TEXAS STATE SOIL & WATER CONSERVATION BOARD

ANNUAL REPORT

TO THE

GOVERNOR,
LIEUTENANT GOVERNOR
AND
SPEAKER OF THE HOUSE

JANUARY 1, 2016

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Forward

In response to S.B. 1828 passed by the 78th Texas Legislature in Regular Session, 2003, and as amended by S.B. 59 passed by the 83rd Texas Legislature in Regular Session, 2013, the Texas State Soil and Water Conservation Board (TSSWCB) presents this review of its programs and activities. S.B. 59 amended §201.028 of the Texas Agriculture Code to provide that the TSSWCB shall prepare and deliver to the Governor, the Lieutenant Governor, and the Speaker of the House of Representatives an annual report, not later than January 1 of each year, relating to the status of the budget areas of responsibility assigned to the TSSWCB including outreach programs, grants made and received, federal funding applied for and received, special projects, and oversight of soil and water conservation district (SWCD) activities.

The FY15 Operating Budget is attached to this report. Information on grants available to local SWCDs and other entities is incorporated within the program section it involves.

The TSSWCB takes pride in the accomplishments and remarkable progress that have been made in soil and water conservation in this state. Often environmental successes are slow to be realized. We have realized and reported three success stories that include reducing the level of Atrazine in several water bodies, particularly the Aquilla Reservoir, reducing the levels of bacteria in Buck Creek and improving the dissolved oxygen levels in Oso Bay.

However, we recognize there remains a continuing challenge and an ongoing need to ensure our land has the capability to produce food and fiber for future Texans. Because of changes in land use, ownership, technology, and population growth, the need for soil and water conservation programs will remain critical. Texas has a finite number of acres to provide for the needs and desires of citizens and visitors, and this puts an ever-increasing demand on agricultural land. Farmers and ranchers face complex decisions concerning the best ways to manage and utilize the natural resources available to them.

We believe that soil and water conservation programs must remain dynamic as land uses change and technology improves to make some conservation practices more capable of meeting demands on soil and water resources. We also maintain the belief that the purpose of the soil and water conservation program is to promote the wise use of our renewable natural resources and provide for the conservation and enhancement of the soil and water resources of this state through and by the dynamic decisions of local SWCDs which promotes the use of each acre of land within its capabilities and treating it according to its needs.

From the beginning, the TSSWCB and local SWCDs have formed an organizational framework through which various complex governmental conservation programs are delivered to local landowners and operators. This relationship has successfully been utilized to disseminate sound management techniques and practices to maintain individual productive land uses to provide for the needs of present and future generations.

To the landowners of Texas, the individual SWCD directors, and the many agencies and organizations assisting and working with our programs, we offer our sincere gratitude.

Historical Background

In the early history of the United States, those involved in agriculture often did not consider the conservation of soil and water resources. Land was cleared and put into farm production. When the land quit producing at a profitable level, the farmers merely moved on to new land farther west and started the process over again. There was no need to be concerned with soil conservation, as there was a seemingly unlimited supply of virgin land waiting to be tilled. This process continued through the 1800s and into the early 1900s. With the outbreak of World War I, farmers in the Great Plains states were encouraged to break out native grassland to grow wheat and other foodstuffs to feed the nation and the world. As a result of these and other unwise management practices and the fact that the farmlands were experiencing long periods of drought, the 1930s produced some of the worst dust storms the nation had ever seen. Clouds of dust rolled across the plains states sending dust storms through the south and into the nation's capital. At the same time, the nation was in the midst of a great economic depression. The federal government, seeking ways to put people back to work and encourage conservation, created the Civilian Conservation Corps and Soil Erosion Service. Through these mechanisms, demonstration projects were initiated to train technicians and to educate the public in ways to conserve soil resources. These programs were successful in putting people back to work, but lacked the local ties to establish lasting conservation programs.

One of the early day leaders in the national effort to control soil erosion was Hugh Hammond Bennett from North Carolina. After graduation from the University of North Carolina in 1903, Hugh Bennett took a job with the Bureau of Soils in the United States Department of Agriculture (USDA). Because of his experience, scientific knowledge and leadership ability, he was put in charge of the Soil Erosion Service when it was created in 1933. In 1935, P.L. (Public Law) 46 was passed creating the Soil Conservation Service within the USDA and Hugh Bennett became the first Chief of the agency. He soon became internationally known for his accomplishments in conservation work.

With the help of Congressman Buchannan from Columbus, Texas, Hugh Bennett was able to persuade President Franklin Roosevelt that the soil resources of this nation were being wasted. He convinced the President that a Model Soil Conservation Act should be developed and sent to the governors of each state for passage by their state legislatures. The purpose of this Model Act would be to develop programs at the state and local level to control soil erosion.

In 1936, a Model Act was sent to the governors with the endorsement of President Roosevelt. The Model Act, developed in Washington, was patterned after the Texas Wind Erosion Act, the Grass Conservation Acts in the Northern High Plains and certain water conservation district law.

In 1937 legislation was introduced in the Texas Legislature based on this Model Act. It is reported that as many as 25 different versions of this soil conservation law were considered before a final version was passed. There was much heated discussion of the proposed legislation. When the final version was adopted, the bill contained many undesirable features. The law would have set up Soil Conservation Districts automatically on a county basis and made County Commissioners Courts the governing body. A portion of the county tax was to be used to finance the program and county agricultural agents were to be the administrative officers.

A number of agricultural leaders from across the state had, by this time, become concerned about the newly passed legislation. It was their opinion that, if the responsibility for installing and maintaining

conservation measures lay in the hands of the land owners, the control of such a program should also be in their hands.

As a result of these and other concerns, a group of landowners led by V.C. Marshall of Heidenheimer, Texas, convinced the Governor to veto the 1937 legislation.

Hard feelings among agricultural leaders resulted from the attempt to pass this soil conservation law. Under the leadership of Mr. Marshall, a concerted effort was made during the interim between legislative sessions to heal the old wounds and to put together a version of a law that would be generally accepted by the farmers and ranchers of Texas. Mr. Marshall organized a committee of leaders from across the state to promote the passage of a new Soil Conservation Law. He traveled many miles at his own expense seeking the views of agricultural leaders and promoting the idea of the Soil Conservation District Program.

The key points Mr. Marshall felt should be included in the new law were that (1) farmers and ranchers should determine whether or not a Soil Conservation District was needed and hold a local option election prior to the establishment of the district; (2) the program should be controlled by landowners; and (3) the Soil Conservation Districts should have no taxing authority or the power of eminent domain.

In 1939, the Texas Legislature passed H.B. (House Bill) 20 which incorporated those features and was the first Soil Conservation Law for the state. The law created the State Soil Conservation Board and allowed for the creation of the Soil Conservation Districts. Mr. Marshall was elected as the first Chairman of the Soil Conservation Board and later resigned to become the first Executive Director of the agency.

On April 30, 1940, the Secretary of the State issued Certificates of Organization for the first 16 Soil Conservation Districts paving the way for the program we now operate. Today, Texas has 216 local SWCDs that encompass 100% of the state.

As previously mentioned, the Model Act endorsed by President Roosevelt was in part patterned after the Texas Wind Erosion Act. Texas was already making attempts to address soil conservation as a result of the "Dust Bowl" days of the 1930s. The 44th Legislature in 1935 passed legislation authorizing the establishment of Wind Erosion Conservation Districts. This law provided for the creation of districts to "conserve the soil by prevention of unnecessary erosion caused by winds, and the reclamation of lands that have been depreciated or denuded of soil by reasons of winds." Although a number of Wind Erosion Control Districts were created, the passage of the Soil Conservation District Law in 1939 resulted in those districts becoming dormant.

In 1975, Governor Dolph Briscoe, by Executive Order, designated the TSSWCB as lead agency to assume the planning and management responsibility for control of agricultural and silvicultural nonpoint source pollution as required by the Federal Water Pollution Control Act.

In 1981, the 67th Legislature passed H.B. 1436, which for the first time codified the agricultural laws of Texas. Title 7, Chapter 201 of this code contains the portion pertaining to Soil and Water Conservation.

In 1985, the 69th Legislature passed S.B. 1083 creating a Brush Control Program in Texas and granting new powers and responsibilities, without funding, to the TSSWCB and SWCDs under Chapter 203 of the Agriculture Code.

In 1999, the TSSWCB received its first appropriation in the FY00-01 biennium to control water-depleting brush and trees, such as cedar and mesquite. The program received $9.1 million to establish a pilot project in the North Concho Watershed.

In 1993, the 73rd Legislature passed S.B. 503 which named the TSSWCB the lead agency to address water quality issues relating to runoff from diffused, or nonpoint sources resulting from agricultural and forestry operations. In 1999, the Legislature expanded the TSSWCB's environmental mission and appropriated money to address water pollution from nonpoint sources under a separate, federally mandated program.

The leaders who framed the Texas Soil and Water Conservation Law in 1939 recognized that landowners and operators of private land constitute the basic resource for the conservation of our renewable natural resources. Without the support and willing participation of private landowners and operators in the development and implementation of soil and water conservation programs there is little hope of success. Only local SWCDs led by farmers and ranchers who know the land and the local conditions and problems have the means to develop conservation plans that address each acre of land specific to its needs to solve or reduce the severity of its problems.

Status Report on Implementation of Sunset Legislation Provisions

During Fiscal Year (FY) 2010, the mission and performance of the TSSWCB (State Board) was reviewed by the Legislature as required under the Texas Sunset Act. The Commission adopted recommendations for the TSSWCB in June 2010, and the Texas Legislature enacted House Bill 1808 (Cook, 82nd Legislature) in 2011 that continued the TSSWCB through 2023.

House Bill 1808 added standard Sunset language requiring impartial appointments to the State Board, modified standard Sunset language requiring members of the State Board to complete training before assuming their duties to apply the language to appointed, as well as elected, board members, and modified standard Sunset language specifying the grounds for removing a State Board member to apply the language to appointed, as well as elected, board members. None of these bill provisions required specific implementation action by the agency.

House Bill 1808 required the TSSWCB to establish specific program goals and statewide grant practices and to measure impacts for state-funded competitive grant programs.

House Bill 1808 also required the TSSWCB to ensure follow-up brush control treatment and assess the overall effectiveness of the water supply enhancement program. In response, the agency will continue to require follow-up brush control treatment, at no cost to the State, in its water supply enhancement plans. Status reviews will be conducted within three to five years after initial treatment of mesquite, mixed brush, juniper or saltcedar to determine if the canopy is above 5%. A second status review will be performed eight to nine years after initial treatment. If the producer is found out of compliance, he/she will not be eligible for another contract for a period of ten years.

The legislation also clarified the TSSWCB's ability to accept grants, loans, or other funds in its role as administrator of the Texas Invasive Species Coordinating Committee, although this ability has not been exercised by the agency.

Further updates on the status of the TSSWCB's implementation of House Bill 1808 will be reported on the agency website and can be accessed on each program's main website address: www.tsswcb.texas.gov.

Organization

Since inception, the TSSWCB has been governed by five board members, elected by delegates from each of five regions of the state's 216 local SWCDs. Elections occur annually at regional conventions of the local SWCDs, with members serving two-year staggered terms. However, with the enactment of S.B. 1828 by the 78th Legislature, two Governor Appointees join the five elected board members to create a seven-member board. The two Governor appointed positions are listed below. The term of one member appointed by the Governor expires February 1 of each odd-numbered year, and the term of the other member appointed by the Governor expires on February 1 of each even-numbered year.

Elected State Board members must be 18 years of age or older; hold title to farmland or ranchland; and be actively engaged in farming or ranching. The Governor appointees must be actively engaged in the business of farming, animal husbandry, or other business related to agriculture and wholly or partly owns or leases land used in connection with that business; and may not be a member of the board of directors of a SWCD.

The State Board elects its own Chair and generally meets every odd month, unless specific programs or issues require more immediate action. The following list shows the current Board members and which State Board Region they represent.

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Texas State Soil and Water Conservation Board Members

Member Name	Region	Term	Residence
Scott Buckles	#1	May 5, 2015- May 3, 2017	Stratford
Marty H. Graham	#2	May 1, 2014- May 6, 2016	Rocksprings
José O. Dodier, Jr.	#3	May 5, 2015- May 3, 2017	Zapata
Jerry D. Nichols	#4	May 1, 2014- May 6, 2016	Nacogdoches
Barry Mahler	#5	May 5, 2015- May 3, 2017	Iowa Park
Larry D. Jacobs	Appointed	February 1, 2014- February 1, 2016	Montgomery
Joe L. Ward	Appointed	February 1, 2015- February 1, 2017	Telephone

Staff

Mr. Rex Isom has been the Executive Director since January 2004 and continues to carry out the directives of the State Board and directing staff efforts. We emphasize our agency philosophy as stated in our Strategic Plan, "The State Soil and Water Conservation Board will act in accordance with the highest standards of ethics, accountability, efficiency, and openness. We affirm that the conservation of our natural resources is both a public and a private benefit, and we approach our activities with a deep sense of purpose and responsibility." Mr. Isom, as Executive Director, is leading the agency in that direction and expects all employees to follow that lead.

As of December 1, 2015, the TSSWCB has 72 employees, 26 of which work in the Temple headquarters. The remaining 46 employees are field staff, either working out of their homes or located in eight satellite offices, located throughout the state. Due to difficulty in recruiting, engineers services are now being contracted with engineering firms. The following organization chart shows the agency's current structure.

