



# **Leveraging Resources with Fish and Wildlife Agencies**

**Environmental Finance Center Network Webinar Series**

**2:00-3:00 pm**

**Wednesday, November 20, 2019**



# Webinar Presenters

- **Brian Bohnsack, Ph.D.**  
Program Manager  
Environmental Finance Center  
Wichita State University  
[Brian.Bohnsack@Wichita.edu](mailto:Brian.Bohnsack@Wichita.edu)



- **Tim Birdsong**  
Chief of Habitat Conservation  
Inland Fisheries Division  
Texas Parks and Wildlife  
[Timothy.Birdsong@tpwd.Texas.gov](mailto:Timothy.Birdsong@tpwd.Texas.gov)



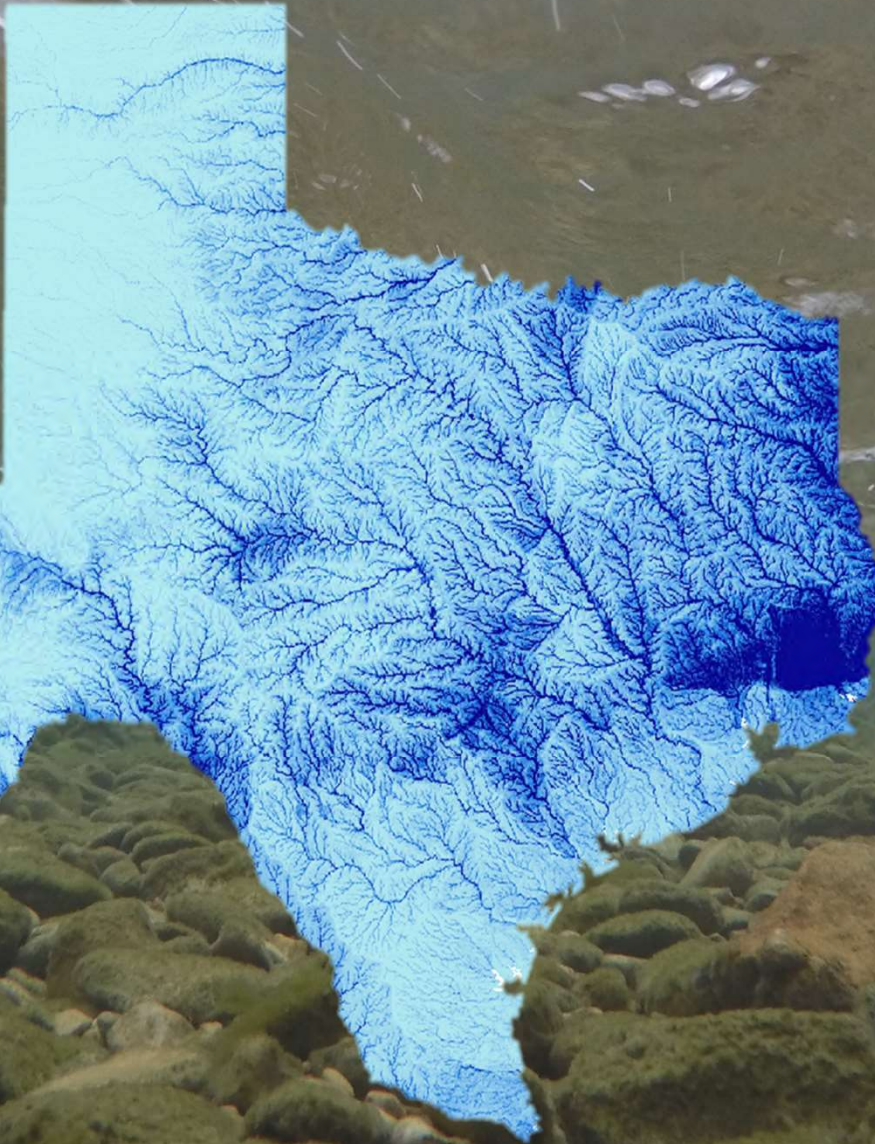


# **Fish and Wildlife Agency Investments in Conservation of Freshwater Resources**

- ❑ **Freshwater resources surveys and monitoring**
- ❑ **Habitat restoration**
- ❑ **Habitat preservation**
- ❑ **Species stocking**
- ❑ **Invasive species management**
- ❑ **Recreational access enhancements**
- ❑ **Conservation education and public outreach**
- ❑ **Ecological and human dimensions research**



# Case Study from Texas



307,752 km of streams  
64,686 km of perennial  
streams



# Freshwater Fish Diversity and Loss

- ▣ **Texas – 191 species**
  - ▣ 5 likely extinct (2.6%)
- ▣ **North America – 1,213 species of freshwater fishes**
  - ▣ 57 extinct (4.7%; 39 species and 18 subspecies)
- ▣ **Globally – 13,661 species of freshwater fishes**
  - ▣ 83 extinct (<1%)



# Freshwater Fish Diversity and Loss

- ▣ Freshwater fishes have the highest extinction rate globally among vertebrates
- ▣ Extinction rate for North American freshwater fishes is 877 times greater than background extinction rate (1 every 3 million years)
- ▣ Since the 1950s, the extinction rate for North American freshwater fishes is ~ 7.5 extinctions per decade
- ▣ Models predict 53-86 additional freshwater fishes will become extinct in North America between 2010 and 2050



# Causes of Freshwater Fish Extinction

- ▣ Physical Habitat Alteration (73%)
- ▣ Introduction of Non-Native Species (68%)
- ▣ Water Quality Degradation (38%)
- ▣ Hybridization (38%)
- ▣ Overharvest (15%)

