Native Fish Conservation Areas: A Vision for Watershed-Scale Conservation of Native Fish Communities
TEXAS
PARKS &
WILDLIFE

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The Texas Hill Country is a magical place to fish. We are blessed with hundreds of miles of prestine waters, from the smallest gin clear creeks to magnificent rivers, home to the native guadalupe bass and the nation's southern most trout fishery. Jeff Davis began canoeing, kyaking and fishing the enchanting San Marcos, Guadalupe, Blanco and Llano rivers in the early 1980's. He has now spent most of his adult life exploring and fishing these waters. A guided trip down these rivers offers the rewards of a mostly undiscovered fishery. Come fly fishing in the scenic Texas Hill Country, and discover its natural wonders.

COME FISH THE HILL COUNTRY

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WIMBERLEY, TEXAS

Focus on Small Waters

By MIKE PEHANICH
Senior Writer

Do you find you're spending less time on the water these days because of the family budget, crowded ramps and less free time? Beat the bassin' blues – and stoke the fire in newcomers for fishing – by targeting small waters near home

YES, TIMES ARE tough. Budget-stretched fishermen complain they can't afford to haul their bass boats to their favorite fishing holes quite as often as they did during those halcyon days of yore.

Alas, they could be fishing more and complaining less — while still holding to the family budget — by turning attention to small local waters they may have passed hundreds of times before with only a passing thought to bass fishing.

THE CASE FOR SMALL WATERS

Small waters have bred more anglers than all the millions of acres of America's sprawling reservoirs combined. (Continued)

audio
Bonus content at bassmaster.com/mag

SOUTHWEST
September/October 2009
Fly Fishing
$4.95 US/CAN
www.matchthehatch.com
Mission Bea
Orilla Verde
Green River
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January/February 2010
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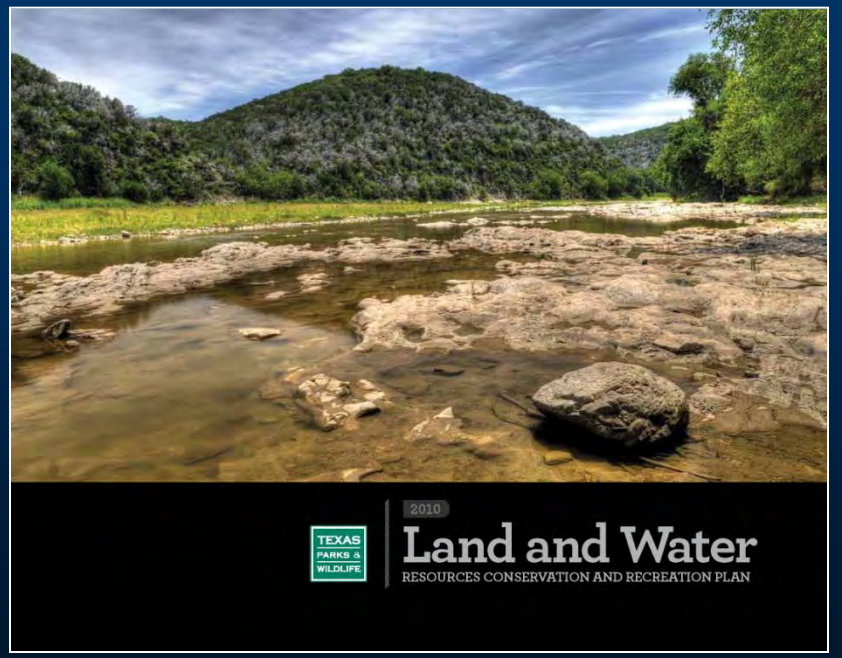
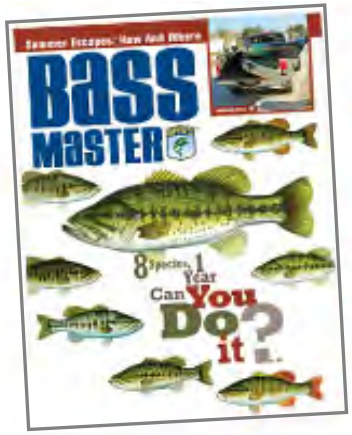
$4.95 US/CAN
www.matchthehatch.com
San Marcos River, TX 28 • Homestake Creek, CO 40
Bishop Creek Drainage, CA 22 • DC's Pikesicle 54
Gila Wilderness Area, NM/AZ 34

Processes that Support Naturally Functioning Habitats and Ecosystems

- Healthy watersheds
- Functional riparian zones
- Natural fluvial processes
- Natural flow regimes
- Physical connectivity
- Intact food webs





BASSMASTER

July/August 2009

BASS Slam

The Angler's Ultimate Challenge

By JAMES HALL
Editor

NORTHERN LARGEMOUTH
(*Micropterus salmoides*)
Location: Widely distributed, other than central and south Florida
Length requirement: 14 inches

FLORIDA LARGEMOUTH
(*Micropterus salmoides floridanus*)
Location: Central and south Florida
Length requirement: 16 inches

SMALLMOUTH
(*Micropterus dolomieu*)
Location: Widely distributed
Length requirement: 12 inches

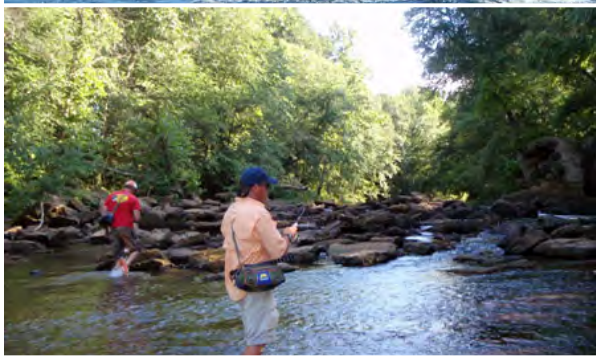
SPOTTED (*Micropterus punctulatus*)
Location: Widely distributed
Length requirement: 12 inches

SHOAL (*Micropterus cataractae*)
Location: Florida, Georgia
Length requirement: 12 inches

REDEYE (*Micropterus coosae*)
Location: Alabama, Georgia, Tennessee
Length requirement: 12 inches

