



THE MEADOWS CENTER
FOR WATER AND THE ENVIRONMENT
TEXAS STATE UNIVERSITY

ANNUAL REPORT 2016 - 2017

MEMBER THE TEXAS STATE UNIVERSITY SYSTEM



TABLE OF CONTENTS

MESSAGE FROM EXECUTIVE DIRECTOR.....	4
MISSION AND VISION.....	5
ADVANCES IN OUR STRATEGIC GOALS.....	6
RESEARCH.....	8
EDUCATION.....	14
STEWARDSHIP.....	20
LEADERSHIP.....	28
2016 - 2017 FINANCIAL INFORMATION.....	33
LIST OF MEADOWS STAFF AND FELLOWS.....	34
LIST OF DONORS.....	35



As we end our 2017 fiscal year, much of Texas has returned to drought. Thankfully, our conditions state-wide are not as severe as they were in 2011 but they are a wake-up call which tells us that our water problems are not going away and, in fact will continue to deepen as our population increases and the climate continues to evolve.

In the face of this daunting prospect, my colleagues at The Meadows Center for Water and the Environment here at Texas State University have taken bold steps this past year to increase our capacity to help the leadership and the people of Texas to address what is clearly the most serious natural resource challenge facing coming generations.

We completed a thoughtful and elegant strategic plan, which lays out five major goals and initiatives.

First, we will strengthen the research capabilities of the Meadows Center while continuing to recruit outstanding water experts and scholars from around the nation and developing an enhanced infrastructure platform to support the research community at Texas State University.

Secondly, we will continue restoration efforts at Spring Lake, a globally significant natural and cultural resource located here on the Texas State University campus, including stewardship of the significant resources at the site and development of a new, state of the art interpretive center.

Third, we have recruited a talented new Director of our Educational Research and Programs, which already reach more than 100,000 visitors a year. This strategic addition to our team will enable us to both enhance

and broaden the experience of our visitors, a large proportion of which are now schoolchildren, while at the same time expanding our ability to contribute to the learning and enrichment of the students here at the University.

Fourth, we will greatly expand our efforts in Conservation Leadership to assist policy makers in addressing the grand challenges surrounding water and the environment in Texas while helping prepare the next generation of conservation leaders.

Finally, we will ensure the sustainability of The Meadows Center itself, which has become a remarkable institution thanks to the generosity and vision of The Meadows Foundation, numerous special friends and generous donors noted at the back of this report and the support of the leadership of Texas State University. We will do this through recruiting the kind of extraordinary academic and administrative leadership required to take the Center to another level and put in place the necessary resources to permanently secure its administrative operations.

On these pages, you will find highlights of our progress relating to the four pillars of our mission: Research, Leadership, Education, and Stewardship.

We are proud of what we have accomplished in the fifteenth year of our existence and privileged to be associated with this noble work. Thank you to all who have helped make it possible.

Andrew Sansom

ANDREW SANSOM, PH.D
Executive Director - The Meadows Center

Our Mission

Inspiring research and leadership that ensures clean, abundant water for the environment and all humanity.

Our Vision

A world where all people understand and embrace the value of water and environmental stewardship.

Our Four Pillars

The Meadows Center fulfills its mission by integrating activities across four pillars of action in powerful ways. Our work in each of these pillars begins at Spring Lake – one of the largest artesian springs in the world – and ripples outward across Texas and beyond.



RESEARCH



EDUCATION



STEWARDSHIP



LEADERSHIP



A New Strategic Plan

As part of our 15th anniversary celebration, we are thrilled to announce a new Strategic Plan for 2017 – 2023. It brings strategic focus to The Meadows Center to ensure we continue to provide a unique platform and living laboratory at Texas State that supports research with relevance, education, stewardship and leadership for the benefit of our great state and the broader world. The plan was developed with Ross Strategic, recognized strategic planning experts, and introduces a new mission and vision statement.

ADVANCES IN OUR STRATEGIC GOALS

01

Strengthen research program and the infrastructure platform that supports Texas State's research community.

Awarded 16 grants totaling \$2,454,659 in research dollars for Texas State.

Conducted research studies related to water, land and species conservation with nine faculty members across campus.

Supported one master's student and two doctorate students' research efforts at Spring Lake.

Employed six graduate research assistants to support The Meadows Center's grant-related projects.

02

Implement the next phase of restoration, stewardship and enhancement projects at Spring Lake, including development of a new interpretive research center.

Began restoration of the historic Spring Lake Dam, following damage due to October 2015 floods.

Completed restoration of Wetlands Boardwalk and added new interpretive signage.

Finished restoration work on second of five historic glass-bottom boats.

Recruited 183 new Aqua Corps volunteer divers to conduct restoration work in Spring Lake.

03

Strengthen and expand work on conservation leadership to address the grand challenges facing water resources in Texas and beyond.

Continued successful partnership with Texas A&M University Press, sponsoring one conservation leadership publication and three river stewardship publications.

Developed a policy brief with the Texas Agricultural Land Trust to engage key decision-makers about funding land conservation for water protection.

Collaborated with the Texas Tribune to produce 24 bi-weekly newsletters to more than 7,000 subscribers about water issues in Texas.

04

Contribute to the learning and enrichment of Texas State University students.

Employed 74 Texas State students to assist with the Center's programs and research studies.