The current structure of the TSSWCB reflects efforts to maintain more personnel in the field and away from headquarters for a 64% to 36% ratio of Field personnel to Headquarters personnel. The regional office staff along with the program specific staff provides on-site technical assistance to farmers and ranchers. The field staff serves as a liaison between the TSSWCB and local districts. The field staff also provides assistance to local districts and district employees concerning operations, programs, and activities. The regional office staff and the program specific staff coordinate with the Texas Commission on Environmental Quality (TCEQ), Texas AgriLife Extension Service, and the USDA's Natural Resource Conservation Service (NRCS) to provide technical assistance to landowners to implement Water Quality Management Plans

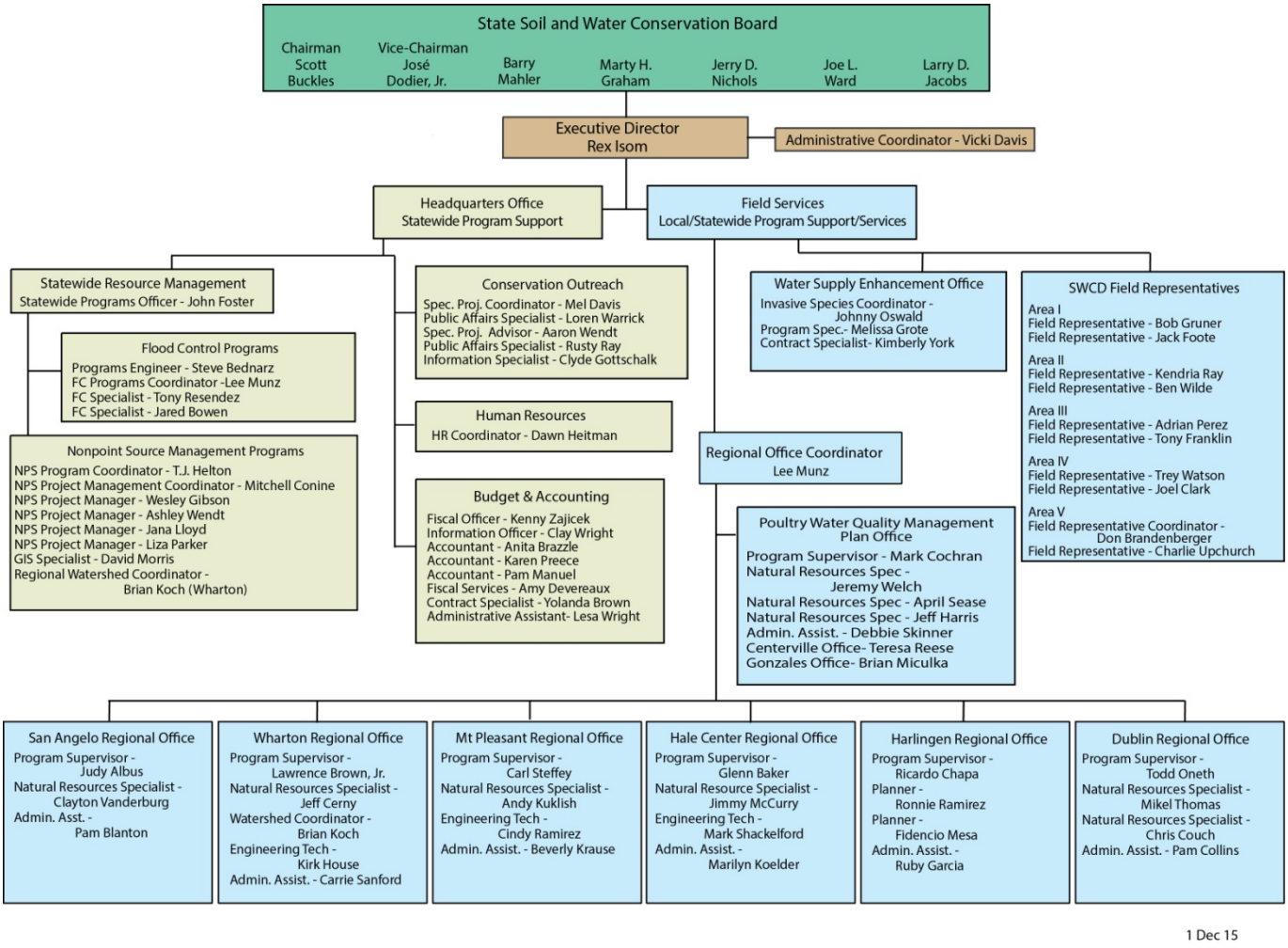


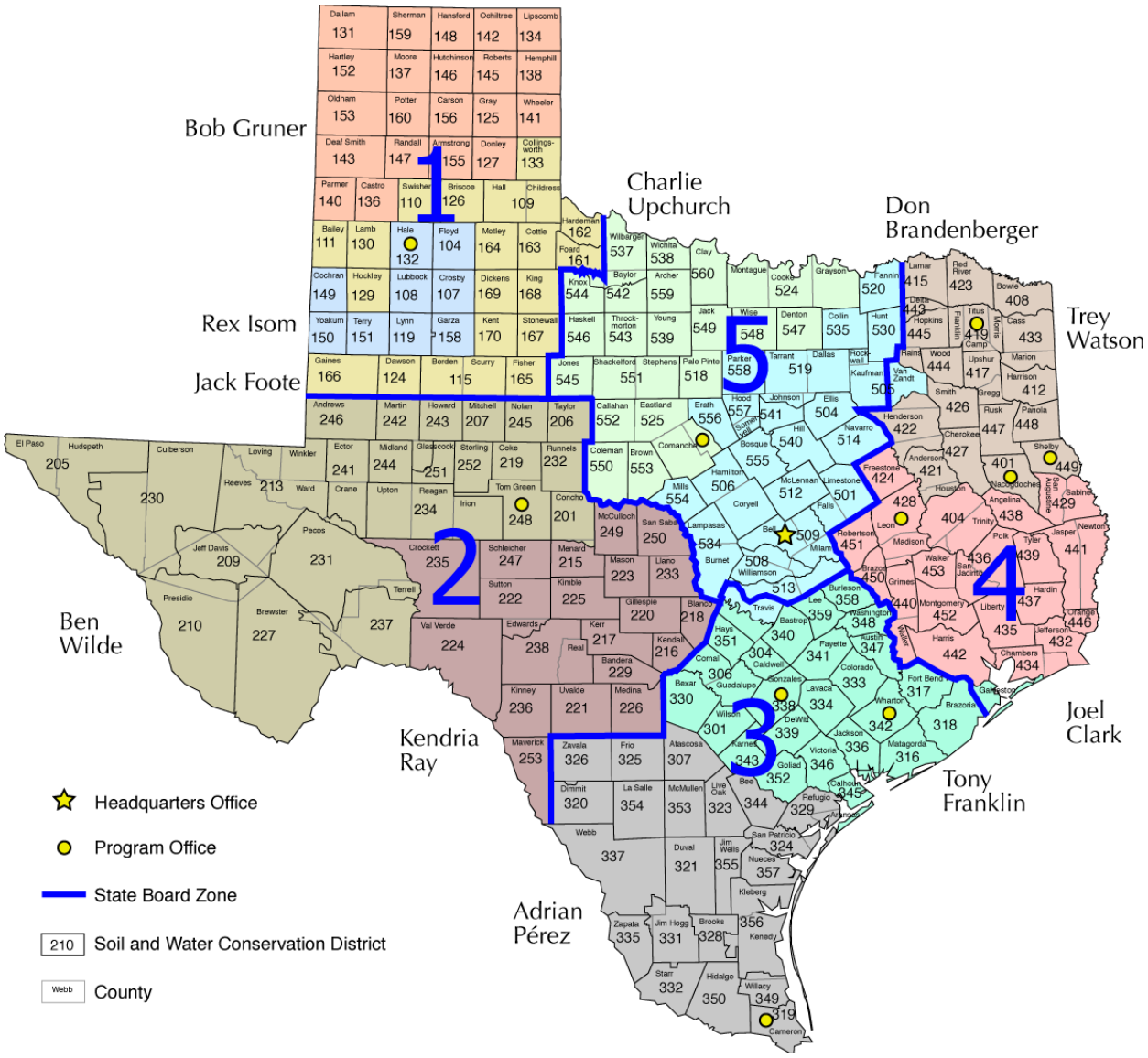
Figure 1. Diagram of Agency Organization

Soil and Water Conservation Districts

The TSSWCB performs many of its activities in coordination with the state's 216 local SWCDs. These local SWCDs are political subdivisions of the state, established through local option elections of agricultural landowners. SWCDs generally reflect county boundaries, but may also follow river basin or watershed boundaries, depending on the desires of the local landowners.

The following SWCD map shows the current 216 local SWCDs that cover the entire state. The map also shows the grouping of the SWCDs into the five State Board Districts that respectively elect a State Board member and shows the field staff that is assigned to work with each SWCD within a specific area.

Figure 2. Map of State Board Zones and Soil and Water Conservation Districts



Landowners within these local SWCDs elect the five directors that comprise the SWCD's governing body or board of directors. This board of directors administers the programs and activities of the SWCD. Representatives of the SWCDs within each region then elect the members of the State Board through a series of convention style-elections.

SWCDs do not have taxing authority and rely on locally generated funds from various activities and programs, federal assistance, county assistance, and state assistance from the TSSWCB. The USDA-NRCS provides most of the federal assistance available to SWCDs and through cooperative agreements provides technical assistance to farmers and ranchers requesting assistance from the SWCD.

Annual State Meeting Of Soil and Water Conservation District Directors

The Annual State Meeting of Soil and Water Conservation District Directors, required in §201.081, Texas Agriculture Code, was held October 26-28, 2015 in Corpus Christi with 607 registered attendees. The

2016 Annual State Meeting is scheduled for on October 17-19 in Waco. Registration information will go out in July 2016 for the meeting in Waco.

Director Mileage and Per Diem

The 81st Legislature provided an additional $134,510 per year to offset costs for the increase in the reimbursement rate for District Director Mileage claims from 18 cents to the current state rate of mileage. The FY2015 appropriation for this program is $434,510.

District Technical Assistance Funds

The TSSWCB disburses Technical Assistance payments to Districts on a reimbursing basis to supplement their efforts in providing assistance to agricultural producers in the state. Distributions are contingent upon Districts filing annual performance reports with the TSSWCB. The FY2015 appropriation for this program is $2,139,394.

District Conservation Assistance Program

The 83rd Legislature provided Conservation Assistance Grants to Districts for the 2014-15 Biennium. The grants are awarded on a matching basis requiring Districts to raise funds from sources other than the TSSWCB. Districts do not have taxing authority and use locally raised funds with this matching grant to support their operational expenses. The FY2015 appropriation for this program is $1,080,000.

Programs and Activities of the TSSWCB

The services and programs provided by the TSSWCB are focused on rural Texas farmers and ranchers, but the results of these services benefit all Texans. For example, many of the flood control structures maintained by SWCDs serve to protect heavily populated areas from flood damage, and also prevent sediment from building up in drinking water supplies. Another example is the use of best management practices (BMPs), implemented through TSSWCB-certified water quality management plans (WQMPs), to prevent pesticides, nutrients, bacteria and other pollutants from impairing the use of Texas streams, rivers, lakes, and estuaries.

The agency is responsible for numerous natural resource conservation efforts, the most prominent of which is serving as the lead state agency responsible for planning, implementing and managing programs and practices for preventing and abating agricultural and silvicultural (forestry-related) nonpoint source (NPS) water pollution. To fulfill this mandate, the agency jointly administers the *Texas Nonpoint Source Management Program* with the Texas Commission on Environmental Quality (TCEQ). As a result, many of the agency's programs and services aim to improve and protect water quality, including the Water Quality Management Plan Program, the Nonpoint Source Grant Program, the Total Maximum Daily Load Program, and the Watershed Protection Plan Program. Additionally, the TSSWCB is a member of the Coastal Coordination Advisory Committee and the Texas Groundwater Protection Committee.

The TSSWCB is also responsible for programs affecting water quantity. The major existing program is the Water Supply Enhancement Program which seeks to increase water supply through the targeted control of water-depleting brush. Additionally, many BMPs implemented by farmers and ranchers as prescribed in their WQMP have ancillary water conservation benefits – increasing irrigation efficiency

and reducing water demand. The TSSWCB is also a member of the Water Conservation Advisory Council.

Other responsibilities include prevention of soil erosion, control of floods, maintaining the navigability of waterways, the preservation of wildlife, protection of public lands, and providing information to landowners regarding the jurisdictions of the TSSWCB and the TCEQ as related to NPS water pollution.

Flood Control Programs

Approximately 2,000 floodwater retarding structures, or dams, have been built over the last 60 years within the State of Texas. The primary purpose of the structures is to protect lives and property by reducing the velocity of floodwaters, and thereby releasing flows at a safer rate. These are earthen dams that exist on private property, and were designed and constructed by the United States Department of Agriculture - Natural Resources Conservation Service (USDA-NRCS). They were built with the understanding that the private property owner would provide the land, the federal government would provide the technical design expertise and the funding to construct them, and then units of local government would be responsible for maintaining them into the future.

Due to the passage of time and difficulty in raising adequate funds locally, many sponsors approached the Texas Legislature with their concerns over the amount of needed operation and maintenance (O&M), and structural repairs. In recognition that these dams will continue to serve as a critical protection for our state's infrastructure, private property, and lives, the Legislature appropriated $15 million dollars to the TSSWCB for grants to local SWCDs during the 2010-2011 biennium for O&M and structural repairs.

In response to this appropriation, the TSSWCB assembled a representative stakeholder group and began the process of developing programs to deliver the funds to the sponsors of flood control dams during the summer of 2009. It was determined that the most efficient and effective way to proceed was to develop two separate grant programs, one to address O&M, and the other to address structural repairs, due to their difference in complexity.

O&M Grant Program

The O&M Grant Program is a reimbursable grant program for local SWCDs and certain co-sponsors of flood control dams. This program reimburses SWCDs 90% of the cost of an eligible O&M activity as defined by the program rules; the remaining 10% must be paid with non-state funding. Rules for the O&M Grant Program were developed by the TSSWCB staff and a representative stakeholder group during the summer of 2009. The rules were adopted by the State Board on September 17, 2009, and published in the Texas Register on October 9, 2009. The rules became effective October 14, 2009, and the program is fully operational.

In FY2015, $1,000,000 was allocated to 69 dam sponsors to conduct O&M activities on flood control dams through June 30, 2017. To date there is a balance of $200,663 that still needs to be spent before the June 2017 deadline.

For FY2016, $1,000,000 was available for sponsors to submit proposals to complete O&M work. To date a total of 49 proposals have been received. 45 proposals have been approved to complete O&M activities in the amount of $932,816, leaving a remaining balance of $67,184.