GUADALUPE (*Micropterus treculii*)
Location: Texas
Length requirement: 10 inches

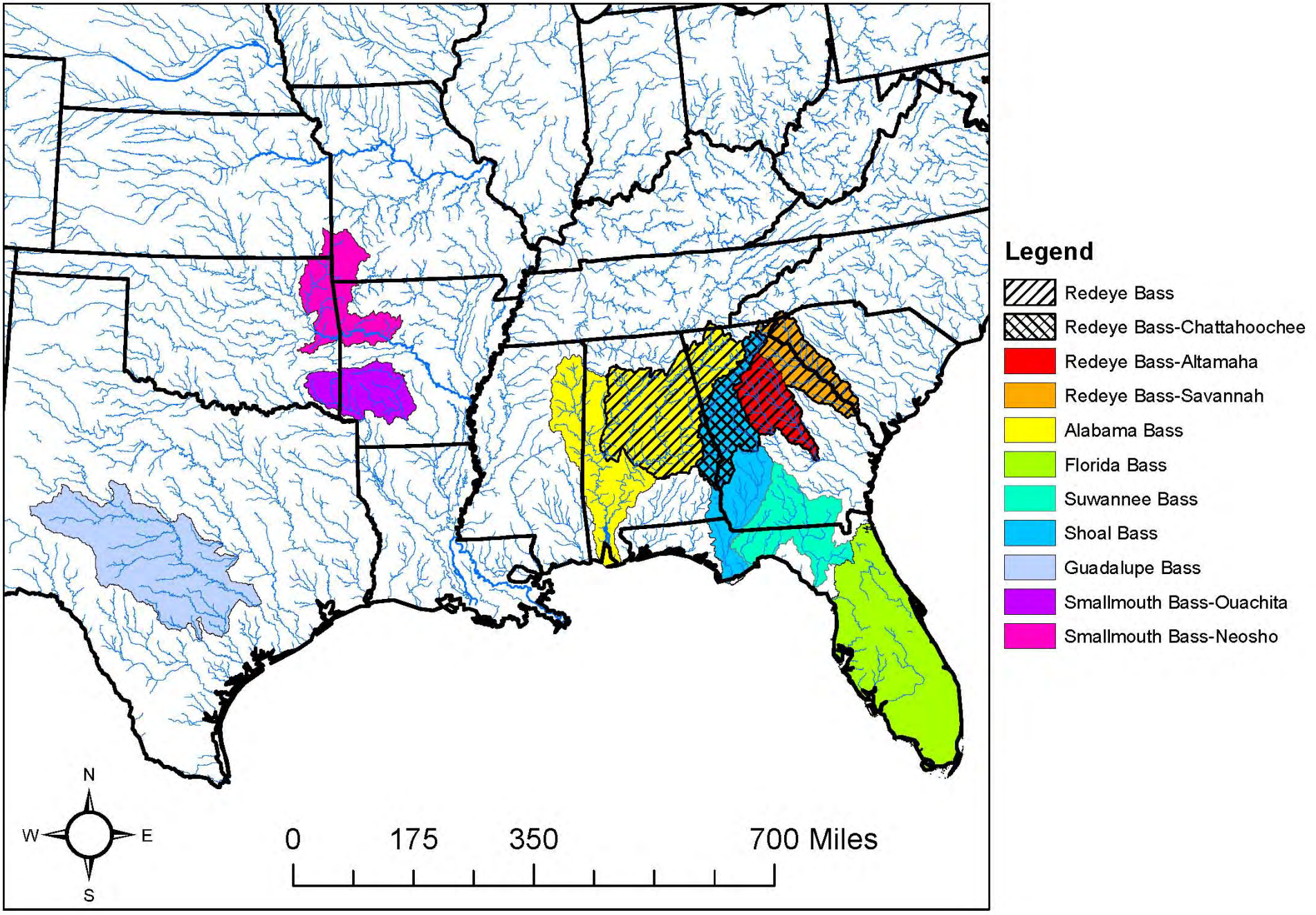
SUWANEE (*Micropterus notius*)
Location: Suwannee and Ochlockonee river systems of Florida and Georgia, spring-fed lower reaches of the Santa Fe and Ichetucknee rivers, tributaries of the Suwannee River and the St. Marks and Aucilla/Wacissa systems
Length requirement: 10 inches

