TEXAS STATE SOIL AND WATER CONSERVATION BOARD
WATER SUPPLY ENHANCEMENT PROGRAM

2017 ANNUAL REPORT
JANUARY 1, 2017 – DECEMBER 31, 2017

Meeting Critical Water Conservation Needs and Enhancing Public Water Supplies Through Brush Control

PROGRAM FRAMEWORK

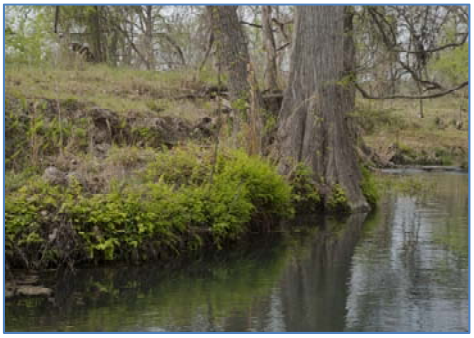
Scarcity and competition for water have made sound water planning and management increasingly important. The demand for water in Texas is expected to increase by over 17%, to a demand of about 21.6 million acre-feet in 2070; while existing water supplies are projected to decrease by nearly 11%, to about 13.6 million acre-feet (*2017 State Water Plan*).

Over at least the last century, rangeland vegetation in the United States has undergone a large-scale conversion from grasslands to woodlands. Noxious brush, detrimental to water conservation, has invaded millions of acres of rangeland and riparian areas in Texas, reducing or eliminating stream flow and aquifer recharge through interception of rainfall and increased evapotranspiration. Brush control has the potential to enhance water yield by conserving water lost to evapotranspiration, recharge groundwater and aquifers, enhance spring and stream flows, restore native wildlife habitat by improving rangeland condition, improve livestock grazing distribution, and aid in wildfire suppression by reducing hazardous fuels.

PROGRAM BUDGET

FY2018	$2,471,575 General Revenue
FY2019	$ 0 General Revenue

In order to help meet the State's critical water conservation needs and ensure availability of public water supplies, the Texas Legislature, in 2011, established the Water Supply Enhancement Program (WSEP) administered by the Texas State Soil and Water Conservation Board (TSSWCB). The purpose of the WSEP is to increase available surface and ground water supplies through the targeted control of brush species that are detrimental to water conservation.



The TSSWCB collaborates with other entities to identify watersheds across the state where it is feasible to implement brush control in order to enhance public water supplies. WSEP funds may only be allocated to projects that have a completed feasibility study that includes a watershed-specific computer model. The TSSWCB uses a competitive grant process to rank feasible projects and allocate WSEP funds, giving priority to projects that balance the most critical water conservation need of municipal water user groups with the highest projected water yield from brush control.

In watersheds where WSEP funds have been allocated, the TSSWCB works through soil and water conservation districts (SWCDs) to deliver technical assistance to landowners in order to implement brush control activities. A 10-year resource management plan is developed for each property enrolled in the WSEP which describes the brush control activities to be implemented, follow-up treatment requirements, brush density to be maintained after treatment, and supporting practices to be implemented including livestock grazing management, wildlife habitat management, and erosion control measures. Financial incentives are provided through the WSEP to landowners implementing brush control activities on eligible acres consistent with their resource management plan.

In accordance with Agriculture Code §203.056, the TSSWCB publishes this statutorily-required *WSEP Annual Report* which serves as a comprehensive analysis of the program's effectiveness during the preceding calendar year. This *Annual Report* documents program results, assesses the program, reports on program participant compliance with resource management plans, and reports overall projected water yield enhanced.

More information on the WSEP is available at https://www.tsswcb.texas.gov/programs/water-supply-enhancement-program.

2017 Activities at a Glance

State Water Supply Enhancement Plan

In accordance with Agriculture Code §203.051, the State Board must adopt the *State Water Supply Enhancement Plan*. The *State Water Supply Enhancement Plan* serves as the State's comprehensive strategy for managing brush in all areas of the state where brush is contributing to a substantial water conservation problem and also serves as the programmatic guidance for the agency's WSEP.