Structural Repair Grant Program

The Structural Repair Grant Program is a reimbursable grant program for local SWCDs and certain co-sponsors of flood control dams. This program reimburses SWCDs 95% of the cost of performance of structural repair activity as defined by the program rules; the remaining 5% must be paid with non-state funding. Rules for the Structural Repair Grant Program were adopted by the State Board on March 18, 2010, and became effective April 25, 2010.

FY2014

The TSSWCB has contracted with the Dalworth SWCD to conduct a major repair on Mountain Creek, Site 10, in Ellis County using $5,600,000 of FY2014 funds.

FY2015

The TSSWCB has contracted with the Ellis-Prairie SWCD to complete needed repairs on Chambers Creek site 5, in Ellis County.

The TSSWCB has also contracted with Wise County to complete needed repairs on Denton Creek site 17, in Wise County using $222,948.00 of FY2015 funds.

FY2016

In October Navarro County experienced its second 500-year rainfall event in the last five years. Twenty flood control dams within the county sustained damage. The Navarro SWCD has requested federal dollars from the USDA-NRCS Emergency Watershed Protection (EWP) Program for the needed repairs. The TSSWCB has contracted with the Navarro SWCD to help the district match the federal dollars received.

Dam Rehabilitation

In FY2014, TSSWCB signed ten Project Agreements with NRCS for $13 million in federal rehabilitation funding for planning, design, and construction. In FY2015, TSSWCB signed four new project agreements and four amendments to existing agreements for an additional $10.4 million in federal rehabilitation funding. TSSWCB is contracting for engineering services and construction on these dams. As of December 2015, total federal rehab funding provided to TSSWCB is $23.4 million on 19 dams. State matching funds for rehab construction obligated to date is $14.7 million.

Following are the funded activities and current status of rehabilitation projects:

Planning

Plum Creek 10 (Hays)
Plum Creek 12 (Hays)
Plum Creek 21 (Caldwell)
Lower Plum Creek 28 (Caldwell)
Lower Running Water Draw 4 (Hale)
Chambers 10 (Ellis)
Chambers 11 (Ellis)

Design

East Fork Above Lavon 4 (Collin)
Williams Creek 3 (Gillespie)
Lower Brushy 20 (Williamson)
Upper Brushy 32 (Williamson)

Construction Underway

Mountain Creek 10 (Ellis)
East Fork Above Lavon 2A (Collin)
Calaveras Creek 10 (Bexar)
Martinez Creek 1 (Bexar)
Martinez Creek 2 (Bexar)
Martinez Creek 3 (Bexar)
Plum Creek 6 (Hays)
Olmitos Garcias 7 (Starr)

Construction Funded, but Design Not Yet Complete

Upper Brushy 32, (Williamson)
East Fork Above Lavon 4 (Collin)

For more information on these programs, please visit the TSSWCB's website at:
http://www.tsswcb.texas.gov/en/floodcontrol

Texas Nonpoint Source Management Program

The federal Clean Water Act (CWA) requires States to develop a program to protect the quality of water resources from the adverse effects of NPS water pollution. The *Texas NPS Management Program* is the State's official roadmap for addressing NPS pollution and is jointly administered by the TSSWCB and the TCEQ. The program publication is updated every five years. The *2012 Texas NPS Management Program* was approved by the U.S. Environmental Protection Agency (EPA) August 2012.

The *Texas NPS Management Program* utilizes baseline water quality management programs and regulatory, voluntary, financial, and technical assistance approaches to achieve a balanced program. NPS pollution is managed through assessment, planning, implementation, and education. The TSSWCB and the TCEQ have established goals and objectives for guiding and tracking the progress of NPS management in Texas.

On March 13, 2015, TSSWCB distributed the *2014 Annual Report on Managing NPS Water Pollution in Texas* to all SWCDs; the report is jointly published by the TSSWCB and the TCEQ. In order to continue receiving CWA §319(h) funds, the State must annually report to EPA on success in achieving the goals and objectives of the *Texas NPS Management Program*. The report highlights the State's efforts during FY2014 to collect data, assess water quality, implement projects that reduce or prevent NPS pollution, and educate and involve the public to improve and maintain the quality of water resources. The report is available at http://www.tsswcb.texas.gov/reports#nps.

Implementation of the *Texas NPS Management Program* involves partnerships among many organizations. With the extent and variety of NPS issues across Texas, cooperation across political boundaries is essential. Many local, regional, state, and federal agencies play an integral part in managing NPS pollution, especially at the watershed level. SWCDs are vital partners in working with landowners to implement BMPs that prevent and abate agricultural and silvicultural NPS water pollution.

Multiple water quality programs administered by and/or coordinated through TSSWCB collectively represent the agency's efforts in supporting the goals and objectives of the *Texas NPS Management Program* including:

- Nonpoint Source Grant Program
- Total Maximum Daily Load (TMDL) Program
- Watershed Protection Plan (WPP) Program
- Water Quality Management Plan (WQMP) Program
- Coastal Coordination Advisory Committee Function
- Texas Groundwater Protection Committee Function

More information on the *Texas NPS Management Program* is available at http://www.tsswcb.texas.gov/managementprogram.

Nonpoint Source Grant Program

The NPS Grant Program is administered by the TSSWCB for the purpose of providing funding as grants to cooperating entities for activities that address the goals and objectives stated in the *Texas NPS Management Program*. The Texas Legislature and the U.S. Congress (through the EPA) provide funding to the TSSWCB to administer the agricultural and silvicultural components of the *Texas NPS Management Program* through the TSSWCB NPS Grant Program.

Agricultural and silvicultural NPS pollution prevention and abatement activities that can be funded through the NPS Grant Program include the following: development and implementation of nine-element WPPs and the NPS portion of TMDL Implementation Plans (I-Plan), surface water quality monitoring, demonstration of innovative best management practices (BMPs), technical assistance and financial incentives for the development and implementation of WQMPs, public outreach/education, and monitoring activities to determine the effectiveness of specific pollution prevention methods.

More information on the TSSWCB NPS Grant Program is available at http://www.tsswcb.texas.gov/managementprogram.

Clean Water Act §319(h) Grant Funding

Congress enacted §319(h) of the CWA in 1987, establishing a national program to control NPS water pollution. Through §319(h), federal funds are provided annually through the EPA to States for the implementation of each State's NPS Management Program. Texas' share of the §319(h) funding is divided equally between the TCEQ and the TSSWCB. Over the past two years, the State's allocation has been approximately $7 million per year.

TSSWCB is currently administering approximately $10 million in unliquidated federal funds from FY2011 - FY2015 CWA §319(h) allocations. There are currently 36 ongoing §319(h) grant-funded projects addressing a wide array of agricultural and silvicultural NPS issues. Specific project activities include implementing BMPs to abate NPS pollution from animal feeding operations, grazing livestock

operations and row crop operations; providing technical assistance through SWCDs for the development of WQMPs; providing financial incentives for implementing certain BMPs prescribed in WQMPs; supporting various targeted educational programs; developing and implementing WPPs and implementing the NPS portion of TMDL I-Plans.

Quarterly progress reports for ongoing projects were received on January 15, 2015, April 15, 2015, July 15, 2015 and October 15, 2015. To date, reports have been received for 100% of the projects. These reports are entered semi-annually into EPA's Grants Reporting and Tracking System.

On April 24, 2015, TSSWCB SRM staff issued the FY2016 Request for Proposals (RFP) for the NPS Grant Program. The RFP was published in the Texas Register, posted on the TSSWCB website, and all SWCDs and cooperating entities were notified of this funding opportunity. TSSWCB SRM staff identified priority areas and activities for this funding cycle based on the Texas NPS Management Program and the 2012 Integrated Report. The deadline for proposal submission was June 5, 2015. A total of 43 proposals were received.

State Grant Funding

The Texas Legislature has appropriated funds to the TSSWCB for the purpose of planning, implementing, and managing programs and practices for preventing and abating agricultural and silvicultural NPS water pollution in impaired watersheds. On September 17, 2009, the TSSWCB approved a revised *TSSWCB Policy on TMDLs and Watershed Planning, Assessment, and Implementation Activities* which provides guidance to staff on directing state appropriations for the NPS Grant Program. The TSSWCB has approved operating budgets for FY2014, FY2015 and FY2016 that allocated a total of $3.65 million in state funds to the NPS Grant Program.

There are currently 19 ongoing state funded projects addressing an array of agricultural and silvicultural NPS issues. These projects are primarily being used to implement agricultural NPS components of TMDL I-Plans; conduct recreational use attainability analyses (RUAAs); support increased analytical infrastructure at public bacterial source tracking (BST) laboratories; demonstrate innovative BMPs on animal feeding operations and grazinglands; and collect and analyze water quality data for watersheds with impaired waterbodies.

Quarterly progress reports for ongoing projects were received on December 13, 2014, March 14, 2015, June 13, 2015 and September 15, 2015. To date, reports have been received for 100% of the projects.

Total Maximum Daily Load Program

The CWA requires Texas to identify lakes, rivers, streams, and estuaries failing to meet or not expected to meet water quality standards and not supporting their designated uses (swimming, drinking, aquatic life, etc.). This list of impaired waterbodies is known as the *Texas 303(d) List* and must be submitted to the EPA for review and approval every two years. The *2012 Texas Integrated Report for CWA §§305(b) and 303(d)* was approved by EPA on May 9, 2013. The *2012 Integrated Report* identifies over 940 impairments (waterbody-pollutant combinations) on 408 waterbody segments.

The State must then establish a Total Maximum Daily Load (TMDL) for certain waterbodies identified on the *303(d) List*. A TMDL defines the maximum amount of a pollutant that a waterbody can assimilate on a daily basis and still meet water quality standards. The pollution reduction goal set by the TMDL is necessary to restore attainment of the designated use of the impaired waterbody. The TMDL allocates

pollutant loads between point sources and nonpoint sources. It also takes into account a margin of safety, which reflects uncertainty and future growth.

Based on the environmental target of the TMDL, an Implementation Plan (I-Plan) is then developed that prescribes the measures necessary to mitigate anthropogenic (human-caused) sources of that pollutant in that waterbody. The I-Plan specifies limits for point source dischargers and recommends BMPs for nonpoint sources. It also lays out a schedule for implementation. Together, the TMDL and the I-Plan serve as the mechanism to reduce the pollutant, restore the full use of the waterbody and remove it from the *303(d) List*. EPA must approve the TMDL, but the I-Plan only requires State approval.

TSSWCB shares responsibility with the TCEQ for the development and implementation of TMDLs. On September 27, 2006, at a joint meeting, the TSSWCB and the TCEQ renewed this partnership and approved a revised *Memorandum of Agreement on Total Maximum Daily Loads, Implementation Plans, and Watershed Protection Plans*. This framework for collaboration between the two agencies describes the programmatic mechanisms employed to develop and implement TMDLs and I-Plans.

TSSWCB is engaged in implementation activities that support approved I-Plans addressing agricultural or silvicultural NPS load reductions described in adopted TMDLs; collaborating with stakeholders on the development of I-Plans for adopted TMDLs that contain agricultural or silvicultural NPS load reductions; and, actively engaged in the development of TMDLs for waterbodies impaired due to known or suspected agricultural or silvicultural NPS pollution.

TSSWCB funded activities are mitigating bacteria, dissolved oxygen, phosphorus and salinity impairments through TMDLs and I-Plans. Specific watersheds where TSSWCB efforts to restore water quality are channeled through TMDL development and implementation are discussed in the *Watershed Approach to Water Quality Planning and Implementation* section of this Report and shown on Figure 3.

In order to abate agricultural and silvicultural NPS pollution, TMDLs and I-Plans will implement components of other TSSWCB Programs, such as the Water Quality Management Plan Program or the Water Supply Enhancement Program. Additionally, the TSSWCB NPS Grant Program serves as a funding source to implement the agricultural and silvicultural NPS components of I-Plans. These programs are described in detail in other sections of this Report.

More information on the TSSWCB TMDL Program is available at: http://www.tsswcb.texas.gov/tmdl.

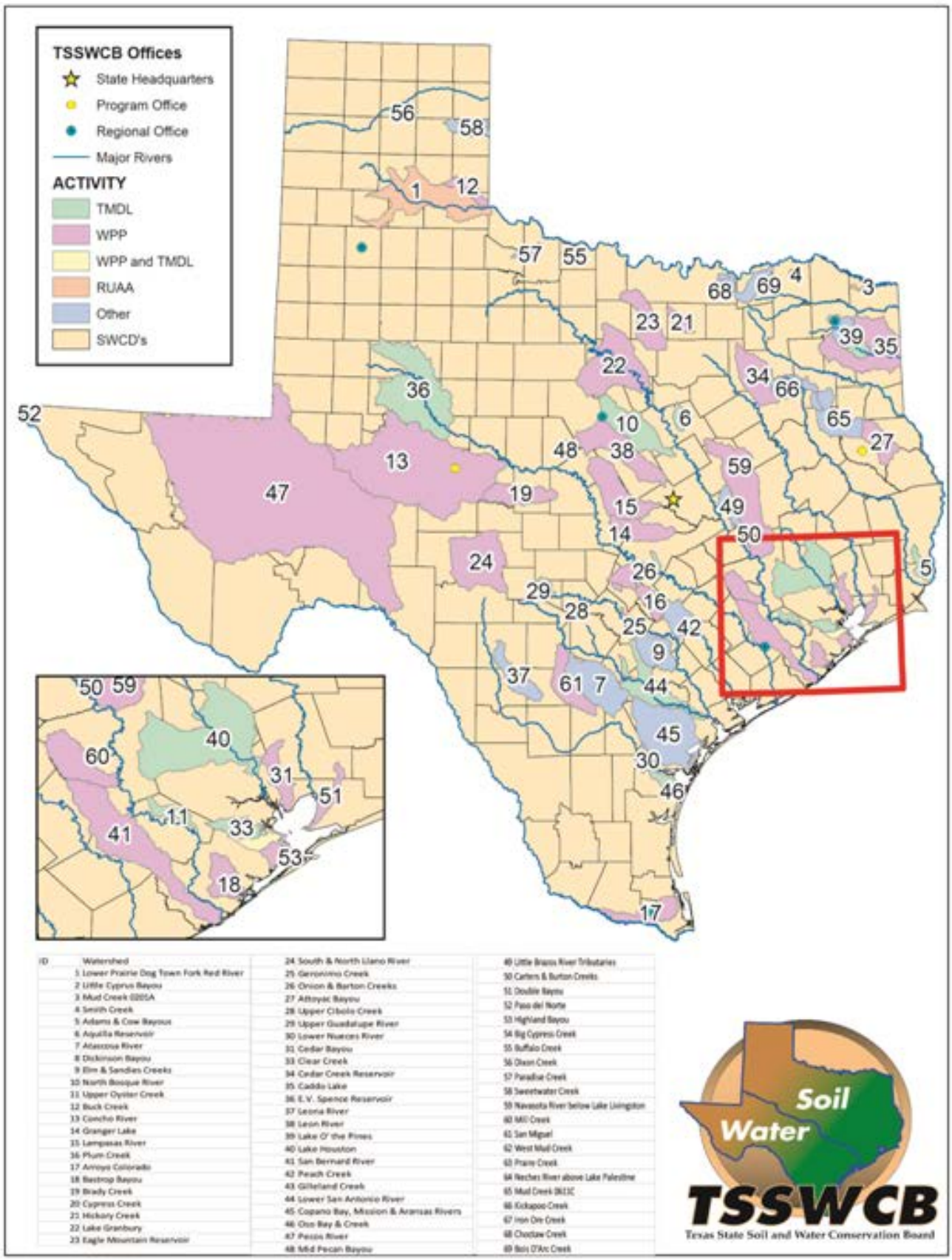


Figure 3. TSSWCB Efforts to Restore Water Quality

Recreational Use Attainability Analyses

According to the *2012 Texas Integrated Report for CWA §§305(b) and 303(d),* 270 waterbodies are impaired because they do not meet surface water quality standards for bacteria established to protect contact recreation use (in freshwater or saltwater) and/or oyster water use. The magnitude of bacteria impairments in Texas is evident when compared to all other types of water quality impairments.