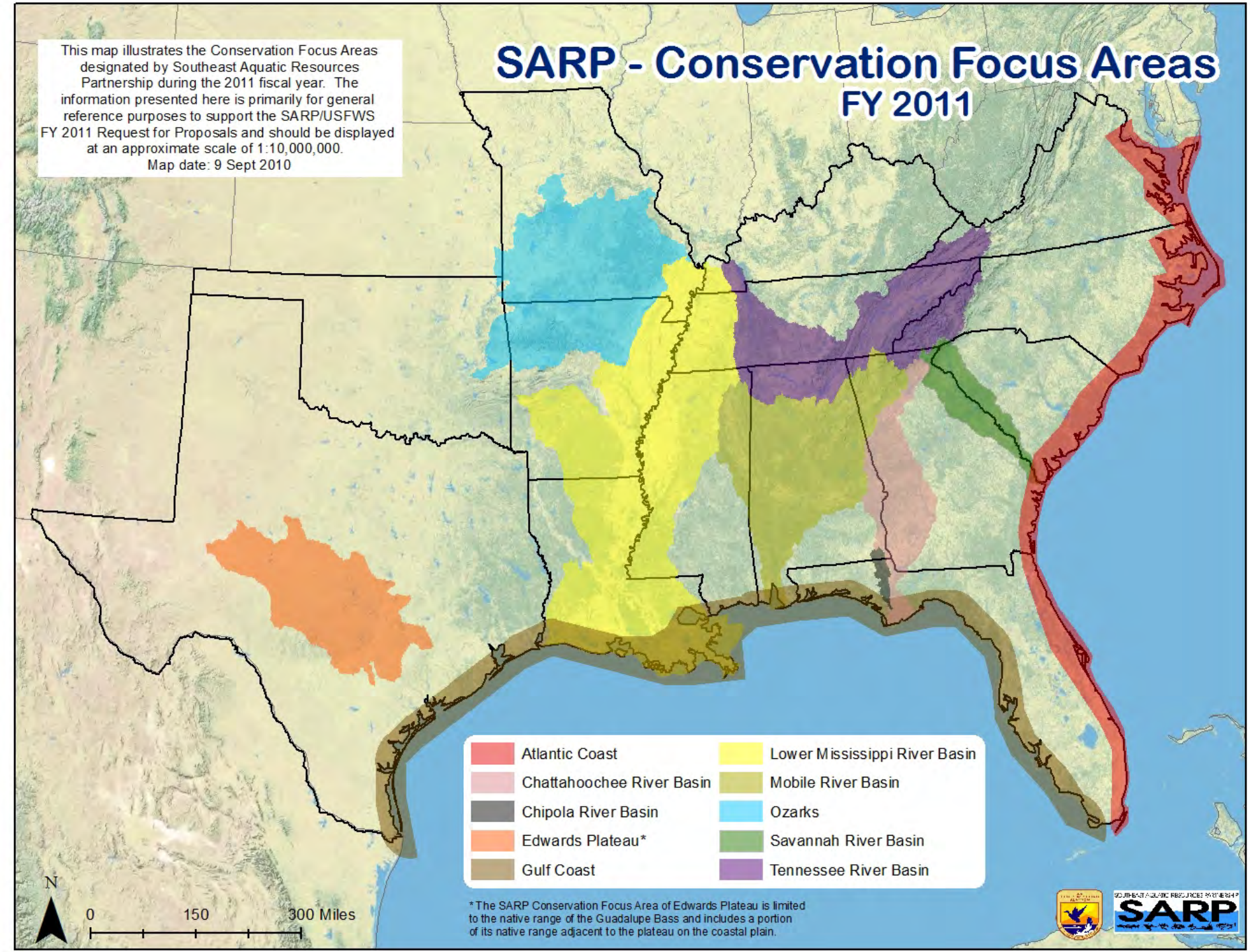


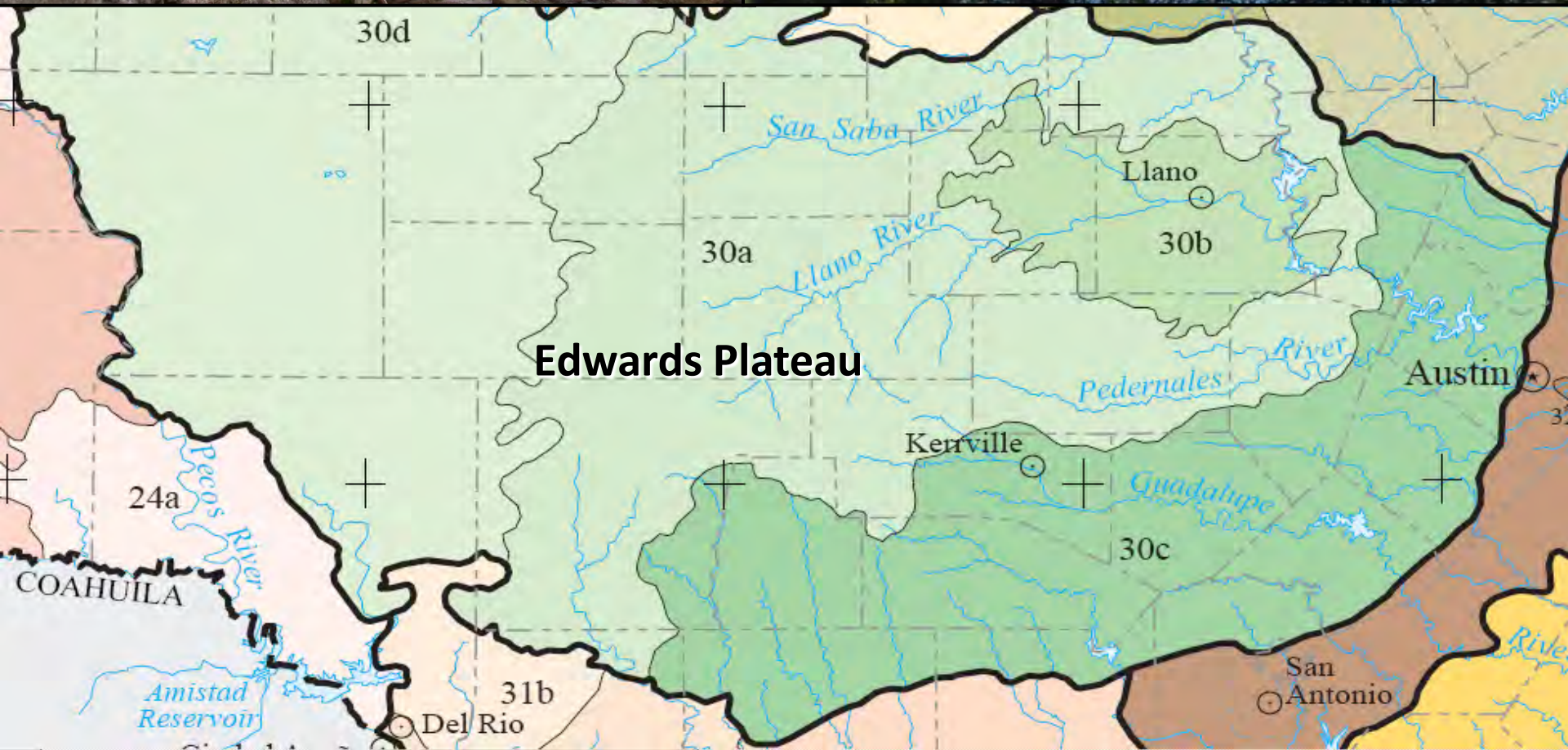
A Business Plan for the Conservation of Native Black Bass Species in the Southeastern US:

A Ten Year Plan

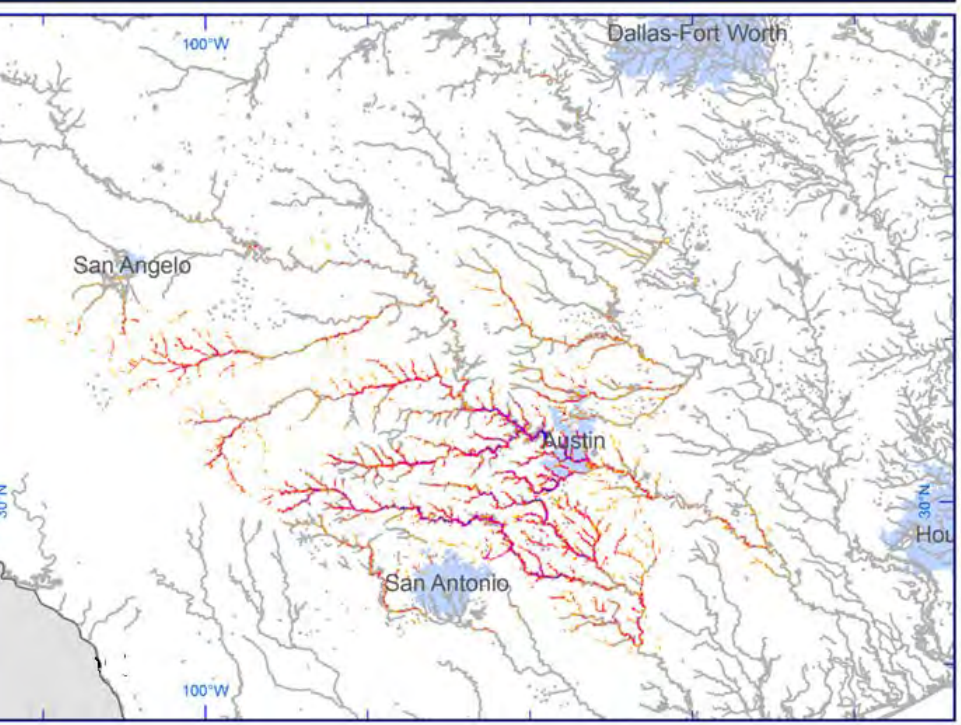
February 2010


Legend
Redeye Bass
Redeye Bass-Chattahoochee
Redeye Bass-Altamaha
Redeye Bass-Savannah
Alabama Bass
Florida Bass
Suwannee Bass
Shoal Bass
Guadalupe Bass
Smallmouth Bass-Ouachita
Smallmouth Bass-Neosho
N
W
E
S
0
175
350
700 Miles

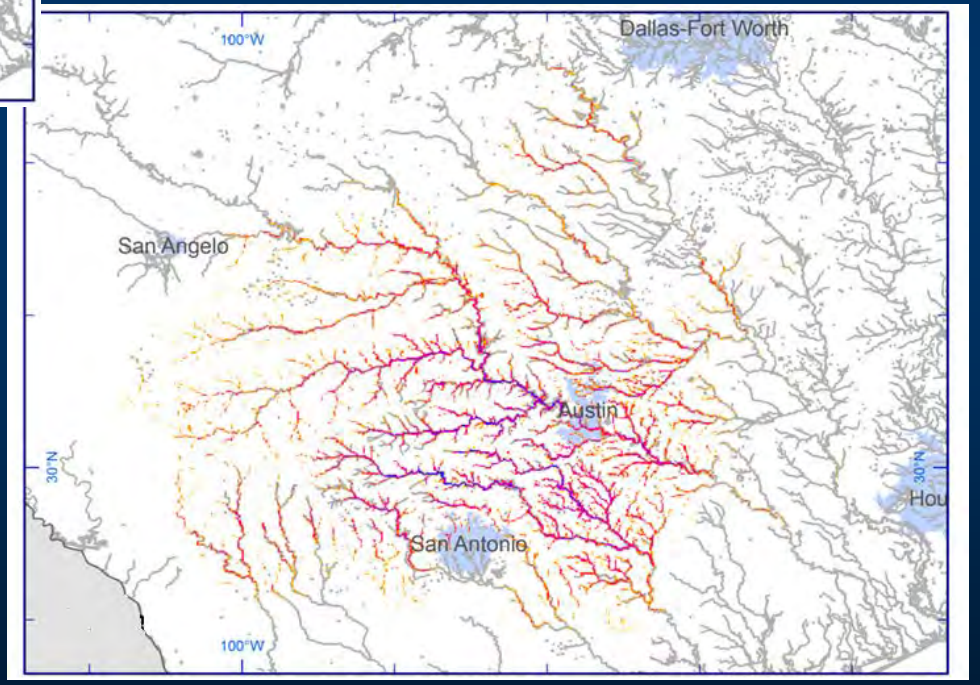

This map illustrates the Conservation Focus Areas designated by Southeast Aquatic Resources Partnership during the 2011 fiscal year. The information presented here is primarily for general reference purposes to support the SARP/USFWS FY 2011 Request for Proposals and should be displayed at an approximate scale of 1:10,000,000.
Map date: 9 Sept 2010
SARP - Conservation Focus Areas
FY 2011
Atlantic Coast
Chattahoochee River Basin
Chipola River Basin
Edwards Plateau*
Gulf Coast
Lower Mississippi River Basin
Mobile River Basin
Ozarks
Savannah River Basin
Tennessee River Basin
N
0
150
300 Miles
*The SARP Conservation Focus Area of Edwards Plateau is limited to the native range of the Guadalupe Bass and includes a portion of its native range adjacent to the plateau on the coastal plain.
SARP


30d
San Saba River
Llano
30a
Llano River
30b
Edwards Plateau
Pedernales River
Austin
Kerrville
Pecos River
24a
Guadalupe
30c
COAHUILA
Amistad Reservoir
31b
Del Rio
San Antonio