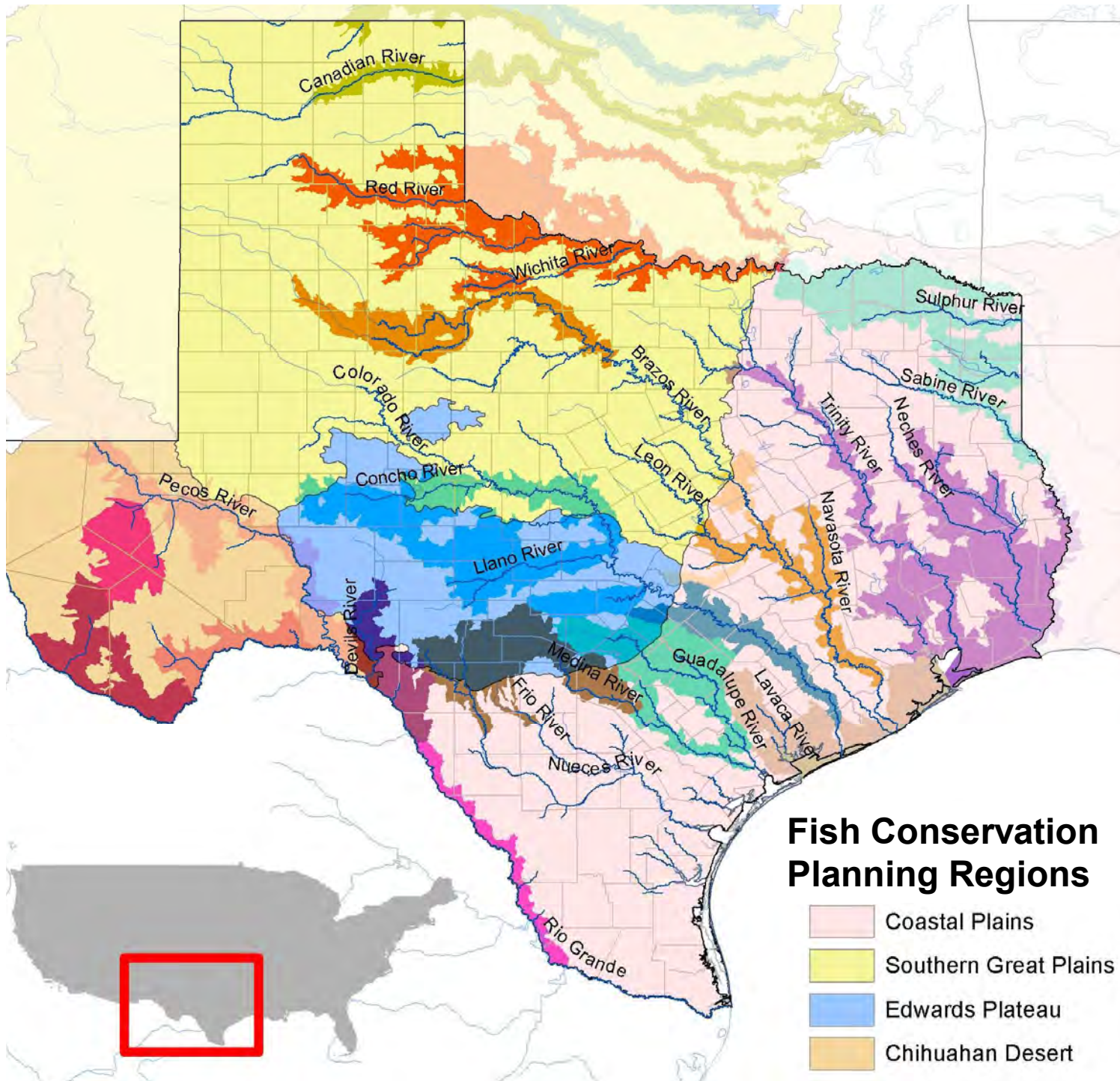




# Conservation Goals and Strategies

- Wild, naturally-produced, self-sustaining populations
- Functional watersheds
  - Natural land cover
  - Intact riparian buffers
  - Natural river flow patterns
  - Instream connectivity
- Local stewardship
- Sustained conservation investments





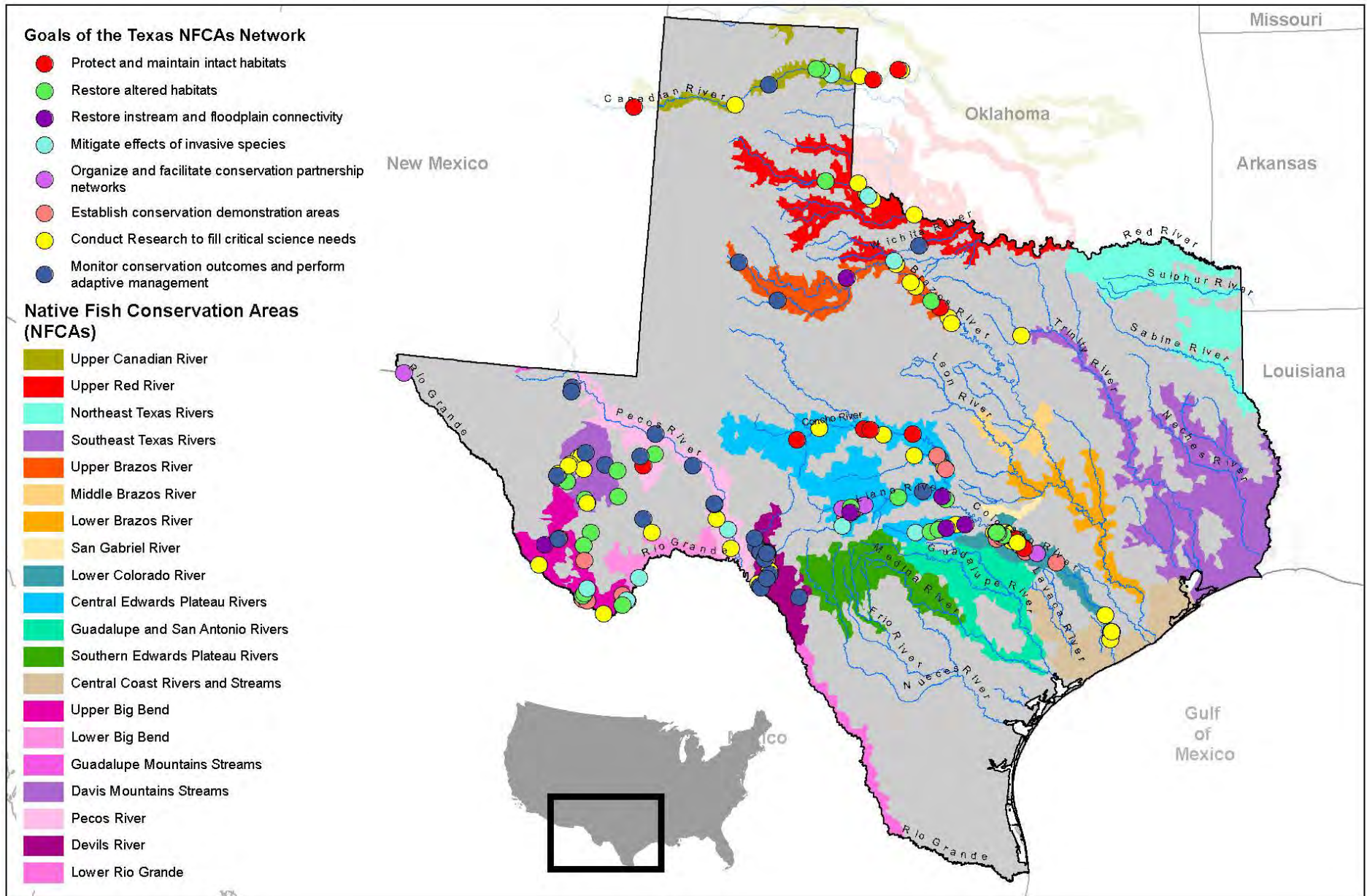
## Fish Conservation Planning Regions

- Coastal Plains
- Southern Great Plains
- Edwards Plateau
- Chihuahuan Desert





# Priority Conservation Projects





# TEXAS FARM AND RANCH LANDS CONSERVATION PROGRAM

Protecting working lands from fragmentation and development.



