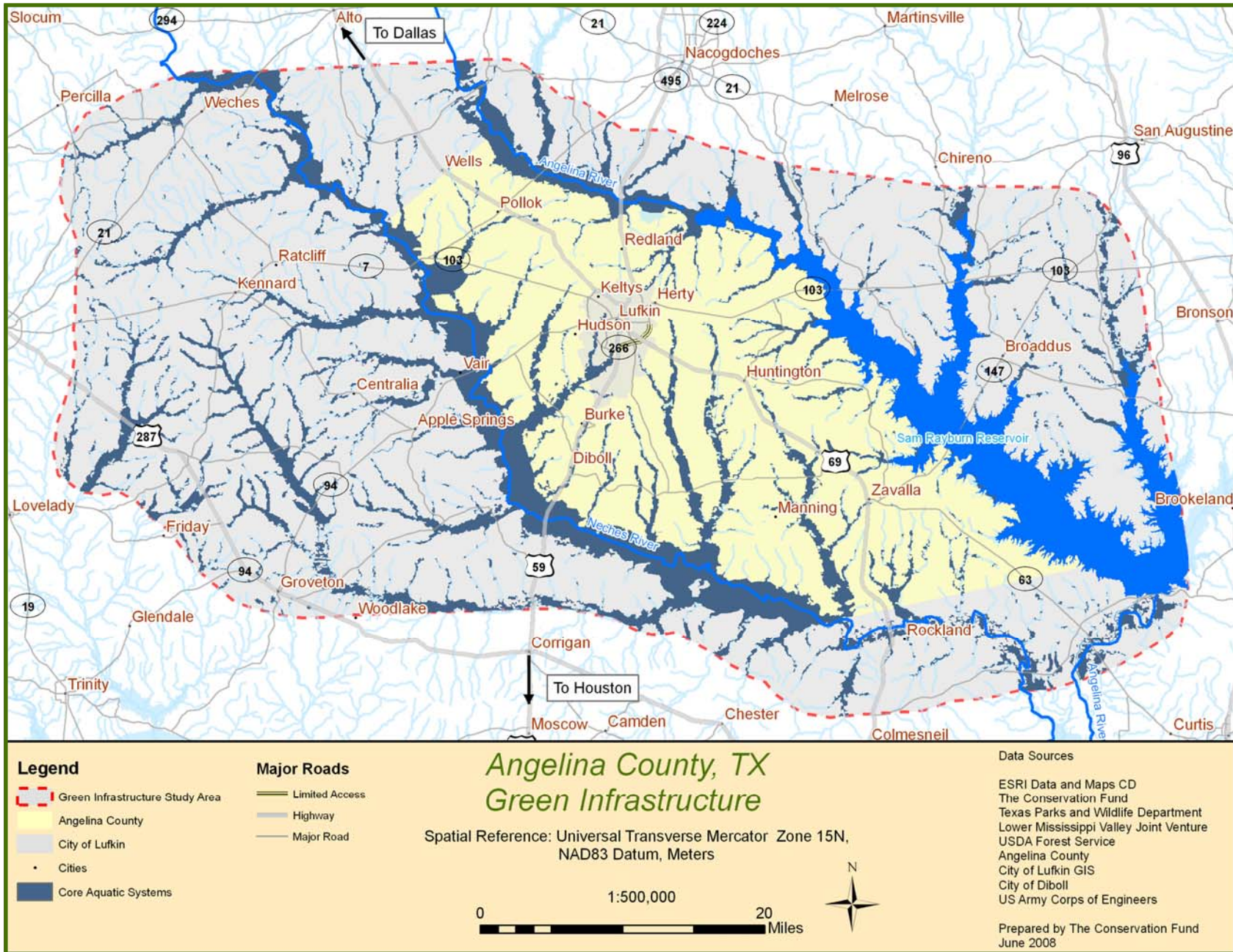
### ANGELINA COUNTY STUDY AREA

#### Core Aquatics

Minimum — Maximum: 8 - 137,247 acres

Mean: 388 acres

Total: 344,250 acres



## HUBS AND CORRIDORS

Hubs include the highest quality, largest, and least fragmented ecological landscape attributes (Benedict and McMahon, 2006). Hubs provide additional habitat for native plants and animals within the core areas. Just like our air transportation network, ecological hubs allow for an origin and destination of wildlife and humans moving through the natural environment. The minimum size for hubs was considered to be 100 hectares (247 acres). However, to make sure that a significant ecological landscape was left within the City of Lufkin, a lower threshold of 10 hectares (24.7 acres) was applied within the city limits.

The following steps were used to form hubs within the Angelina County GI Network:

1. Eliminate tendrils by removing any edge habitat less than 30 meters wide.
2. Select areas at minimum 100 hectares (247.1 acres)
3. Add other habitat greater than 10 hectares (24.7 acres) inside City of Lufkin to provide more connectivity within city jurisdiction.
4. Add long leaf pine stands from Angelina National Forest (no other data available).
5. Aggregate all hubs and keep only those patches greater than 100 hectares (247 acres).

A corridor is a narrow linear feature such as a stream or wildlife pathway that maintains the connectivity in the landscape. After years of fragmentation and land development, corridors are often the linear remnants of natural land such as wooded stream valleys. Based upon an examination of the preliminary results, the project study area has great connectivity through riparian (river, stream, wetlands) corridors. These areas tend to house great ecological diversity. To provide water quality and wildlife protection, buffers of at least 100 meters (328 feet) on each side of streams are recommended. The Fund project team acknowledges that the best management practice for forestry endorsed by the Texas Forest Service of 50 feet is a useful starting point to help landowners start to implement sound stewardship practices. To facilitate wildlife movement wider corridors are required (ELI, 2003). Corridor areas include lands that may benefit from restoration in order to reach full potential as ecological pathways. In fact, close to 11% (11,597 acres) of the corridors selected is suitable for restoration.





