

**Texas State Soil and Water Conservation Board
FY03 CWA Section 319(h)
Project #03-6**

NONPOINT SOURCE SUMMARY PAGE

- 1. Title of Project:** Targeted Brush Control in the E.V. Spence Reservoir Watershed
- 2. Project Goals/Objectives:** The goal of this project is to aid in implementing the Implementation Plan for Sulfate and Total Dissolved Solids TMDLs in the E.V. Spence Reservoir by chemically treating saltcedar in riparian areas along the Colorado River and its tributaries in an effort to reduce nonpoint source (NPS) pollution loadings resulting from invasive brush species on agricultural lands.
- 3. Project Tasks:** (1) To foster coordinated implementation activities in the E.V. Spence Reservoir among the TSSWCB, local Soil and Water Conservation Districts (SWCDs), Colorado River Municipal Water District (CRMWD), Texas Cooperative Extension (TCE), Texas Department of Agriculture (TDA), Texas Parks and Wildlife Department (TPWD), U.S. Fish and Wildlife Service (USFWS), Natural Resources Conservation Service (NRCS) and other entities involved in the project and to promote project participation; (2) Assist landowners to chemically treat salt cedar in a 150-ft wide corridor along the Colorado River and its tributaries; (3) Follow-up treatment to treat areas that did not respond or may have been missed by the initial application; (4) To provide water quality enhancement, water quality diversion, and water quality monitoring in the Colorado River and E.V. Spence Reservoir; (5) To provide technical and financial assistance to agricultural producers within the Champion Creek Reservoir watershed for the purposes of brush control.
- 4. Measures of Success:** (1) To chemically treat 95-100% of the salt cedar in riparian areas along the Colorado River and its tributaries; (2) To achieve water quality standards by reducing NPS concentrations in the E.V. Spence Reservoir by approximately 20%.
- 5. Project Type:** Statewide (); Watershed (); Demonstration ().
- 6. Waterbody Type:** River (); Groundwater (); Other ().
- 7. Project Location:** E.V. Spence Reservoir (Segment 1411); Colorado River below Lake J.B. Thomas (Segment 1412).
- 8. NPS Management Program Reference:** *Texas Nonpoint Source Pollution Assessment Report and Management Program* approved October 1999.
- 9. NPS Assessment Report Status:** Impaired (); Impacted (); Threatened ()
- 10. Key Project Activities:** Hire Staff (); Monitoring (); Regulatory Assistance (); Technical Assistance (); Education (); Implementation (); Demonstration (); Other ()
- 11. NPS Management Program Elements:** Milestones from the *1999 Texas Nonpoint Source Pollution Assessment Report and Management Program*, which will be implemented include: (1) Providing financial assistance to soil and water conservation districts for the implementation of targeted brush control activities to reduce NPS pollution; (2) coordinating with federal, state, and local programs; (3) committing to technology transfer, technical support, administrative support, and cooperation between agencies and programs for the prevention of NPS pollution.
- 12. Project Costs:** Federal (\$2,208,446); Non-Federal Match (\$1,472,297); Total Project (\$3,680,743)
- 13. Project Management:** Texas State Soil and Water Conservation Board (State Board). Cooperating Entities: Upper Colorado SWCD, Howard SWCD, Mitchell SWCD, Coke SWCD, CRMWD, TDA, TPWD, USFWS, and TCE
- 14. Project Period:** Start Date 05/16/03 – End Date 05/16/07

Targeted Brush Control in the E.V. Spence Reservoir Watershed
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WORKPLAN

Problem/Need Statement:

The foundation of this project is the Texas State Soil and Water Conservation Board (TSSWCB) working cooperatively with local soil and water conservation districts (SWCDs), the Colorado River Municipal Water District (CRMWD), Texas Department of Agriculture (TDA), Texas Parks and Wildlife Department (TPWD), U.S. Fish and Wildlife Service (USFWS), Natural Resource Conservation Service (NRCS), Texas Cooperative Extension (TCE), and others in an effort to reduce nonpoint source (NPS) pollution loadings resulting from invasive brush species on agricultural lands in the E.V. Spence Reservoir. The E.V. Spence Reservoir is a 15,893-acre reservoir located in the upper Colorado River Basin, located approximately 2 miles west of Robert Lee, Texas. The Reservoir was completed in 1969 and is owned and operated by the CRMWD. The E.V. Spence Reservoir is an important water supply for the surrounding region. It provides a portion of the water for 305,000 residents of the cities of Big Spring, Coahoma, Midland, Odessa, Robert Lee, San Angelo, and Stanton. The reservoir's watershed encompasses 15,278 square miles and is characterized by mesquite covered rolling hills and high plains grasslands.