The Texas Farm and Ranch Lands Conservation Program (TFRLCP) complements Texas Parks and Wildlife Department's (TPWD's) mission to conserve natural resources by protecting working lands from fragmentation and development. TFRLCP maintains and enhances the ecological and agricultural productivity of these lands through Agricultural Conservation Easements.

**The TFRLCP supports responsible stewardship and conservation of working lands, water, fish and wildlife, and agricultural production through:**

- Generating interest and awareness in easement programs and other options for conserving working lands.
- Leveraging available monies to fund as many high-quality projects as possible.
- Highlighting the ecological and economic value of working lands and the opportunities to conserve working lands for the future.





**Since 2016, 13 conservation easements  
totaling 26,102 acres**





# Landowner Incentive Program (LIP)

## Prospective LIP Landowners

[Find a Biologist](#)

[LIP Pre-proposal Template](#) | PDF

[Landowner Request for Technical Guidance](#) | PDF

[LIP Program Brochure](#) | PDF

## Current LIP Landowners

[Volunteer Log](#) | Word

[LIP Invoice Form](#) | Excel

## Contact/Questions

[Arlene Kalmbach](#) (512) 924-6987

TPWD LIP Coordinator



## Getting Started

- ✓ [How do I get involved with the Landowner Incentive Program?](#)
- ✓ [What are some criteria for applying?](#)
- ✓ [How will proposals be selected?](#)
- ✓ [What type of project is eligible for funding?](#)
- ✓ [What are the funding limitations?](#)

## The Texas LIP currently offers the following funding options:

### The LIP Partners Watershed Funding Series

The [LIP Partners Watershed Funding Series](#) is designed to meet the needs of private, non-federal landowners wishing to enact good conservation practices on their lands. This allocation of LIP funding is made possible through a cooperative agreement with the USFWS Partners for Fish and Wildlife Program. All projects approved for funding are thereby subject to the terms and conditions of that Program

### LIP Conserving Texas Rivers Funding Series

The [LIP Conserving Texas Rivers Funding Series](#) is dedicated to conservation actions that positively impact the Llano, Pedernales & Blanco Watersheds.

Property does not have to include a riparian area to be considered. Many forms of conservation land stewardship will qualify, including upland habitat enhancements.



[View the Summer 2014 L.I.P. Bulletin](#)

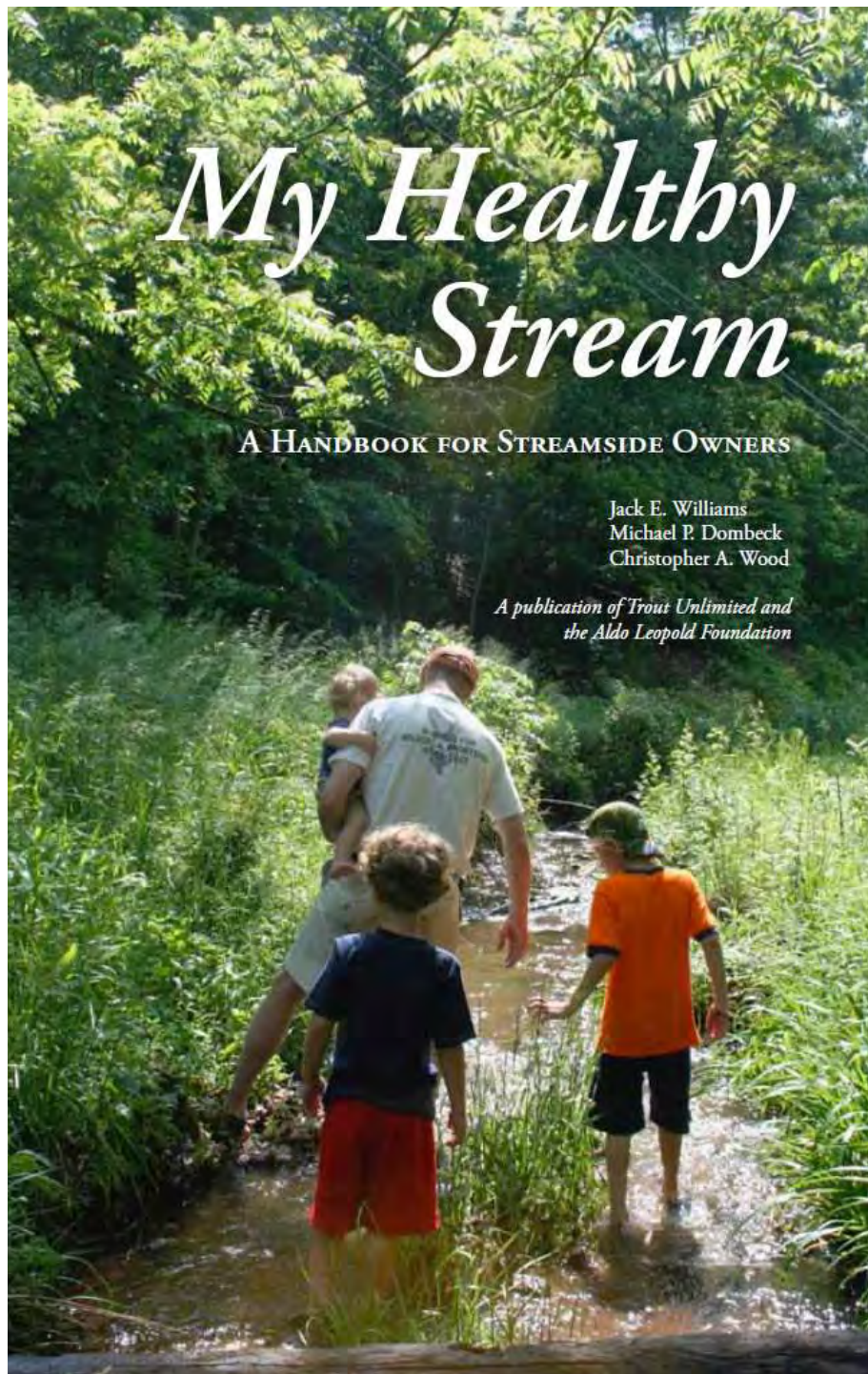


# My Healthy Stream

A HANDBOOK FOR STREAMSIDE OWNERS

Jack E. Williams  
Michael P. Dombeck  
Christopher A. Wood

*A publication of Trout Unlimited and  
the Aldo Leopold Foundation*



## Stream Management Plan

**STREAM NAME:** Trout Creek.

**VISION:** We want a beautiful and healthy creek that wildlife and our family can enjoy. It will be clean and support lots of fish and birds. We hope our grandchildren will play in it when they visit.