Engaged 6,916 Texas State students on a glass-bottom boat tours, teaching them the importance of water conservation.

Hosted more than 20 events on-campus and at Spring Lake focused on natural resource education.

05

Strengthen and broaden the leadership and management capacity at The Meadows Center to ensure its long-term success.

Recruited Dr. Rob Dussler as the first Director of Educational Research and Programs to help direct educational research activities with departments across campus.

Added two Fellows to advise and support initiatives in environmental flows and watershed protection.

Implemented a strategic communications road map to ensure the Center's activities reach a diverse audience and maximize impact.

Completed funding to establish an environmental flows professorship at Texas State.



RESEARCH

Faculty, staff, and students at The Meadows Center conduct applied research to address real-world problems. Our researchers provide multi-disciplinary expertise to advance science-based solutions for the most pressing water resource challenges facing Texas and the world beyond.

BY THE NUMBERS

46,734 m²

Native species planted in Spring Lake and the San Marcos River

2,337 m²

Non-native species removed from Spring Lake and the San Marcos River

\$2,454,659


Research dollars awarded to the Center's faculty and staff



Developing a Predictive Ecosystem Model for the Lower Laguna Madre



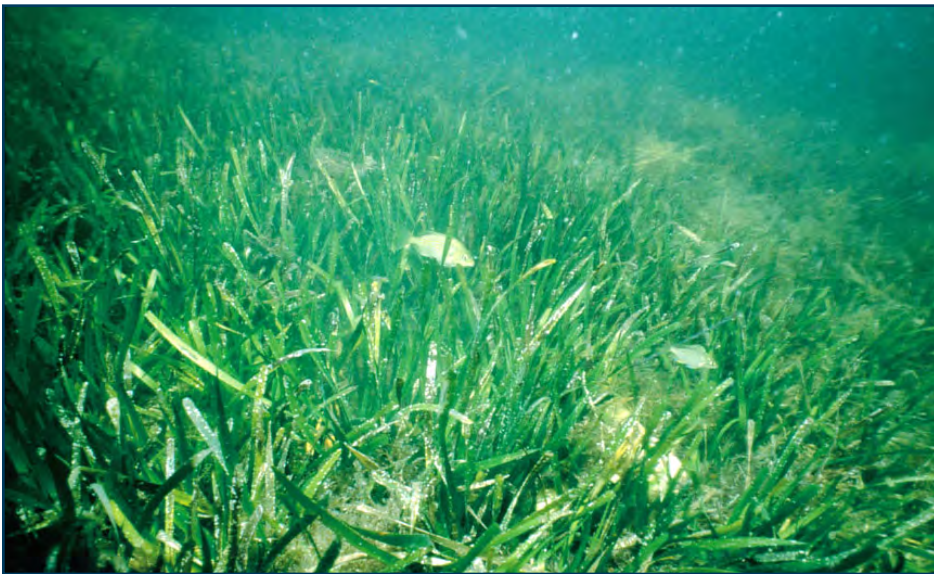
The Lower Laguna Madre at one time contained around 50 percent of the sea grass in the state of Texas, which serves as the mainstay of the Laguna food chain, but researchers have started to see decreases and a loss of sea grass in this system over the last 15 years. The Texas OneGulf Center of Excellence awarded a collaborative grant to The Meadows Center and the University of Texas Rio Grande Valley to develop a predictive ecosystem model of the Lower Laguna Madre.

Dr. Warren Pulich, Fellow of The Meadows Center, and colleagues at the University of Texas - Rio Grande Valley will continuously monitor and collect data on plant growth and environmental factors over the next two years to develop a mathematical model that can predict plant ecosystem productivity for the Lower Laguna Madre. The model will serve as a qualitative way to understand how environmental factors control sea grass production to better predict future changes. 



WWW.TEXASONEGULF.ORG

INFOCUS



"The Rio Grande Valley is facing a huge amount of growth and development, which can produce unintended changes for the coastal environment. We need this type of ecosystem model to serve as a resource management tool for environmental scientists and regulatory agencies in predicting how human and natural impacts can affect the Laguna Madre habitat."

Warren Pulich,
Fellow of The Meadows Center

Assessing Water Conservation Potential for LCRA

Dr. Timothy Loftus, Meadows Endowed Professor in Water Conservation and Chief Conservation Officer at The Meadows Center, was awarded a research project with the Lower Colorado River Authority (LCRA) in January 2017 to determine if conservation measures implemented by rice farmers in the Garwood Irrigation District result in reduced water use.

The LCRA has a legislative obligation to transfer an amount of water to Williamson County (i.e., City of Round Rock) to fulfill one of the city's drought management strategies. In order to make an out-of-basin transfer of water, LCRA must identify an equal amount of water saved through conservation in the agricultural fields near the Gulf Coast region. 🌿

INFOCUS

"There are many stakeholders who want the water, or historically have rights to the water, that need to be juggled now due to the population growth in Texas. It is exciting to be at the forefront of a water resources issue and trying to figure out the best way forward."