The E.V. Spence Reservoir (segment 1411) was placed on the *State of Texas 1998 CWA 303(d) List* because sulfate and total dissolved solids (TDS) concentrations exceeded the segment water quality standards. In April of 1999, the Texas Commission on Environmental Quality (TCEQ) and CRMWD developed two TMDLs, one for sulfate and the second for TDS, with the primary focus area being a segment of the Colorado River (segment 1412) between Lake J.B. Thomas and the E.V. Spence Reservoir. The TCEQ approved the TMDLs on February 9, 2001 and submitted them to the United States Environmental Protection Agency (USEPA) for final review and approval. Chloride concentrations, which are directly related to TDS, are also a concern in the reservoir.

The *Implementation Plan for Sulfate and Total Dissolved Solids TMDLs in the E.V. Spence Reservoir* was completed in May 2001 and approved by TCEQ on August 8, 2001. The purpose of this implementation plan is to achieve reductions in annual-average concentration and total-annual loadings in the E.V. Spence Reservoir. The implementation plan allocated 56% of the pollution loadings to the E.V. Spence reservoir to nonpoint sources. The TSSWCB was agreeable to targeted brush control activities in Phase II of this implementation plan.

In the implementation plan no additional mass loadings were assumed to accompany the runoff originated from brush control. (Little modeling has been done to determine mass loadings from targeted brush control activities.) However, it is estimated that targeted brush control will increase water yield 3,843 acre-feet per year to the E.V. Spence Reservoir. This increase in water yield will reduce pollutant concentrations. If all management practices prescribed in the Implementation Plan are implemented, an estimated 39% pollutant reduction will be achieved. It is projected that this implementation project could reduce pollution concentrations as much as 20%.

Section 303(d) of the Clean Water Act and 40 CFR Part 130 establish the TMDL process to provide for more stringent water quality-based controls when technology-based controls for point sources are inadequate to achieve State water quality standards.

The TMDL process affords a broad opportunity for States to work with all affected parties in a watershed to develop technically sound and legally defensible decisions for attaining and maintaining water quality standards. A TMDL Implementation Plan provides a road map for implementing both the point and nonpoint source controls that will achieve water quality standards.

General Project Description:

The TSSWCB will work cooperatively with the local SWCDs, CRMWD, NRCS, TDA, TPWD, USFWS, TCE, and others to develop and implement brush control activities for the purpose of reducing NPS loadings contributed by saltcedar in the E.V. Spence Reservoir. These targeted brush control activities will be conducted as prescribed in the *Implementation Plan for Sulfate and Total Dissolved Solids TMDLs in the E.V. Spence Reservoir*.

The proliferations of invasive species of brush into the western portions of Texas are a recognized problem in water management. Three species that occur in the E.V. Spence Reservoir watershed include juniper, saltcedar and mesquite. These plants have a high water consumption rate and easily out-compete most native species. Saltcedar is especially detrimental to water quality because of its ability to transport salts from ground water to its leaves. A single mature plant can absorb as much 200 gallons of water a day. Because salt cedar is a deciduous plant, salt stored in the leaves is concentrated at the soil surface when leaves are dropped in the fall. Saltcedar can tolerate chloride concentrations as high as 35,000 mg/L, much higher than most plant species. This makes it almost impossible for native plants to take root. The loss of native plants also decreases bird and insect biodiversity.

Aerial application of *Arsenal* herbicide from a helicopter is the most efficient and cost-effective way to treat saltcedar. *Arsenal* is a product better known for its use for brush control on utility right-of-ways. *Arsenal* is not yet labeled for aquatic use; however, Texas has obtained an EPA Section 24(c) "Special Local Needs" Label so that *Arsenal* can be applied in riparian areas. Prior to February 2003, *Arsenal* could not be applied in Coke, Runnels and Mitchell Counties due to the presence of the federally endangered Texas-poppy mallow, a small flowering plant. Texas Department of Agriculture, TCE, and the CRMWD worked diligently with EPA and US Fish and Wildlife Service and EPA to revise the 24(c) Label to include the counties listed above.