Don Daurville

**PRIMARY GOALS (5-10 YEAR):**

1. Grow large trees to shade the creek.
2. Provide a place for the kids to fish
3. Reduce sediment from upstream properties

| Activity/<br>Project                              | Priority                      | Responsible<br>Party      | Equipment/<br>Materials   | Timeline                         |
|---|-------------------------------|---------------------------|---|----------------------------------|
| Map stream habitat                                | High                          | Tamarin family/<br>Heath  | Tape measure, yard<br>stick, flagging, data<br>sheet, camera      | Once in late<br>summer           |
| Monitor riparian<br>plant growth and<br>diversity | High                          | John and Ashley           | Riparian plant<br>guide, log book,<br>camera                      | Annually in<br>late summer       |
| Remove purple<br>loosestrife from<br>along stream | High<br>(before<br>flowering) | John and<br>Ashley/Trevor | Shovel, gloves  | May 2013                         |
| Move fallen pines<br>into stream                  | Medium                        | Tree removal<br>service   | Backhoe   | June 2013<br>(before<br>fencing) |
| Repair fencing along<br>west side                 | Medium                        | Tamarin family/<br>Heath  | Smooth wire, fence<br>tool, 4 T-posts                             | July 2013                        |
| Plant cottonwoods<br>and alders                   | Medium                        | John/Ashley/<br>neighbors | Stock from native<br>nursery source                               | October 2013<br>(after rains)    |
| Take willow cuttings<br>to root out               | Low                           | Trevor/Susan              | Clippers, 30 1-gal<br>containers, potting<br>soil, root stimulant | April-May<br>2014                |
| Install birdhouses                                | Medium                        | John/Heath                | Ladder  | Sept. 2014                       |







# Conservation Demonstration





A photograph of a river with a series of small waterfalls cascading over mossy rocks. The water is a clear, light blue-green color. The surrounding landscape is lush with green trees and vegetation under a clear blue sky.

## Llano River

- ▣ 7,754 acres of spring and riparian habitats restored
- ▣ > 25 miles of riparian corridor restored or preserved



# Pedernales River

**Conservation BMPs on 16  
ranches (9,032 acres) and  
restoration of 993 acres**





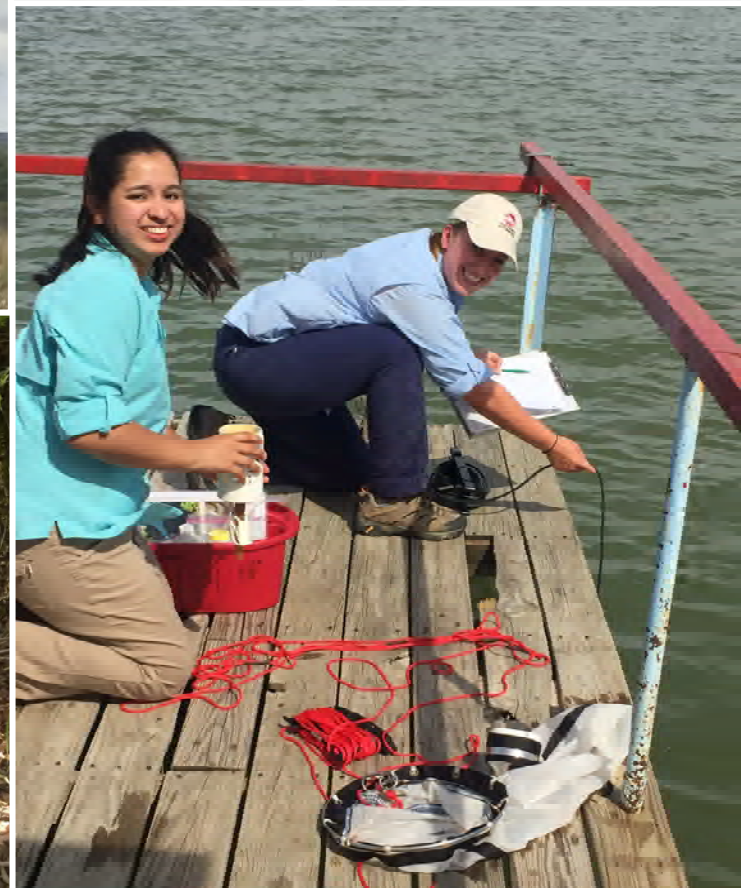
# Aquatic Invasive Species Management













# **Aquatic Invasive Species Management**

## **Fall 2017 – Winter 2019**

- ▣ **>60 rivers and lakes managed to control AIS infestations**
- ▣ **>380 miles of riparian restoration (460+ landowners)**
- ▣ **>10,000 acres treated at Caddo Lake**
- ▣ **>4,000 acres treated at Toledo Bend**
- ▣ **>20,000 acres of giant salvinia treated**
- ▣ **>400,000 giant salvinia weevils stocked**
- ▣ **Rapid response to new AIS introductions**



# **Aquatic Invasive Species Management**

## **Fall 2017 – Winter 2019**

- ▣ **179M impressions through the “Protect the Lakes You Love” campaign**
- ▣ **575,000 boaters received “Clean, Drain, Dry” AIS prevention materials**
- ▣ **>80 marinas received outreach on prevention strategies**
- ▣ **>2000 boat inspections**
- ▣ **64 high-risk lakes monitored for early detection of zebra mussels**
- ▣ **Exotic species permits (>200 annually)**



# **Freshwater Resources Conservation**

## **2013-2018 Outcomes**

- ▣ **\$1.2M in TPWD funds leveraged against \$4.5M in project funds and \$11M in partner matching funds**
- ▣ **61 river conservation workshops with engagement of > 2,000 landowners**
- ▣ **123,000 acres committed to watershed conservation**
- ▣ **28,102 acres under conservation easements**
- ▣ **> 9,677 acres of habitats restored, including 50 springs and spring complexes**
- ▣ **2 dams and 1 low water crossing removed**
- ▣ **2 bridges redesigned and 1 replaced**



# Trends and Motivations in Paddlesports

- 21.7M Americans participated in paddlesports in 2014
  - >50% reference desire to experience nature as motivating factor
  - 35% were freshwater anglers







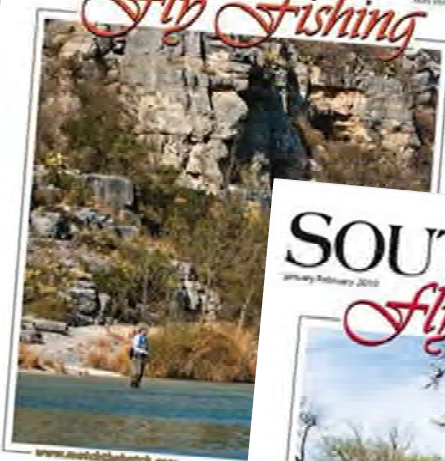




# SOUTHWEST

September/October 2009

## Fly Fishing



www.matchthehatch.com

Mission Beach  
Orilla Verde R.  
Green River, V

# SOUTHWEST

January/February 2010

## Fly Fishing



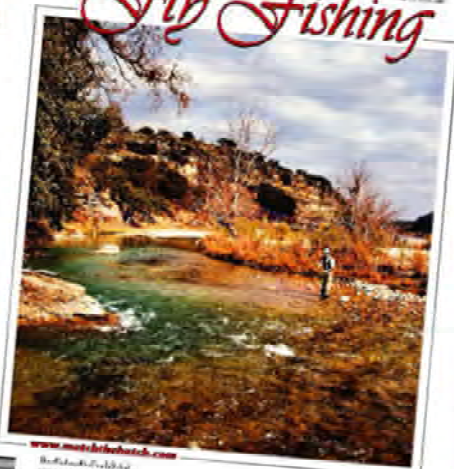
www.matchthehatch.com

San Marcos River, TX • 28 • Horn  
Bishop Creek Drainage, CA • 22 •  
Gila Wilderness Area, NM/AZ • 1