Guadalupe bass

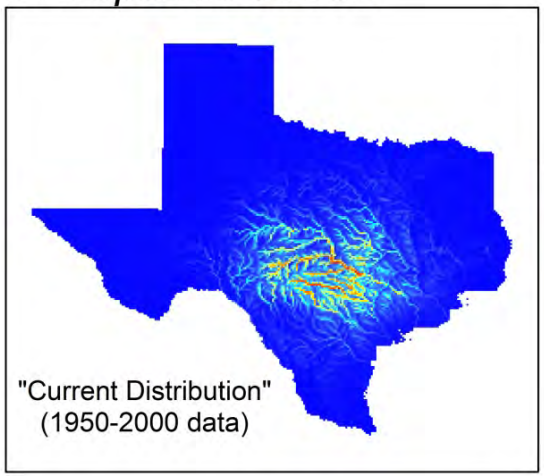


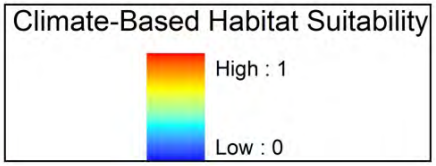
Realized Distribution



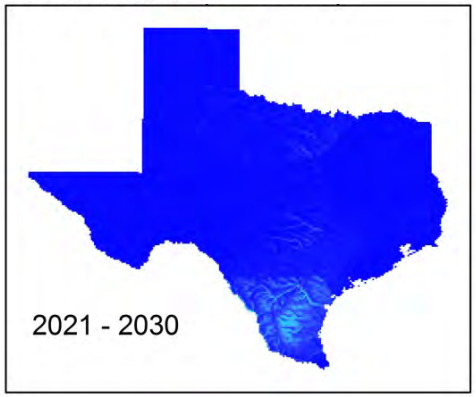
Potential Distribution

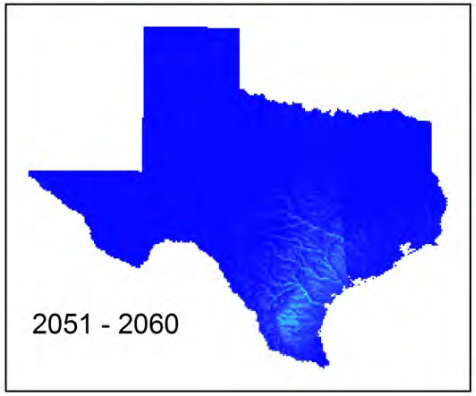
Micropterus treculii



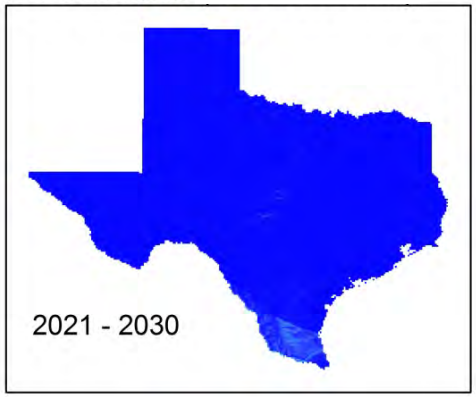


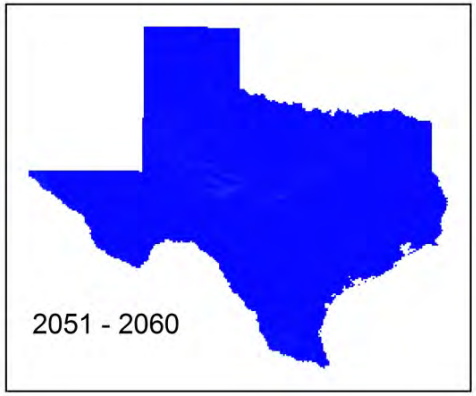
A2 scenario



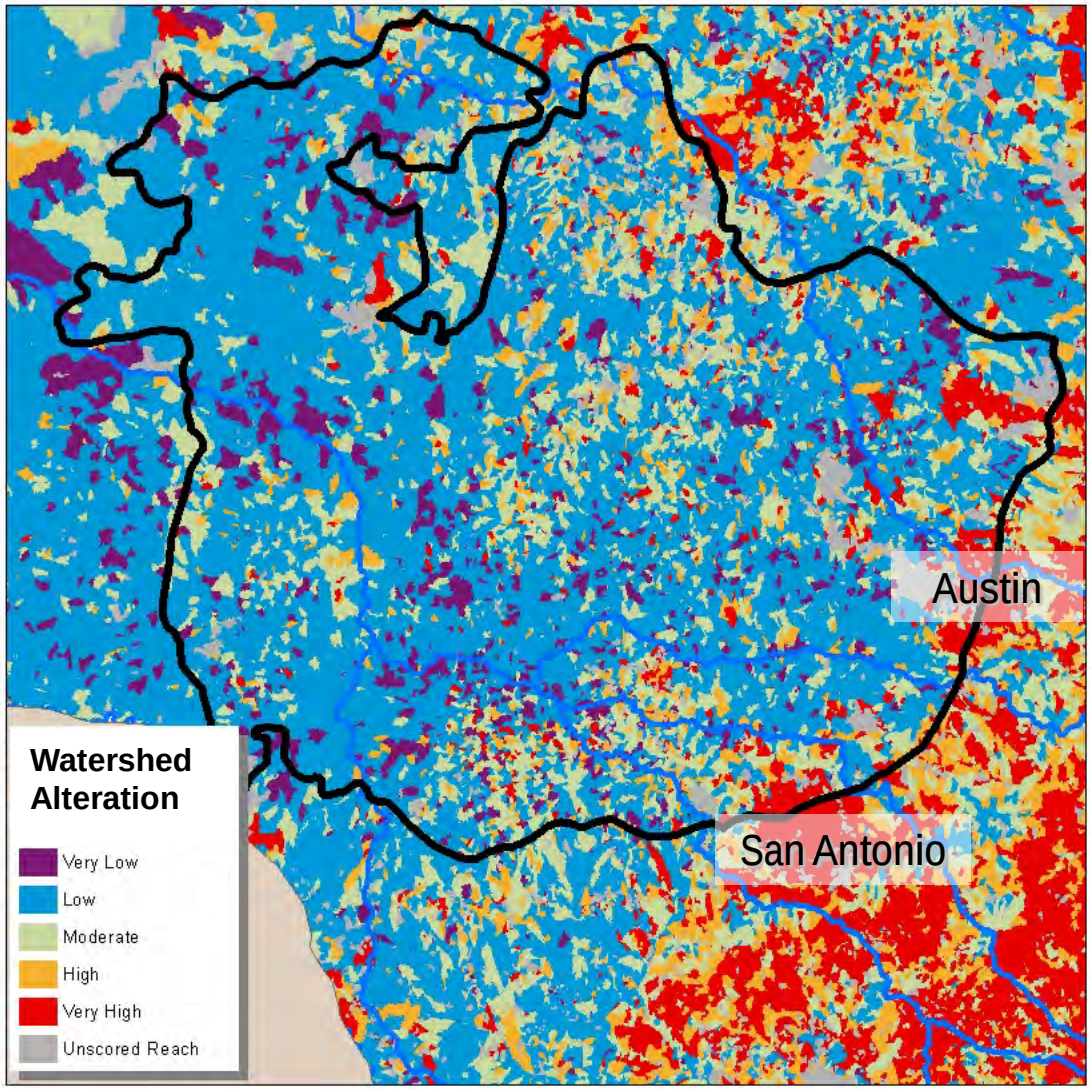


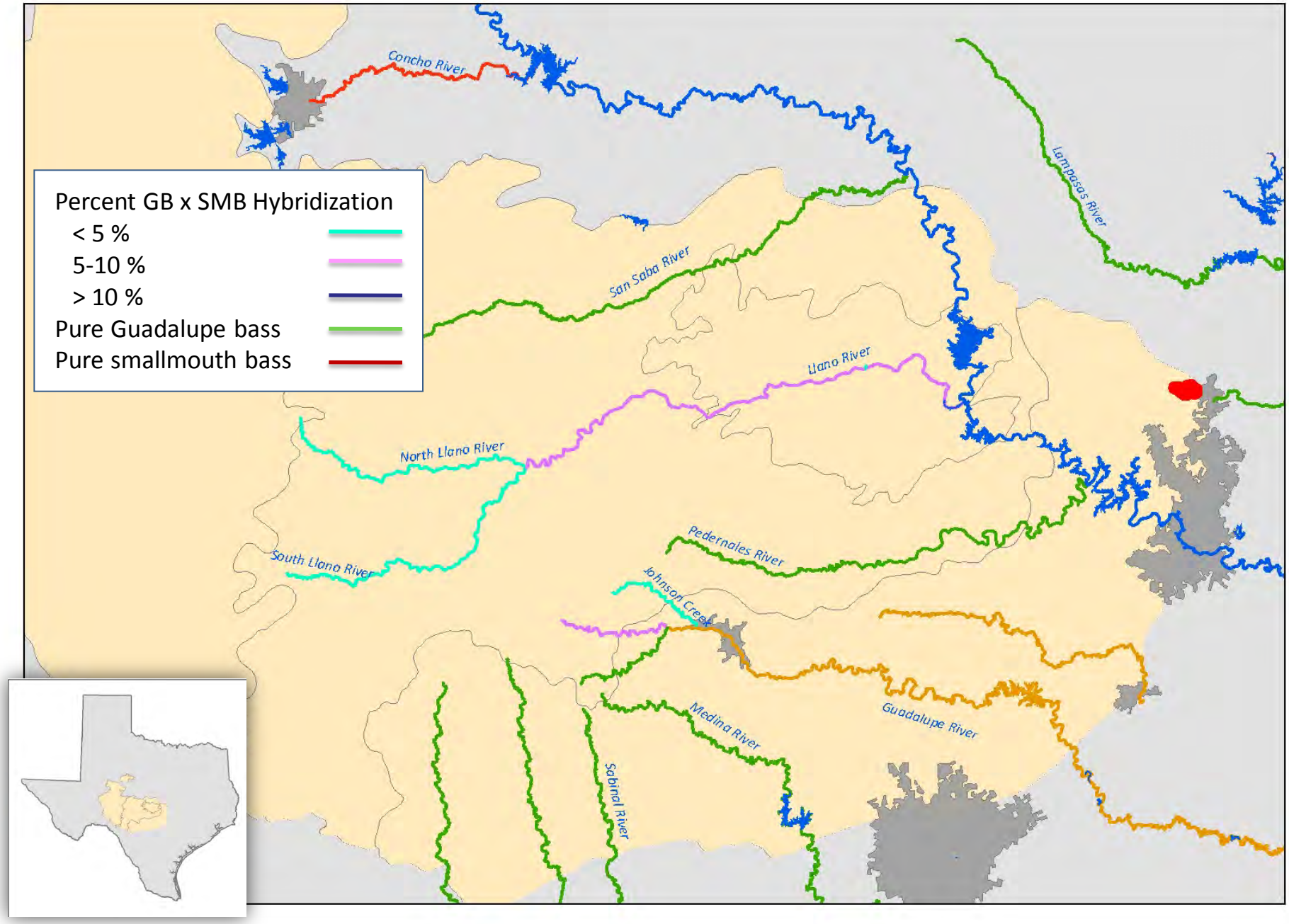
B1 scenario





Watershed Condition in the Edwards Plateau Ecoregion




Percent GB x SMB Hybridization
< 5 %
5-10 %
> 10 %
Pure Guadalupe bass
Pure smallmouth bass
Concho River
San Saba River
Lampasas River
Llano River
North Llano River
South Llano River
Pedernales River
Johnson Creek
Medina River
Guadalupe River
Sabinal River

Category	Key Ecological Factor	Indicator	Indicator Rating Indicator Current state: shaded; Italics = *Goal*				Basis for Indicator Rating
			Poor	***Fair***	***Good***	***Very Good***	
Condition	Recruitment	Number of redds	< 4 redds/mile annually	4-30 redds/mile annually	30-84 redds/mile annually	*> 84 redds/mile annually*	Limited DFG/TNC data
Condition	Recruitment	Abundance of juveniles	0-0.1 catch/hour	0.11-0.25 catch/hour	0.26-1 catch/hour	*> 1 catch/hour*	Limited DFG data
Condition	Naturalized Exotic fishes	Abundance and distribution of non-native fishes	River dominated by predatory non-native species	River dominated by non-native species	Natives/non-natives codominant	*Native species dominate*	TNC / UCD data