Critical to solving the breadth of bacteria impairments statewide is ensuring that the water quality standards designed to protect recreation use are appropriate and credible. The 2010 revisions to the Texas Surface Water Quality Standards establish a four tier approach to recreation use including primary contact recreation, secondary contact recreation 1, secondary contact recreation 2, and noncontact recreation. In order to change the presumed level of recreation use of a waterbody (i.e., primary contact recreation) to any of the other 3 tiers and the associated bacteria criterion, a recreational use attainability analysis (RUAA) must be completed for each waterbody and approved by TCEQ and subsequently EPA.

The purpose of an RUAA is to ascertain the actual recreation occurring on a waterbody, establish or verify a presumed use, and, if necessary, assign a more appropriate use. During an RUAA information is collected on water recreation activities, stream flow type, and stream depth; additionally, interviews from users who are present during surveys and those familiar with the waterbody may be conducted and a review of historical information may be completed. If the results of the RUAA indicate that a different, more appropriate use is warranted, the resulting change in the associated bacteria criterion may result in the waterbody no longer being identified on the *303(d) List* as impaired, thus negating the need to adopt a TMDL.

The TCEQ and TSSWCB are in the process of conducting RUAAs on waterbodies across the state. Prior to conducting the surveys, local stakeholders will be contacted to seek input on each project's monitoring plan. TCEQ is coordinating communication with SWCDs through the TSSWCB. After the RUAAs are conducted, TCEQ will evaluate the information and again consult with stakeholders regarding potential site-specific revisions to the surface water quality standards for each waterbody.

Watershed Protection Plan Program

Watershed Protection Plans (WPPs) are locally-driven mechanisms for voluntarily addressing complex water quality problems that cross multiple jurisdictions. WPPs are coordinated frameworks for implementing prioritized water quality protection and restoration strategies driven by environmental objectives. Through the watershed planning process, TSSWCB encourages stakeholders to holistically address all the sources and causes of impairments and threats to both surface and ground water resources within a watershed.

WPPs serve as tools to better leverage the resources of local governments, state and federal agencies, and non-governmental organizations. WPPs integrate activities and prioritize implementation projects based upon technical merit and benefits to the community, promote a unified approach to seeking funding for implementation, and create a coordinated public education program. Developed and implemented through diverse, well integrated partnerships, a WPP assures the long-term health of the watershed with solutions that are socially acceptable and economically viable which achieve environmental goals for water resources. Adaptive management is used to modify the WPP based on an on-going science-based process that incorporates new knowledge into decision-making.

EPA requires certain expenditures through CWA §319(h) grants to be in accordance with a WPP. TSSWCB provides technical and financial assistance to local stakeholder groups to develop and implement WPPs to address significant agricultural or silvicultural NPS issues. Additionally, TSSWCB staff provides technical assistance in developing WPPs which are funded and facilitated by other entities, such as the TCEQ.

Partnerships with the Texas A&M AgriLife Extension Service, the Texas Water Resources Institute and the TCEQ have resulted in the development of training programs for local stakeholder groups and watershed coordinators. The Texas Watershed Steward Program (http://tws.tamu.edu/) supports the development and implementation of WPPs by promoting a sustainable proactive approach to managing water quality at the local level by empowering individuals to take leadership roles in the management of water resources. The Texas Watershed Planning Short Course (http://watershedplanning.tamu.edu/) delivers training to watershed coordinators and water resource professionals to ensure WPPs are adequately planned, coordinated, implemented, and results properly assessed and reported. In order to build upon the fundamental knowledge conveyed through the Short Course, the State hosts Watershed Coordinator Roundtables (http://watershedplanning.tamu.edu/developing/guidance/roundtable) semi-annually to continue dialogue between watershed coordinators in order to facilitate interactive solutions to common issues being faced statewide.

WPPs currently sponsored by TSSWCB have significant agricultural or silvicultural NPS pollution components and are all funded through NPS Grants. While WPPs sponsored by TCEQ have significant water quality issues related to urban NPS pollution or wastewater treatment, most, to varying degrees, have agricultural or silvicultural NPS pollution components as well. There are several other watershed planning efforts across the state which are funded and sponsored by entities and agencies other than the TSSWCB or the TCEQ.

Specific watersheds, where TSSWCB efforts to restore water quality are channeled through WPP development and implementation, are discussed in the *Watershed Approach to Water Quality Planning and Implementation* section of this Report and shown in Figure 3.

In order to abate agricultural and silvicultural NPS pollution, WPPs will implement components of other TSSWCB Programs, such as the Water Quality Management Plan Program or the Water Supply Enhancement Program.

More information on the TSSWCB WPP Program is available at http://www.tsswcb.texas.gov/wpp.

Water Quality Management Plan Program

The Water Quality Management Plan (WQMP) Certification Program established by the enactment of Senate Bill 503 in 1993 offers landowners and operators of agricultural and silvicultural lands a voluntary mechanism for being protective of state water quality with respect to nonpoint source pollution. This program offers cost-share funding for the installation of soil and water land improvement measures to serve as an incentive for participating.

From January 1, 2015 through December 9, 2015 there have been 259 new WQMPs certified on 163,000 acres. There have also been 204 applications approved for financial incentives to assist producers with the implementation of agricultural nonpoint source pollution abatement practices. More information about the WQMP Program is available at: http://www.tsswcb.texas.gov/wqmp.

Poultry Water Quality Management Plan Program

In 1994, the TSSWCB began assisting poultry operations with the establishment of the Northeast Texas Regional Office in Mt. Pleasant. Between 1994 and 2004, over $300,000 of WQMP Program funding was provided annually to six soil and water conservation districts (SWCDs) in Northeast Texas to address animal feeding operations (AFOs). Beginning in 2005, funding for SWCDs in Northeast Texas was reduced to just under $200,000 annually. Shelby SWCD began receiving state cost-share funds in FY2005 and the Nacogdoches SWCD began receiving cost-share funds in FY2007 to address poultry animal feeding operations in those counties. Beginning in FY2014, the cost-share program changed from a SWCD based initiative to an area-wide priority based program where applicants are ranked according to their impact on the environment.

In 1995, the TSSWCB initiated three federal Clean Water Act, §319(h) projects to demonstrate composting as a means for dead bird disposal, buffer strips, and proper land application of poultry litter. In 1996, the TSSWCB expanded its efforts by initiating a composting and marketing project. This effort to promote the installation of composters and other means of mortality management on poultry farms resulted in accelerated WQMP development.

In 1997, the Texas Legislature passed Senate Bill 1910, which required all poultry farms to have a TCEQ-approved method of dead bird disposal. The law took effect in March 1998. However, the rules were not adopted and did not take effect until fall 1999. It was during this time that requests for poultry WQMPs significantly increased due to pursuit of cost-share for mandated mortality management. This activity intensified the TSSWCB's poultry initiative.

In 1999, in response to water quality concerns and the initiation of TMDL development in the Big Cypress/Lake O' the Pines watershed, the TSSWCB began using federal §319 funds for cost-share in the area in addition to the state Senate Bill 503 cost-share funds already directed to the watershed. The current implementation process of the TMDL has shown that the WQMP program has resulted in reduced nutrient loadings in the watershed. Due to rising concerns in nearby watersheds, the TSSWCB also included the Sam Rayburn and Toledo Bend Reservoir watersheds in its initiative in 1999. The TSSWCB expanded the poultry initiative again in 2001 to the Gonzales area.

In 2001, the 77th Legislature passed Senate Bill 1339, which requires all poultry facilities in Texas to operate in accordance with a WQMP certified by the TSSWCB. The review and certification process assures the plan includes appropriate practices, management measures, and schedules of implementation.

This law provided for a staggered-schedule of deadlines by which each producer, depending on their initial date of operation, must have requested the development of a WQMP from their soil and water conservation district. Any commercial poultry facility constructed after January 1, 2002 is required to have a WQMP prior to the receipt of any birds. All other commercial poultry facilities were required to have a WQMP no later than December 31, 2007.

In 2004, large dry-litter poultry farms were first defined as concentrated animal feeding operations (CAFOs) due to changes made by the U.S. EPA to the federal regulations. In response, the TCEQ adopted a rule change that required larger dry-litter poultry operations to operate under a water quality permit. However, a federal court decision in 2005 vacated portions of EPA's rule and in 2006 TCEQ adopted new rules to allow CAFO size dry-litter poultry farms an exemption to permitting if they obtain and follow a WQMP certified by TSSWCB. EPA's final rule became effective in December 2008.

Meetings were held in seven different poultry producing locations in 2008 to inform poultry producers of those additional requirements. In 2011, portions of the 2008 rule were vacated by a federal court and TCEQ is in the process of revising their rules accordingly.

In 2009 the 81st Texas Legislature passed Senate Bill 1693 which prohibits TSSWCB from certifying or re-certifying a WQMP for a farm that is likely to cause a nuisance odor for neighbors within ½ of one mile of the farm unless it obtains an odor control plan.. It required TSSWCB to develop rules for determining if a nuisance odor from the facility is likely. The rules allow the farm the option to obtain consent from neighbors in lieu of the odor control plan. The law requires record keeping of litter usage by the poultry farm as well as receivers of poultry litter. It requires owners of new farms to complete an odor control prevention course from Texas A&M poultry science department.

Between 2001-2012, there have been 10 SWCDs that have had technicians employed to assist with developing and maintaining WQMPs for poultry producers. In August 2012, the last of those technician projects expired and only the TSSWCB staff remains to develop and maintain almost 1200 poultry WQMPs in 52 counties across Texas.

The TSSWCB Nacogdoches Poultry Office was established in 2003, while the Gonzales and Centerville offices were established in 2007. The offices are located in heavily poultry populated areas of the state which are Nacogdoches, Gonzales, and Centerville and each also serves the poultry producers in surrounding counties. Those 3 offices serve 32 counties which account for about 71% of the currently nearly 1200 existing dry-litter poultry farms in Texas. Poultry Program staffing now consists of (1) Program Supervisor, (5) Natural Resource Specialists, and (1) Administrative Assistant to assist poultry producers primarily in those 32 counties, but are available for other counties as needed. In addition, TSSWCB Regional Office staffs also assist poultry producers in their areas across the state.

In May 2010 researchers from Texas A&M University and Stephen F. Austin State University began a project to evaluate technologies for controlling dust and odor from poultry farms. Electrostatic Particle Ionization and BioCurtains were installed and evaluated at a working poultry farm in Central Texas to determine if these technologies can be effectively implemented to reduce dust and odors. The final report was submitted to TSSWCB in December 2011. Results showed a reduction of ammonia by 9-17%, hydrogen sulfide by 9%, and total suspended solids by 34-43%. This project was funded by TSSWCB and NRCS.

In March 2011 the U.S. Court of Appeals for the 5th Circuit vacated portions of EPA's 2008 federal CAFO rule, and therefore, TCEQ is in the process of revising published a revised the Texas CAFO rule in July 2014 to comply with the federal rule as well as some issues specific to Texas.

In September 2009 researchers from Texas A&M began a project to evaluate In-House Windrow Composting of poultry litter at an actual working poultry farm to determine if composting litter inside the poultry house before it is removed and land applied will improve impacts to water quality from land-applied poultry litter. Litter was land applied and evaluated at the USDA-ARS research facility at Riesel, Texas. The project was completed in October 2013 and a final report was completed in December 2013.

Currently, the TSSWCB is aware of 1194 total dry-litter poultry farms, of which 526 (44%) are defined as CAFO. However, there is an ongoing challenge of identifying new poultry farms continually being constructed and put into production, others going out of business, farms changing bird placement numbers which can affect their AFO/CAFO status, and locating other poultry farms not yet identified.

In FY2016, staff in the Poultry WQMP Program continues to develop, update, and review Water Quality Management Plans for poultry producers and provide assistance with all issues related to the Poultry WQMP Program. The Program Supervisor, three Natural Resource Specialists, and one Administrative Assistant staff the Nacogdoches Poultry Office. There are also two other Natural Resource Specialists, one located in Centerville and the other in Gonzales. Poultry program staff work with about 843 (71%) of the 1194 total farms. Regional office staffs assist the other 351 farms. Approximately 481 (40%) of the estimated 1194 dry-litter poultry farms in Texas are located in an eleven-county area surrounding Nacogdoches that are worked by poultry program staff. About 166 (35%) of the 481 farms in the 11-county area are large enough to be defined as CAFO, which require inspections conducted by TSSWCB staff which could result in needed revisions to their WQMP. In addition, the other existing 315 WQMPs are reviewed regularly for needed updates and revisions. The office also assists other SWCDs in the state with poultry WQMP development and revision and complaint investigations as needed.

