Texas State Soil and Water Conservation Board

Protecting and Enhancing Natural Resources for Tomorrow

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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 agricultural and municipal drinking water uses in south Texas.

Rio Grande Carrizo Cane Eradication Program

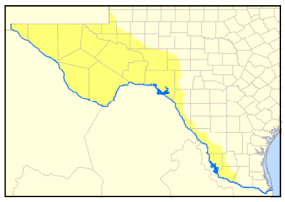
In order to help meet the Governor's border security priorities, the 84th Texas Legislature, in 2015, directed the Texas State Soil and Water Conservation Board (TSSWCB), through Senate Bill 1734, to develop and implement a program to eradicate carrizo cane along the Rio Grande.

The TSSWCB must develop a program 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.

The process to develop a program will involve affected landowners, municipalities, other state and federal governmental entities, and concerned citizens.

The program should:

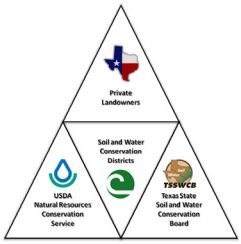
- Reduce arundo canopy, density, and biomass
- Improve border access for law enforcement officers
- Improve visibility to allow better detection of illegal activities
- Restore ecological function, degraded riparian habitats, and biodiversity of the Rio Grande
- Improve river function, decrease in-channel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

Conservation Delivery System

The TSSWCB delivers coordinated natural resource conservation programs to agricultural producers through the State's 216 soil and water conservation districts (SWCDs). SWCDs serve as the State's primary conservation delivery system through which technical assistance and financial incentives for natural resource conservation programs are channeled to agricultural producers and rural landowners. SWCDs give farmers and ranchers the opportunity to solve conservation challenges locally, instilling in landowners a stewardship ethic and individual responsibility for soil and water conservation.



Many of the TSSWCB's programs are coordinated through the conservation delivery system of the 216 local SWCDs. This Conservation Partnership is one of the most efficient and effective mechanisms for conducting natural resource conservation programs. TSSWCB is well-experienced in managing projects to control invasive riparian vegetation.

Carrizo Cane Control Demonstration Project in Webb County on the Rio Grande

In 2007, the TSSWCB worked with conservation partners to demonstrate the effectiveness of aerial herbicide application to control carrizo cane for border security purposes. Conducted just outside of Laredo, approximately 120 acres of cane was sprayed on private land along the Rio Grande. The Webb SWCD #337 was critical to the success of this demonstration project.

- $18,000 in State Brush Control Program funding from TSSWCB
- $7,714 in match funding from private landowner, private chemical company, and private aerial applicator company

Saltcedar Control on the Colorado River, E.V. Spence Reservoir, and the Pecos River

From 2005 to 2007 and in 2011, the TSSWCB worked with conservation partners to treat 11,391 acres of saltcedar (*Tamarix* spp.) through aerial herbicide application along the Colorado River and its tributaries between Lake J.B. Thomas and E.V. Spence Reservoir and 2,672 acres of saltcedar along the Pecos River and its tributaries. Additionally, funds were budgeted to burn 35 miles of previously treated saltcedar along the Pecos River. These efforts were in support of implementing the Total Maximum Daily Loads for Total Dissolved Solids and Sulfate in E.V. Spence Reservoir, and the Pecos River Watershed Protection Plan to improve water quality related to excessive salinity.

- $2,864,074 in Federal Clean Water Act §319(h) grant funding from TSSWCB and USEPA
- $608,251 in State Water Quality Nonpoint Source Grant funding from TSSWCB
- $750,000 in State Brush Control Program funding from TSSWCB
- $525,000 in match funding from local conservation partners

Water Supply Enhancement Program

In order to help meet the State's critical water conservation needs and ensure availability of public water supplies, the TSSWCB administers the Water Supply Enhancement Program (and its predecessor, the Brush Control Program) to increase available surface and ground water through the targeted control of brush species that are detrimental to water conservation. TSSWCB works through SWCDs to deliver technical assistance to landowners in order to implement brush control activities. From 1999 to 2015, landowners treated over 833,877 acres of brush in priority watersheds across the state.

- $54,244,297 in State Brush Control Program funding from 1999 to 2011
- $8,541,652 in State Water Supply Enhancement Program funding from 2011 to 2015

Funding Needs for Rio Grande Carrizo Cane Control

In order for the TSSWCB to successfully implement a Rio Grande Carrizo Cane Eradication Program, 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, potentially including:
  - mechanical topping to allow for immediate visibility
  - aerial application of chemical herbicides
  - propagation and distribution of biological control agents
  - revegetation of native plants in highly disturbed areas
- conducting scientific investigations to ensure the program is successful, including:
  - aerial and remote sensing for detailed mapping of the spatial extent of the cane infestation
  - documenting the water conserved from managing arundo
  - evaluating treatment impacts on river hydrology, sediment dynamics, water quality, and aquatic health
- two positions at TSSWCB to provide overall program management, public outreach, and landowner coordination.

For More Information

Contact Johnny Oswald, Program Administrator,
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or visit http://www.tsswcb.texas.gov/arundo.

The Texas State Soil and Water Conservation Board, established in 1939, administers Texas' soil and water conservation law and delivers coordinated natural resource conservation programs to agricultural producers through the State's 216 soil and water conservation districts. The agency is responsible for planning, implementing, and managing programs for preventing and abating agricultural and silvicultural nonpoint sources of water pollution; administers a water supply enhancement program to increase available surface and ground water through the targeted control of water-depleting brush in areas in need of water conservation; works to ensure the State's network of 2,000 flood control dams is protecting lives and property; and facilitates the Texas Invasive Species Coordinating Committee.

TSSWCB

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