John Barnard,
Texas State University
Graduate Assistant



© NPR State Impact



[BIT.LY/WATERPLANLCRA](https://bit.ly/waterplanlcra)

Creating a Conservation Plan for the Dunes Sagebrush Lizard

A team led by Dr. Thom Hardy, Meadows Endowed Professor in Environmental Flows and Chief Science Officer at The Meadows Center, and Michael Forstner, Texas State University System Regents' Professor, began a multi-year project with the Texas Comptroller of Public Accounts to conduct research and monitor the efforts needed to support implementation of the Texas Conservation Plan for the Dunes Sagebrush lizard.

The lizard, found only in the shinnery oak dunes of southeast New Mexico and West Texas, has been a candidate species for listing under the Endangered Species Act by the U.S. Fish and Wildlife Service since 2001. Its numbers are threatened by habitat removal, fragmentation and degradation as a result of oil and gas development. This year, the team used ground truth data and survey data to extend the existing lizard habitat model developed in New Mexico to Texas. Activities included validating the habitat classification scheme and developing a protocol to standardize lizard and habitat monitoring surveys. 🦎

INFOCUS

"Working on the Dunes Sagebrush Lizard project, I have gotten the opportunity to learn and see a different ecoregion of Texas. I was amazed at all the different vegetation types and wildlife species thriving in the arid environment of West Texas. I am looking forward to seeing how our vegetation data and lizard survey data can be integrated and used in developing a Texas habitat suitability model for the Dunes Sagebrush lizard."

Kristy Kollaus,
Research Associate and Biology Field
Crew Leader



© Texas A&M University

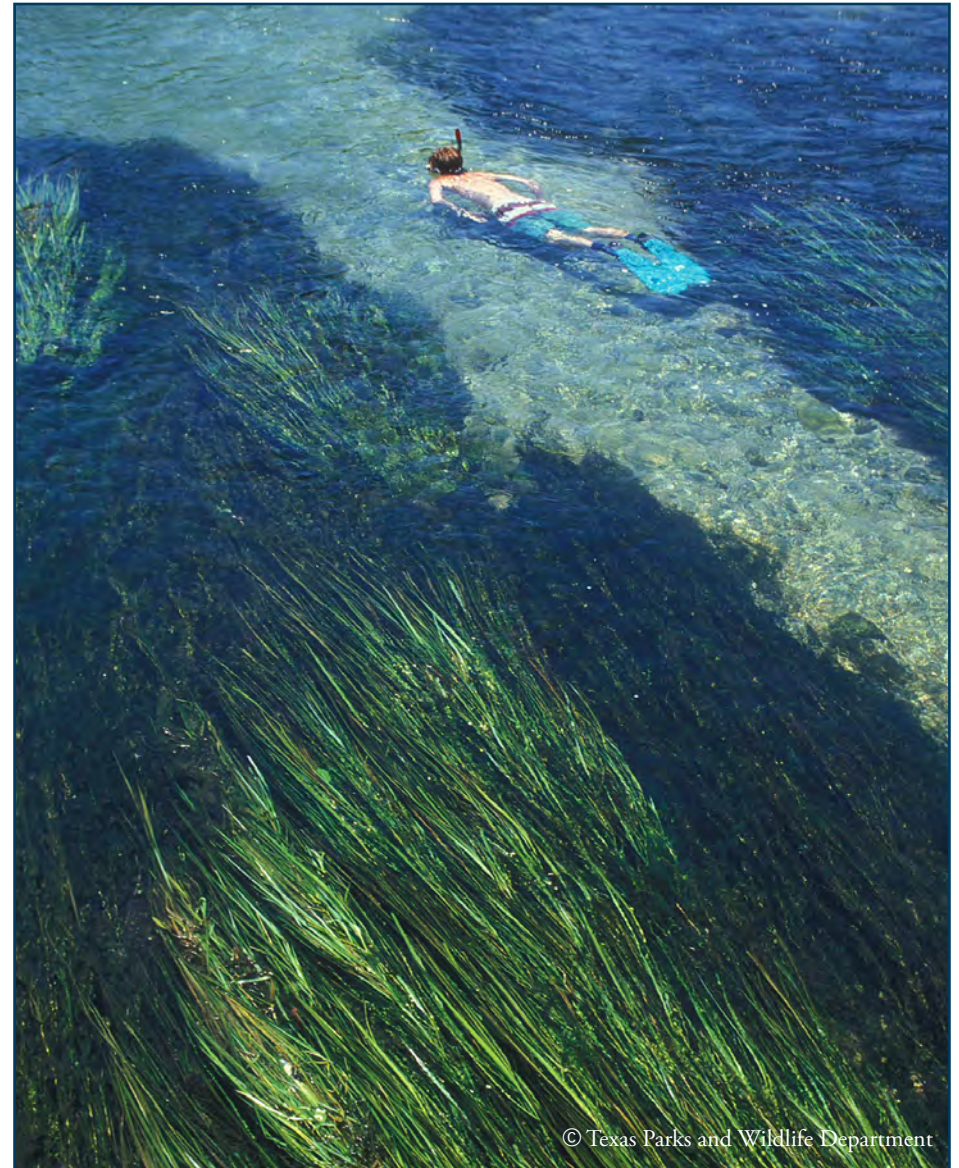
The Blanco and Upper San Marcos Watersheds Strategic Prioritization Report

The Blanco and San Marcos Watersheds are at a pivotal moment. Population growth is occurring at unprecedented rates in Central Texas. Studies have shown that the conservation of natural systems is a cost-effective way to meet many societal needs. *The Blanco and Upper San Marcos Watershed Strategic Conservation Prioritization Report*, completed by The Meadows Center in July 2017, recognizes the need to balance growth with the conservation of resources vital to continued prosperity by prioritizing lands for conservation based on water, cultural, and ecological resources. Conservation of key lands and natural resources will support sustained economic vitality, quality of life, and access to indispensable natural resources.