# SOUTHWEST

March/April 2010

## Fly Fishing



www.matchthehatch.com

Subscription Information

Subscription Information

Subscription Information

Subscription Information

Subscription Information

Subscription Information

Subscription Information

Subscription Information

Subscription Information

Subscription Information

U.S. Highway 395, CA/NV • 28  
San Juan Mountains, CO • 12  
Llano River, TX • 14  
Ogish River and  
Wild Horse Reservoir, NV • 44









**Guadalupe River  
Canyon Reservoir Tailrace**

**\$84.2 million in annual economic  
value**









## Texas Hill Country River Fishing

**\$71.6 million in economic value over  
16 months**





## Colorado Bend White Bass Fishery

**\$2.8 million economic value  
seasonally (March-May)**





- 
- 5% of Texas landscape in public ownership
  - Top concerns of Texas paddlers
    - 1) Inadequate river flows
    - 2) Lack of quality river access





## Survey of Hill Country River Anglers

- 53% used kayaks, canoes, or float tubes
- 59% used wade fishing
- 74% identified river access as a priority
- 94% identified water quality and fish habitat improvements as a priority

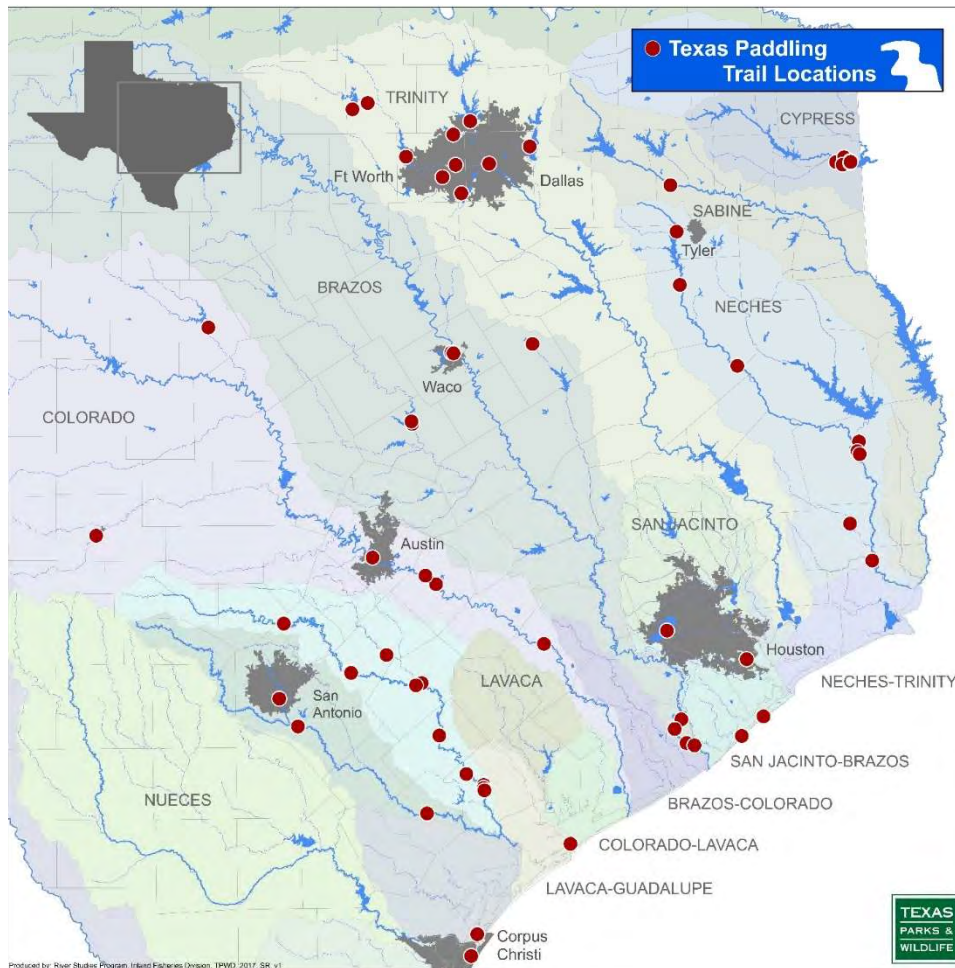


# Texas Paddling Trails Network

**93 access areas**

**54 trails**

**623 river km**



With over 70 designated trails, it's easier than ever to go paddling! Each trail has a map and photos, directions to access sites, rental info, fishing and wildlife, and more!

[www.tpwd.texas.gov/paddling](http://www.tpwd.texas.gov/paddling)



# Public-Private Access Agreements

- 1) Access to quality river fishing and paddling experiences
- 2) Natural setting and unique wilderness experience
- 3) Strategically positioned
- 4) Limited existing public river access
- 5) Local cooperators
- 6) Near an urban center
- 7) Access amenities
- 8) Local services