Condition	Habitat structure (spawning)	Substrate composition of riffles	Riffles dominated by fine sediment	Gravel dominant, mixture of bedrock, sand, silt	80% gravel, 20% cobble, some fine sediments	*80% gravel, 20% cobble, no fines*	DFG has taken samples but not yet analyzed
Landscape Context	Migration	Magnitude & timing of fall flows	No connectivity between the Delta and spawning habitat	Flows of 60 cfs at Michigan Bar during migration season	Flows between 61-200 cfs during migration season	*Flows above 200 cfs during migration season*	UCD analysis
Landscape Context	Migration	Occurrence of physical passage barriers	Barriers present that prevent passage at any given flow	Barriers present that prevent passage at flows between 60-200 cfs	Barriers present that prevent passage at variable but not continuous flows	*No passage barriers for a given flow*	Fisheries Foundation/TNC partnership
Size	Population size	Population of chinook escapement	<100 adults returning to spawning habitat	101-750 adults returning to spawning habitat	751-2000 adults returning to spawning habitat	*> 2000 adults returning to spawning habitat*	Historical escapement numbers 1953-1988 and DFG/TNC numbers 1997-2000
Landscape Context	Habitat size	Miles of suitable spawning habitat	< 5.5 miles of habitat	5.5 – 7 miles of habitat	7-8 miles of habitat	*8-14 miles of habitat*	Historical accounts
Landscape Context	Habitat size	Acres of floodplain rearing habitat	0 acres	0-1000 acres	1001-2000 acres	*> 2000 acres*	TNC