Since 2009, there have been 144 odor control plans submitted to TCEQ for approval, and 4 are currently being reviewed by TCEQ.

In February 2013, Sanderson Farms, Inc. announced its plans to build a new poultry complex in Palestine, Texas including a processing plant, hatchery, feed mill, and waste water treatment plant. Their goal was to have the complex operational by January 2015. They anticipate 100 new poultry farms will be built and operated by contract growers to supply birds to Sanderson. Construction of the Sanderson facilities began in November 2013 and contract growers began placing birds on farms in June 2014. However, due to excessive rainfall in 2015, construction of farms has been delayed and the last farms are expected to be completed by mid to late 2016.

Coastal Coordination Advisory Committee

The Texas Coastal Management Program (CMP) was created to coordinate state, local, and federal programs for the management of Texas' coastal resources. The federally approved program brings approximately $1.7 million in federal Coastal Zone Management Act (CZMA) funds to Texas annually, most of which goes to state and local entities to implement projects and program activities. Texas is one of only a handful of coastal states that pass substantial amounts of CZMA funds through to coastal communities for projects in the coastal zone.

The Texas General Land Office (GLO) and the Land Commissioner are responsible for coordinating activities associated with the CMP. The Coastal Coordination Advisory Committee (CCAC), established by the Texas Legislature, advises the Land Commissioner on matters related to implementation of the CMP; the TSSWCB is a statutorily-authorized member of the CCAC.

The federal Coastal Zone Act Reauthorization Amendments (CZARA), §6217, requires each State with an approved CMP to develop a federally approvable program to control coastal NPS pollution. A Coastal NPS Pollution Control Program workgroup was created to develop this document. The National Oceanic and Atmospheric Administration (NOAA) and the EPA jointly administer the program at the federal level. In Texas, the TSSWCB and the TCEQ hold primary responsibility for the program's development and implementation.

Section 6217 calls for implementation of management measures (§6217(g)) that will control significant nonpoint sources of pollution to coastal waters. Six source categories are addressed by these measures: agriculture, forestry, urban and developing areas, marinas, wetland/riparian areas, and hydromodification. States can use voluntary approaches combined with existing state authorities to achieve implementation of

management measures. However, if the voluntary mechanisms are not effective, states must have backup enforcement authorities in place to ensure that management measures are implemented.

Texas submitted the Texas Coastal NPS Pollution Control Program to EPA and NOAA in December 1998. In July 2003, NOAA and EPA issued conditional approval of the Texas Coastal NPS Pollution Control Program. The agricultural and silvicultural portions of the program were approved without conditions. Texas has five years to meet the remaining conditions to gain full approval of the program. The NPS Work Group developed a list of potential options to address the remaining conditions and submitted it to NOAA and EPA in July, 2008 for approval. In May 2009 EPA and NOAA requested further information from Texas before lifting the conditions on its approval. On January 26, 2012, GLO submitted the State's approach to resolving one of the remaining conditions (associated with on-site sewage facilities) to NOAA and EPA for review and approval.

The TSSWCB is responsible for implementing the agricultural and silvicultural management measures of the program. Mechanisms the TSSWCB uses to abate agricultural and silvicultural NPS pollution in the coastal zone include: the agency's Water Quality Management Plan Program, the CWA §319(h) NPS Grant Program, the Total Maximum Daily Load Program, and the Watershed Protection Plan Program.

Fifteen SWCDs are located in the Coastal Management Zone and work with landowners to implement WQMPs. For over 13 years, more than $300,000 in state appropriations has been spent annually in the coastal zone to provide financial assistance through SWCDs to implement 2,332 WQMPs on agricultural land.

Many of the WPPs and TMDLs that the TSSWCB is engaged in are in the coastal zone. WPPs being developed or implemented in the Coastal Zone include Arroyo Colorado, Bastrop Bayou, Armand Bayou, Cedar Bayou, Double Bayou, Dickinson Bayou and San Bernard River, Highland Bayou, and Lower Nueces River. TMDLs being developed or implemented in the Coastal Zone include Adams and Cow Bayous, Clear Creek, Copano Bay, Aransas and Mission Rivers, Dickinson Bayou, and Oso Bay and Creek.

Implementation of the silvicultural management measures in the coastal zone is through a CWA §319 grant to the Texas A&M Forest Service.

CMP information can be found at http://www.glo.texas.gov/what-we-do/caring-for-the-coast/grants-funding/index.html

More information on the Texas Coastal Nonpoint Source Pollution Control Program is available at http://www.tsswcb.state.tx.us/coastalnps.

Texas Groundwater Protection Committee Function

Established by the Texas Legislature in 1989, the Texas Groundwater Protection Committee (TGPC) bridges the gap between State groundwater programs, improves coordination between member agencies, and works to protect groundwater as a vital resource. The TSSWCB is a statutorily-authorized member of the TGPC.

The Texas Water Code sets nondegradation of the State's groundwater resources as the goal for all State programs and asserts that groundwater be kept reasonably free of contaminants that interfere with its present and potential uses. The TGPC implements the State's groundwater protection policy which:

- Requires that pollution discharges, waste disposal and other regulated activities not harm public health or impair current or potential groundwater use;
- Recognizes the variability between aquifers;
- Acknowledges the importance of water quality;
- Balances the protection of the environment and the long-term economic health of the state; and,
- Recognizes the use of the best professional judgment of the responsible state agencies to implement the policy.

The Texas Water Code requires that the TGPC biennially prepare a report that provides recommendations to improve groundwater protection for legislative consideration and describes the TGPC's activities for the preceding biennium. The report, *Activities and Recommendations of the Texas Groundwater Protection Committee – Report to the 84th Legislature,* was approved by the TGPC and published in January 2015 by TCEQ.

Mechanisms the TSSWCB implements in order to prevent and abate agricultural and silvicultural NPS pollution impacting groundwater include the agency's Water Quality Management Plan Program, CWA §319(h) NPS Grant Program, State NPS Grant Program, Total Maximum Daily Load Program, and Watershed Protection Plan Program. These programs are described in detail in other sections of this Report. High priority aquifers where TSSWCB has historically committed agency resources include the Seymour Aquifer and the Ogallala Aquifer.

More information on the TGPC is available at http://www.tgpc.state.tx.us/.

Watershed Approach to Water Quality Planning and Implementation

Protecting the State's rivers, streams, lakes, bays, and aquifers from the impacts of NPS pollution is a complex process. Texas uses a Watershed Approach to focus efforts on the highest priority water quality issues of both surface and ground water. The Watershed Approach is based on the following principles:

- Geographic focus based on hydrology rather than political boundaries;
- Water quality objectives based on scientific data;
- Coordinated priorities and integrated solutions; and,
- Diverse, well-integrated partnerships.

The TSSWCB applies the Watershed Approach to managing NPS pollution by channeling its efforts to restore and protect water quality through the development and implementation of WPPs and TMDLs. Specific watersheds where agricultural and/or silvicultural NPS pollution is contributing to a water quality impairment or concern to an extent which TSSWCB believes is sufficient to justify expenditure of agency resources are shown in Figure 3.This list of "priority" watersheds is frequently updated by the TSSWCB.

SWCD Information Technology Assistance
In 2014, the TSSWCB Long Range Planning Committee set the following actionable goals related to state conservation programs implemented through a Soil and Water Conservation District (SWCD):

a) develop plans to increase use of technology to go paperless, save money, and ensure uniform standards for communicating information;

b) provide districts with resources to operate independently (computer, Internet access, etc).

To implement these recommendations, agency staff identified several information technology solutions that could increase the efficiency and effectiveness of state conservation programs implemented through SWCDs. In 2015, feedback from agency field representatives identified an additional IT commodity, that could assist many SWCDs in their operations.

The SWCD IT Assistance Program offers the following categories of support:

- Email - *SWCD email hosted by Google Apps*
- File Storage - *SWCD network storage hosted by Google Apps*
- Internet Service - *PC Internet access via a cellular data plan*
- Laptop purchase assistance - *Hardware purchased via local / nationwide vendor*
- Printer purchase assistance - *Hardware purchased via local / nationwide vendor*
- External hard drive - *Hardware purchased via local / nationwide vendor*

TSSWCB previously worked with the Texas Department of Information Resources to reserve and configure the domain *swcd.texas.gov* for SWCD email accounts hosted by Google. TSSWCB staff administers the Google accounts and is the point of contact for SWCD employees.

From September 2014 - December 2015, the TSSWCB received the following requests for assistance from Texas SWCDs:

Laptop or tablet purchase:	89
Printer purchase:	90
External hard drive:	10
Cellular data service plan purchase:	108
Google Apps account (swcd.texas.gov):	126

PC Hardware Replacement
Work continued on the replacement of the oldest agency desktop PCs and servers with more capable and reliable units. This work was part of a continuous process that aims to lessen the risk of unacceptable levels of downtime that could occur following PC hardware failures.

Each of the machines replaced was at or, in some cases, significantly beyond the PC life cycle recommendations from the Texas Department of Information Resources (DIR). All purchases were made in accordance with DIR guidelines through a DIR-approved vendor.

Public Information/Education Report

The purpose of the public information/education program is to provide leadership and coordination of information/education programs relating to the agency and district programs, services, operations and resources. The TSSWCB prepares and disseminates public information relative to the agency and district functions, programs, events and accomplishments for the public and to farmers and ranchers. TSSWCB staff coordinates seminars, conferences, workshops, displays at trade shows and training for district directors and district bookkeepers, conservation professionals, youth groups and other entities. Staff provides guidance to districts with their own individual information/education programs as well as regional and state information/education programs initiated by districts. Staff prepares and disseminates press releases, news stories and printed promotional products. The TSSWCB monitors the use of the publications and use of information. Staff represents the agency as needed with various information/education groups and entities. The TSSWCB has a cooperative agreement with the Association of Texas Soil and Water Conservation Districts to provide assistance and help coordinate district involvement and participation with Association's Information/Education Committee and its programs.

District Program Development Workshop

A district program development workshop was held February 24-25, 2016 to provide training specifically for newly elected soil and water conservation district directors, although all district directors and district employees are encouraged to attend the training. In addition, a cooperative effort with the USDA Natural Resources Conservation Service permits a limited number of new NRCS district conservationists to attend the training.

Key topics addressed in the training include:

- History, powers and duties of the Texas State Soil and Water Conservation Board (TSSWCB),
- Interaction but different authorities of the local soil and water conservation district (SWCD), Texas State Soil and Water Conservation Board, and the Natural Resources Conservation Service,
- Qualifications, terms and duties of SWCD directors,
- General powers and duties of SWCDs
- Proper method of conducting a local SWCD meeting
- Overview of current TSSWCB program responsibilities
- Ethics training for SWCD directors
- Equal employment opportunity training for SWCD directors
- Fiscal operations and responsibilities of SWCDs
- Relationships between other state and national conservation organizations.
- Required training in Texas Open Government Laws through the Office of the Texas Attorney General

2015 Texas Conservation Awards Program

Each year, the TSSWCB and the Association of Texas Soil and Water Conservation Districts co-sponsor the Texas Conservation Awards Program to recognize and honor those who dedicate themselves and their talents to the conservation and wise use of renewable natural resources. The 2015 Awards Program marks the 37th year of this joint program.

Local districts select their outstanding individuals as winners and submit them by mid-February each year for regional judging. Those selected as regional winners are honored each May at regional Awards Banquets. From these regional winners, a state winner is selected for the Outstanding Conservation Districts, Outstanding Conservation Teacher, Poster Contest, and the Essay Contest. These individuals are invited to the Annual State Meeting for recognition.

The conservation awards program provides competition and incentives to expand and improve conservation efforts, resource development, and increase the wise utilization of renewable natural resources. As a result, soil and water conservation districts, and both rural and urban citizens of Texas are benefited.

Soil & Water Stewardship Public Speaking Contest

The Soil & Water Stewardship Public Speaking Contest is open to high school FFA students interested in soil, water and related renewable natural resource conservation. The contest is aimed at broadening students' interest and knowledge of conservation and how individuals must depend on and take care of the world around them for survival. The contest is coordinated through the Texas FFA, with contests at the local, area and state level. Local winners compete in the 10 state FFA areas and the first and second place winners at the area level compete for the state title. The theme of the 2015 contest was “From the Era of the Dust Bowl to the Present: Commemorating 75 Years of Soil and Water Conservation”.

To prepare for the contest, students work with their Agriculture Science teacher and work with their local soil and water conservation district. Students are encouraged to visit with their local SWCD to find out more about conservation practices in their area.

This project is a partnership between the Texas FFA, the Vocational Agriculture Teacher's Association of Texas, The Texas State Soil and Water Conservation Board, and the Association of Texas Soil and Water Conservation Districts. The State Winner of the Soil and Water Stewardship Public Speaking Contest is invited to attend the Annual State Meeting each year and asked to deliver their winning address.

Wildlife Alliance for Youth

The Wildlife Alliance for Youth (WAY) contests offer opportunities at the local district level for 4-H and FFA students to demonstrate their knowledge of the outdoors on wildlife habitat and management, wildlife laws, sportsmanship and other factual information on wildlife. The program offers awards to the high scoring FFA chapter in each of the five state regions and awards to the first, second and third place high scoring teams at the state event. The benefit of the program enables students to become involved in conservation and obtain an appreciation for wildlife.

Agriculture Science students, who compete in the WAY Contest, first acquire the foundational knowledge and skills for this event through the Agscience 381 - Wildlife and Recreation Curriculum. The WAY contests address the following nine subject areas in Wildlife and Recreation Management: Wildlife Plant Identification; Wildlife Plant Preferences; Wildlife Biological Facts; Wildlife Habitat; Habitat Management; Game Laws; Hunter and Boater Safety; and Identification Techniques. FFA and 4-H youth should have an understanding of these subject areas before they compete.

The WAY contests are held in the five Texas State Soil and Water Conservation Board areas. Area IV (East Texas) holds their contest in the fall. Area V (North Central), Area I (Panhandle), Area II (West Texas) and Area III (South Texas) all hold their contests in the spring. Each team is certified to the area

level by their local SWCD. The WAY State Contest rotates each year to one of the five TSSWCB geographical areas of the state. Approximately 2,000 youth participate in the regional contests and statewide contest competition.