## RECREATIONAL AND COMMUNITY ASSETS

Many of the participants in the Angelina County GI Network planning process identified nature-based tourism as a promising economic development source for the county. The stakeholders participated in an asset mapping exercise to identify their regional assets. A large proportion of those assets identified were recreational and cultural elements. Some of these elements already exist, while others need to be developed. We proposed the use of abandoned railroads as potential trails to connect communities and existing parks and forests. Improving the use of the Neches River corridor by improving access to the river was identified as a goal for the planning process. According to Southwest Paddler ([www.southwestpaddler.com](http://www.southwestpaddler.com)) and TPWD, the Neches River has adequate flow for paddle trips most of the time, though the flow may be slower and more shallow than normal during droughts or long periods without recent heavy local rainfall. Log jams can be an obstruction to paddling on many parts of the Neches, particularly on the upper sections where the river flows through Davy Crockett National Forest.

The following methods were used for locating recreational and cultural assets:

- Identified abandoned railroad beds as linear connectors between existing parks and greenways (to address multimodal transportation). Feasibility of abandoned railroads as trails is a function of ownership or easements on the rail corridor and other considerations that can only be analyzed from a visit to the area. Recommend additional site research.
- Identified points where canoe/kayak put-ins and take-outs are feasible for both the Neches and Angelina Rivers (river intersected by State or US Highway). Slope did not appear to be an issue, and specific sites should be evaluated at each location highlighted on the asset map.
- Identified community assets based on asset mapping exercise. Community assets are areas identified by the stakeholders during the asset mapping exercise. Community assets are not areas for development but areas identified by the community leaders as special areas that offer unique opportunities to those visiting locally and from afar.
- Recommended priority canoe sites based on proximity to existing protected and public lands. Priority sites are those within 1 mile of managed or protected lands or within 3 miles of a community asset area. Priority canoe sites are also a function of landowner interest and other considerations that can only be analyzed from a visit to the area. Additional research and visits are recommended.
- Assessed the utility of layers of cultural, historic and recreational uses, sites and linear features (trails, abandoned railway lines) for its relationship to the ecological GI network. This was done through an overlay map displaying Angelina County's Green Infrastructure and potential and existing sites for nature-based tourism.



# IMPLEMENTATION QUILT

## technical appendix





# IMPLEMENTATION QUILT

## technical appendix



### FEDERAL PROGRAMS SECTION

#### **National Park Service — Rivers, Trails and Conservation Assistance Program**

The Rivers, Trails and Conservation Assistance Program, also known as Rivers & Trails or RTCA, works with community groups and local, state, and federal government agencies to conserve rivers, preserve open space, and develop trails and greenways. The program provides technical assistance to partners for local projects that do not have to be located near a National Park. As Angelina County has few planning resources, submitting an application for a county or regional proposal for land or paddle trails would maximize the benefits of this technical assistance program. For Texas, contact Kathryn Nichols at [kathryn\\_nichols@nps.gov](mailto:kathryn_nichols@nps.gov) and by phone (512) 245-7246. (note: In July, 2008, The Conservation Fund submitted an application requesting assistance in developing a regional multiuse trail network to connect existing local trails with a regional network using the Green Infrastructure Plan as a baseline.)

#### **Natural Resource and Conservation Service (NRCS) Programs**

NRCS supports many programs to provide incentives and technical assistance to private landowners to steward their land in a manner that benefits the environment. Expanding landowner awareness of the NRCS programs and increasing the utilization of these programs

is one step toward implementing the GI Network. Several NRCS programs are highlighted below as well as their current usage status within the region.

#### ***Wetland Reserve Program (WRP)***

The goal of the WRP is to restore, protect and enhance wetlands. The program achieves this by paying willing landowners the agricultural value of their land for one of the following options: a permanent conservation easement, a 30-year term easement, or establishment of a restoration cost share agreement. In order to be considered for this program, the land offered must be restorable and offer suitable wildlife habitat.

Through WRP, NRCS has supported 30 easements, totaling over 10,200 acres in five counties in the Pineywoods region. Bowie County accounts for the majority of the easements and acreage while the nearest project to the study area of the GI Network is a 234-acre easement in Nacogdoches County. For more information call Claude Ross, Soil Conservationist, at 254-742-9822.

#### ***Farm and Ranch Lands Protection Program (FRPP)***

FRPP provides funds to help purchase development rights to keep productive farmland in agricultural uses. Working through existing programs, the USDA Natural Resources Conservation Service (NRCS) joins state, tribal, or local governments and non-governmental organizations to acquire conservation easements. The NRCS provides up to 50 percent of the fair market easement value.

The FRPP project located closest to the Pineywoods was completed on the Katy Prairie in Harris County protecting 867 acres. The required match for funding has been a barrier to projects in East Texas. Another obstacle has been the lack of land trusts in East Texas that are willing or technically able to hold a conservation easement. For more information, call Claude Ross, Soil Conservationist, at 254-742-9822.

### *Wildlife Habitat Incentive Program (WHIP)*

WHIP is a voluntary program providing financial incentives to landowners to develop or restore habitat for fish and wildlife on their lands. Common WHIP projects include restoring wetlands and stream banks, replanting native plants, and prescribed burns to support fire dependent species. Participants work with the NRCS to prepare a wildlife habitat development plan outlining landowner goals for improving wildlife habitat including a list of practices and an installation schedule. WHIP contracts last 5, 10 and 15 years allowing for the restoration of essential plant and animal habitat.

In Texas, WHIP project priorities are linked to the State Wildlife Action Plan, which has prioritized the Pineywoods as a Priority 2 ecoregion. In East Texas over 2,000 acres have been restored in Walker County and 33 acres have been restored in Morris County. For information call Doug Sharer, State Program Liaison, at 254-742-9825.

### *Conservation Reserve Program (CRP)*

CRP is a federal program aimed at providing both technical and financial assistance to farmers and ranchers to convert highly-erodible cropland to natural land cover types such as native grasses, riparian buffers and wildlife plantings. Farmers receive an annual rental payment for the term of the 10 to 15 year contract based on the agricultural rental value of the land. CRP is administered by the

Farm Services Agency with technical assistance being provided by the NRCS. Currently, 3.9 million acres across Texas are enrolled in the CRP program, with 942 acres enrolled in Angelina County.

In the fall of 2006, the Farm Service Agency launched the Longleaf Pine Initiative, a special program within CRP, focused on restoring 250,000 acres of longleaf pine across the Southeastern United States. Under the program, the restoration goal for the Longleaf Pine for Texas is 10,750 acres. Using the GI Network and additional GIS analysis, local officials and interested parties could identify regions within the project study area that may benefit ecologically from Longleaf Pine restoration. Farmlands bordering GI Network hubs as well as lands identified for use as corridors could be restored using the CRP program. For more information, contact Lance Jacobs, Farm Service Agency, at 936-564-5891, or by email at lancejacobs@tx.usda.gov.