● Leased Access Sites

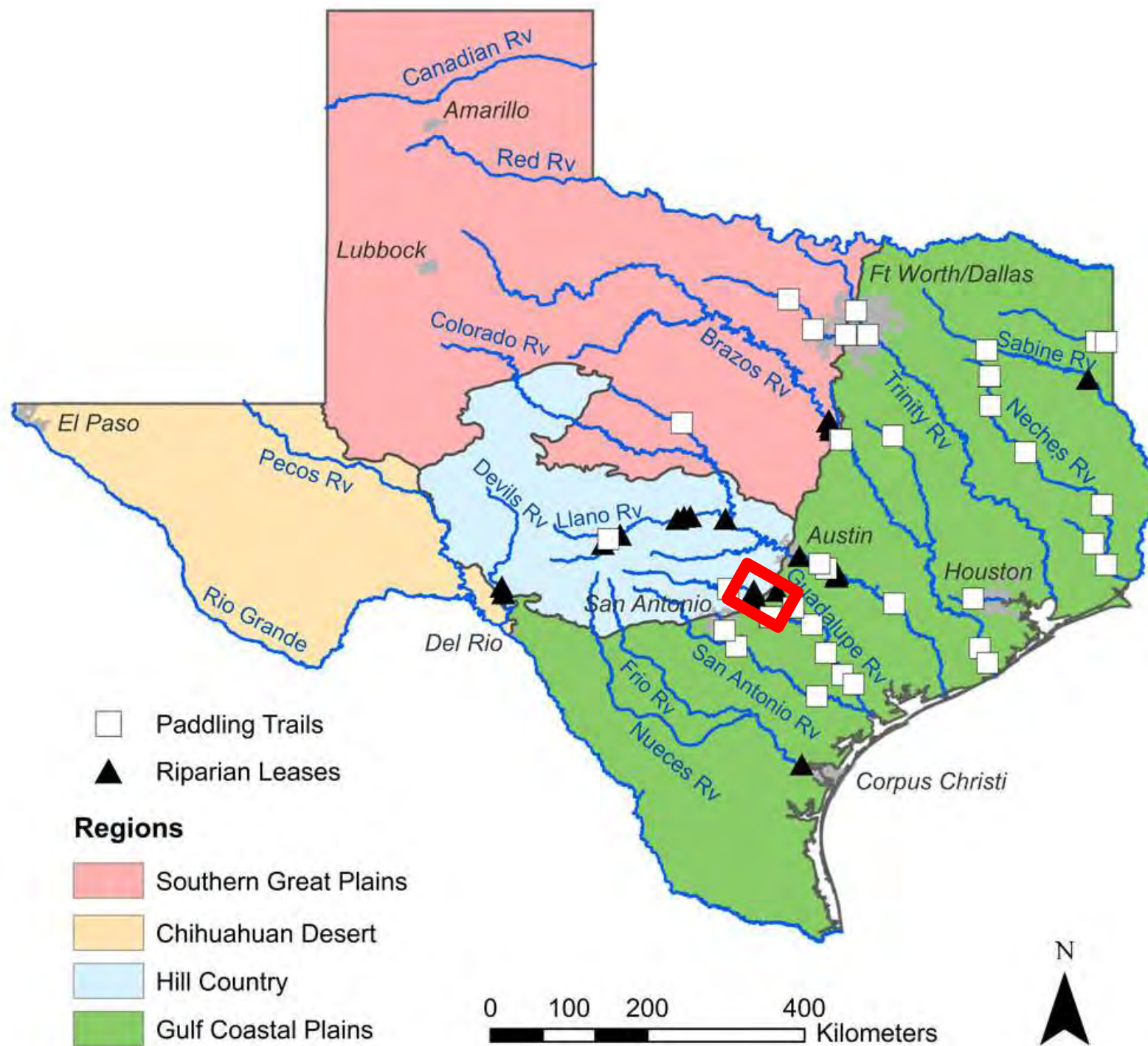
■ Paddling Trails



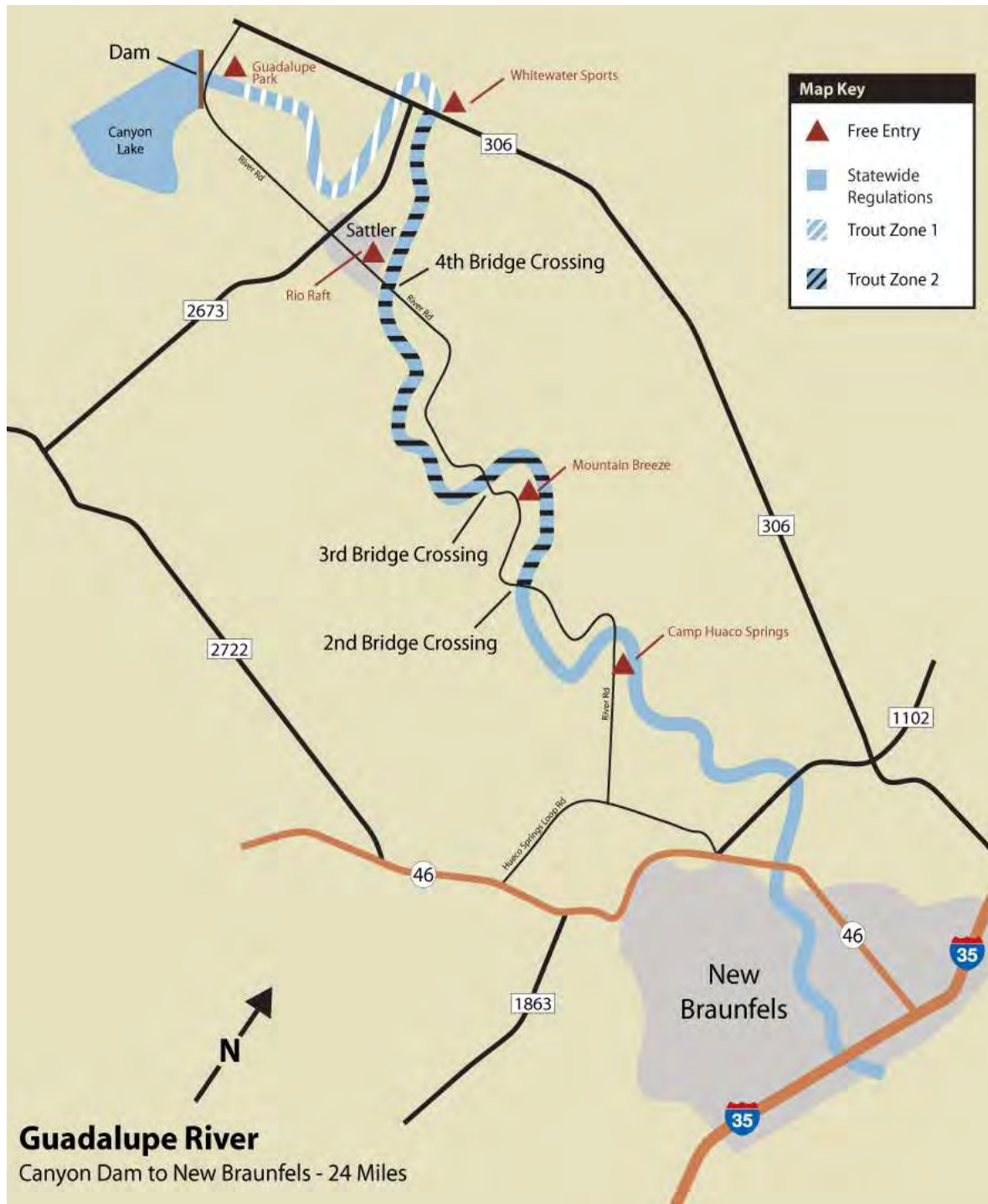
**24 access  
areas  
340 river km**





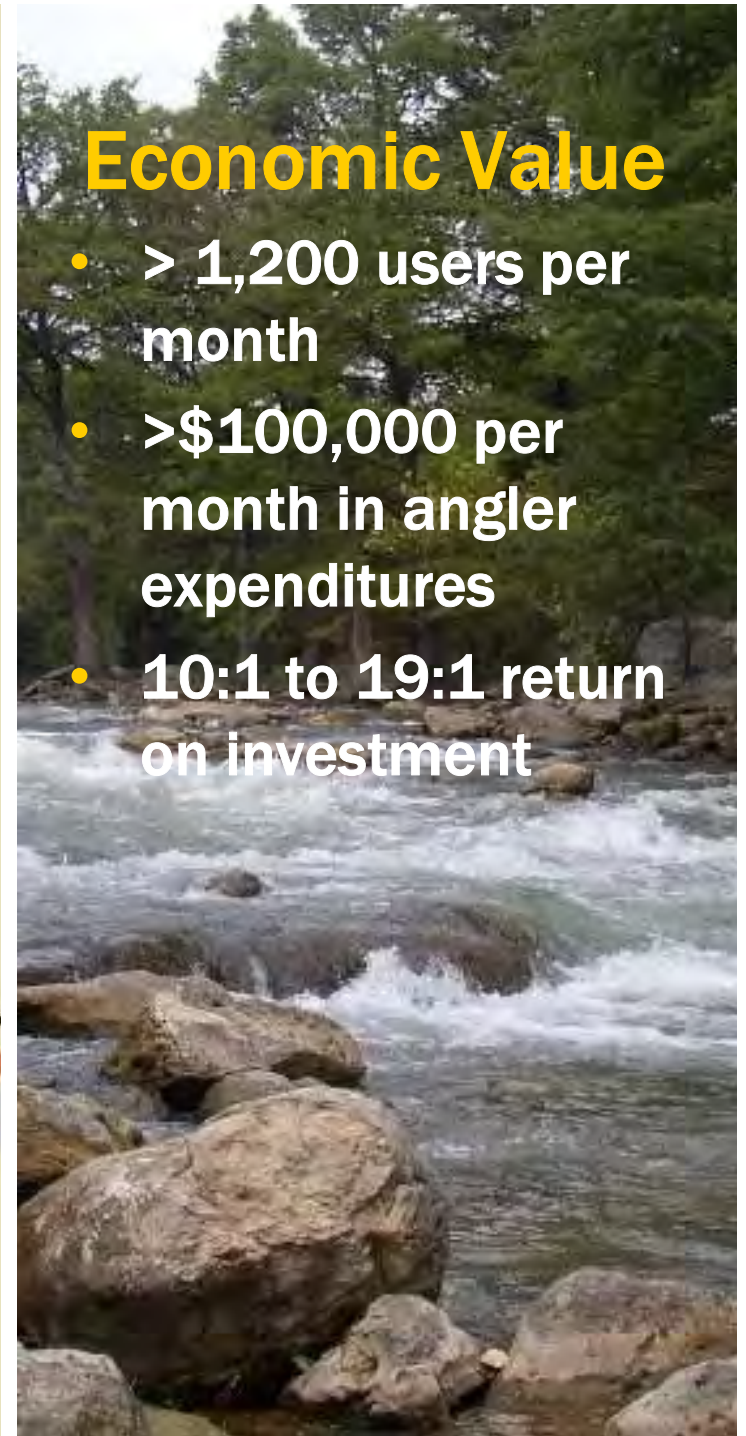