Restoration Threshold

Minimum Integrity Threshold

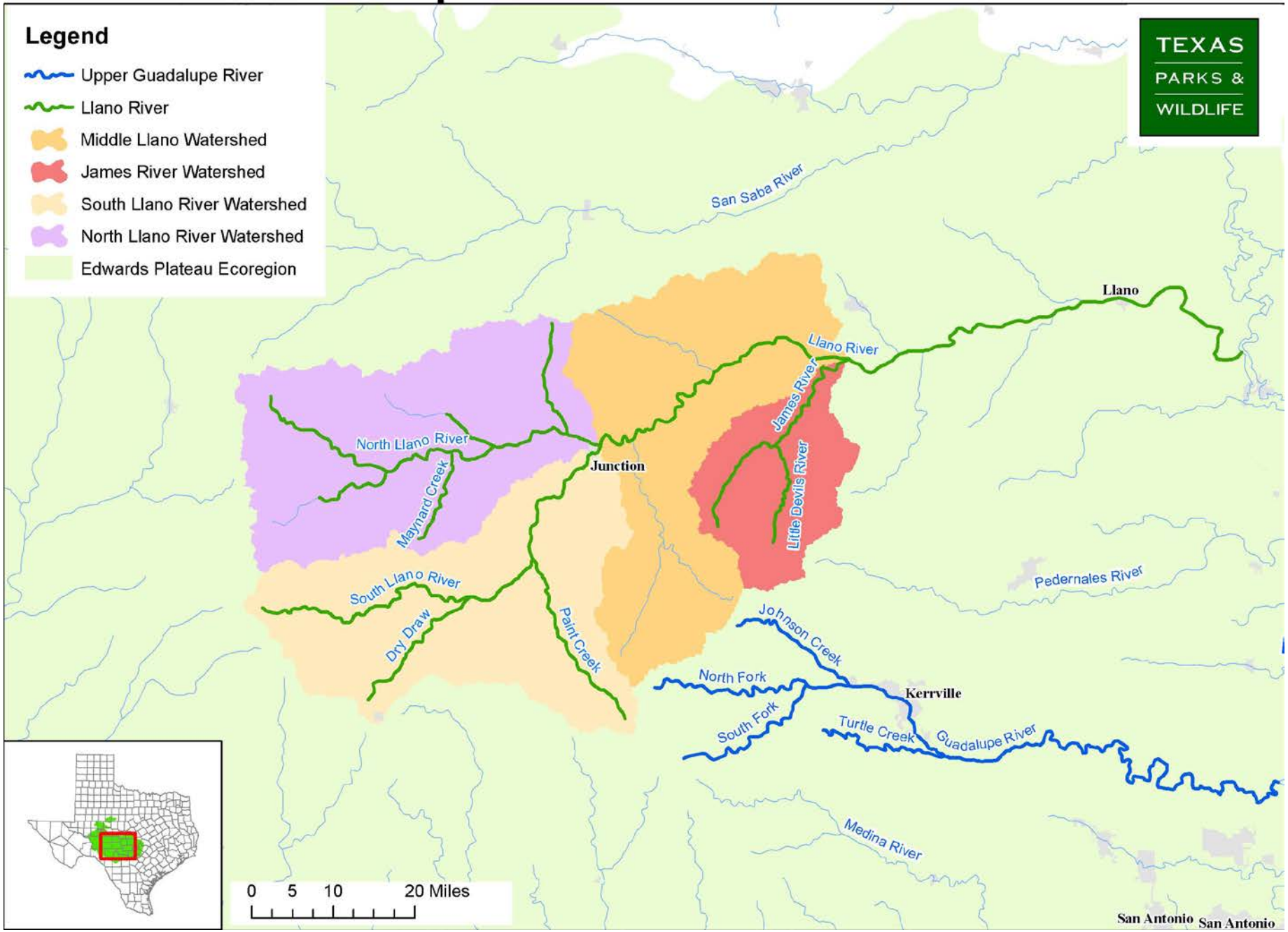
Preferred Threshold

Assessment of Ecological Integrity - South Llano River							
Category	Key Ecological Factor	Indicator	Indicator Rating Shaded = Indicator Current State; Italics = Goal Poor	Fair	Good	Very Good	Basis for Indicator Rating
Condition	Recruitment	Abundance of juveniles	<5 catch/hour	5-10 catch/hour	10-20 catch/hour	*>20 catch/hour*	TPWD surveys
Condition	Genetic Introgression	Introgression	>10%	5-10%	<5%	*None*	TxState rangewide assessment; TPWD genetic monitoring
Condition	Naturalized exotic fishes	Abundance and distribution of non-native fishes	River dominated by predatory non-native species	River dominated by non-native species	Natives/non-natives codominant	*Native species dominate*	Fishes of Texas Database; TPWD surveys
Landscape Context	Flow alteration	Dam storage density	>250 acre-ft/km2	50-250 acre-ft/km2	0-50 acre-ft/km2	*None*	NHD+; TNC Assessment
Landscape Context	Functional Riparian Zone	Natural cover	<25%	24-50%	50-75%	*>75%*	SARP Riparian Assessment; NLCD; TNC Assessment
Landscape Context	Connectivity	Occurrence of fish passage barriers	Barriers present that prevent passage at any given flow	Barriers present that prevent passage during low flow conditions	Barriers present that prevent passage at variable but not continuous flows	*No barriers during normal flow conditions*	USFWS Fish Passage Program; TNC assessment
Landscape Context	Watershed Condition	NFHAP Risk Score	High-Very High	Moderate	Low	*Very Low*	NFHAP Assessment

Watershed Prioritization Critical Elements

1) Natural processes remain intact
2) Contains habitats that support all life history stages
3) Large enough to support long-term persistence
4) Agreements can be developed across management jurisdictions and land ownerships to sustain aquatic and riparian habitat integrity

Guadalupe Bass Restoration Initiative



Coordinated Watershed Conservation

- Development of a Watershed Conservation Plan for the Upper Llano River
- Expansion of existing landowner cooperative
- Riparian and upland habitat BMPs
- Instream habitat enhancement
- Genetic restoration of Guadalupe bass

Watershed Best Management Practices

Objectives:

(1) Identify landscape factors affecting the health of aquatic habitats and ecosystems;

(2) Develop BMPs to address specific impairments;

(3) Provide web-based access to BMPs;

(4) Facilitate project planning and implementation

www.watershedbmps.com

Best Management Practices

For the Conservation of Texas Aquatic Ecosystems

Home | BMPs Index | Watersheds | Glossary | Contact Us

Search

Search

Conservation BMP Partners

- Texas Parks and Wildlife Department
- Southeast Aquatic Resources Partnership
- The Nature Conservancy

Watershed Highlights

- Guadalupe Bass Restoration Initiative
- TPWD Landowner Incentive Program
- TPWD Texas Wetland News Newsletter
- Research Projects

State Information

- Impairment Issues
- Conservation Priorities
- Critical Habitats
- Native Species
- Imperiled Species
- Exotic Species
- Texas Conservation Action Plan

Best Management Practices

Conservation best management practices (BMPs) are methods or actions that promote the conservation, protection, and/or restoration of our natural resources.

Conservation BMPs are an important tool for implementing plans and actions necessary to conserve, protect, and/or restore natural resources. This project was developed in Texas to identify BMPs to address landscape factors, land use practices, and impairments affecting the health of freshwater watershed habitats and ecosystems. To date, over 2,000 BMPs from more than 300 local, state, national, and international organizations and agencies have been collected to address these threats. Scientific literature, species lists, critical habitats, and conservation priorities were also compiled to more effectively facilitate conservation planning and habitat restoration.

Search BMPs by conservation objective or by land use for the state. Or search BMPs by ecological drainage unit on the map below.

Search for Best Management Practices

Select an EDU on the map to view EDU information and BMPs.

remarkable

YOUR RIPARIAN

How awareness, understanding and a network of private landowners can maintain and restore the Nueces Basin headwaters.