Dragonfly in wetland area.  
Photo by Jay Brittain/Temple-Inland.

## Conservation Easements

With the Congressional passage of the new Farm Bill in the spring of 2008, Congress renewed powerful tax incentives for the donations of conservation easements. A conservation easement is a legal agreement between a landowner and a conservation organization that permanently limits specified uses and development of the property to protect its natural and scenic features. Landowners who can donate a conservation easement still own the underlying fee interest in the land and the land remains on the local property tax rolls. The new legislation renews the generous tax deductions that a private landowner can receive including: the ability to deduct up to 50% of their income in any year, allowing farmers and ranchers to deduct up to 100% of their income and increasing the number of years over which a donor can take a deduction from 6 to 16 years.

Frequently, conservation easements are donated to nonprofit organizations called land trusts, which then become responsible for monitoring the conditions of the easement. In Angelina County, the Texas Land Conservancy holds several conservation easements. A land trust or other conservation organization could use the GI Network to locate landowners and provide information about these valuable tax incentives. For more information on the Texas Land Conservancy, contact Dr. Mark Steinbach at 512-301-6363, or by email at [mark@texaslandconservancy.org](mailto:mark@texaslandconservancy.org).

## USDA Forest Service

One of the potential uses of the Angelina County GI Network is to help guide the actions of the USDA Forest Service within its acquisition boundary for both National Forests. Over 202,400 acres of the GI Network is within the US National Forest Service authorized boundary. The Angelina County GI Network has highlighted 140,000 acres of lands owned by the USDA Forest Service. This leaves 62,000 acres of private land within the US National Forest Service authorized boundary that is highlighted by the GI Network. USDA Forest Service could work with willing private landowners to acquire this land in fee. Several USDA Forest Service units are experimenting with conservation easements as methods to either expand national forest areas or to have an interest in land within their authorized boundary (see national forest management area for details). Another option would be working with these private landowners on management practices that help maintain or improve the stewardship of these crucial lands.

### *Forest Legacy Program (FLP)*

FLP is a federal initiative supported by the USDA Forest Service that assists state efforts to protect sensitive forests in private ownership. Texas was the 34th state to participate in FLP, and the Texas Forest Service is the coordinating agency. The program is designed to promote the conservation of privately owned forestlands based on the acquisition of conservation easements. These conservation easements restrict future development of the property and require that the landowner follow sustainable forestry practices. Because these easements are purchased, the landowner does not receive a tax deduction. The USDA Forest Service provides the funding to acquire the easements, and a state agency is eligible to hold the easement. To target the conservation efforts wisely, the Texas Forest Service



has outlined forested areas in the state that support traditional forestry practices such as timber harvesting and have significant public benefits such as ensuring high water quality, providing wildlife habitat, conserving scenic views, having recreational opportunities and protecting historic resources.

Landowners within a designated Forest Legacy Area may apply to have their project considered. Priority is given to land that can be effectively protected and managed. Landowners manage the land by following a forest management plan, which is written to address their specific land management goals. To have a project considered, landowners need to complete an application, which may be obtained from the Texas Forest Service. Applications are accepted from January 1 through August 31 of each year for the following federal fiscal year's funding consideration. Landowners interested in submitting a project are encouraged to consult with a local forester, a Texas Forest Service forester, or other natural resource professionals for guidance. Frequently, landowners will work with a local land trust to complete the application and coordinate the project.

The study area of the Angelina County GI Network is within the boundaries of a Forest Legacy Area. However, no applications have been received for this region by the Texas Forest Service. The first Forest Legacy Project in Texas, located adjacent to the Big Thicket National Preserve and owned by The Campbell Group, is scheduled to close by year-end 2008. The Forest Legacy Program is a natural fit for the region, with its well-established forest products industry and the amount of high-quality forestland in private ownership. Using the GI Network, additional lands and landowners can be identified and pro-actively approached and provided with information on this innovative program. For more information, contact Jan Davis, Texas Forest Service, at 979-458-6630, or by email at [jdavis@tfs.tamu.edu](mailto:jdavis@tfs.tamu.edu).

### *National Forest Management Program*

Traditionally the National Forests are lands owned entirely by the USDA Forest Service. Recently proposals are under consideration to use easements to expand the holding of the USDA Forest Service. The easements under review would be acquired from willing landowners and would prohibit development, set high forestry best management standards, require public access and give a first right of refusal on the fee to the USDA Forest Service or a state conservation agency. The use of easements by the USDA Forest Service would provide more options for landowners within the acquisition boundary of the National Forest. Areas highlighted by the GI Network could be prioritized as the first tier of landowners to be contacted by the USDA Forest Service or a key partner about this opportunity. The use of easements by the USDA Forest Service is still under review, and it may be several years before this tool is approved for use within the entire National Forest system.

### U.S. Army Corps of Engineers (USACE)

With the management of the Sam Rayburn Reservoir, USACE is a major landowner within the Angelina County GI Network. The recreational opportunities provided by the reservoir draw many visitors to the region, and the lands surrounding the reservoir offer significant wildlife habitat. As with the national forests, the Angelina County GI Network seeks to maximize this local asset by connecting the reservoir through a series of corridors to surrounding lands of ecological importance. Sharing the GI Network GIS layers with USACE officials will assist agency staff in its land management decisions, recreational planning and understanding of community interests.

The Angelina County GI Network highlights both wetlands and aquatic habitat as important landscapes. While many of these wetlands and waterways are not owned by conservation agencies, they do have limited legal protection and regulatory review. National policy regarding wetlands is to prevent any further loss of wetlands. Development actions that impact wetlands and waterways may fall under the oversight of the USACE, which has jurisdiction over the nation's waterways and wetlands as granted by two federal statutes. A brief summary of these USACE regulations is intended to highlight the importance of wetlands and waterways. However, consultation with legal counsel is advised in determining if a permit is required in specific cases.

Section 10 of the Rivers and Harbors Act requires a permit from the USACE for any project that involves work or structures in, over or under navigable waters of the United States. Typical activities under Section 10 include building piers, wharves, breakwaters, bridges, causeways, pipeline crossings and dams.