The report identifies areas most in need of conservation using a geographic information system framework and a repeatable, procedural model to evaluate the geographic distribution of conservation resources and their significance throughout the Watersheds. The prioritization results indicate that collectively 46,227 acres, or 12.9% of the study area, are of high conservation value. Within this total, 3,539 acres are in existing conservation lands and 32,583 acres are in areas available for conservation. The remaining 10,105 acres are in developed areas or 100 to 20 acres parcels, neither of which meet the criteria for conservation consideration.

The prioritization results also identified four clusters that can serve as focus areas for conservation action:

- The ring around the San Marcos core associated with karst features, Spring Lake, riparian areas, Edwards Aquifer recharge, and trails buffer;
- Fern Bank Springs area associated with Edwards Aquifer recharge, opportunity area, spring buffers, water quality buffers, and golden cheeked warbler habitat;
- Cypress Creek area associated with Trinity Aquifer recharge, spring buffers, golden cheeked warbler habitat, and karst features;
- The area around Pleasant Valley Springs area also associated with Trinity Aquifer recharge, spring buffers, golden-cheeked warbler habitat, and karst features. 🌿



© Texas Parks and Wildlife Department

How Much Water is in the Pedernales?

In 2014, a team of scientists at The Meadows Center set out to answer this seemingly simple question—how much water is in the Hill Country? The conservation of the Hill Country’s water systems is not only important to protecting the diverse wildlife native to this area, but also to the growing population moving into the Hill Country.

The Meadows Center completed its study on the Pedernales River in September 2016, which delivered a greater understanding of the river’s movement, overall quality, and its response to land use and activity over time.

Below are some key insights:

- The Pedernales River is in relatively good shape and there is still time to ensure its continued health.
- Flow is influenced by groundwater pumping activities.
- Headwater springs are the source of the Pedernales River during baseflow conditions and are very important to the health of the river, Lake Travis, and the water supply for Austin.
- A clear relationship exists between geologic data and surface/ groundwater interactions.
- Water quality in the Pedernales River is generally good.
- Small but increasing threats to water supply and water quality are present and increasing, such as: (1) population growth, development and land use changes, (2) wastewater discharges from municipalities, and (3) increased groundwater pumping.



PEDERNALES.MEADOWSWATER.ORG



INFOCUS

“Over the last year, the “How Much Water is in the Hill Country” program completed a gain/loss study performed on the entire reach of the river, from the headwater springs near Harper downstream to Hammett’s Crossing. The data was compared to the last complete study performed in 1962. In general, the river is a gaining river, though several areas of loss that were not seen in 1962 were documented. The area south of Fredricksburg appears to have become a losing reach. A dye study is being planned for the summer of 2017 to investigate another area of loss upstream from Pedernales Falls State Park.”

Doug Wierman,
Fellow of The Meadows Center





EDUCATION

The Meadows Center's educational programs encourage life-long learning about the environment—and people's relationship to the environment. One of The Meadows Center's greatest responsibilities is preparing the next generation of conservation leaders.

BY THE NUMBERS

\$619,318

Revenue generated from
educational programs at Spring
Lake

125,372

Total visitors

35,223

Students served



Expanding Educational Opportunities for the Community

The Meadows Center expanded its educational programs to include Family Fun Days, Nature Play Pre-K Days, Homeschool Days and Scout Badge Days to address the 'nature deficit' that affects children and families within the local community. The new programs are focused on educating the community about nature, science, the environment (with an emphasis on San Marcos and Spring Lake), conservation and watershed sustainability through hands-on activities and crafts.

The education team developed the community-focused programming to increase and improve availability and access to developmental activities and opportunities for youth to have access to year-round, high quality, out-of-school activities that help them develop academically, emotionally and physically. 🌱



© San Marcos Daily Record



INFOCUS

"In September 2016 we began a trial run for Family Fun Days at Spring Lake and with a generous grant from the City of San Marcos we are now able to offer them once a month. This free programming is available to local community members as well as visitors riding the glass-bottom boats. It is a great opportunity for families to get outside, into nature, and take home a small craft as a souvenir."

Miranda Wait,
Community and Research Manager





STAFF SPOTLIGHT DEBORAH LANE

We would like to recognize and thank Deborah Lane, who retired in December 2016, for her devoted work towards the preservation of the San Marcos Springs for the past 18 years. Deborah began her work at Spring Lake as the Special Events Coordinator at the Aquarena Center in 1998. In 2013, she took on the role as Spring Lake Educational Operations Manager, which included the tasks of managing glass-bottom boat tours, educational programs, special events and the park's gift shop. As of December 2016, Deborah officially retired from The Meadows Center. 🌿

Honored with the John Covert Watson Award For Vision

In September 2016, The Meadows Center was awarded the John Covert Watson Award for Vision by the Children in Nature Collaborative of Austin (CiNCA). The Meadows Center was one of four recipients honored for innovation and successful initiatives to connect children to nature during CiNCA's ninth annual Celebration of Children in Nature awards event. 🌿



[BIT.LY/MEADOWSEDUAWARD](https://bit.ly/meadowseduaward)

INFOCUS

"The opportunity to bring children here and not only introduce them to this globally significant site, but to have their experience here imbue in them the connection between people and the environment is a high calling. Our boat drivers, our interpreters and our students do a better job of that than almost anyone I know because they believe so strongly in what they are doing. I cannot express how excited I am for them. This award is so well deserved."