To prevent impacts to the federally endangered Texas poppy-mallow, all aerial applications within 1/4 mile of Tivoli or Brownfield sands in Coke, Runnels and Mitchell counties must be made by rotary wing aircraft using controlled droplet nozzles and boom configurations and air speeds below 60 mph to achieve an average spray droplet size of 1000 microns or greater. The USDA spray drift model should be used to confirm droplet size for the particular equipment and configuration being used. In addition, a 60 foot aerial spray buffer in topography or lateral distance from the Tivoli and Brownfield sands must be maintained at all times. Aerial spraying must be done between August 15 and October 15, the dormant season for the Texas poppy-mallow.

This project will use the modeled scenario mentioned in the Implementation Plan to reduce pollutant loadings and pollutant concentrations in the E.V. Spence Reservoir. This scenario includes the establishment and treatment of an approximate 150-ft corridor along the Colorado River and targeted tributaries above E.V. Spence Reservoir. This projected will treat approximately 8700 acres of saltcedar. The project will also allow for follow-up treatments in the years following the initial application.

This follow-up application will help ensure a thorough treatment of saltcedar in the project area. It is estimated that 95% of all saltcedar in the watershed exists within the riparian areas. Seed sources outside of these riparian areas will be negligible.

The following are the priority waterbodies that will be treated through this project:

- Colorado River (Scurry, Mitchell, and Coke Counties)
- Bull Creek (Scurry County)
- Bluff Creek (Scurry County)
- Willow Creek (Scurry County)
- Deep Creek (Scurry County)
- Champion Creek (Mitchell County)
- Morgan Creek (Mitchell County)
- Champion Creek Reservoir Basin (Mitchell County)
- Beals Creek (Howard and Mitchell Counties)
- Lake Colorado City Basin (Mitchell County)
- E.V. Spence Reservoir Basin (Mitchell and Coke Counties)

The estimated life of a one-time treatment is approximately 15 years; however, the USDA-Agricultural Research Service (ARS) has been conducting studies using Chinese leaf beetles as a biological control for saltcedar in isolated areas of California, Colorado, Nevada, Utah, Wyoming and Texas. Biological controls can play an important role in sustaining these types of treatments. Educational activities will also play a key role in controlling saltcedar. The TCE is actively involved in educating landowners about saltcedar and the problems that can be associated with the plant.

The TSSWCB will employ one full-time planner through this project. The planner will be responsible for contracting with participating landowners to apply Arsenal within the approximate 150-ft corridor along the Colorado River and its tributaries. The planner will also be responsible for promoting project participation and organizing public meetings as well as assisting landowners in obtaining contracts with qualified applicators.

The aerial application of *Arsenal* on saltcedar within the project area will be contracted to qualified experts with the consultation of the TSSWCB. The TSSWCB along with CRMWD, NRCS, TDA, TPWD, USFWS, and TCE will work in conjunction with the contracted entity/entities to ensure that sub-contracted obligations are fulfilled. The planner will also be responsible for promoting project participation and preparing status reports. The planner will work closely with the local SWCDs and project Advisory Board to accomplish project duties.

The TSSWCB is also responsible for managing brush in areas where brush is contributing to a substantial water conservation problem and designates areas of critical need in the state in which to implement the brush control program. The TSSWCB has designated the Champion Creek Reservoir watershed as an area of critical need and provided State Brush Control Program funding for managing brush there. This should not only improve conditions in Champion Creek Reservoir, but should also contribute to improvements to E.V. Spence Reservoir and help in the implementation of measures outlined in the TMDL. The E.V. Spence Reservoir itself is next on the State brush control priority list within the Colorado Basin.

Tasks, Objectives, and Schedules:

TASK 1: Program Coordination with Project Participants

Costs: (Federal \$20,000), (Non-Federal Match \$20,000), (Total \$40,000).

Objective: To foster coordinated implementation activities in the EV. Spence Reservoir among the TSSWCB, SWCDs, NRCS, TDA, TPWD, USFWS, CRMWD, TCE and other entities involved in the project and to promote project participation.

Subtask 1.1 The Advisory Board will consist of a local SWCD member from each of the participating counties, CRMWD, TCE, TDA, USDA, TPWD, NRCS, USFWS, and the TSSWCB. This board will assist in obtaining landowner agreements and promote educational meetings/activities as requested. The board will coordinate all activities through the TSSWCB planner and will meet as needed. (Start Date: Month 1; Completion Date: Month 36)

Subtask 1.2 The TSSWCB will employ a full-time planner that will work towards the goals of this project. TSSWCB staff will be available to provide updates to the SWCDs on project activities and status as needed.