Section 404 of the Clean Water Act requires a permit from the USACE for the discharges of dredged or fill material into any water of the

United States, including wetlands, which are a type of water of the United States. Typical activities that are associated with the use of dredged material or fill material include:

- Utility installations, stream relocations, or culverting.
- Site development fills for residential, commercial, or recreational developments.
- Construction of revetments, groins, breakwaters, levees, dams, dikes, and weirs.
- Placement of riprap and road fills.

USACE issues both national permits and individual permits under section 404. The nationwide permits generally authorize minor types of work in wetlands, generally with impacts less than 0.5 acres. The individual permits are needed for work with greater than 0.5 acre of impacts. Under both regulatory reviews, the applicant must demonstrate that the project has avoided, minimized and mitigated impacts to wetlands to the maximum extent practicable, although the stringency of the review is typically stronger under the individual permit review. The applicant must also demonstrate that they have complied with all associated regulatory reviews including compliance with endangered species review, National Historic Preservation Act, FEMA regulations, Wild and Scenic Rivers, and Section 401 of the Clean Water Act.

For more information on USACE permits, contact the Fort Worth District, Regulatory Branch, CESWF-PER-R, 819 Taylor Street, Room 3A37, PO Box 17300, Fort Worth, TX, 76102-0300, phone 817-886-1731, fax 817-886-6493. Counties south of Angelina County are served by the USACE Galveston District office.

## STATE PROGRAMS SECTION

### Prepare and Implement a Watershed Protection Plan for the Neches River Basin

Water is a critical natural resource for East Texas. Many of the plans for eco-based tourism for the region rely on water features such as the Sam Rayburn Reservoir or the freeflowing Neches River. Maintaining and improving water quality is crucial if these resources are to continue to provide opportunities for fishing, boating as well as habitat for wildlife. The GI Network highlights both core wetland areas and core aquatic areas as part of the overall regional network.

One untapped funding source for additional planning work and implementation of measures to improve water quality is the federal Clean Water Act. The US Environmental Protection Agency (EPA) distributes Clean Water Act funds to both the Texas Commission of Environmental Quality (TCEQ) and the Texas State Soil and Water Conservation Board (TSSWCB) to reduce nonpoint source pollution. Nonpoint source (NPS) pollution, unlike pollution from industrial and sewage treatment plants, comes from many diffuse sources. NPS pollution is caused by rainfall moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters, and even our underground sources of drinking water. NPS pollution results from a wide variety of human activities on the land. In rural areas, NPS pollution can be traced to a range of sources including: leaking residential septic tanks, farming operations causing extensive soil erosion or spreading pesticide or manure leeching into nearby streams, and intensive forestry operations that might result in erosion near streams.

Under the Clean Water Act, each state is required to examine the uses of water bodies with allowable levels of different pollutants every two years. According to the TCEQ, the Neches River has water quality problems for recreational use stemming from high levels of fecal coliform bacteria. In addition, the Sam Rayburn Reservoir has water quality problems associated with supporting aquatic life due to the levels of dissolved oxygen, metals, temperature and pH levels.

To improve water quality and expand the allowable recreational uses of the water bodies in and around Angelina County, the TSSWCB and the TCEQ provide technical and financial assistance to stakeholder groups to develop and implement Watershed Protection Plans. A Watershed Protection Plan (WPP) is a coordinated framework for implementing prioritized and integrated water quality protection and restoration strategies driven by environmental objectives. Through the WPP process, the State of Texas encourages stakeholders to holistically address all of the sources and causes of impairments and threats to both surface and groundwater resources within a watershed. A Watershed Management Plan considers all uses, pollutant sources, and impacts within a drainage area. Watershed Management Plans serve as guides for communities to protect and improve the water quality. Grant funding for implementation of best management practices identified within the Watershed Management Plans is available through the federal Clean Water Act as well. Implementation options can include funding the purchase of easements to buffer water bodies, which in turn would add to the overall implementation of the Angelina County GI Network.

For rural regions, the TSSWCB is the most appropriate state agency to approach for funding a WPP and implementation efforts. TSSWCB has been funding efforts to promote best management practices to reduce agricultural runoff from local poultry farms into the Sam Rayburn Reservoir. In 2007 TSSWCB issued a Request for Proposal



(RFP), listing the Neches River as a “Priority Area for a Water Protection Plan” for funding, however, no proposals were submitted. TSSWCB officials anticipate releasing another RFP for funding multi-year WPP planning processes and funding implementation efforts in the Fall of 2008. TSSWCB may assist potential applicants in crafting sound proposals. Proposals for funding plans are evaluated using a nine point criteria. One early suggestion is to include letters of support from the Texas Forest Service and the Soil and Water Conservation District. The GI Network will help strengthen a proposal to TSSWCB by providing useful natural resource information, demonstrating the active interest of a broad range of stakeholders and providing a regional vision. For additional information or questions on TSSWCB funding, contact Aaron Wendt at 254-773-2250, ext. 232, or by e-mail at [awendt@tsswcb.state.tx.us](mailto:awendt@tsswcb.state.tx.us).

### **Texas Parks and Wildlife Department (TPWD)**

TPWD owns and manages 17,762 acres of land within the Angelina County GI Network. In the near future, it is anticipated that TPWD will also own the wetland mitigation bank currently operated by The Conservation Fund, once all the credits are sold. The Angelina County GI Network will give the region an advantage in competing for limited state funds for additional state facilities, as the plan demonstrates an integrated approach that directly illustrates how additional conservation land has a regional benefit.

TPWD administers five grant programs funded through a portion of the Texas sales tax received on sporting goods. These grant programs include: Outdoor Recreation, Indoor Recreation (facility), Small Community, Recreational Trail Grants, and Boat Access Grants. TPWD sends out an electronic newsletter with information on the grant application process. To subscribe, send an email to [rec.grants@tpwd.state.tx.us](mailto:rec.grants@tpwd.state.tx.us), or call 512-389-8224.

### ***Outdoor Recreation Grants***

This program provides 50% matching grant funds to municipalities, counties, Municipal Utility Districts (MUDs) and other local units of government with populations less than 500,000 to acquire and develop parkland or to renovate existing public recreation areas. There are two funding cycles per year with a maximum award of \$500,000. For 2009, the application deadlines will be January 31 and July 31, and awards are made six months after the deadline.