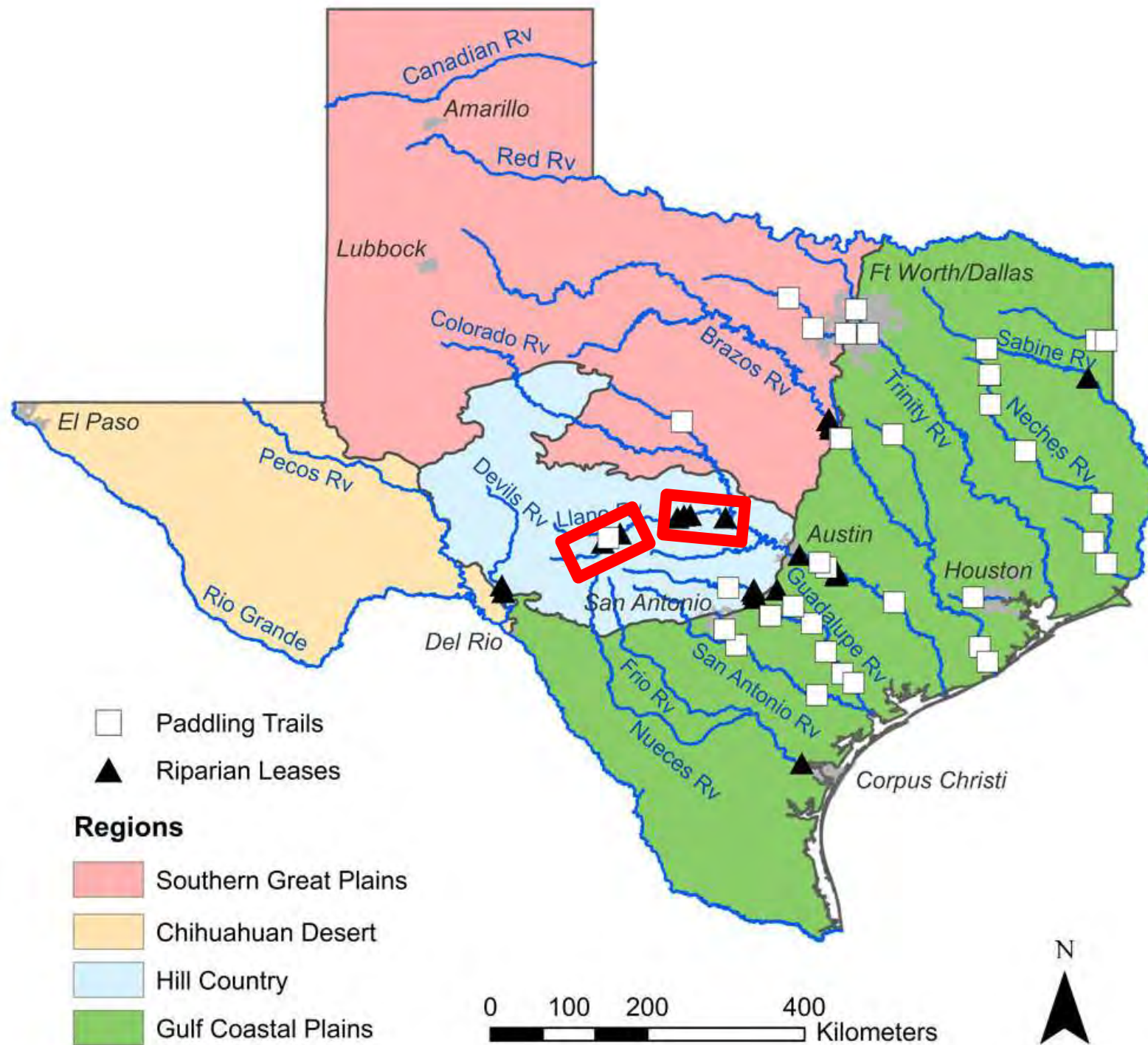


## Economic Value

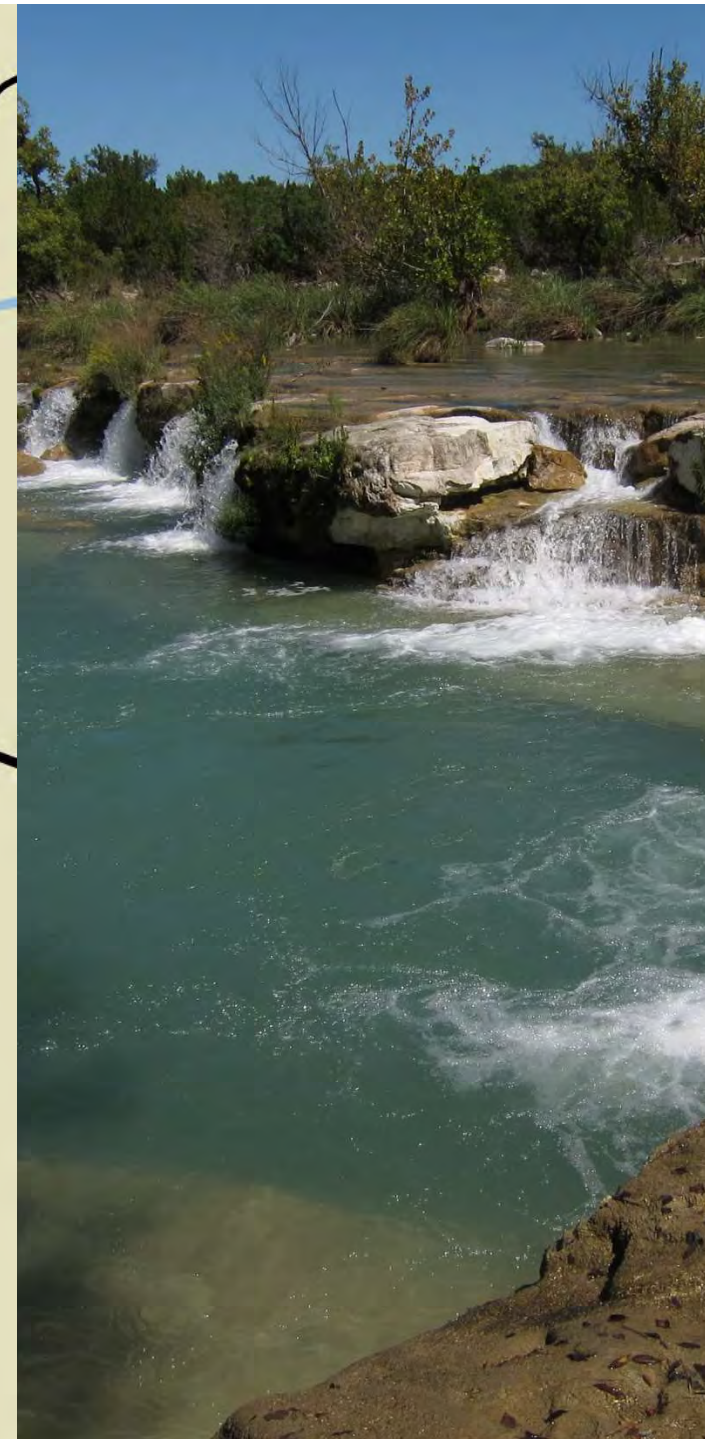
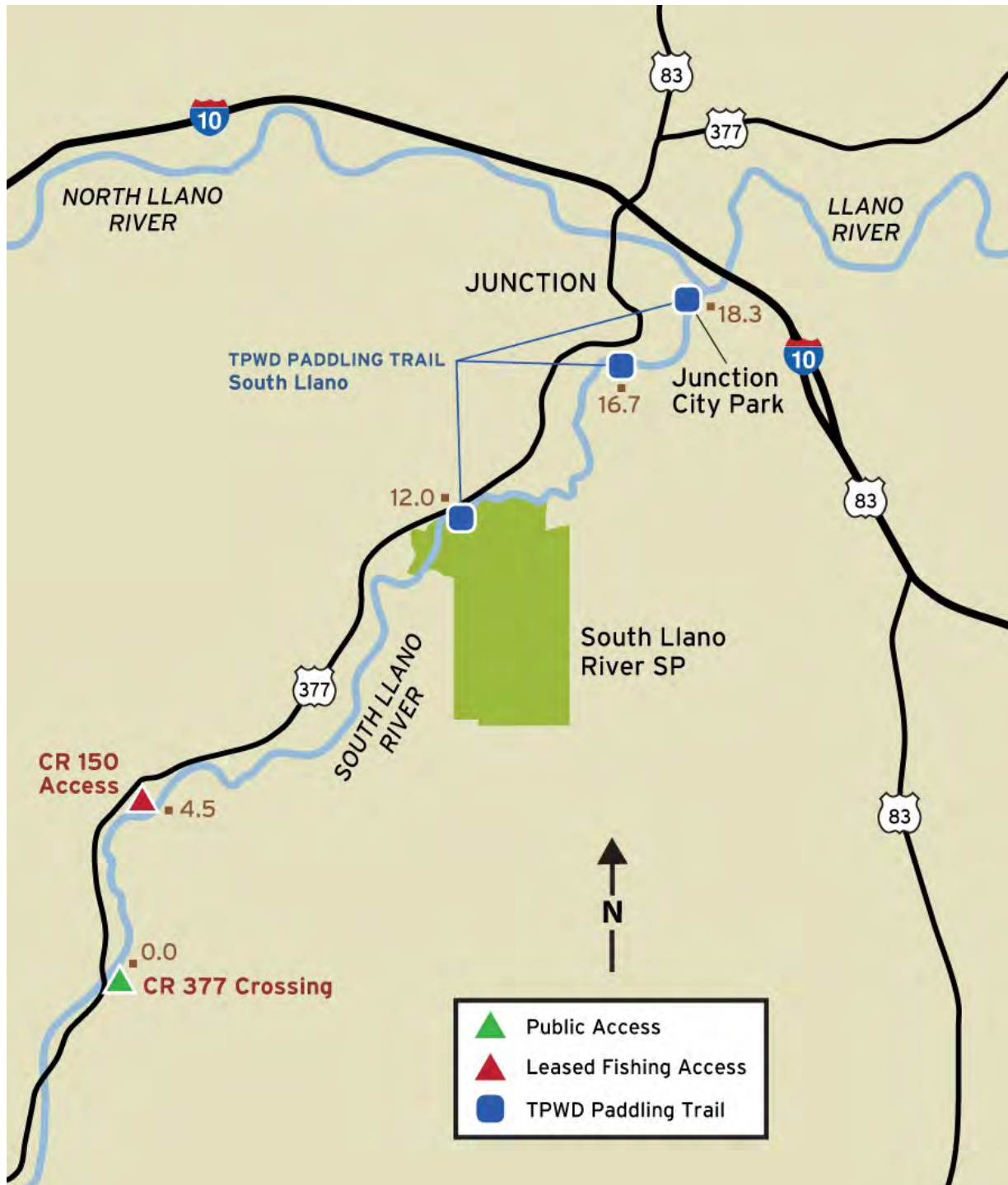
- > 1,200 users per month
- >\$100,000 per month in angler expenditures
- 10:1 to 19:1 return on investment

















# Conserving Texas Rivers: A Public-Private Partnership



TEXAS PARKS &  
WILDLIFE FOUNDATION















Questions?