Subtask 1.3 The planner will complete and submit quarterly status reports to the TSSWCB project manager in Temple. (Start Date: Month 1; Completion Date: Month 36)

Subtask 1.4 The Advisory Board in conjunction with each local SWCD may organize public meetings to promote public participation. All activities will be coordinated through the TSSWCB project planner. (Start Date: Month 1; Completion Date: Month 36)

Subtask 1.5 The TSSWCB will develop procedures for conducting the project. The State Board will approve these "Project Procedures".

Deliverables:

- Monthly timesheets and financial reports
- Quarterly status reports
- Copies of agendas, attendance, and minutes from meetings

TASK 2: Implementing Targeted Brush Control

Costs: (Federal \$2,078,446), (Non-Federal Match \$0), (Total \$2,078,446).

Objective: To chemically treat saltcedar in a 150-ft wide corridor along the Colorado River and its tributaries

Subtask 2.1 As necessary the TSSWCB with the consultation of the Advisory Board will obtain detailed, up-to-date, aerial photography or satellite imagery and analysis of the watershed. This will help better determine where to focus implementation efforts in the tributaries of the Colorado River. (Start Date: Month 1; Completion Date: Month 36)

Subtask 2.2 The planner will compile a list of all landowners along the Colorado River and its tributaries. (Start Date: Month 1; Completion Date: Month 36)

Subtask 2.3 The planner will draft a letter to be sent to landowners describing project goals and asking for cooperation. This letter will be accompanied by approved technical documents that illustrate the benefits of treating saltcedar. Contact information will be included in the letter. The planner will verbally contact the landowners that are not receptive to written communication. The planner will continue to promote project participation throughout the duration of the project. (Start Date: Month 1; Completion Date: Month 36)

Subtask 2.4 The planner will work with TDA, TPWD, and USFWS to obtain existing maps of sensitive areas, specifically Tivoli or Brownfield Sands in Coke, Runnels and Mitchell counties. These sensitive areas are possible habitat for the endangered Texas poppy-mallow. (Start Date: Month 1; Completion Date: Month 36)

Subtask 2.5 The planner will collect GPS coordinates of areas where Arsenal will not be applied if necessary. These coordinates will be provided to the aerial applicator. (Start Date: Month 1; Completion Date: Month 36)

Subtask 2.6 Qualified aerial pesticide applicators experienced in strategically applying pesticides to sensitive areas using helicopters and GPS coordinates will be contracted to treat eligible salt cedar. The grant will allow approximately \$218.40 per acre to be paid to the contractor for this application. (Start Date: Month 1; Completion Date: Month 36)

Subtask 2.7 Once contracts have been initiated, the pesticide applicator will treat the targeted areas with *Arsenal*. (Start Date: Month 1; Completion Date Month 36)

Subtask 2.8 The TSSWCB will require the contractor to provide GPS coordinates of application areas. A member of the Advisory Board or a planner will perform spot-checks of all contracts to certify completion of work. (Start Date: Month 1; Completion Date: Month 36)

Deliverables:

- GPS coordinates of application areas
- Coverage map of application area
- Imagery of project area

TASK 3: Follow-up Treatment

Costs: (Federal \$110,000), (Non-Federal Match \$0), (Total \$110,000).

Objective: To treat areas within the riparian corridor that did not respond or may have been missed by the initial application.

Subtask 3.1 Determine the need for follow-up treatment. (Start Date: Month 1; Completion Date: Month 36)

Subtask 3.2 Apply follow-up treatment as needed. (Start Date: Month 1; Completion Date: Month 36)

Deliverables:

- GPS coordinates of follow-up treatment areas

TASK 4: Water Quality Monitoring, Enhancement, and Diversion

Costs: (Federal \$0), (Non-Federal Match \$525,000), (Total \$525,000).

Objective: To provide water quality enhancement, diversion and monitoring. Document results of implementation by monitoring the Colorado River and the E.V. Spence Reservoir for sulfates, TDS, and chlorides on a monthly and quarterly basis throughout the project period.