In January 2017, the State Board adopted a revised State Water Supply Enhancement Plan, which describes the program purpose and goals, the competitive grant process and proposal ranking criteria, how the agency will allocate funding, and priority watersheds across the state for water supply enhancement and brush control.

Feasibility Studies

In accordance with Agriculture Code §203.053(b), for a watershed to be considered eligible for allocation of WSEP cost-share incentive funds, a brush control feasibility study that includes a watershed-specific computer model must be completed and must demonstrate increases in projected post-treatment water yield.

Since 1998, the TSSWCB has collaborated with many partnering entities to conduct assessments of the feasibility of conducting brush control for water supply enhancement in watersheds across the state. Feasibility studies have been conducted and published for 25 watersheds; these reports have been accepted by the TSSWCB and the studied areas have been designated as priority WSEP Project Watersheds.

Utilizing WSEP funds, the TSSWCB has contracted with several entities to perform computer modeling for feasibility studies to project water yield increases from brush control in several watersheds. Work has continued in 2017 by partnering entities on these feasibility studies. Texas Tech University, in collaboration with the Texas A&M Water Resources Institute, developed a brush control feasibility study for the North and South Llano Rivers in Kimble, Edwards, and Sutton counties, and it was approved in January 2017. Texas Tech University, in collaboration with the San Antonio River Authority, is developing brush control feasibility studies for watersheds in Goliad, Karnes, Refugio, Victoria, and Wilson counties.

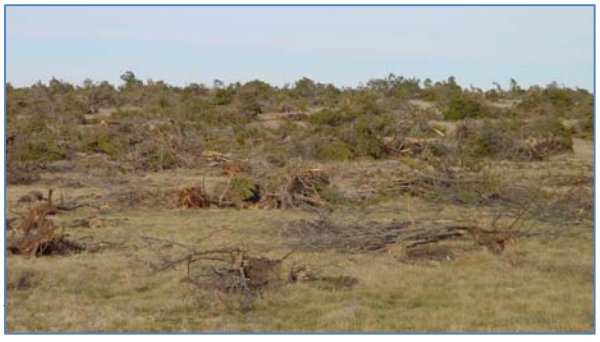
Project Allocations and Request for Proposals

In March 2017, the TSSWCB requested proposals for water supply enhancement projects seeking funding in FY2018-2019 to conduct brush control under the Water Supply Enhancement Program (WSEP). Proposed projects should focus on watersheds with a demonstrated water conservation need and where brush control has been shown, using a computer model, to be a feasible strategy to enhance surface and/or ground water supplies. Proposals were due Thursday, June 1, 2017 and the WSEP Office received 22 project proposals.

In FY2017, the TSSWCB allocated $2.58 million in cost-share funds for the following WSEP projects: Lake Arrowhead (2 subbasins), Lake Brownwood (2 subbasins), Lake Kemp (1 subbasin), Lake Nimitz (1 subbasin), Lake Travis (2 subbasins), Upper Llano River (2 subbasins), Edwards Aquifer-Nueces River (1 subbasin), Edwards Aquifer-Sabinal River (1 subbasin), Edwards Aquifer-Frio River (2 subbasins), Carrizo Gonzales (1 subbasin), Canyon Lake (2 subbasins), Lake Ivie (1 subbasin), Lake Fort Phantom Hill (1 subbasin), Palo Pinto Reservoir (1 subbasin) and Medina Lake (1 subbasin).

Conservation Planning and Program Outreach

Throughout the year, WSEP staff assisted SWCDs and conservation planners with implementation of the program in project watersheds, and worked with landowners to develop cost-share contracts for FY2017 funds and conduct performance certifications on completed brush control activities.



Throughout the year, WSEP staff participated in a variety of meetings in order to communicate and exchange ideas regarding the WSEP. Agency staff discussed WSEP activities, accomplishments, and challenges with the Texas Groundwater Protection Committee (TGPC), the TGPC Public Outreach and

Education Subcommittee, the Texas Parks and Wildlife Department, the Bureau of Economic Geology, the City of San Marcos, the U.S. Geological Survey, the San Antonio River Authority, the Victoria County Groundwater Conservation District, the Upper Trinity Groundwater Conservation District, and the Water Conservation Advisory Council Agricultural Work Group; and at the 69th Annual Society for Range Management Meeting, the Guadalupe Basin Coalition's Hill Country Water Summit, the Texas and Southwestern Cattle Raisers Association Annual Convention, the Texas Wildlife Association's Annual Private Lands Summit, and the Texas Section Society for Range Management Annual Meeting.