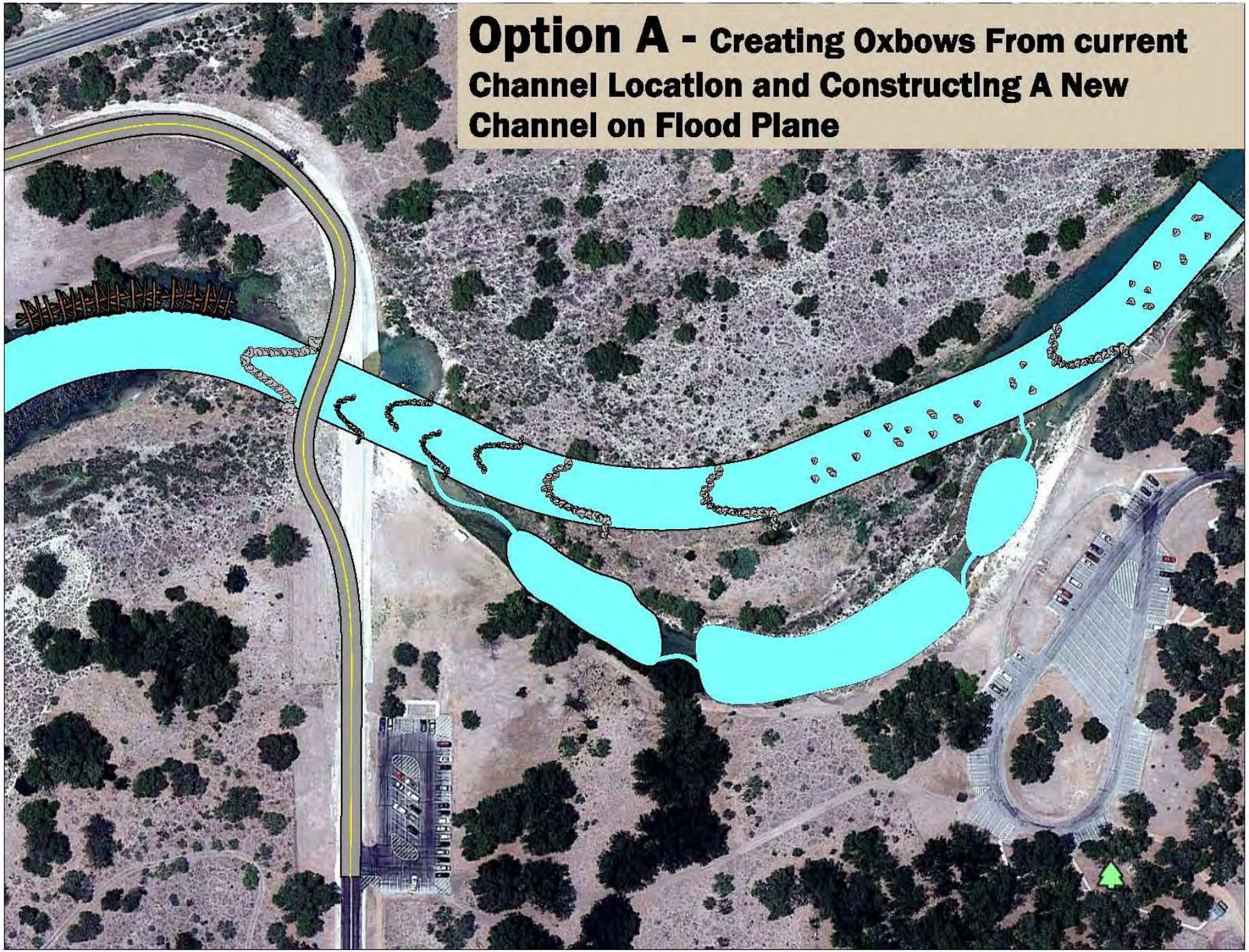
Restoration Funding Sources

- National Fish and Wildlife Foundation
- State Wildlife Grants Program
- Sport Fish Restoration Program
- National Fish Habitat Action Plan
- USFWS Partners Program
- USFWS Fish Passage Program
- Private Corporations (e.g., Anheuser-Busch, Toyota)
- Private Landowners
- Farm Bill – VPA-HIP

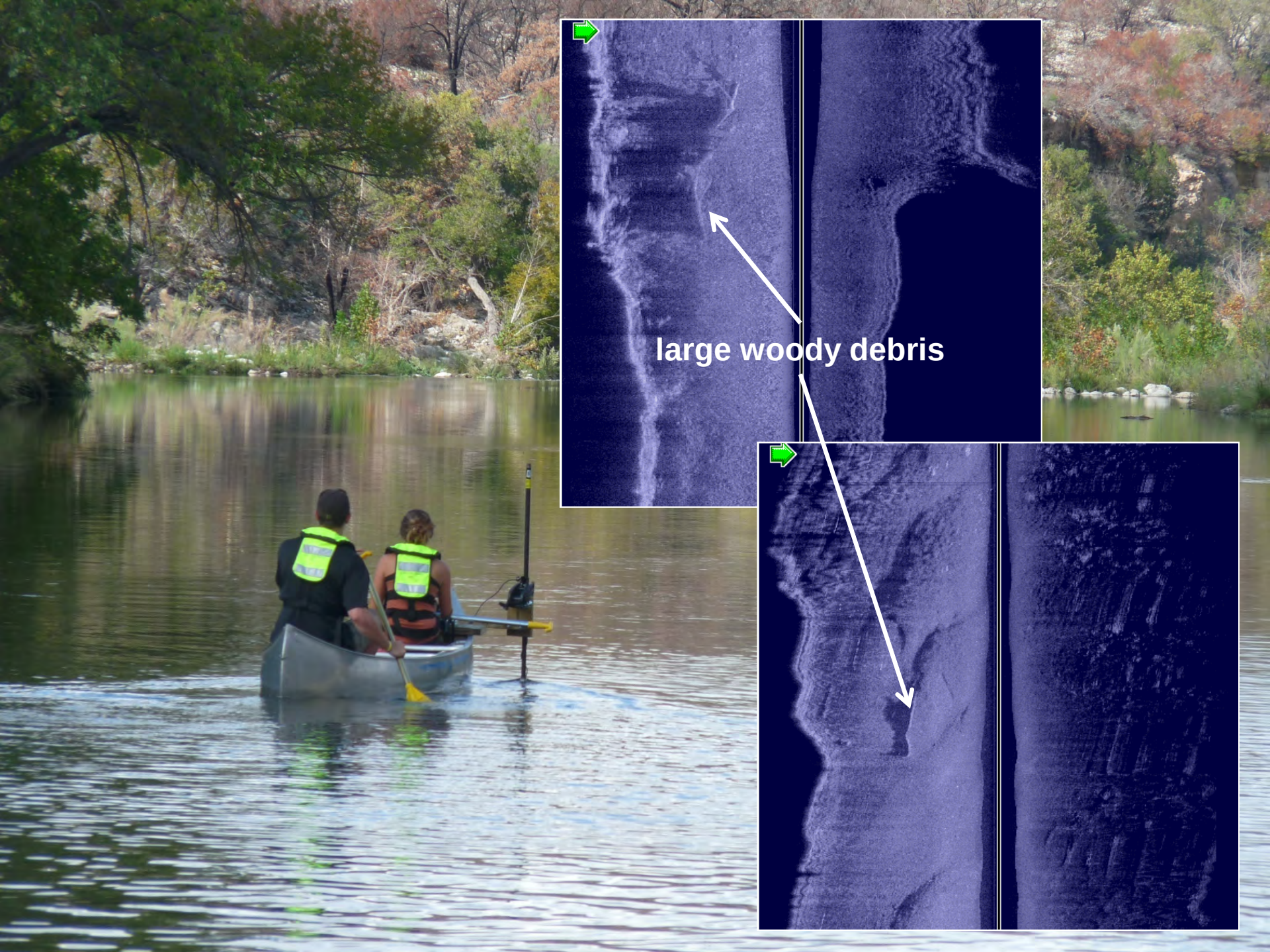
Landowner Incentive Program Project Scoring Criteria

- Land protected by permanent conservation easement
- Land protected by 10-year or more maintenance agreement
- Land has current TPWD wildlife management plan that includes target species
- Landowner agrees to baseline and annual population surveys of target species
- Landowner allows use as site demonstration area
- Landowner establishes photo-points, takes and submits photos quarterly