### ***Indoor Recreation Grants***

This program provides 50% matching grant funds to municipalities, counties, MUDs, and other local units of government with populations of less than 500,000 to construct recreation centers, community centers, nature centers and other facilities (buildings). The grant maximum will increase to \$750,000 per application. The application deadline will be July 31 each year (with the master plan submission deadline 60 days prior to application deadline). Award notifications occur the following January.

### ***Small Community Grants***

This grant program was created to meet the recreation needs of small Texas communities with populations of 20,000 and under. The grant provides 50% matching grant funds to eligible municipalities and counties. The maximum award will be \$75,000. Funds must be employed for development or beautification of parkland. Eligible projects include ball fields, boating, fishing, and hunting facilities, picnic facilities, playgrounds, swimming pools, trails, camping facilities, beautification, restoration, gardens, sports courts and support facilities. The deadline for this program is January 31 each year.

### ***Recreational Trail Grants***

TPWD administers the National Recreational Trails Fund in Texas under the approval of the Federal Highway Administration (FHWA). This federally-funded program receives its funding from a portion of federal gas taxes paid on fuel used in non-highway recreational vehicles. The grants can be up to 80% of project cost with a maximum of \$200,000 for non-motorized trail grants. Currently there is not a maximum amount for motorized trail grants. Funds can be spent on motorized and non-motorized recreational trail projects such as the construction of new recreational trails, improvement of existing trails, development of trailhead or trailside facilities, and trail corridor acquisition. Application deadline is May 1 each year.

### ***Boat Access Grants***

This grant program provides 75% matching grant funds for the construction of public boat ramp facilities throughout Texas. Local government sponsors must make an application, provide the land, provide access to the proposed boat ramp, supply 25% of the development costs, and accept operation and maintenance responsibilities for a minimum 25-year period. These funds are allocated annually through the federal Sport Fish Restoration Act. The deadline for this program is October 31st each year.

### **Texas Department of Agriculture**

Angelina County's gateway communities could apply for funding for beautification projects under the "Go Texan Rural Community Program." This program provides one-time matching funds to help rural communities with modest downtown improvement projects such as installing planters, park benches, decorative light poles and flags. For the Gateway communities, improved signage welcoming

visitors to the community and region are eligible projects. To apply, the municipality or county needs to be a certified Go Texan Rural Community. The grant program operates on a reimbursement basis so communities are required to submit documents demonstrating the products and services have been paid for in advance of receiving state matching funding. No communities within Angelina County have applied for funding from this program. Currently the grant program is suspended until funding becomes available. For more information, contact Sherri Gothart-Barron, Program Coordinator, at 512-936-6339, or by email [sherri.gothart-barron@tda.state.tx.us](mailto:sherri.gothart-barron@tda.state.tx.us).

### **Texas General Land Office**

Texas has recently launched the Farm and Ranch Lands Conservation Program within the Texas General Lands Office. The program aims to purchase development rights from willing farmers and ranchers across the state of Texas. It is hoped that the program will work in a collaborative manner with both the land trust community and landowners to facilitate conservation transactions. At the time of preparing this report, programmatic funding is uncertain. However, the creation of the program illustrates the compelling nature of the case for the conservation of farm and ranch lands in Texas. Supporting this program at this stage is crucial for providing one more tool for willing landowners to conserve their land and protect their way of life. For more information, contact Scott Campbell, Program Coordinator, at 512-463-5824, or by email at [scott.campbell@glo.state.tx.us](mailto:scott.campbell@glo.state.tx.us). Also see the website at [http://www.glo.state.tx.us/res\\_mgmt/farmranch/](http://www.glo.state.tx.us/res_mgmt/farmranch/).

### **Collaboration with Transportation Agencies**

Both the Federal Highway Administration (FHWA) and the Texas Department of Transportation (TXDOT) are moving toward a collaborative approach to infrastructure planning by consulting up front with state and local agencies responsible for land use management and natural resources during both the long-range and project level planning processes. The Angelina County GI Network can help inform transportation plans and assist transportation agencies in meeting federal guidelines (under new SAFETEA-LU planning requirements contained in section 6001) for consultation, use of natural resource inventories and consideration of environmental mitigation. The regional vision proposed by the Angelina County GI Network is exactly the type of information that transportation agencies currently seek as part of their requirements to identify potential mitigation areas as part of the long-range planning process and as part of the “Planning and Environmental Linkages” (PEL) approach espoused by FHWA.

To have the most impact, local officials need to formally submit the Angelina County GI Network to TXDOT staff for planning purposes. TXDOT may consult the GI Network when undertaking regional projects during the preliminary stages, even before the project is submitted for review under regulatory drivers such as the National Environmental Policy Act (NEPA). With the Angelina County GI Network, the county and municipalities will be well prepared to participate in planning activities with transportation agencies. When a transportation project is formally launched, local officials and interest groups need to attend the formal public meetings and cite the Angelina County GI Network in their comments. Using the GI Network in the public participant process will help all parties craft integrated solutions to meet transportation and environmental needs.

Moreover, both the federal and state transportation agencies operate scenic byway programs that are highly successful methods of attracting visitors to a region. The Angelina County GI Network can provide valuable information to the planning process in the delineation of a national or state scenic byway corridor study.

TXDOT has an agreement with the Texas Park and Wildlife Department to process requests for building infrastructure, such as boat ramps, when formally requested as part of an existing transportation project. There are potential opportunities to work with TXDOT on the installation of boat ramps associated with road improvement projects on U.S. Highway 69 and Highway 94. In addition, discussions with TXDOT on the county-wide interest in the use of abandoned railway lines for trails may also be fruitful. For local submission of the Angelina County GI Network, contact TXDOT District Engineer Dennis Cooley, at 1805 North Timberland Drive, Lufkin, TX 75901. For more information on local TXDOT projects, contact Cheryl Flood, TXDOT, by phone at 936-633-4349.



## LOCAL ACTION SECTION

### Forming a Friends of the Davy Crockett and Angelina National Forest Group

To assist USDA Forest Service managers in meeting the needs of their host communities, a Friends Group could be formed for the two national forests in the study area. Friends Groups help focus the interest and work of area residents who wish to support a national forest through the donation of time and expertise. Some Friends Groups incorporate as nonprofit organizations, while others remain as informal associations. Angelina County's hope for nature-based tourism rests in the success of its nearby national forests maintaining their high quality visitor experience. A Friends Group can help national forest supervisors understand the views of concerned community members and help area residents understand the constraints of the USDA Forest Service staff.