Regional Water Planning Groups and the State Water Plan

Agriculture Code §203.053 requires that, in prioritizing WSEP projects for funding, the TSSWCB must consider the need for conservation of water resources within the territory of a proposed project, based on the *State Water Plan* as adopted by the TWDB. The TSSWCB also considers whether or not a regional water planning group (RWPG) has identified brush control as a recommended water management strategy in the *State Water Plan*.

TSSWCB staff worked with many of the 16 RWPGs, and the TWDB, to ensure the RWPGs were aware of the changes to the WSEP as they developed their *2016 Regional Water Plans* and the *2017 State Water Plan*. Since 2013, agency staff has made presentations on the WSEP to 9 of the 16 RWPGs.

On May 19, 2016, the TWDB adopted the *2017 State Water Plan* (published in December 2016). Brush control and voluntary land stewardship are included as recommended water management strategies by several RWPGs.

Five RWPGs (F, G, J, K, and M) recommended brush control as a water management strategy with quantified water yields in the *2017 State Water Plan*. Throughout the *2017 State Water Plan*, these brush control strategies are included in the "Other Strategies" category. The *2017 State Water Plan* includes 32 recommended water management strategies for brush control. By the 2070 planning horizon, together these brush control strategies contribute 9,656 acre-feet per year to the total supply volume from all recommended water management strategies in the *2017 State Water Plan*.

Four RWPGs (A, B, C, and O) recommended brush control as a water management strategy, but with no quantified water yields. These strategies are not reflected in the *2017 State Water Plan*; rather, these strategies are only included in each respective *Regional Water Plan*. Nine RWPGs (A, B, F, G, J, K, L, M, and O) included policy recommendations regarding brush control in their respective *Regional Water Plan*; however, in this iteration of the *State Water Plan*, the TWDB did not aggregate policy recommendations from the RWPGs. Three RWPGs (D, I, and N) determined that brush control was not a feasible strategy for their region due to a variety of reasons, while three other RWPGs (E, H, and P) did not discuss brush control at all in their plans.

Status Reviews Conducted in FY2017

Cost-share agreements between the TSSWCB and landowners contain a commitment on the part of the landowner, at no cost to the State, to maintain areas for which cost-share incentive funding for brush control was received for a period of ten years after the initial brush control is accomplished. Maintenance includes periodically re-treating the area with appropriate brush control methods to prevent brush reinfestation over the duration of the 10-year contract period.

The *State Water Supply Enhancement Plan* lays out the general schedule for follow-up brush treatment, which is detailed in each landowner's resource management plan:

- mesquite, mixed brush, saltcedar: follow-up treatment scheduled 3 years after initial treatment, if canopy (target species only) is above 5%
- juniper: follow-up treatment scheduled 8 years after initial treatment, if canopy (target species only) is above 5%

The TSSWCB is statutorily required to periodically perform status reviews of cost-share contracts to verify compliance with follow-up treatment requirements over the course of the 10-year contract period. The *State Water Supply Enhancement Plan* describes the general schedule for status reviews:

- first status review conducted within 3-5 years after initial treatment of brush
- second status review performed 8-9 years after initial treatment

During FY2017, the agency conducted 12 status reviews on cost-share contracts throughout various project watersheds. No brush density assessments indicated the target species was above 5%, and no contracts were deemed out-of-compliance. These status reviews were conducted during the third year after initial treatment which is when follow-up brush treatment should be scheduled. WSEP staff reminded all landowners of their follow-up brush treatment obligations in their cost-share contracts and the schedule of follow-up brush treatment detailed in their resource management plans.

Annual Enhanced Water Yield for FY2017

Full implementation of brush control, as modeled in all published feasibility studies for the 25 approved WSEP Project Watersheds, has a total projected annual water yield of 2.417 million acre-feet of water that could be conserved if the State was able to provide cost-share incentive funding to landowners to treat 16.037 million acres of brush in those watersheds.

