



Texas State Soil & Water Conservation Board
BRUSH CONTROL PROGRAM
2010 ANNUAL REPORT
JANUARY 1, 2010 - DECEMBER 31, 2010

PROGRAM GOAL

Enhance water availability through selective Brush Control.

2010 ACTIVITIES AT A GLANCE

- Brush Controlled on 739,561.39 acres (FY 00-010)

To ensure the TSSWCB is targeting concentrated areas for Water Supply Enhancement, the TSSWCB began working with Texas Tech Water Resources Center and Texas A&M AgriLife Water Resources Institute to selectively clear brush using a set of predetermined criteria that will likely have the most profound and positive impact on water salvage while maintaining the ecological integrity of the landscape.

<u>PROGRAM BUDGET</u>	
FY 00-01	\$9,163,000 General Revenue
FY 02-03	\$9,163,000 General Revenue
	\$15,000,000 Agricultural Water Conservation Bond
FY 04	\$3,114,794 General Revenue
FY 05	\$607,805 General Revenue
FY 06	\$1,874,176 General Revenue
FY 07	\$1,816,009 General Revenue
FY 08	\$1,848,927 General Revenue
FY 09	\$1,840,926 General Revenue
FY 10	\$4,503,641 General Revenue
FY 11	\$4,503,641 General Revenue

INTRODUCTION



The Texas State Soil and Water Conservation Board present this annual report covering the 2010 calendar year. Some data from previous years is included to show trends. This report is a stand alone supplement of the report required by S.B. 1828, passed by the 78th Legislature R.S., which requires the State Board to prepare a semiannual report relating to the status of budget areas of responsibility. In fiscal year 2004, brush projects were funded from Agriculture Water Conservation Bonds and from General Revenue appropriated by the 77th Legislature. Fiscal year 2005 funding was from General Revenue

appropriated by the 78th Legislature R.S. The 79th Legislature approved General Revenue funding in the amount of \$1,874,176 for fiscal year 2006, and \$1,816,176 for fiscal year 2007. The 80th Legislature approved General Revenue funding in the amount of \$1,848,927 for

fiscal year 2008 and \$1,840,926 for fiscal year 2009. The 81st Legislature approved funding in the amount of \$4,503,641 for fiscal year 2010 and fiscal year 2011. The Brush Control Program, in existence since 1999, has treated 739,561.39 acres. The overall goal of the Brush Control Program is to enhance water availability through selective brush control. However, due to drought conditions that still persist in areas being treated, the water needs over the region remain critical. We must thank the Legislature for their vision in making this program a reality and express appreciation to those private landowners who are contributing their time and resources to implement a long range program to benefit others.



**TWIN BUTTES RESERVOIR/
LAKE NASWORTHY PROJECTS**

In September 2002, three brush control projects were initiated to enhance the amount of water flowing into the Twin Buttes Reservoir/Lake Nasworthy complex. Twin Buttes Reservoir is used to maintain sufficient water levels in Lake Nasworthy, which serves as a water supply for the City of San Angelo. Water levels in Twin Buttes Reservoir have fallen to critical levels. Based on water needs and the result of Feasibility Studies, the TSSWCB allocated \$10.8 million for brush control cost-share for three projects in the Twin Buttes Reservoir/Lake Nasworthy Watershed. It is projected that this allocation will allow the treatment of over 220,000 acres of brush and will result in the enhancement of almost 174,235 acre/feet of water over the life of the project. Additional funding will be needed to complete the treatment of the more than 555,000 acres of eligible brush in the Twin Buttes Sub-basins. To date, over 226,844.2 acres of brush have been treated using state funds.

<u>Soil and Water Conservation Districts (SWCDs) That Have Participated in the Brush Control Program</u>		
Caldwell-Travis	Pedernales	Lower Clear Fork of the Brazos
Bandera County	Comal/Guadalupe	Eldorado Divide
Kerr County	Bandera	McMullen County
Tom Green County	Middle Concho	Bosque
Archer County	Wichita	Middle Clear Fork
Little Wichita	Kendall County	Pecan Bayou
Gillespie County	Hays County	

CANADIAN RIVER PROJECT

In August 2005, in cooperation with the Canadian River Municipal Water Authority, a Salt Cedar project was initiated to improve water quantity and quality on the Canadian River above Lake Meredith. Funding for this project was based on the Arkansas River Shiner Management Plan for the Canadian River. To date, over 16,850 acres have been treated.