The Texas State Soil and Water Conservation Board, Association of Texas Soil and Water Conservation Districts, USDA- Natural Resources Conservation Service, Texas Parks and Wildlife Department, Texas A&M University, Cooperative Extension service, and the Texas Education Agency, along with local soil and water conservation districts (SWCD), all partner in the success of the youth organization.

State Woodland Clinic and Contest

The Texas State Woodland Clinic and Contest is held annually in the month of April. It is a joint effort between local soil and water conservation districts, Stephen F. Austin University School of Forestry and the NRCS-USDA.

The contest is an opportunity for 4-H and FFA youth to demonstrate their expertise in different aspects of forestry management and skills in identification of needed practices and management techniques. Competition is between teams composed of four members representing either a 4-H Club or a FFA Chapter. Prior to the state contest several local districts conduct contests for 4-H Clubs and FFA Chapters within their district and the surrounding area.

The contest began in the late 1950s and was initiated by local SWCDs and timber industry personnel to develop forestry and woodland curriculum in schools in the commercial timber area of the state (East Texas Piney Woods). The clinic and contest have experienced widespread popularity and now has participation from outside of the commercial timber area on a regular basis. The state participation level for teams averages around 55 teams per year, with the vast majority of teams being composed of FFA Chapters. Winners at the state level are eligible to participate in the four states regional woodland contest held each May in one of four states. Texas, Louisiana, Arkansas and Oklahoma host the regional contest on a rotational basis.

Regional Woodland Contest

The four states regional woodland contest is sponsored by soil and water conservation districts in each of the four states with program and technical support provided by USDA-NRCS and Resource Conservation and Development (RC&D), state organizations and industry personnel. The soil and water conservation districts in Texas hosted the first four states or southern regional woodland contest in 1984.

Each state is allowed to send a maximum of six teams to the regional contest. Each state has a competition that determines the six teams from that state that may enter in the regional contest. Those teams may be composed of individuals representing either a 4-H Club or an FFA Chapter.

Conservation Education Video Library

The Association of Texas Soil and Water Conservation Districts has established and updated a conservation related video library that is maintained by TSSWCB staff on their behalf for the benefit of local districts and educators. Currently, there over 200 conservation-related videos in the library that are available to districts and teachers. The Association of Texas Soil and Water Conservation Districts' Public Information/Education Committee pays the first transit postage costs to mail the video(s) to the requester. Postage for returning will be the responsibility of the borrower and all videos must be insured upon

return. Borrowing privileges are for a length of two weeks and must be returned upon date specified by the librarian. Videos can be ordered through local soil and water conservation districts or by contacting the TSSWCB.

Nonpoint Source (NPS) Pollution Watershed Flow Model

The NPS model is a hands-on representation of a landscape that allows students to understand how water sources can become polluted from nonpoint sources. The plastic landscape structure has industrial, undeveloped, agricultural, and residential and roadway features complete with individual houses, trees, cars, tractors and cows. When "rain" falls on the model, the runoff flows into a city lake. Using various products to add color to the water, the model demonstrates how potential pollutants are picked up by run-off.

The model is a layout of a watershed that includes all the factors that may contribute to polluting our water. (Urban features such as: factories, parking lots, construction sites, lawn chemicals and golf courses and rural features such as: forested land, dairies, feedlots, cropland and pastureland). To demonstrate how each type of potential pollutant can enter a water body Kool-Aid and cocoa are used to color “runoff”. Grape Kool-Aid is used to represent pollution from factories and oil from parking lots and roads. Orange Kool-aid represents pollution from lawn chemicals, golf courses, and cropland and pastureland chemicals. Cocoa is used to represent pollution from construction sites, forested land, dairies and feedlots. The Kool-aid and Cocoa are sprinkled on the model in the areas that represent each type of pollutant. Once all the pollutants are sprinkled on the model a spray bottle with water is use to represent rainfall. As the pollutants get wet and start to runoff the students can see how the water carries them to the streams and into the lake where we get our drinking water. Once all the pollutants have run into the lake the students can see how these factors have the potential to make surface waters unattractive and unsafe. This demonstration leads to a discussion about how to protect the water quality and prevent our water from looking like the model.

Texas Invasive Species Coordinating Committee

The Texas Invasive Species Coordinating Committee (TISCC) was established by the 81st Texas Legislature in 2009 (Senate Bill 691) and administratively attached to the TSSWCB. The member agencies of the TISCC are the Texas Department of Agriculture, the Texas Parks and Wildlife Department, the TSSWCB, the Texas A&M AgriLife Extension Service, the Texas A&M Forest Service, and the Texas Water Development Board.

The TISCC provides a forum for developing interagency strategies and policies for invasive species control. Its member agencies cooperate through an orderly exchange of information, jointly held meetings, and the appointment of sub-committees and working groups in order to facilitate development of effective and timely state responses to invasive species and to make recommendations to the leadership of state departments and agencies regarding research, technology transfer, and management actions related to invasive species control.

Many of TSSWCB’s programs support the State's invasive species management goals and contribute to achieving the goals and objectives of the TISCC. For example, while the agency’s new Rio Grande Carrizo Cane Eradication Program is directed towards improving border security, carrizo cane is also an invasive species; therefore, this program also supports the State's invasive species management goals.

More information regarding the TISCC is available at http://www.tiscc.texas.gov/.

Program Activities in 2015

On February 11, 2015, the TISCC met in Austin. Topics discussed at the meeting included new registration for toxicants to control feral hogs, federal environment impact statement on alternatives for a National Feral Swine Damage Management Program, and locally led efforts to biologically control giant salvinia in Caddo Lake. Additionally, several grant programs were discussed including USDA's Regional Conservation Partnership Program, the USDA's Conservation Innovation Grants, the federal Clean Water Act §319(h) NPS Grant Program, and various National Fish and Wildlife Foundation programs.

On April 20, 2015, the TISCC met in College Station at the Texas A&M Forest Service headquarters. Topics discussed at the meeting included funding mechanisms for invasive species management; invasive species management at the Texas A&M Forest Service, the Lady Bird Johnson Wildflower Center, and the Texas A&M AgriLife Extension Service; and cactus moth interception, survey, and educational program.

On September 11, 2015, the TISCC met in Austin. The Committee reviewed the status of invasive species work ongoing and planned for FY2016. The Committee heard presentations on zebra mussels, carrizo cane, emerald ash borer, and *Echium vulgare*. The Committee re-elected Mel Davis (TSSWCB) as Chairman and elected Earl Chilton (TPWD) as Vice Chairman for the coming year

Water Supply Enhancement Program

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

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 about 22%, to a demand of nearly 22M ac ft in 2060; while existing water supplies are projected to decrease by about 10%, to just over 15M ac ft (*2012 State Water Plan*, Texas Water Development Board).

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. Beyond enhancing water yield by conserving water lost to evapotranspiration, recharging groundwater, and enhancing spring and stream flows, brush control provides other ecosystem services including the potential to improve soil health, restore native wildlife habitat by improving rangeland, improve livestock grazing distribution, aid in wildfire suppression by reducing hazardous fuels, protect water quality and reduce soil erosion, and manage invasive species.

In order to help meet the State's critical water conservation needs and ensure availability of public water supplies, in 2011 the Texas Legislature established the Water Supply Enhancement Program (WSEP) administered by the 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 (e.g., juniper, mesquite, saltcedar).

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 grant funds may only be allocated to projects that have a completed feasibility study that includes a site-specific computer model.

The TSSWCB uses a competitive grant process to rank feasible projects and allocate WSEP grant 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 grant funds have been allocated, the TSSWCB works through SWCDs to deliver technical assistance to landowners. 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. Cost share assistance is then provided through the WSEP to landowners implementing brush control activities on eligible acres consistent with their resource management plan.

Figure 4 is a map that shows the watersheds with completed brush control feasibility studies that are approved WSEP project watersheds where brush has been shown to contribute to a water conservation need and where brush control has been modeled and shown to be feasible with an increase in water yield expected; these watersheds are eligible for WSEP grant funds for cost share to landowners.

More information on the WSEP is available at http://www.tsswcb.texas.gov/brushcontrol/.

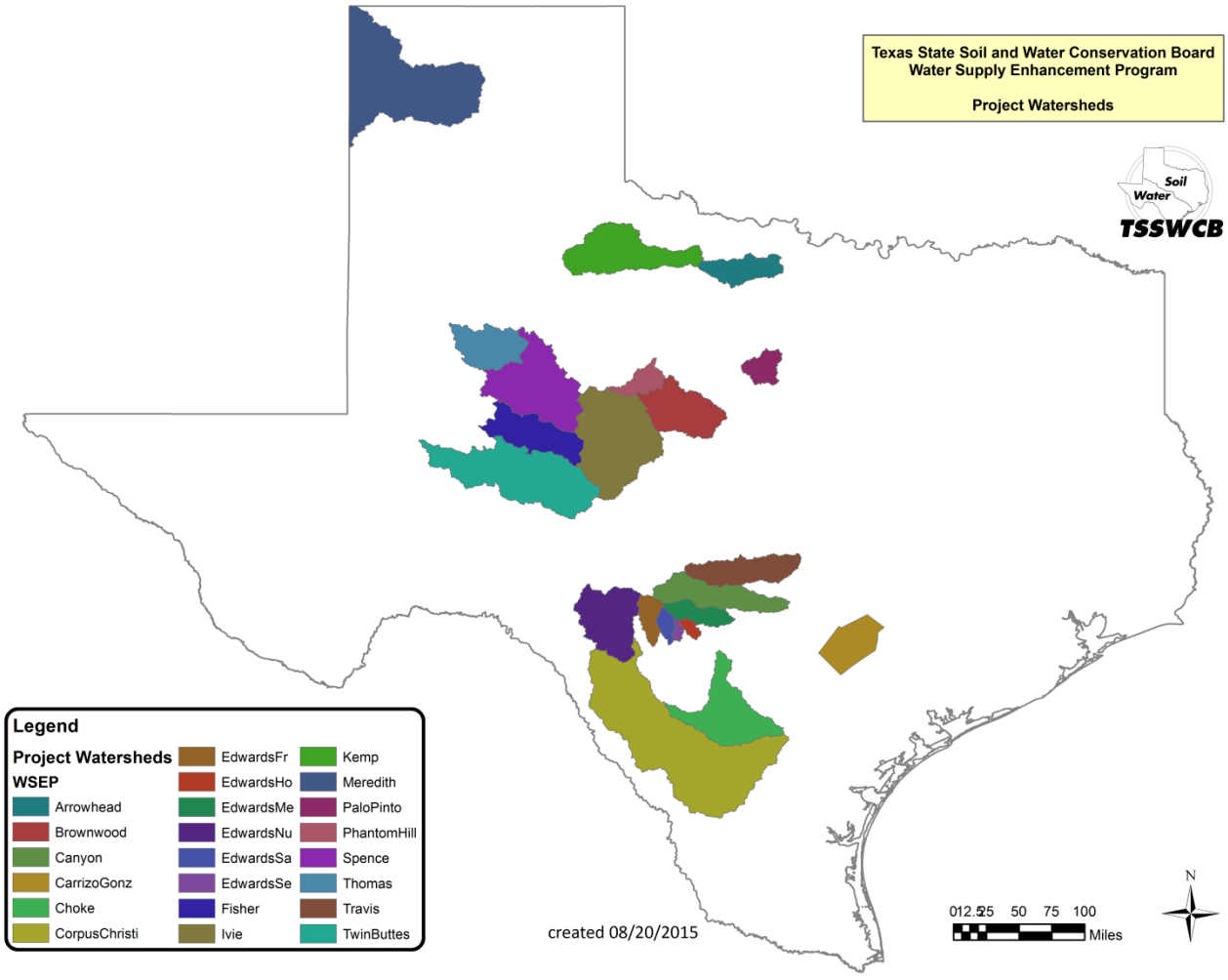


Figure 4. Map of WSEP Project Watersheds.

Program Activities in 2015

In January 2015, the Sunset Advisory Commission published the *Compliance Report – Implementation of Sunset Legislation*. The *Report* highlights findings from the special purpose review conducted on TSSWCB programs. The review was limited to the evaluation of the TSSWCB's implementation of HB1808. In the *Report*, the Sunset Commission concludes that all provisions of HB1808 related to the WSEP have been fully implemented.

On June 20, 2015, the Governor signed HB1, the general appropriations bill for the 2016-2017 biennium. The agency's Legislative Appropriations Request (LAR) for the 2016-2017 biennium (submitted in 2014) included the base request for WSEP funding and an exceptional item request for $2M across the biennium for additional WSEP funding in order to partially meet unmet demand for cost-share to landowners and to conduct new feasibility studies. The 84th Texas Legislature continued funding for the WSEP by providing $2,638,413 for each fiscal year of the new biennium. This is an increase of $1M across the biennium for the WSEP, partially funding the exceptional item request.

In accordance with Agriculture Code §203.051, the TSSWCB must prepare and 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. The State Board adopted the *State Water Supply Enhancement Plan* in July 2014. The *State Plan* is a "living" document and must be reviewed at least every two years.

When the State Board adopted the *State Water Supply Enhancement Plan* in July 2014, staff was directed to continue working with those interested in improving the *State Plan*, particularly those who provided comments during the public comment period. A series of public outreach meetings was held in January and May 2015 to discuss specific topics with the public and receive constructive input on refining the *State Plan*.

On November 19, 2015, the State Board accepted the *Brush Control Feasibility Study for the O.H. Ivie Reservoir Lake Basin* and established the studied watershed as a priority WSEP project watershed. In accordance with Agriculture Code §203.053(b), for a watershed to be considered eligible for allocation of WSEP cost-share 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. Due to low water levels over the last 15 years, much of the immediate lake basin of O.H. Ivie Reservoir has been exposed resulting in dense infestations of undesirable brush species, primarily saltcedar. Depending on the water level condition of the reservoir and the amount of brush treated, the model projects that brush control in the immediate lake basin could yield either 722.13 or 818.48 ac-ft/yr of enhanced water supply in the reservoir.