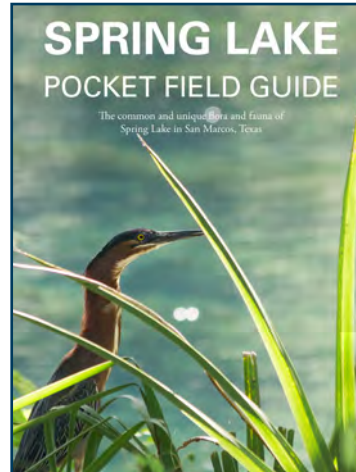
Andrew Sansom,
Executive Director



First-Ever Spring Lake Pocket Field Guide

The Meadows Center published a pocket-size field guide for the flora and fauna of Spring Lake. It features more than a hundred common and unique species found at Spring Lake, including amphibians, reptiles, mammals, birds, trees, shrubs, vines, wildflowers and aquatic plants. Produced by The Meadows Center's staff with guidance from local wildlife experts, it offers full-color photos and species descriptions. The field guide is also waterproof for handy use in the field.

The Spring Lake Pocket Field Guide was made possible through support from the REI Outdoor School, which awarded The Meadows Center an Explore Spring Lake Connector Grant as a way to promote wildlife appreciation and conservation. These guides will be used during the Stand Up Paddleboard and Kayak tours at Spring Lake that are led by the REI Outdoor School. 🌿



INFOCUS

"Every time I paddle the waters of Spring Lake, I see a new piece of the world that lives there. The Spring Lake Field Guide gives instructors at REI a way to instantly and easily access an amazing amount of information so that we can better educate people about this precious resource. Some places are so unique and so important, they need their own Field Guide."

Cody Ackermann,
REI Outdoor Program and
Outreach Manager



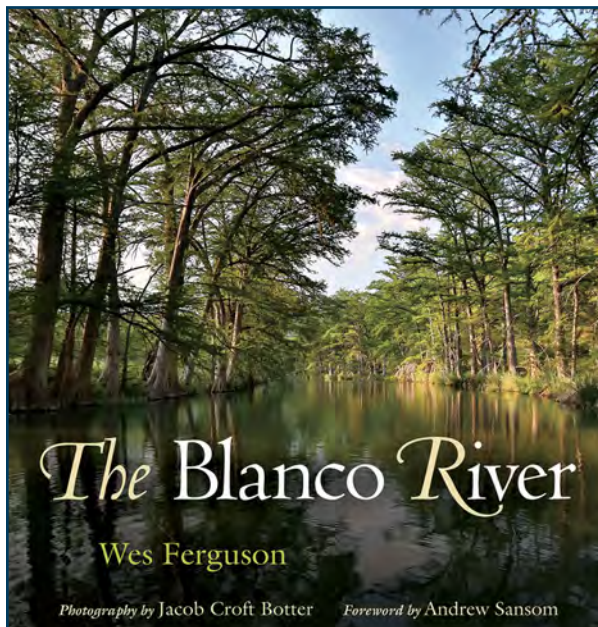
Introducing Four New Publications to Our Book Series

Since 2012, The Meadows Center has sponsored two book series focused on conservation leadership and river stewardship. Each book includes a foreword written by our Executive Director, Andrew Sansom, and is published by Texas A&M University Press. 🌿



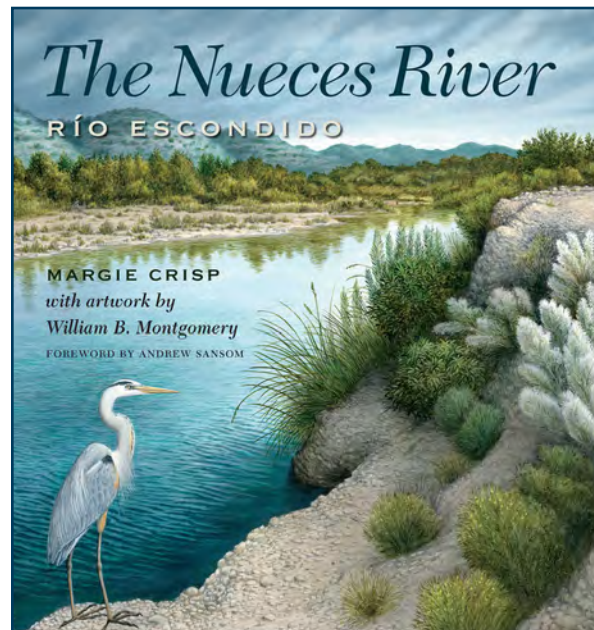
BOOKS.MEADOWSWATER.ORG

The Blanco Book River Books



River travelers Ferguson and Botter tell the remarkable story of the changeable Blanco River, confronting challenges and dangers as well as rare opportunities to see parts of the river few have seen. The authors also photographed and recorded the human response to the destruction of a beloved natural resource that has become yet another episode in the story of water in Texas.