**Research has shown Salt Cedar uses 0.1 to 15 gallons of water per tree per day
Removing 1 acre of Salt Cedar equals 2-5 ac. /ft. of water savings per year**



PEDERNALES RIVER PROJECT

In September of 2002, a brush control project was initiated to enhance the amount of water flowing from the Pedernales River Watershed into Lake Travis, a water supply for the City of Austin. The lake is also used for power generation and has become a major resort area, providing opportunities for boating, fishing, swimming, and camping. The Pedernales River Watershed has been allocated over \$4.4 million for cost-share. It is projected that this allocation will allow the treatment of over 62,000 acres of brush in the Pedernales River Watershed and may result in the enhancement of an estimated 317,000 acre/feet of water over the life of the project. Additional funding will be needed to complete the treatment of the 140,000 acres of brush that are targeted in the 815,000-acre watershed. Feasibility Studies indicate the life of the project and treatment of the targeted acres may result in over 715,000 acre/feet of water in the Pedernales River Watershed. Landowners have submitted requests for funding to treat more than 75,000 acres in priority sub-basins. In 2002-2010, 70,760 acres were treated in this watershed.

Red Berry Junipers have been documented to use 46.8 gallons of water per tree per day



Removing 3-7 acres of juniper equals 1 ac. /ft. of water savings per year

NUECES RIVER PROJECT

In September 2006, the TSSWCB allocated money to the McMullen County SWCD to begin spraying Mesquite along the Nueces River. The Nueces River flows into Lake Corpus Christi. To date, a total of \$356,564.03 has been allocated to the project and 15,044.42 acres are under contract. Of that amount, 10,167.52 acres have been sprayed and estimated to yield 22 acre/feet of water over the life of the project according to the Nueces River Watershed Feasibility Study.

Removing 17 acres of mesquite equals 1 ac. /ft. of water savings per year



[FRIO RIVER](#)

In 2009, the TSSWCB allocated \$150,000 to the Frio, La Salle County, and McMullen County SWCDs to spray Mesquite in selected sub-basins along the river. The Frio River flows into the Nueces River system through Choke Canyon Reservoir. Choke Canyon Reservoir and Lake Corpus Christi, as a system, are operated by the City of Corpus Christi to supply water to approximately 400,000 people. To date, 6,410.7 acres are under contract and 7,111 have been treated.

[WICHITA RIVER PROJECT](#)

In September 2006, the TSSWCB allocated money to the Archer County SWCD to spray Mesquite. The Wichita River flows through Archer, Wichita and Clay counties and feeds into Lake Arrowhead. Lake Arrowhead Reservoir serves as a water supply for the City of Wichita Falls. To date, \$545,078 has been allocated to the project by the TSSWCB and 24,273.8 acres have been treated in Archer and Clay counties. According to the Lake Arrowhead Feasibility Study, the project is estimated to yield 120,706 acre/feet of water over the life of the project.

Mesquite trees use as much as 44 gallons of water per tree per day



[LAKE BROWNWOOD PROJECT](#)

In March 2008, the TSSWCB allocated money to the Pecan Bayou SWCD to treat Mesquite and Juniper in the Lake Brownwood Watershed. The TSSWCB is concentrating efforts in the Pecan Bayou area located in two sub-basins north of the lake. Lake Brownwood is a major water supplier for the City of Brownwood, as well as the surrounding areas for industrial, agriculture and municipal uses. To date, the TSSWCB has allocated \$400,000 to the project and 1,032 acres are under contract and 1,004.8 acres have been treated. The Lake Brownwood Feasibility Studies estimated that 2,950 acre/feet of water will be yielded in the two sub-basins mentioned above over the life of the project.