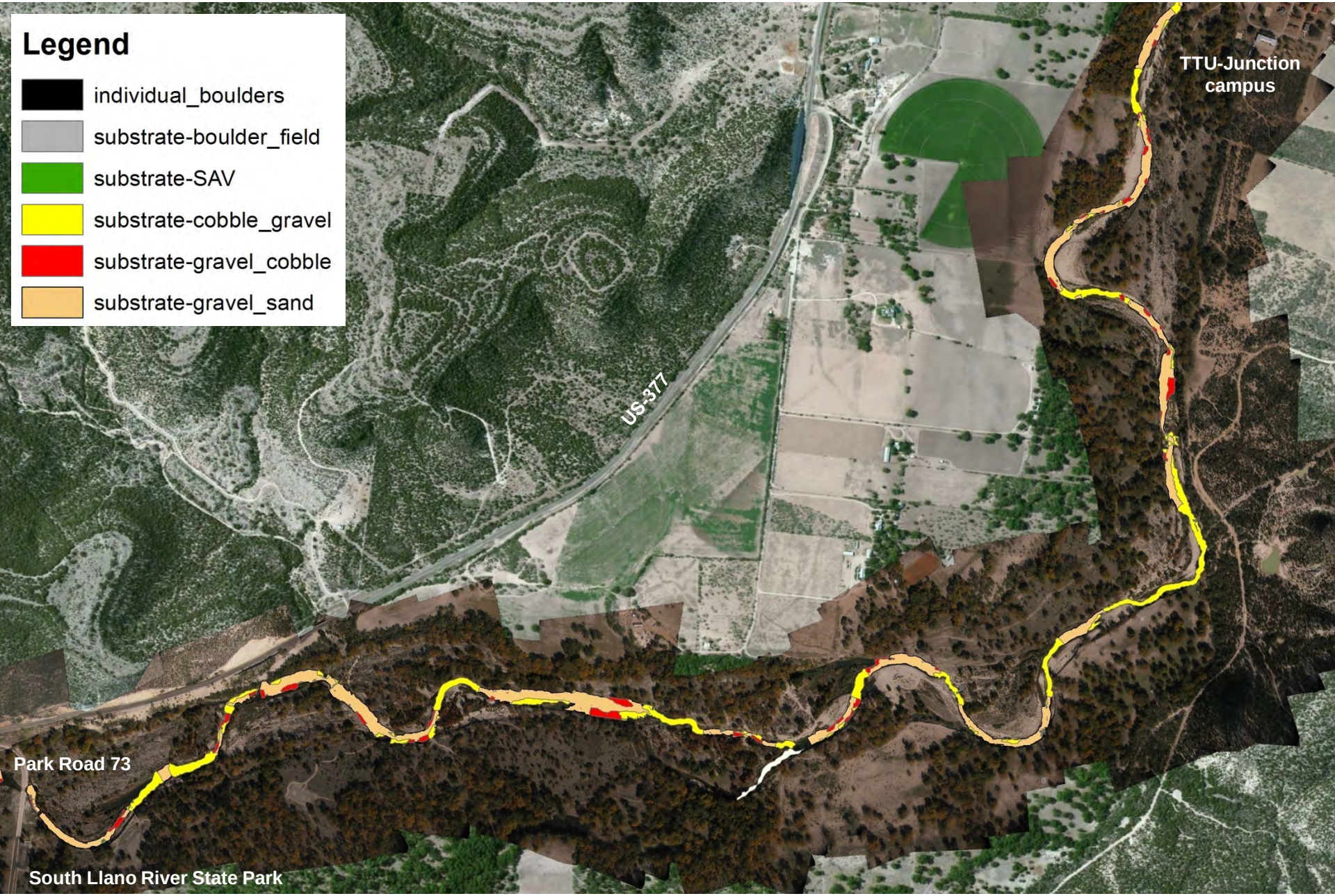
South Llano River
Kimble, County
TTU Llano River
Field Station
5500
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Bank Stabilization
Project
South Llano River SP
Bank Classification
(surveyed 06/28/2011)
CL stations (meters)
moderately stable (322m)
moderately unstable (684m)
unstable (3,743m)


Option A - Creating Oxbows From current Channel Location and Constructing A New Channel on Flood Plane

boulder fields

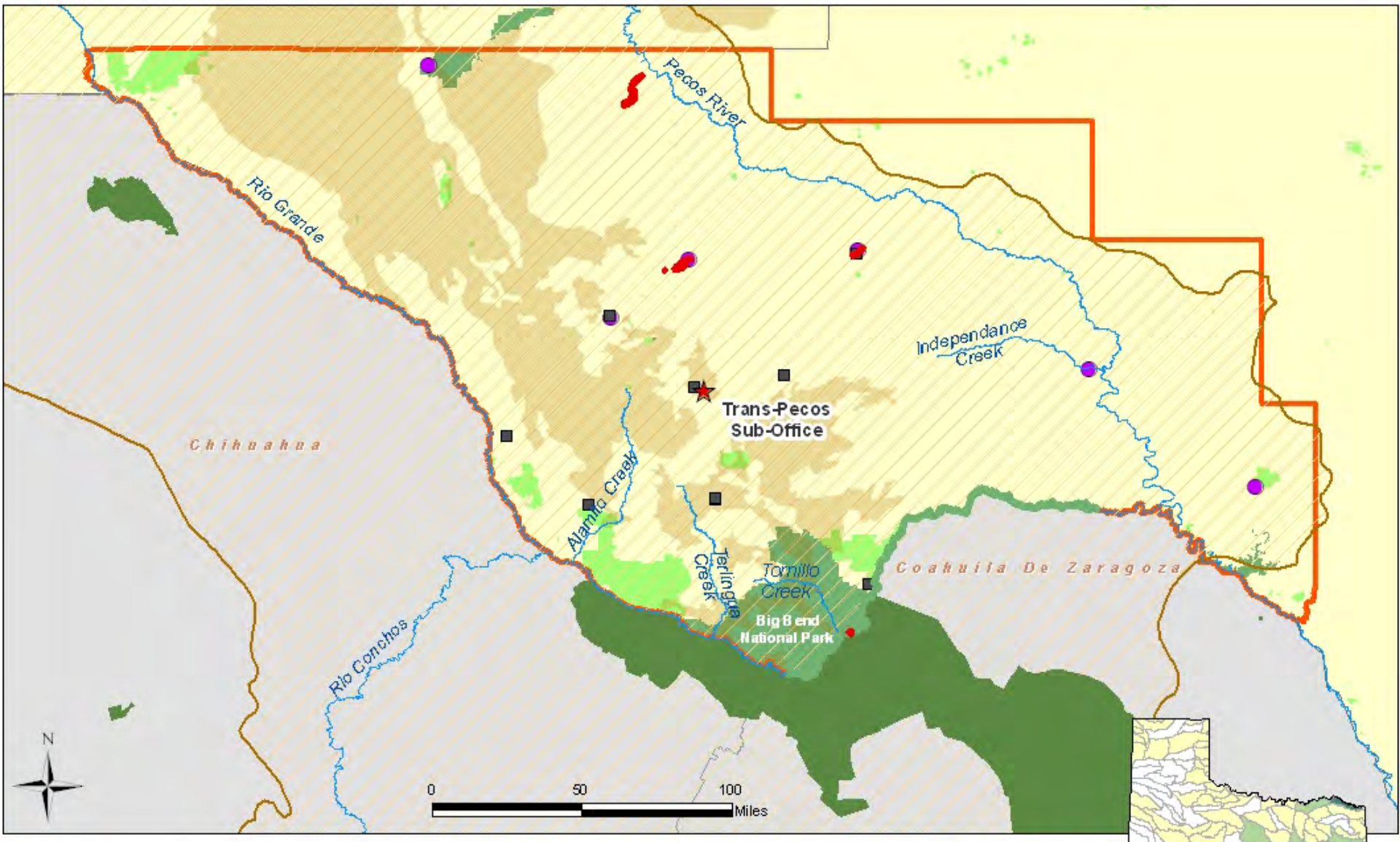

large woody debris

submerged aquatic
vegetation


Legend
individual_boulders
substrate-boulder_field
substrate-SAV
substrate-cobble_gravel
substrate-gravel_cobble
substrate-gravel_sand
US-377
TTU-Junction campus
Park Road 73
South Llano River State Park

TEXAS
PADDLING TRAIL
CAPITAL CRUISES

Water, water, everywhere
One watershed shared by many
The Bridge Creek Fire


Pecos River
Rio Grande
Independance Creek
Trans-Pecos Sub-Office
Chihuahua
Alamito Creek
Terlingua Creek
Tornillo Creek
Big Bend National Park
Coahuila De Zaragoza
Rio Conchos
N
0
50
100
Miles
Trans-Pecos sub-office area
Partners Projects
Imperiled aquatic resources
Chihuahuan Desert Grasslands
Chihuahuan Desert BCR
Federal protected areas
State protected areas
Mexico proteced areas
Private conservation areas
Imperiled Species (Number by Watershed)
1 - 3
4 - 6
7 - 11
12 - 17
18 - 27
Tran-Pecos Sub-Office Area Enlarged Above

Partners and Acknowledgements

- National Fish and Wildlife Foundation
- South Llano Watershed Alliance
- Southeast Aquatic Resources Partnership
- Texas Parks and Wildlife Foundation
- Anheuser-Busch Corporation
- US Fish and Wildlife Service
- The Nature Conservancy
- Texas State University
- Texas Tech University at Junction
- Texas A&M University
- University of Texas
- BASS
- FLW Outdoors
- KT Diaries
- World Fishing Network
- Trout Unlimited - Guadalupe River Chapter
- City of Junction
- USDA Natural Resources Conservation Service