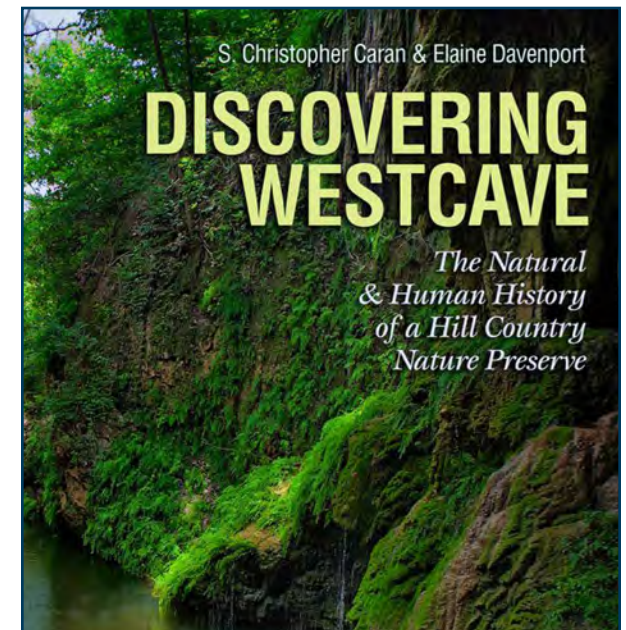
The Nueces River: Río Escondido River Books



From the headwaters on the Edwards Plateau, Margie Crisp and William B. Montgomery follow the Río Escondido River through the mesquite and prickly pear of the South Texas Plains, to the river's end in Nueces and Corpus Christi Bays. With vivid prose and paintings, they record their travels as they explore the length of the river on foot, kayak, and fishing boat, ultimately weaving a vivid portrait of today's Nueces.

Discovering Westcave

Kathie & Ed Cox Jr. Conservation Leadership

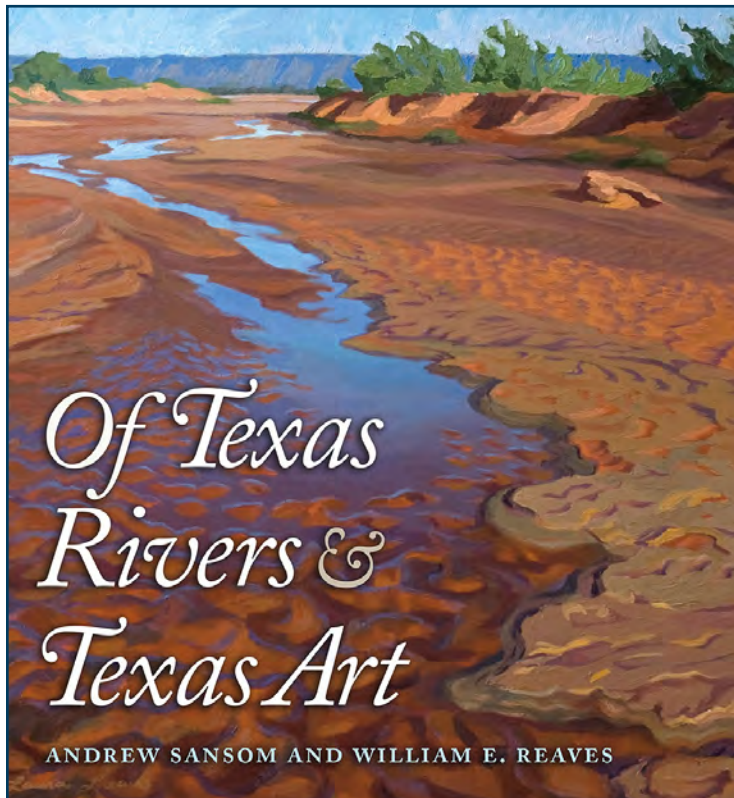


Chris Caran and Elaine Davenport take readers on a walk through the beautiful preserve, unveiling the evolutionary past of its stunning natural features and acknowledging Westcave's long history. The aim of this guidebook is to share the natural and human history of this refuge as well as to inspire through environmental learning a continued respect and appreciation for the natural world.

Of Texas Rivers and Texas Art

River Book Series

Andrew Sansom, Executive Director of The Meadows Center, and William E. Reaves, an influential Texas art collector and historian, have teamed up to showcase some of the finest contemporary river art detailing the gorgeous traits of Texas landscapes. The collection of work included in this book is exemplary of the strong inspiration that rivers have provided for a vast current of literature, music, and art, in turn shaping their place in life and culture and bringing about a greater appreciation of the stunning beauty of our natural world.



ART IN SERVICE OF CONSERVATION

An exhibition featuring artwork from *Of Texas Rivers and Texas Art* has traveled around Texas this year in celebration of the state's rivers, bayous and bays. The exhibition was featured at the San Angelo Museum of Fine Art, the State Capitol and will travel to the Witte Museum on September 2.



[BIT.LY/TEXASARTEXHIBIT](https://bit.ly/texasartexhibit)



STEWARDSHIP

One of our greatest privileges is the stewardship and management of Spring Lake and its habitat, endangered species, and cultural resources. The Meadows Center is active in the San Marcos community and beyond and strives to strengthen those ties by connecting stewardship of water and natural resources to quality of life.