GUADALUPE RIVER PROJECT

In November 2010, the TSSWCB allocated \$347,478 to the Guadalupe River Project to treat Juniper in the Guadalupe Watershed. The TSSWCB has targeted areas in Kerr, Comal, and Kendall counties that have shown to be the highest water yielding areas in the watershed. There have been 2,539.75 acres treated since the beginning of the project in 2008. There are currently 1,659.75 acres planned for treatment in the future. Research on water yield has shown this project to be comparable to the Pedernales River Watershed.

THE EDWARDS AQUIFER PROJECT

In March of 2009, the TSSWCB allocated money to the Bandera SWCD to treat Ashe Juniper. Brush management is increasing the retention of water, thus improving spring and stream flows within Bandera County. Additionally, all of the watersheds within Bandera County- Medina River, Verde Creeks, Hondo Creek, Seco Creek, and the Sabinal River; flow south intersecting the Edwards Aquifer Recharge Zone just below the Bandera County line. All of these watersheds provide direct recharge into the Edwards Aquifer which is the primary source of water for the San Antonio Metropolitan area. To date, \$298,925.28 has been allocated to the project by the TSSWCB and 896 acres have been treated.

O.C. FISHER PROJECT

O.C. Fisher Lake is located in west central Texas on the North Concho River, 6.3 miles above the river's confluence with the South Concho River and approximately 65 miles above its confluence with the Colorado River. The lake is adjacent to San Angelo in the northwest corner of Tom Green County. The study area includes the majority of the fee-owned government land, above the existing lake level, operated by the U.S. Army Corps of Engineers, approximately 15,860 acres.

This project will enhance the water yield from the brush work already completed in the watershed. The recommended plan would restore approximately 3,778 acres of lake habitat, 52 acres of riverine habitat, 10 acres of intermittent riverine, and 250 acres of bottomland hardwoods. In addition, the project would restore 11,759 acres of transitional habitat. The quality of the terrestrial and aquatic habitats within the project area would benefit through the removal and control of exotic/non-native, water-loving plant species. The TSSWCB allocated \$140,000 to the O.C. Fisher project to treat Salt Cedar in the lake basin. To date, 2,555 acres have been treated.

BOSQUE COUNTY PROJECT

In September 2010 the TSSWCB allocated \$100,000 to be used to enhance water flow in Steele Creek in Northern Bosque County. The creek flows directly into Lake Whitney. Currently there are 542 acres under contract and 752 acres treated. These funds are utilized for brush control in riparian areas of the creek.

Carrizo-Wilcox Aquifer

The Carrizo-Wilcox Aquifer provides drinking water for the citizens of Gonzales County, Cibolo, Schertz, and Sequin. These areas have experienced a growth in population over the last few years. This increase in population growth will cause an increased demand on the water supply. In September 2010, the TSSWCB allocated \$100,000 to be utilized in the Carrizo-Wilcox outcrop areas. To date, 433 acres are under contract and 102.9 have been treated.

Lower Guadalupe River

Most of the Guadalupe River Watershed was historically part of the Coastal Prairie. Over the past 50 years, much of this area has been invaded by woody brush species that use large amounts of groundwater. When used in the correct locations, brush control can be an effective tool to help enhance stream flow and aquifer recharge. The TSSWCB allocated \$100,000 to the Lower Guadalupe Project in September 2010. To date, this allocation has helped treat 197 acres.

Other continuous activities by the TSSWCB:

- Evaluating future financing alternatives for the State Brush Control Program
- Field visits to assure that that Aerial Spraying of Mesquite is applied according to Program Specifications
- Providing training and assistance to Soil and Water Conservation Districts (SWCDs) in the State Brush Control Program areas
- Consultation with Texas Department of Agriculture (TDA), Texas Parks and Wildlife Department (TPWD), Texas Water Development Board (TWDB), and Legislative Staff on Water Supply Enhancement issues
- Assisting SWCDs with conservation planning and performance certifications for their landowners
- Evaluating watersheds that meet criteria for water enhancement cost-share assistance and assess landowner participation
- Under contract with the TSSWCB, the Upper Colorado River Authority (UCRA) continues to monitor efforts of Brush Control on the water balance and water yield within the North Concho River Watershed.
- Consulting with the Texas Tech University Water Resources Center and Texas A&M AgriLife Texas Water Resources Institute to develop a mapping system to ensure the TSSWCB is concentrating efforts for both urban water supply and rural benefits
- Presentation for Guadalupe Blanco River Authority to discuss monitoring in the Guadalupe River Project
- Presentation to United States Geological Service (USGS) to discuss future modeling needs for the Guadalupe Project
- Signed a Cooperative Agreement with USGS to begin a feasibility study on the Guadalupe Project

- Work with Nueces River Authority and U.S. Fish and Wildlife to acquire funding for Carrizo Cane Control
- Assist Texas Sunset Advisory Commission on Water Enhancement Program
- Exit conference with Texas Sunset Advisory Commission
- Prepare formal responses to the Texas Sunset Advisory Commission
- Presentation to Water Oriented Recreational District of Comal County
- Gave tour of research site at Honey Creek Natural Area for 21 Forest Service people
- Assist the Texas Comptroller's office with economic analysis of the Water Supply Enhancement Projects
- Spoke at the GMA 7 Water
- Began partnering with USGS, USDA/NRCS, and Texas Parks and Wildlife on Honey Creek paired watershed study

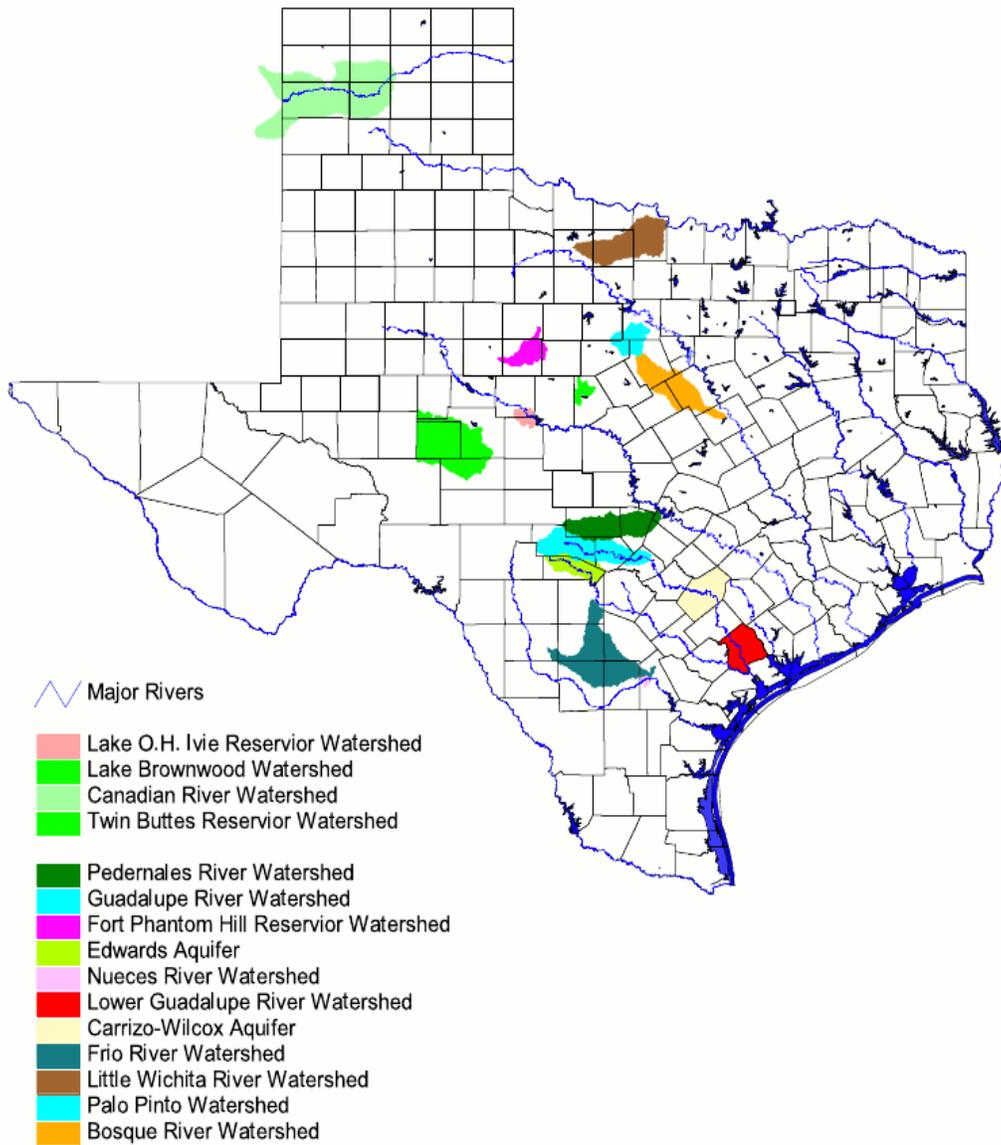
0 Treated Acres on West Fork of Grape Creek