One of the crucial ingredients for the success of the nearby Big Thicket National Preserve was the formation in 1964 of the Big Thicket Association. The Association provided leadership in the formation of the national preserve, advocacy for funding programs and continues to provide support for many activities within the preserve. A Friends Group of the national forests could help implement the GI Network and assist federal land managers with efforts to maintain and improve the facilities of the national forests as well as the overall visitor experience.

### Wild and Scenic River Designation for the Neches River

The designation of the Neches River as a National Wild and Scenic River would help preserve the character of the river, while simultaneously making it a national designation for eco-tourism. The Neches River is the major green infrastructure corridor, connecting Angelina County and the Davy Crockett National Forests to the greater Pineywoods of East Texas. The Neches River as a corridor provides crucial habitat for wildlife and is a rare recreational opportunity for visitors and residents to experience both the wilderness and the cultural history of the region.

In 1968, the Wild and Scenic Rivers Act was signed into law by Texas' native son President Lyndon Johnson to encourage the conservation of free-flowing waterways. The Wild and Scenic Rivers Act strives to preserve the character of rivers, while allowing compatible land uses and development. Examples of compatible land uses include timber harvesting, farming, hunting and fishing camps, and residential development. The designation prohibits the federal government from constructing dams or other water resource projects that would adversely affect river values. Unlike a national park or a wilderness area, the federal government has no control over private property. Instead, the federal government seeks landowner cooperation in managing the "living landscape" of the river corridor. Involvement of the federal government would bring more resources to the table in helping facilitate a planning process to manage the river and potentially provide funds for buying fee interests and conservation easements from willing landowners.

To become a Wild and Scenic River, the Act operates on a nomination process led by the local community, a state governor, or by the recommendation of agencies with management responsibilities over the river to make a proposal to Congress, requesting a study of the

river. With congressional approval, the National Park Service or another relevant federal agency, such as the USDA Forest Service, would convey a planning process to examine the Neches River to determine if segments of the river display outstanding local or regional natural, cultural or recreational values. A river may have portions in its proposal categorized as Wild, Scenic and Recreational, or have its designation rely on one category. Typically, the boundary of the designation of a Wild and Scenic river is a quarter mile buffer on either side of the river.

Today, there are 165 rivers in 38 states classified as Wild and Scenic. In Texas, only portions of the Rio Grande River have Wild and Scenic designation. On the 40th anniversary of the signing of the Wild and Scenic Rivers Act, it seems appropriate to rekindle the campaign to nominate one of the leading Texas Rivers, the Neches River, for Wild and Scenic designation. For more information on nominating the Neches River for Wild and Scenic status, contact the Texas Conservation Alliance at 512-327-4119.

### **Restoration and Forest Zone Incentive Programs**

The Texas Reforestation and Conservation Act of 1999 provides important timberland property tax incentives for private landowners. The act permits a reduced special appraisal (or restricted-use timberland appraisal) for qualified forest zones and regenerated timberland to encourage reforestation and preservation of non-timber forest values (such as water quality and critical wildlife habitat protection). A 50% reduction in appraised land value is available to qualified landowners.

These property tax incentive programs are coordinated between the Texas Forest Service and the chief appraiser of each county. The Texas Forest Service provides technical assistance to landowners by

furnishing best management practices guidance, reviewing management plans, and the overseeing the designation of land that would qualify as an Aesthetic Management Zone.

The Angelina County GI Network would help the Texas Forest Service locate landowners for mailings and other information on these tax incentive programs. An estimated 10% or 11,000 acres of the land identified for corridors with the GI Network would benefit from active restoration. Both the information on the Upland Site Regeneration Program and the Bottomland Site Regeneration program could be sent to landowners to encourage replanting. Information on the benefits of a Streamside Management Zone could be mailed to landowners whose lands are already forested to encourage the continuation or improvement of their stewardship. Landowners whose lands are highlighted as hubs or core forest areas could be mailed information on the Critical Wildlife Habitat zone program. For technical information, contact Todd Nightingale, Texas Forest Service, at 936-875-4400 or by email at [tnightingale@tfs.tamu.edu](mailto:tnightingale@tfs.tamu.edu). For application and appraisal information for Angelina County, contact Mark Landsford, interim chief appraiser, at 936-634-8456.

### **Angelina Nacogdoches Counties Forest Landowners Association (ANCFLA)**

Landowners who own more than 10 acres of forestland may join the ANCFLA and receive the latest information on best management practices, tax incentive programs, and regulatory issues. Encouraging landowners to join ANCFLA as a way to stay current on issues of sound stewardship of private lands is crucial to maintaining the Angelina County GI Network. As aspects of the GI Network are ready for implementation, the ANCFLA would provide a valuable forum to distribute information to non-industrial forest landowners. For more information about ACFLA, contact Nolan Alders, 5437 E.

State Hwy 7, Nacogdoches, TX 75961, or by email at [nba@consolidated.net](mailto:nba@consolidated.net)

### **Incorporate Green Infrastructure in Municipal Planning**

When updating municipal comprehensive plans as well as parks and recreational plans, municipalities can utilize the Green Infrastructure Network as an inventory of important ecological areas, recreational and cultural assets. Updates to local plans may use the Green Infrastructure maps to strengthen policies on natural resources and working landscapes protection by encouraging site plan review and design review and evaluating floodplain ordinances.

The primary goal of land use planning is securing and promoting public safety. From the 1900s to the year 2000, flood damages in the United States have increased six fold, approaching \$6 billion annually (Kusler, 2003). Many of the proposed corridors for the Green Infrastructure Network utilize floodplains. In the City of Lufkin, 47% (1,293 acres) of the City's floodplain (2,724 acres) is within the proposed Green Infrastructure Network. Development in floodplains requires special care and oversight. Municipal plan updates and periodic re-evaluation of local floodplain ordinances are crucial opportunities to improve public safety by examining the allowable land uses within floodplains, the use of buffers in sensitive areas and incorporating performance standards.