BY THE NUMBERS

1,213

Volunteer dives to help manage and monitor Spring Lake

200

New citizen science divers trained

147

Research dives conducted in Spring Lake



Expanding the Operation SCUBA Program for Veterans

The Operation SCUBA Program is committed to maintaining no-cost access to Spring Lake's adaptive and wheelchair accessible dive facilities for active duty and veteran divers. This year Operation SCUBA collaborated with the Texas State Department of Health and Human Performance to begin offering student veterans the opportunity to enroll in a semester-long Operation SCUBA training course. The course integrates SCUBA diving and the healing qualities of Spring Lake as a way for veterans to bond with others, develop a sense of purpose, and most importantly, receive support from their peers. The first group of Texas State student divers were certified in July of 2015. Since then, Operation SCUBA has trained dozens of veterans in various SCUBA certifications at Spring Lake. 🌿

Success Stories:

- All participants independently enrolled in the Dive Authorization Course at Spring Lake to become environmental stewards of the lake.
- Partnership formed with Texas Stream Team. Program participants will conduct underwater biomonitoring, contributing valuable information about water quality and habitat health in streams, lakes, rivers, and bays across Texas.
- Three undergraduate internships were offered as a part of this program.



INFOCUS

"I was recently awarded an underwater archaeology internship with the National Parks Service and the Hispanic Access Foundation, diving, documenting, and preserving three shipwrecks in Biscayne National Park. Without The Meadows Center's Operation SCUBA and Texas State University's School of Social Work, I wouldn't have known about the professional opportunities diving can provide."

Caleb Henderson
Student Mentor for Operation SCUBA



OPERATIONSCUBA.ORG

Welcoming New AquaCorps Dive Instructors

After successfully completing the Spring Lake Dive Authorization course (DAC), qualified Open Water SCUBA divers can become members of our AquaCorps to volunteer their time assisting us in managing and monitoring the lake, while at the same time enjoying dives in crystal clear water. This year, our dedicated instructors led 19 DAC's and welcomed 200 new volunteer SCUBA divers. 🌿

Scott Cameron Named Lead DAC Instructor

In 2016, Scott Cameron began his role as Lead Instructor of the DAC and AquaCorps program. Scott enjoys the opportunity to introduce students to the unique environment and rich history of Spring Lake. His favorite part of the diving program has been hearing the students' excitement and seeing them volunteer dive after completing the course.

INFOCUS



"A major success for the DAC is how the graduates of the course who come and volunteer play a big part in maintaining Spring Lake. Back in 2008, Spring Lake suffered from a big problem with the invasive plant Hydrilla. The volunteer divers worked hard on the abatement and now the lake is free of it."

Scott Cameron,
Lead Spring Lake DAC Instructor

Erica Brumleve Named DAC Instructor

Erica was first introduced to Spring Lake in 2007 when she became a dive master candidate for the Aquarena Springs "Diving for Science" program and has continued diving here since then. She became a DAC Instructor in 2015 and has enjoyed seeing her students' faces light up as well as having them become involved to help preserve our natural resource.

INFOCUS



"I love coming out here to volunteer dive and give back to Spring Lake so that it will be here for another thirteen thousand years. I'm also an avid underwater photographer so I enjoy having the opportunity to take photos of native fish, plants and other species."

Erica Brumleve,
Spring Lake DAC Instructor

Repairs Begin on the Historic Spring Lake Dam

Originally built in 1849 to power a saw and gristmill, Spring Lake Dam is situated on the Texas State campus upstream from Sewell Park. It forms Spring Lake at the headwaters of the San Marcos River and is home to unique archaeological and biological resources, including several federally listed endangered species. Following damage from the October 2015 floods, a fence was erected and the popular swimming hole downstream of the dam has been closed since then.

Texas State University and our Chief Science Officer, Dr. Thom Hardy, selected Freese and Nichols, Inc. (FNI), one of the region's leading water resource engineering firms, to begin a multi-phase project to design repairs for the dam. The first phase will involve removing debris and carefully placing rip-rap along the dam to provide short-term stabilization of the structure. The second phase will incorporate interim stabilization measures from phase one into the long-term rehabilitation of the dam. Texas State and FNI are in the process of evaluating designs for the long-term fix, which will likely cost \$5 million or more. 🌿



The Wetlands Boardwalk Reopens to the Public

In December 2016, The Meadows Center reopened the Wetlands Boardwalk and once again welcomed visitors to walk through the self-guided trail. Texas State University received assistance from Federal Emergency Management Agency for damages incurred during the October 2015 flood that left the Wetlands Boardwalk inaccessible for over a year. In early November 2016, repairs and improvements were completed to prevent major damage from future floods and meet the needs of the 125,000 visitors The Meadows Center receives each year.