Treated 75% of sub-watershed on East Side of Grape creek



Water Supply Enhancement Projects



WATER YIELDED FROM BRUSH CONTROL

Water yield expectations originate from brush control feasibility studies and academic research from a variety of sources.

State Cost-Share Grants 2000 – 2010-----\$33,771.14

**Landowner Contributions 2000 – 2010-----*In Excess of*
\$14,000,000**

Watershed Project	State Cost Per Treated Acre	Treated Acres	Gallons/Acre/Year	Gallons/Year Based on Treated Acres	Total Water Yield for Life of the Project ¹
Lake Ballinger completed	\$45.00	7,799.70	55,354	431,744,593.80	4,317,445,938
Oak Creek Lake completed	\$47.00	16,224	47,225	766,178,400.00	7,661,784,000
Lake Champion completed	\$43.00	14,993.50	31,535	472,820,022.50	4,728,200,225
Mountain Creek completed	\$49.00	1,440	46,389	66,800,160.00	668,001,600
GreenBelt Reservoir completed	\$87.50	571	977,553	558,182,763.00	2,232,731,052
Hubbard Creek completed	\$ 58.75	506	977,553	494,641,818.00	1,978,567,272
Pecos/Upper Colorado completed	\$ 70.78	10,580.12	1,450,037	15,341,564,935.43	61,366,259,742
North Concho River completed	\$45.50	327,000	26,068.08	8,524,262,160.00	85,242,621,600
Lake Brownwood	\$146.34	1004.8	95,696.25	96,155.592	961,555,920
Bosque River	\$162.50	752	26,068.08	19,603,196.16	196,031,961.60
Wichita River	\$20.92	24,273.80	162,035	3,933,205,183	39,332,051,830
Nueces River	\$27.65	10,167.52	73,056	742,798,341.12	7,427,983,411.20
Frio River	\$24.22	7,111	73,056	519,501,216	5,195,012,160
Canadian River	\$92.49	16,850	817,651	13,777,419,350.00	55,109,677,400
Pedernales River	\$72.00	70,760	217,790	15,410,820,408	154,108,204,000
Upper Guadalupe	\$123.71	2,539.75	217,790	553,132,152.50	5,531,321,525
Edwards Aquifer	\$155.75	896	217,790	195,139,840	1,951,398,400
Twin Buttes	\$68.03	226,844.20	25,028	5,677,456,637.60	56,774,566,376
Lake Ivie		0	0		
Fort Phantom Hill Reservoir		0	0		
Palo Pinto Reservoir		0	0		
Carrizo- Wilcox Aquifer		102.9	0		
O.C. Fisher Reservoir		1300	26,068.08	33,888,504	338,885,040
Lower Guadalupe		197	0		
TOTAL		739,561.39 ac.		67,519,255,836.7 67.5 Billion Gallons	489,927,287,293 489 Billion Gallons

¹The total water yield is based on the watershed projects having a lifespan of 4 or 10 years depending on the type of brush treated.