An innovative concept in municipal floodplain management is "No Adverse Impact" (NAI) that seeks to insure that the actions of one property owner does not adversely impact the properties and rights of other property owners, as measured by increased flood peaks, flood state, flood velocity and erosion and sedimentation. NAI does not mean no development; rather, it focused on recognizing the impacts and seeking mitigation for those impacts. Municipalities are increasing their use of this approach as a method to reduce their

liability from increasing flood and erosion hazards. By implementing NAI, a community is both saving money as well as promoting environmental stewardship of lands within the Green Infrastructure Network.

One of the goals of the Green Infrastructure approach is to help shape the growth of communities. Environmentally sensitive development is a process by which land that is slated for development is first inventoried for significant natural features and environmental constraints such as steep slopes. Those sensitive areas are set aside at the beginning of the development process, before lot lines or other steps in the development process are followed. By avoiding wetlands, minimizing stream crossings and other impacts, the cost of built infrastructure such as roads and permitting costs may be reduced. The remaining land is known as the "development envelope." Next, add in the allowable number of houses permitted by municipal regulation, and then site the roads and other infrastructure to serve those homes.

By following an environmentally sensitive process of development, and using land wisely, the land that is developed will be more compatible with its surrounding green infrastructure. As this process is voluntary and is a different approach to development, starting with a demonstration project, either residential or commercial, would be advisable. A demonstration project provides an on-the-ground site that interested parties can visit, and development costs and revenue can be documented.



## PRIVATE PROGRAMS SECTION

### Texas Pineywoods Experience Program

In 2006, The Conservation Fund launched Texas Pineywoods Experience — the Lone Star State’s most ambitious land conservation and economic development initiative. The Fund is working with residents throughout the Pineywoods area to redefine a vision for East Texas that brings local and regional stakeholders together to seek economic development solutions that support the long-term preservation and enhancement of the region’s economic, cultural and ecological health. By highlighting the Pineywoods’ lush forests and meandering rivers, as well as its beginnings as the Cradle of Texas, the partnership uses the region’s unique natural, cultural and historical assets to reposition the Pineywoods as a recreation destination for millions, building a new, sustainable economy for East Texas.

In the short term, the Fund is documenting the natural, cultural and historical riches of the region; marketing the Pineywoods as a public recreation destination; promoting the creation of new jobs based on this increased interest; and continuing a strategic and deliberate approach to land conservation by linking vital tracts of forest and parkland for people and wildlife. The Fund will initiate a major marketing campaign in the region to not only highlight the availability of the new information, but also to reach communities around Houston and beyond to raise awareness about East Texas’ destinations and attractions. The Angelina County GI Network is one of the first major initiatives of the Pineywoods Experience. The Fund staff continues to help local partners implement the GI Network through land acquisition, natural resource planning and eco-tourism marketing. For more information, contact Betty Russo, Texas Pineywoods Coordinator, TCF, at 832-401-1633, or by email

[brusso@conservationfund.org](mailto:brusso@conservationfund.org), and please visit <http://www.texaspineywoodsexperience.org/>.

### Kodak American Greenways Grant Program

The Conservation Fund, in partnership with the Eastman Kodak Company and the National Geographic Society, operates a small grants program that seeks to stimulate the creation of greenways in communities throughout America. Grant monies may be used for such greenway projects as mapping, surveying, signage and interpretive displays, bike paths and other structures. Awards are made to local, regional, and statewide nonprofits; local and regional public agencies may also apply. The maximum grant size is \$2,500. The Conservation Fund's Web site ([www.conservationfund.org](http://www.conservationfund.org) <<https://mail.conservationfund.org/exchweb/bin/redirect.asp?URL=http://www.conservationfund.org/>> ) posts an invitation for proposals every March. Applications are due by June 30. This program may be helpful for Angelina County's GI Network as a match for larger grants and to use for discrete improvements such as boat ramp signage as part of a greenway, blueway, or regional trails.

### Outdoor Sports Store Grant Programs

Both REI and LL Bean operate small grant programs to help with basic recreational infrastructure needs such as signs for boat ramps or trails, equipment purchases, stewardship needs for paddle trails, and funding to leverage the work of volunteer crews. The REI grant program is employee directed, meaning that employees nominate the projects. As REI has two stores in the City of Houston, contacting the store manager and providing an informative presentation on a recreational resource such as the Neches River or a hiking trail in the national forest lands may be a way to encourage a submission. In addition, REI’s employees frequently organize volunteer work crews

to help with basic stewardship needs of resource areas. Making REI store managers aware of the needs of the Neches River and Angelina County would generate volunteer projects to be undertaken by regional REI stores.

LL Bean has partnered with the American Canoe Association to award grants up to \$1,000 to canoe and kayak clubs to help protect and improve the stewardship needs of local waterways. The Club Fostered Stewardship Program aims at helping local clubs tackle difficult problems such as removing in-stream safety hazards, maintaining access areas and providing sanitary facilities. While the grant size is modest, these funds can be used as matching funds to demonstrate broad support, and to raise public awareness.

### **Wetland Mitigation Bank**

A major section of bottomland hardwoods along the Neches River has been protected using an innovative concept known as a mitigation bank. A mitigation bank is an entity designed to offset the impacts of major construction projects on wetlands, streams or aquatic resources by buying in advance a key piece of conservation land and selling credits to private parties that must offset impacts. In effect, the conservation land purchase is financed by the required mitigation. These banks allow for mitigation to be more meaningful because the scale of conservation is increased by pooling funds from several mitigation projects in order to protect a large resource.

In this case, The Conservation Fund has acquired 19,312 acres from International Paper of the most critical bottomlands, comprising 14,000 acres of jurisdictional wetlands and approximately 5,000 acres of upland buffer. The parcels will help connect the Davy Crockett National Forest with the Angelina National Forest, and will keep an important section of the Neches River running wild. It is also

high-quality habitat for Louisiana black bear. Mitigation banks could play a significant role in financing the purchase of remaining large blocks of land or connecting corridors before the landscape becomes heavily fragmented. For more information on the mitigation bank, contact Julie Shackelford, Director of Programs, Texas Office, TCF, at 936-468-5490, or by email at [julieshackelford@conservationfund.org](mailto:julieshackelford@conservationfund.org).