In August 2015, TSSWCB and HDR Engineering, Inc. finalized the project final report *Brush Management in Gonzales County as a Water Management Strategy*. This study was conducted by HDR, with funding from the TSSWCB WSEP, in order to link the Gonzales County brush control feasibility study to the Carrizo-Wilcox Aquifer groundwater availability model in Gonzales County in order to evaluate brush management as a water management strategy for potential inclusion in the *2016 South Central Texas Regional Water Plan* (Region L). The model scenarios show that implementing a brush management program in Gonzales, Caldwell, and Guadalupe Counties could potentially increase the

groundwater levels and the subsequent modeled available groundwater in these counties by 1,370 to 13,910 ac-ft/yr depending on landowner participation levels.

Throughout the year, WSEP staff worked with project sponsors to assess unobligated funds from the FY2015 project cost-share allocations (approved by the State Board in September 2014) in order for the State Board to consider reallocation of those funds to other projects. On March 4, 2015; May 21, 2015; and July 16, 2015; the State Board reallocated FY2015 cost-share funds among projects to maximize expenditure of WSEP funds during the fiscal year. Ultimately, the State Board allocated $2,022,041 in FY2015 cost-share funds to 16 WSEP projects, of which $573,311 was unobligated FY2014 cost-share funds advanced to FY2015.

On November 19, 2015, the State Board allocated $1,777,000.00 in FY2016 cost-share funds to 11 WSEP projects. Based on appropriated funds, the TSSWCB was only able to meet 33% of the demand for cost-share as requested for the eligible projects in the FY2016 request for proposals, leaving an unmet demand for over $3.5M in cost-share.

During FY2015, through the WSEP, 23,191 acres of brush management was incentivized by the State in 11 project areas. Figure 5 is a chart that shows the acres of brush treated in FY2015 by watershed or project area. For these acres, landowners received cost-share assistance through the program (contracts from FY2013, FY2014, and FY2015) totaling $1,279,326 in state funding ($55.16 per treated acre of brush). 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 increase water yield by 5,928.7 ac-ft per year ($215.79 per ac-ft of water).

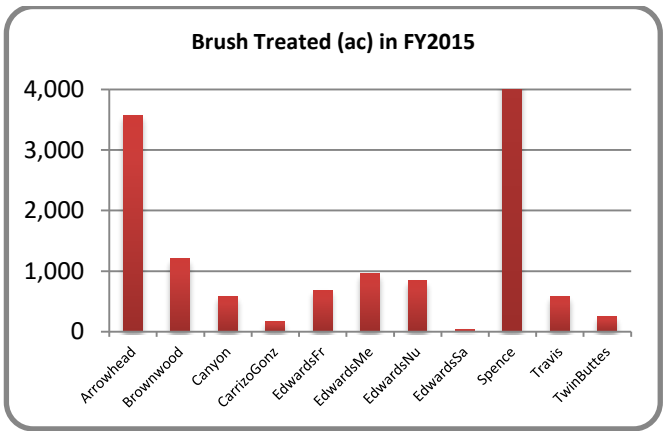


Figure 5 Acres of Brush Treated in FY2015. [Note: Spence exceeds scale of chart.]

During FY2015, the agency conducted 73 status reviews on FY2012 (and some FY2011) cost-share contracts throughout various project watersheds. Cost - share agreem
landowners contain a commitment on the part of the landowner, at no cost to the State, to maintain areas for which cost - share fundin
brush control is accomplished. The agency is required by statute to periodically inspect, over the course of each 10-year contract period, the status of brush control conducted with WSEP funds.

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

water yield enhanced. The *WSEP Annual Report* is published separately from this agency *Annual Report*, but it is also included as an Appendix to this agency *Annual Report*.

Rio Grande Carrizo Cane Eradication Program

Improving Border Security and Restoring Ecosystem Function of the Rio Grande through Invasive Species Control

Large dense stands of non-native carrizo cane (*Arundo donax*) now occupy the banks and floodplains of the Rio Grande, thwarting law enforcement efforts along the international border, impeding and concealing the detection of criminal activity, restricting law enforcement officers' access to riverbanks, and impairing the ecological function and biodiversity of the Rio Grande.

Arundo is an exceptionally fast growing plant, growing about 4 inches per day and reaching a mature height of over 25 feet in about 12 months. These stands of invasive riparian weeds present considerable obstacles for the protection of the international border by law enforcement and agricultural inspectors, by both significantly reducing visibility within enforcement areas, and by providing favorable habitat for agriculturally-damaging cattle ticks.

Carrizo cane is considered one of the greatest threats to the health of riparian ecosystems in the southwestern United States, with great negative impact to biodiversity and ecological processes. Arundo does not provide any food sources or nesting habitats for native wildlife. Carrizo cane is linked to sediment accumulation, channel constriction, and increased flooding frequency threatening the riparian ecosystem of the Rio Grande.

Carrizo cane is a noxious brush species that consumes precious water resources to a degree that is detrimental to water conservation. As a result of this weed's high evapotranspiration capacity, infestations threaten water supplies for agriculture and municipal drinking water uses in south Texas.

Developing a Rio Grande Carrizo Cane Eradication Program

In order to help meet the Governor's border security priorities, the 84th Texas Legislature, in 2015, directed the TSSWCB, through Senate Bill 1734, to develop and implement a program to eradicate carrizo cane along the Rio Grande. SB1734 was authored by Senator Carlos Uresti, co-authored by Senator Judith Zaffirini, and sponsored by Representative Tracy King. On June 10, 2015, SB1734 was signed by the Governor. The statute was effective immediately

The TSSWCB must develop a Rio Grande Carrizo Cane Eradication Program (RGCCEP) that establishes long-term management of invasive carrizo cane at a landscape scale along the entire Rio Grande, an international border with great ecological and cultural significance. Comprehensively addressing the impacts of arundo on border security are paramount to the program, while also accruing benefits to the ecosystem health of the Rio Grande.

A successful RGCCEP should:

- Reduce arundo canopy, density, and biomass
- Improve border access for law enforcement officers
- Improve visibility to allow better detection of illegal activities
- Restore ecological function, degraded riparian habitats, and biodiversity of the Rio Grande
- Improve river function, decrease in-channel sedimentation, and reduce potential for flooding

- Increase water savings due to reduced use by the cane, even accounting for water use by regrowth of native riparian plants

Due to the diversity of biological, legal, and cultural issues associated with control of carrizo cane along the 1,255-mile Rio Grande international border, the TSSWCB envisions an ecosystem-based approach that will integrate the use of biological, chemical, mechanical, and cultural controls, as appropriate , to manage carrizo cane along the Rio Grande. Such an approach should promote the establishment of beneficial native plants, and will necessitate a long-term maintenance program to ensure eradication is successful. Close coordination will be necessary with many local, state, and federal governmental agencies. Participation in the program would be voluntary for landowners.

TSSWCB is currently in the early stages of developing the RGCCEP. This process will involve affected landowners, municipalities, other state and federal governmental entities, and concerned citizens. The agency is in the "public scoping" stage of soliciting input from the public and affected stakeholders into how this program should be developed and implemented.

More information on the RGCCEP is available at http://www.tsswcb.texas.gov/arundo.

Funding Needs for Rio Grande Carrizo Cane Control

In order for the TSSWCB to successfully implement the RGCCEP, the Texas Legislature estimates a $4.9M annual budget will be necessary. Funds are needed for:

- local SWCDs to provide on-the-ground technical assistance and conservation planning for private landowners,
- direct control and treatment of carrizo cane, to be conducted primarily through private contractors,
- conducting scientific investigations to ensure the program is successful, and
- two new positions at TSSWCB to provide overall program planning and management, public outreach, and landowner coordination.

Program Activities in 2015

Throughout the year, TSSWCB staff worked with several state and federal agencies and other entities to explore certain aspects of the proposed RGCCEP. Agency staff discussed 1) biological control and mechanical topping of carrizo cane with the USDA Agricultural Research Service, 2) various control methods, including biological and chemical, with the Texas Parks and Wildlife Department, 3) geographic priorities for carrizo cane control along the border with the Texas Department of Public Safety (i.e., Texas Rangers), and 4) the potential effects of arundo control on endangered species with the Comptroller's Office. Agency staff coordinated with the Governor's Office and Senator Uresti's office on details of the proposed RGCCEP and potential funding needs and sources. Additionally, agency staff briefed the Rio Grande International Study Center and the Texas Border Coalition on the proposed RGCCEP.

Throughout the year, agency staff participated in a variety of meetings in order to communicate and exchange ideas regarding the RGCCEP. Agency staff made presentations on the RGCCEP to the U.S. International Boundary and Water Commission Lower Rio Grande Citizens' Forum, the Texas Invasive Species Coordinating Committee, the Rio Grande Regional Water Planning Group (Region M), the Laredo and Valley Environmental Summits, the Starr County SWCD #332 Ranchers Round-Up, the Texas Groundwater Protection Committee Public Outreach and Education Subcommittee, and the Texas Homeland Security Council.

On July 14, 2015, the U.S. House of Representatives Appropriations Committee approved the FY2016 Department of Homeland Security appropriations bill (HR3128). In the Committee Report accompanying HR3128 (House Report 114-215), the Committee expresses continued concern about the impact of carrizo cane on the activities of the U.S. Border Patrol along the Rio Grande and directs the Border Patrol to work with the TSSWCB on efforts to control carrizo cane.

On October 16, 2015, the Governor, in coordination with the Texas Office of Homeland Security and the Texas Homeland Security Council, released the *Texas Homeland Security Strategic Plan 2015-2020* to outline a vision for homeland security and address emerging security challenges. This high-level plan incorporates the RGCCEP under Goal 1 Objective 1.3 and concludes that the RGCCEP will facilitate enhanced detection of criminal activity and law enforcement response operations in the border region.

Attachments

Budget Overview

84th Regular Session, Fiscal Year 2016 Operating Budget

Automated Budget and Evaluation System of Texas (ABEST)

592 Soil and Water Conservation Board

Appropriation Years: 2016-17

	GENERAL REVENUE FUNDS				FEDERAL FUNDS		OTHER FUNDS		ALL FUNDS	
	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016
Goal: 1. Soil and Water Conservation Assistance										
1.1.1. Program Management & Assistance	5,216,828	5,619,634			265,894	275,000			5,482,722	5,894,634
1.2.1. Flood Control Dams	8,477,417	7,410,830			994,412	8,500,000			9,471,829	15,910,830
Total, Goal	**13,694,245**	**13,030,464**			**1,260,306**	**8,775,000**			**14,954,551**	**21,805,464**
Goal: 2. Administer a Program for Abatement of Agricl Nonpoint Source Pollution										
2.1.1. Statewide Management Plan	1,297,346	1,050,000			6,000,000	6,000,000			7,297,346	7,050,000
2.1.2. Pollution Abatement Plan	4,438,366	4,042,884			40,810				4,479,176	4,042,884
Total, Goal	**5,735,712**	**5,092,884**			**6,040,810**	**6,000,000**			**11,776,522**	**11,092,884**
Goal: 3. Protect and Enhance Water Supplies										
3.1.1. Water Conservation And Enhancement	3,119,235	2,645,575					13,422		3,132,657	2,645,575
Total, Goal	**3,119,235**	**2,645,575**					**13,422**		**3,132,657**	**2,645,575**
Goal: 4. Indirect Administration										
4.1.1. Indirect Administration	663,860	688,109					1,640		665,500	688,109
Total, Goal	**663,860**	**688,109**					**1,640**		**665,500**	**688,109**
Total, Agency	**23,213,052**	**21,457,032**			**7,301,116**	**14,775,000**	**15,062**		**30,529,230**	**36,232,032**
Total FTEs									**70.8**	**72.1**

TEXAS STATE SOIL AND WATER CONSERVATION BOARD
WATER SUPPLY ENHANCEMENT PROGRAM

2015 ANNUAL REPORT
JANUARY 1, 2015 – DECEMBER 31, 2015

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

BACKGROUND

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 about 22%, to a demand of nearly 22M ac-ft in 2060; while existing water supplies are projected to decrease by about 10%, to just over 15M ac-ft (*2012 State Water Plan*, Texas Water Development Board).

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.

PROGRAM BUDGET

FY2015	$2,135,413 General Revenue
FY2016	$2,638,413 General Revenue

In order to help meet the State's critical water conservation needs and ensure availability of public water supplies, in 2011 the Texas Legislature 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 grant funds may only be allocated to projects that have a completed feasibility study that includes a site-specific computer model. The TSSWCB uses a competitive grant process to rank feasible projects and allocate WSEP grant 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 grant funds have been allocated, the TSSWCB works through soil and water conservation districts (SWCDs) to deliver technical assistance to landowners. 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. Cost-share assistance is then provided through the WSEP to landowners implementing brush control activities on eligible acres consistent with their resource management plan.

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2015 Activities at a Glance

Legislature, Sunset, and Appropriations

Since the 82nd Texas Legislature enacted HB 1808 in 2011, the agency has been diligently taking steps to implement the statutorily-required program modifications.

In January 2015, the Sunset Advisory Commission published the *Compliance Report – Implementation of Sunset Legislation*. The *Report* highlights findings from the special purpose review conducted on TSSWCB programs, including the WSEP. The review was limited to the evaluation of the TSSWCB's implementation of HB1808. In the *Report*, the Sunset Commission concludes that all provisions of HB1808 related to the WSEP have been fully implemented.

The agency's Legislative Appropriations Request (LAR) for the 2016-2017 biennium was submitted in 2014. In addition to the base request for WSEP funding, the LAR included an exceptional item request for $2M across the biennium for additional WSEP funding in order to partially meet unmet demand for cost-share to landowners and to conduct new feasibility studies. On June 20, 2015, the Governor signed HB1, the general appropriations bill for the 2016-2017 biennium. The 84th Texas Legislature continued funding for the WSEP by providing $2,638,413 for each fiscal year of the new biennium. This is an increase of $1M across the biennium for the WSEP, partially funding the exceptional item request.

State Water Supply Enhancement Plan

In accordance with Texas Agriculture Code §203.051, the TSSWCB must prepare and 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. The State Board adopted the *State Water Supply Enhancement Plan* on July 28, 2014. The *State Plan* documents the goals, processes, and results the agency has established for the WSEP. The *State Plan* is a "living" document and must be reviewed at least every two years.