Subtask 4.1 The CRMWD has been performing water quality enhancement, diversion, and monitoring on the Colorado River for a number of years and has a great deal of baseline data. The CRMWD will provide water quality enhancement, diversion and monitoring at existing sites and determine the success of saltcedar control. An overview of his third party water quality enhancement, diversion, and monitoring will be made available in the final report upon completion of the project. (Start Date: Month 1; Completion Date: Month 36)

Subtask 4.2 The CRMWD will keep records of monitoring results and present these results at the semi-annual meetings. A compilation of the monitoring results will be submitted to the TSSWCB upon completion of the project. (Start Date: Month 1; Completion Date: Month 36)

Subtask 4.3 The TSSWCB project planner will develop a final report. (Start Date: Month 1; Completion Date: Month 36)

Deliverables:

- Compilation of monitoring results
- Final Report

TASK 5: Implement the State Brush Control Program in the Champion Creek Reservoir Watershed

Costs: (Federal \$0), (Non-Federal Match \$927,297), (Total \$927,297).

Objective: To provide technical and financial assistance to agricultural producers within the Champion Creek Reservoir watershed for the purposes of brush control.

Subtask 5.1 The TSSWCB will provide cost-share and technical assistance to agricultural producers in the Champion Creek Reservoir watershed. (Start Date: Month 1; Completion Date: Month 36)

Subtask 5.2 The status of the State Brush Control Program is discussed at each State Board Meetings. It is estimated that 18,200 acres of brush control will be administered through the Champion Creek Reservoir Project. (Start Date: Month 1; Completion Date: Month 36)

Subtask 5.3 TSSWCB staff will ensure that contracted work is completed prior to reimbursement payments. (Start Date: Month 1; Completion Date: Month 36)

Deliverables:

- Quarterly status reports on project progress.

Project Coordination:

Participating organizations and agencies along with their roles in this project include:

- Texas State Soil and Water Conservation Board—Project Lead / Project Management
- Upper Colorado, Howard, Mitchell, and Coke SWCDs—Cooperating SWCDs
- TCE, TDA, TPWD, USFWS, NRCS, CRMWD—Other cooperating entities

Public Participation:

Several public meetings will be held through the course of this project. The purpose of the public meetings is to bolster support for the project and encourage public participation. Public participation will be key to the success of the project.

Measures of Success:

- To chemically treat 95 – 100% of the salt cedar in riparian areas along the Colorado River and its tributaries
- To achieve water quality standards by reducing NPS concentrations in the E.V. Spence Reservoir by approximately 20%.

TSSWCB Project Manager:

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03-6 BUDGET

Object Class Category	Federal Funds	Non-Federal	Total Cost
1. Personnel			
TSSWCB: Planner for 3 years	133,146	0	133,146
SWCD Director Time @ \$25.00 / hr	<u>0</u>	<u>20,000</u>	<u>20,000</u>
<i>Subtotal Personnel</i>	133,146	20,000	153,146
2. Fringe Benefits			
Planner Benefits @ 28%	37,281	0	37,281
3. Travel			
667 miles/month @ \$0.35 / mile	<u>11,200</u>	<u>0</u>	<u>11,200</u>
<i>Subtotal Travel</i>	11,200	0	11,200
4. Equipment (4-Wheeler)			
	6,570	0	6,570
5. Supplies			
Computer	3,500	0	3,500
General Office Supplies:	<u>4,200</u>	<u>0</u>	<u>4,200</u>
<i>Subtotal Supplies</i>	7,700	0	7,700
6. Contractual			
\$218.40/acre @ 8700 Ac	1,900,000	0	1,900,000
\$218.40/acre Estimated Follow-up, Imagery and Analysis	<u>110,000</u>	<u>0</u>	<u>110,000</u>
<i>Subtotal Contractual</i>	2,010,000	0	2,010,000
7. State Brush Control Program			
Basin-wide project Champion Creek Reservoir	<u>0</u>	<u>927,297</u>	<u>927,297</u>
<i>Subtotal Construction</i>	0	927,297	927,297
8. Other			
CRMWD Water Quality Monitoring, Enhancement & Diversion	0	525,000	525,000
Postage for Mail-outs and Educational Material	<u>2,549</u>	<u>0</u>	<u>2,549</u>
<i>Subtotal Other</i>	2,549	525,000	527,549
9. Total Direct Costs	<u>2,208,446</u>	<u>1,472,297</u>	<u>3,680,743</u>