### **Neches River Users Guide**

The Texas Conservation Alliance is developing a guide to the Neches River that will help paddlers plan multi-day trips along the river. The guide will also help orient river users to the archeology, history and wildlife they can experience while navigating the Neches River. A user's guide will greatly increase the profile of the Neches River among the recreational community as well as make the river more accessible to visitors from outside of the East Texas region. Communities along the Neches River need to be prepared for the increased recreational use and economic opportunity that will be stimulated by the release of the Guide Book, which is expected in the Summer of 2009. For more information on the guide, contact the Texas Conservation Alliance at 512-327-4119.

### **Grow Small Businesses in Outdoor Recreation Sector**

The first step towards growing nature-based tourism in the region is to encourage the creation of small businesses directed at outdoor recreation such as hunting and fishing guide services, canoe and kayak rental shops, horse trail riding guides, and other outfitters. To help entrepreneurs understand the market potential, community leaders could commission a feasibility study or needs assessment of outdoor recreational businesses for Angelina County. The study could document the national, regional and local demand for outdoor recreation business in relation to the outdoor resources that are

available in the county. Loans for starting up outdoor recreational business can be difficult to come by for purchasing items such as canoes or outdoor gear, as this gear is subject to potentially heavy wear and tear. Targeting community loan programs for the outdoor recreation sector would help provide much needed capital to grow these businesses. Finally, research into clarifying liability laws for outdoor recreational sports business may be needed to determine if there are legal barriers that may discourage the growth of business. The Angelina College Small Business Development Center is one potential organization that could assist in moving many of these recommendations forward.

### Carbon Sequestration

Carbon sequestration is the process through which agricultural and forestry practices remove carbon dioxide (CO<sub>2</sub>) from the atmosphere. It is increasingly likely that in the near future the United States will make a concerted effort to reduce its emissions of carbon in an effort to address the issue of climate change. The approach that many U.S. policy makers favor relies on market forces to provide incentives to companies that emit global warming gases, such as carbon dioxide, to buy carbon credits from organizations that are engaged in certified reforestation programs. The Fund manages several properties for their ability to sequester carbon and has sold carbon credits to companies interested in offsetting their emissions. For additional information, contact John Rogers, Carbon Sequestration Program Director, TCF, at 919-967-2223, or by email at [jr\\_tcf@bellsouth.net](mailto:jr_tcf@bellsouth.net).

Small landowners now have the opportunity to earn environmental credits that can be sold on the Chicago Climate Exchange (CCX) by sequestering carbon on their forestlands. To participate, landowners should contact CCX directly or work with an approved

carbon aggregator. An aggregator is a company that pools small forestlands so that the carbon credits can be sold on the open market. There is a multi-step process that landowners will need to go through when working with an aggregator or an associate aggregator. As with any business transaction, landowners need to shop around for the best deal and service available, and fully understand the terms of the contract they will be required to sign. For information on forestry in Angelina County, contact Hughes Simpson, Texas Forest Service at [HSimpson@tfs.tamu.edu](mailto:HSimpson@tfs.tamu.edu), or by phone at 936-639-8180. For information on locating aggregators or associate aggregates, contact Ron Hufford, Texas Forestry Association, at 1-866-TXTREES, or by email at [tfa@texasforestry.org](mailto:tfa@texasforestry.org).

Another approach taken by The Conservation Fund is the Go Zero program that matches funds from individuals and companies that want to offset their carbon footprint with lands that would benefit from reforestation. Many of the reforestation projects are completed in partnership with state or federal conservation agencies. By partnering with a public agency such as the US Fish and Wildlife Service, the long term stewardship of the replanted area is more secure because the additional forest cover provides critical wildlife habitat and funding is saved for the agency partner.

In January of 2008, The Conservation Fund facilitated a tree-replanting project on a 158-acre tract of the Trinity River National Wildlife Refuge in Liberty, Texas. Over 50,000 tree seedlings were planted at a cost of \$250,000 financed by customer and corporate donations from Dell Inc, Travelocity, and NBC Universal. For the Angelina County GI Network, the opportunities to work with public resource agencies may help with the restoration of corridors as well as enhance areas that were once forested through other restoration efforts. For more information on the Go Zero Program, contact Jena Thompson at [jthompson@conservationfund.org](mailto:jthompson@conservationfund.org).



## Community Forest Program

East Texas has a long and proud tradition of being a center for the forest products industry. One of the benefits of a GI Network is to maintain large, intact blocks of forestland that provide wildlife habitat as well as a landscape for forestry practices. Recently, commercial timber companies have been divesting themselves of their land holdings as a financial management strategy. Many communities believe their economic future is uncertain in the wake of repeated sales of large tracts of forest.

A future tool to help communities have stability in their economic future as forest products centers as well as to implement the GI Network is the newly enacted Community Forest Protection Program, which authorizes the United States Department of Agriculture to provide matching funds to help communities and nonprofit organizations purchase private forests that are economically, environmentally and culturally important to the community. The federal government will contribute up to 50 percent of the cost to acquire forestlands. Public access for recreation use must be provided and applicants are encouraged to manage the land as “working forests,” generating economic benefits, providing jobs and economic stability to communities. As this is a new program, and funding has yet to be approved, it is not anticipated to be available until 2010 at the earliest. For more information, contact Julie Shackelford, Director of Programs, Texas Office, TCF, at 936-468-5490, or by email at [julieshackelford@conservationfund.org](mailto:julieshackelford@conservationfund.org).

## Student Support

The implementation of the Angelina County GI Network will require many hours of on-the-ground work. Some of this work can be completed through the use of support groups that provide students for well-defined projects in exchange for work experience and living allowance. For example, the Student Conservation Association (SCA) provides student interns in over 50 disciplines to federal agencies such as USDA Forest Service to work on research projects, wildlife management, environmental education and mapping services. The internship can last from three months to one year. SCA and the host agency provide students with funds to meet basic expenses of food and lodging. For the Angelina County GI Plan, student interns could be involved in building and maintaining trails, restoring stream corridors, researching ownership of abandoned railway corridors, and orienting visitors to the region. For more information about SCA, contact Jase Harris, [agency-help@thesca.org](mailto:agency-help@thesca.org), or by phone at 1-888-722-9675 ex. 215.

# NOTES



Please use this page for any notes you may have about this report.





**The Conservation Fund  
National Office  
1655 N. Fort Myer Drive  
Suite 1300  
Arlington, VA 22209-3199  
Phone: 703.525.6300  
Fax: 703.525.4610**

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