When the State Board adopted the *State Water Supply Enhancement Plan* in July 2014, staff was directed to continue working with those interested in improving the *State Plan*, particularly those who provided comments during the public comment period. A series of public outreach meetings was held in January and May 2015 to discuss specific topics with the public and receive constructive input on refining the *State Plan*.

On January 8, 2015 and January 29, 2015, TSSWCB staff hosted two WSEP public outreach meetings in Temple; about 30 people attended each meeting. The first meeting focused on aspects of the WSEP related to conservation plans for landowners and soil erosion potential from brush control. The second meeting focused on aspects of the WSEP related to feasibility studies, computer modeling, geospatial analysis, and project prioritization criteria.

On May 12, 2015, TSSWCB hosted a WSEP field tour at the Stowers Ranch in Kerr County; over 20 people attended the tour. This public outreach event focused on aspects of the WSEP related to conservation plans for landowners and soil erosion potential from 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 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 23 watersheds; the reports have been accepted by the TSSWCB and the studied areas have been designated by the State Board as priority WSEP project watersheds.

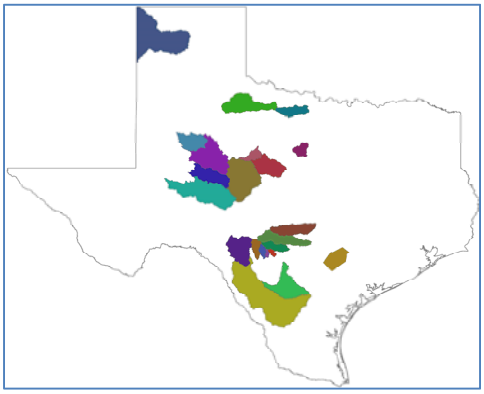

Figure 1. Approved WSEP Project Watersheds.

Utilizing WSEP grant funds, the TSSWCB has contracted with several entities to perform computer modeling for feasibility studies to predict water yield increases from brush control in several watersheds. Work has continued in 2015 by partnering entities on these new, in-progress feasibility studies. The U.S. Geological Survey is developing a brush control feasibility study for the Lake Alan Henry watershed in Garza and Lynn Counties. Texas Tech University, in collaboration with the Texas A&M Water Resources Institute, is developing a brush control feasibility study for the North and South Llano Rivers in Kimble, Edwards, and Sutton Counties. And, Texas Tech University, in collaboration with the San Antonio River Authority, is developing a brush control feasibility study for watersheds in Goliad, Karnes, Refugio, Victoria, and Wilson Counties.

On November 19, 2015, the State Board accepted the *Brush Control Feasibility Study for the O.H. Ivie Reservoir Lake Basin* and established the studied watershed as a priority WSEP project watershed. At the end of FY2013, TSSWCB provided a WSEP grant to the Upper Colorado River Authority (UCRA) to perform a brush control feasibility study for the immediate basin of O.H. Ivie Reservoir. UCRA collaborated with the Texas Institute for Applied Environmental Research at Tarleton State University in performing the computer modeling. O.H. Ivie Reservoir supplies municipal drinking water to the cities of Abilene, Big Spring, Midland, Odessa, San Angelo, and Snyder. Due to low water levels over the last 15 years, much of the immediate lake basin has been exposed resulting in dense infestations of undesirable brush species. UCRA estimated that 60% of the brush infestation was comprised of saltcedar, 35% of willow baccharis, and 5% of mesquite. Depending on the water level condition of the reservoir and the amount of brush treated, the model projects that brush control in the immediate lake basin could yield either 722.13 or 818.48 ac-ft/yr of enhanced water supply in the reservoir.

Project Allocations and Request for Proposals

Throughout the year, WSEP staff worked with project sponsors to assess unobligated funds from the FY2015 project cost-share allocations (approved by the State Board on September 18, 2014) in order for the State Board to consider reallocation of those funds to other projects. On March 4, 2015; May 21, 2015; and July 16, 2015; the State Board reallocated FY2015 cost-share funds among projects to maximize expenditure of WSEP funds during the fiscal year. Ultimately, the State Board allocated $2,022,041 in FY2015 cost-share funds to 16 WSEP projects, of which $573,311 was unobligated FY2014 cost-share funds advanced to FY2015:

- Lake Arrowhead (3 subbasins)
- Lake Brownwood
- Canyon Lake (Upper Guadalupe River)
- Carrizo-Wilcox Aquifer / Guadalupe River
- Edwards Aquifer Recharge Zone – Frio River
- Edwards Aquifer Recharge Zone – Medina River
- Edwards Aquifer Recharge Zone – Nueces River
- Lake Kemp
- Nimitz Lake (Upper Guadalupe River)
- E.V. Spence Reservoir
- Lake Travis (Pedernales River)
- Twin Buttes Reservoir (3 subbasins)

On June 23, 2015, the TSSWCB issued a request for proposals (RFP) for water supply enhancement projects seeking funding in FY2016 to conduct brush control under the WSEP; the RFP closed on August 3, 2015. The TSSWCB received 31 eligible applications requesting a total of $5,306,245 in cost-share funds. A competitive proposal review process (per 31 TAC §517.25 and the *State Water Supply Enhancement Plan*) was used so that the most appropriate and effective projects were identified for funding.

Based on appropriated funds, the TSSWCB was only able to meet 33% of the demand for cost-share as requested for the eligible projects in the FY2016 RFP, leaving an unmet demand for over $3.5M in cost-share. On November 19, 2015, the State Board allocated $1,777,000.00 in FY2016 cost-share funds to 11 WSEP projects:

- Lake Arrowhead
- Lake Brownwood
- Edwards Aquifer Recharge Zone – Frio River
- Edwards Aquifer Recharge Zone – Medina River
- Edwards Aquifer Recharge Zone – Nueces River
- Edwards Aquifer Recharge Zone – Sabinal River
- Lake Kemp
- Nimitz Lake (Upper Guadalupe River)
- Palo Pinto Reservoir
- Lake Travis (Pedernales River) (2 subbasins)

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 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 made presentations on the WSEP to the Texas Agriculture Council, the Upper Guadalupe River Authority Board of Directors, the U.S. International Boundary and Water Commission Lower Rio Grande Citizen's Forum, the Laredo and Valley Environmental Summits, the Texas Groundwater Protection Committee Public Outreach and Education Subcommittee, and the Texas Homeland Security Council.

Regional Water Planning Groups and the State Water Plan

WSEP staff has been actively working with many of the 16 Regional Water Planning Groups (RWPGs), and the Texas Water Development Board (TWDB), to ensure the RWPGs are aware of the changes to the WSEP as they develop their *2016 Regional Water Plans*. Throughout the year, agency staff attended meetings of Regions B, F, G, H, J, K, L, M, and O to discuss WSEP issues and made presentations on the WSEP to Regions B, H, and M. This presentation has now been given to 9 of the 16 RWPGs.

Throughout the year, WSEP staff worked with Region G to develop a template brush control water management strategy that could be used by any of the RWPGs in order to include the WSEP and brush control in their *2016 Regional Water Plans*. Additionally, WSEP staff worked with Regions G and L on specific potential water management strategies for brush control. For Region G, TSSWCB worked with the California Creek SWCD #245, the City of Abilene, and HDR Engineering, Inc. on a strategy for brush control in the Fort Phantom Hill Reservoir watershed. For Region L, TSSWCB worked with HDR Engineering, Inc., the San Antonio River Authority, and Texas Tech University on a strategy for brush control over the Carrizo-Wilcox Aquifer recharge zone in Gonzales, Caldwell, and Guadalupe Counties.

In August 2015, TSSWCB and HDR Engineering, Inc. finalized the project final report *Brush Management in Gonzales County as a Water Management Strategy*. This study was conducted by HDR, with funding from the TSSWCB WSEP, in order to link the Gonzales County brush control feasibility study (McLendon et al. 2012) to the Carrizo-Wilcox Aquifer groundwater availability model (TWDB) in Gonzales County in order to evaluate brush management as a water management strategy for potential inclusion in the *2016 South Central Texas Regional Water Plan* (Region L). The model scenarios show that implementing a brush management program in Gonzales, Caldwell, and Guadalupe Counties could potentially increase the groundwater levels and the subsequent modeled available groundwater in these counties by 1,370 to 13,910 ac-ft/yr depending on landowner participation levels.

On December 1, 2015, all 16 RWPGs submitted their final adopted *2016 Regional Water Plans* to the TWDB for incorporation into the *2017 State Water Plan*. WSEP staff is reviewing the *Regional Water Plans* to ascertain how each RWPG ultimately addressed brush control for water supply enhancement.

Status Reviews Conducted in FY2015

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 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 brush treatment scheduled three (3) years after initial treatment, if canopy (target species only) is above 5%.
- Juniper: Follow-up brush treatment scheduled eight (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 three to five (3-5) years after initial treatment of brush.
- Second status review performed eight to nine (8-9) years after initial treatment.

During FY2015, the agency conducted 73 status reviews on FY2012 (and some FY2011) cost-share contracts throughout various project watersheds. While brush density assessments on 1 contract (1%) did indicate the target species was above 5%, the contract was not deemed out-of-compliance. This 1 status review was conducted during the third year after initial treatment (FY2012 contract) 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 FY2015

During FY2015, through the WSEP, 23,191 acres of brush management was incentivized by the State in 11 project areas. For these acres, landowners received cost-share assistance through the program (contracts from FY2013, FY2014, and FY2015) totaling $1,279,326 in state funding ($55.16 per treated acre of brush). 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 5,928.7 ac-ft per year ($215.79 per ac-ft of water).

Little Wichita River Project

Acres	Public Water Supply Target	Enhanced Water Yield (gal)
3,575	Lake Arrowhead	723,115,250

Population Served
Wichita Falls and surrounding areas

Lake Brownwood Project

Acres	Public Water Supply Target	Enhanced Water Yield (gal)
1,210	Lake Brownwood	143,721,380

Population Served
Brownwood and surrounding areas

Upper Guadalupe River Project

Acres	Public Water Supply Target	Enhanced Water Yield (gal)
587	Canyon Lake and Nimitz Lake	33,992,853

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

Carrizo-Wilcox Aquifer / Guadalupe River Project

Acres	Public Water Supply Target	Enhanced Water Yield (gal)
170	Guadalupe River	16,366,912

Population Served
Victoria and surrounding areas

Edwards Aquifer – Frio River Project

Acres	Public Water Supply Target	Enhanced Water Yield (gal)
683	Edwards Aquifer Recharge Zone in Frio River Watershed	239,064,268

Population Served
Concan, Knippa, and Leakey

Edwards Aquifer – Medina River Project

Acres	Public Water Supply Target	Enhanced Water Yield (gal)
957	Edwards Aquifer Recharge Zone in Medina River Watershed	175,345,034

Population Served
Castroville, Bandera, and Medina

Edwards Aquifer – Nueces River Project

Acres	Public Water Supply Target	Enhanced Water Yield (gal)
851	Edwards Aquifer Recharge Zone in Nueces River Watershed	53,551,054

Population Served
Uvalde, Barksdale, and Camp Wood

Edwards Aquifer – Sabinal River Project

Acres	Public Water Supply Target	Enhanced Water Yield (gal)
40	Edwards Aquifer Recharge Zone in Sabinal River Watershed	6,178,360

Population Served
Sabinal, Utopia, and Vanderpool

Spence Reservoir Project

Acres	Public Water Supply Target	Enhanced Water Yield (gal)
14,285	E.V. Spence Reservoir	374,338,425

Population Served
Big Spring, Midland, Odessa, Snyder, and Robert Lee

Pedernales River Project

Acres	Public Water Supply Target	Enhanced Water Yield (gal)
583	Lake Travis	152,609,732

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

Twin Buttes Reservoir Project

Acres	Public Water Supply Target	Enhanced Water Yield (gal)
250	Twin Buttes Reservoir	13,600,000

Population Served
San Angelo

FY2015 Grand Total

Brush Treated	Enhanced Water Yield
23,191 acres	**1,931,883,268** gallons
	5,928.7 acre-feet

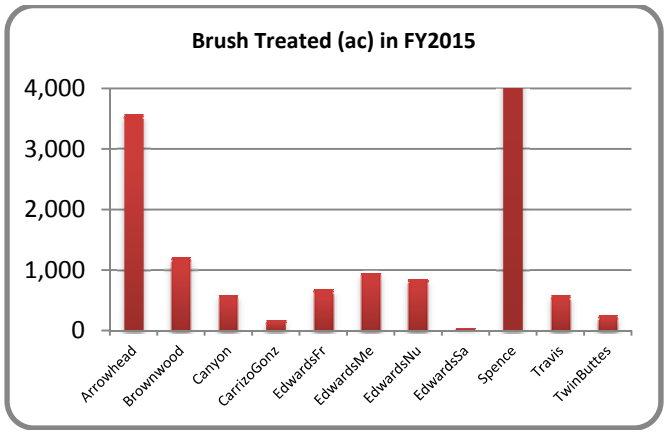

Figure 2. Acres of Brush Treated in FY2015.
[Note: Spence exceeds scale of chart.]

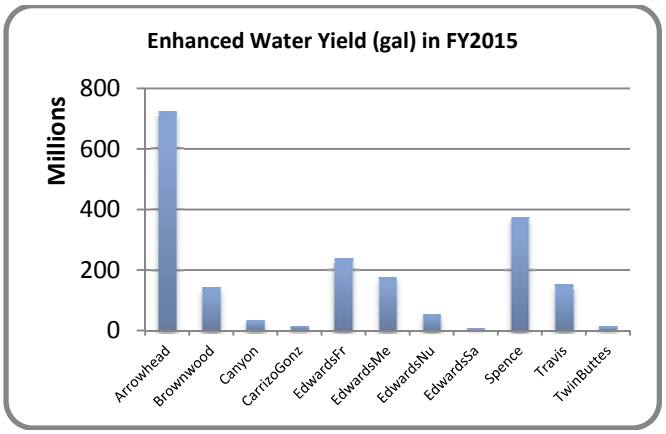

Figure 3. Gallons of Enhanced Water Yield from Brush Treated in FY2015.

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