During FY2017, through the WSEP, 30,202.45 acres of brush management was incentivized by the State in 19 project areas. For these acres, landowners received cost-share assistance through the program totaling

$1,242,657.54 in state funding. Based on estimates provided by feasibility studies and computer models, and depending on the climatic conditions across the state that influence the sequence of drought and rainfall events, this work is projected to enhance water yield by 9,363.73 acre-feet per year.

Lake Arrowhead Watershed Project

Acres	Public Water Supply Target	Enhanced Water Yield (gal)
6,676	Lake Arrowhead	1,043,257,6800

Population Served
Wichita Falls and surrounding areas

Lake Brownwood Project

Acres	Public Water Supply Target	Enhanced Water Yield (gal)
958	Lake Brownwood	132,958,388

Population Served
Brownwood and surrounding areas

Upper Guadalupe River Project

Acres	Public Water Supply Target	Enhanced Water Yield (gal)
1483.101	Canyon Lake and Nimitz Lake	34,914,086

Population Served
New Braunfels, San Marcos, Kyle, Buda, Boerne, Kerrville, and surrounding areas

Edwards Aquifer – Frio River Project

Acres	Public Water Supply Target	Enhanced Water Yield (gal)
66.5	Edwards Aquifer Recharge Zone in Frio River Watershed	18,526,234.90

Population Served
Concan, Knippa, and Leakey

Edwards Aquifer – Medina River Project

Acres	Public Water Supply Target	Enhanced Water Yield (gal)
105	Edwards Aquifer Recharge Zone in Medina River Watershed	19,266,660.00

Population Served
Castroville, Bandera, and Medina

Edwards Aquifer – Nueces River Project

Acres	Public Water Supply Target	Enhanced Water Yield (gal)
685.10	Edwards Aquifer Recharge Zone in Nueces River Watershed	43,121,564.20

Population Served
Uvalde, Barksdale, and Camp Wood

Wichita River Watershed Above Lake Kemp Project

Acres	Public Water Supply Target	Enhanced Water Yield (gal)
18,480.5	Lake Kemp	1,585,161,924.0

Population Served
Wichita Falls and surrounding areas

Pedernales River Project

Acres	Public Water Supply Target	Enhanced Water Yield (gal)
667	Lake Travis	139,490,544.00.00

Population Served
Cedar Park, Leander, Pflugerville, and surrounding areas

Twin Buttes Reservoir Project

Acres	Public Water Supply Target	Enhanced Water Yield (gal)
586	Twin Buttes Reservoir	28,113,596.00

Population Served
San Angelo

Palo Pinto Reservoir Watershed Project

Acres	Public Water Supply Target	Enhanced Water Yield (gal)
60	Palo Pinto County Municipal Water District	12,732,000.00

Population Served
City of Mineral Wells and surrounding areas

Edwards Aquifer/Sabinal River Project

Acres	Public Water Supply Target	Enhanced Water Yield (gal)
327	Edwards Aquifer \Sabinal River	38,600,715.00

Population Served
Vanderpook, Utopia, and Sabinal

Carrizo/Wilcox Aquifer Project

Acres	Public Water Supply Target	Enhanced Water Yield (gal)
108.5	Carrizo/Wilcox Aquifer and the Guadalupe River Mid-Basin	8,868,139.00

Population Served
Guadalupe-Blanco River Authority, San Antonio Water System, Shertz-Seguin local government, Texas Water Alliance and Gonzales County Water Supply Cooperation

FY2017 Total

Brush Treated	Enhanced Water Yield
30,202.45 acres	**3,105,011,531.10** gallons **9,363.73** acre-feet increase

Voluntary land stewardship, on a grand scale, is a cornerstone solution for water supply issues in Texas. The efforts of private landowners to control water-depleting brush are vitally important to the ecological health of productive rangelands across the state. Many Texans today, especially those in urban areas, enjoy the public benefits, such as clean plentiful drinking water, they derive from the voluntary land stewardship provided by private landowners and agricultural producers throughout the state.