“The boardwalk is one of the Meadows Center’s most valuable assets. The one-tenth-mile trail provides an up-close vantage point for visitors to observe the abundant wildlife and amazing natural beauty, and for school children to gain valuable first-hand knowledge about the ecological benefits of wetlands,” former Spring Lake Educational Operations Manager Deborah Lane said. 🌿



Texas Stream Team

Texas Stream Team is steadfast in its commitment to conserve our waters and shape environmental stewards. Over the past 25 years, more than 8,000 Texans - birders, anglers, students, retired professionals, nature lovers and others - have come together in more than 45,000 hours of service as part of Texas Stream Team. 🦋



JOINSTREAMTEAM.ORG

Trash Free Waters Trinity Project

The EPA's Trash Free Waters Program contracted with Texas Stream Team to develop a project website and interactive, online mapping tool that will help foster a litter-free environment by enabling community leaders to promote and track trash removal activities in the Trinity River Basin. The Trinity River Watershed "Adopt-a-Spot" site and Online Mapping Tool Project created an interactive map that displays information about where volunteer groups can participate in trash removal activities within the Trinity River Watershed.

The interactive tool was built with the capacity to be later upgraded to account for reporting and metrics and to be expandable statewide and nationwide with a smart phone application interface. The online database has the capacity to receive litter removal data from citizens, standardized datasets from stakeholders and create auto-generated reports. 🦋

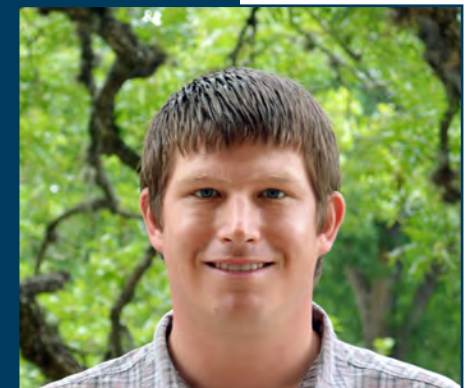


INFOCUS

Michael Jones began his work with The Meadows Center as a Student Research Assistant in September 2017. He is now transitioning into a new role as a Water Resource Specialist, where he will support Texas Stream Team and the Watershed Services team by working with partners and water quality monitoring groups across the state of Texas.

"I wanted to work for The Meadows Center because I was always interested in the research the Center was involved in, but also because of the educational aspect – teaching people about sustainable water resources, protecting the environment and how what we do affects our prestigious river. My favorite part of the job is conducting water quality events and engaging with the public to get people more interested and educated about aquatic systems and the importance of sustainable practices."

Michael Jones,
Water Resource Specialist



Bobcat Stream Team initiated at Texas State

The Bobcat Stream Team (BST), a student organization for water quality monitoring and environmental stewardship, was founded in August 2016. It started with the vision of connecting Texas Stream Team with Texas State students to offer them an outlet to protect our Texas waterways, especially the San Marcos River. The driving force behind the founding of the student organization are the three founding officers: Stacey Haddad, President; Dyhanara Rios, Vice President; and Michael Jones, Secretary-Treasurer. The founding advisers, Jenna Walker and Will Butler, are staff at Texas Stream Team and were also instrumental in the beginnings BST. The interdisciplinary and collaborative nature of the group sets BST apart from other organizations. While it is considered a geography organization, BST has members from other disciplines as well, including Biology, Mass Communication, Philosophy, and Business. Successes this year include:

- Partnered with the American Chemical Society at Texas State to obtain equipment for their water quality monitoring goals; so far, more than 40 Texas State students have been trained as water quality monitors
- Published first episode of SplashTalk; a student-run podcast about water and the environment
- Became member of the Geography Organizations Council, made up of the officers from all eight geography student organizations on the Texas State campus
- Collaborated with the San Marcos River Foundation to train and place citizen scientists at sites along the San Marcos River 🌿



BY THE NUMBERS

49,626

Miles travelled testing water quality

5,067

Hours citizen scientists monitored water quality

2,504

Active sites monitored across Texas



BOBCATSTREAMTEAM.ORG

Implementing the Cypress Creek Watershed Protection Plan

The Cypress Creek Watershed Protection Plan (CCWPP) is the result of a 10-year collaboration between numerous groups and individuals working together to create partnerships, strategies and on-the-ground efforts to keep Cypress Creek clean, clear and flowing. This Plan, accepted by the U.S. Environmental Protection Agency and the Texas Commission on Environmental Quality in 2015, was the first in Texas to include significant surface and groundwater source water protection components.

In September 2016, The Meadows Center received Clean Water Act funding on behalf of the Cypress Creek Watershed to continue implementation of the CCWPP. The \$1.34 million project award will support implementation activities over the next two and a half years to restore, protect and preserve water quality in Cypress Creek for present and future generations.

Implementation efforts include regular monitoring and data collection, developing a storm water management plan, expanding local education and outreach activities, and incorporating low impact development and green infrastructure measures into community efforts. Additionally, funds will be used to construct on-the-ground best management practices to prevent and mitigate pollution. 🌿



CYPRESSCREEKWATERSHED.ORG

INFOCUS

Tom Hegemier joined our team this year as a Fellow, bringing more than 30 years of experience in water quality management, floodplain mitigation and water resources planning. He serves as an advisor to support the Meadows Center's watershed protection planning and watershed services projects. The Meadows Center is grateful for the many contributions Tom has already made here and is excited to continue this productive partnership.

"The staff are great to work with, have their heart in the right place and want to make a difference. My goal is to help The Meadows Center strategize on potential work areas and to participate where you need me – I bring that engineering-side of things."

Tom Hegemier,
Fellow of The Meadows Center



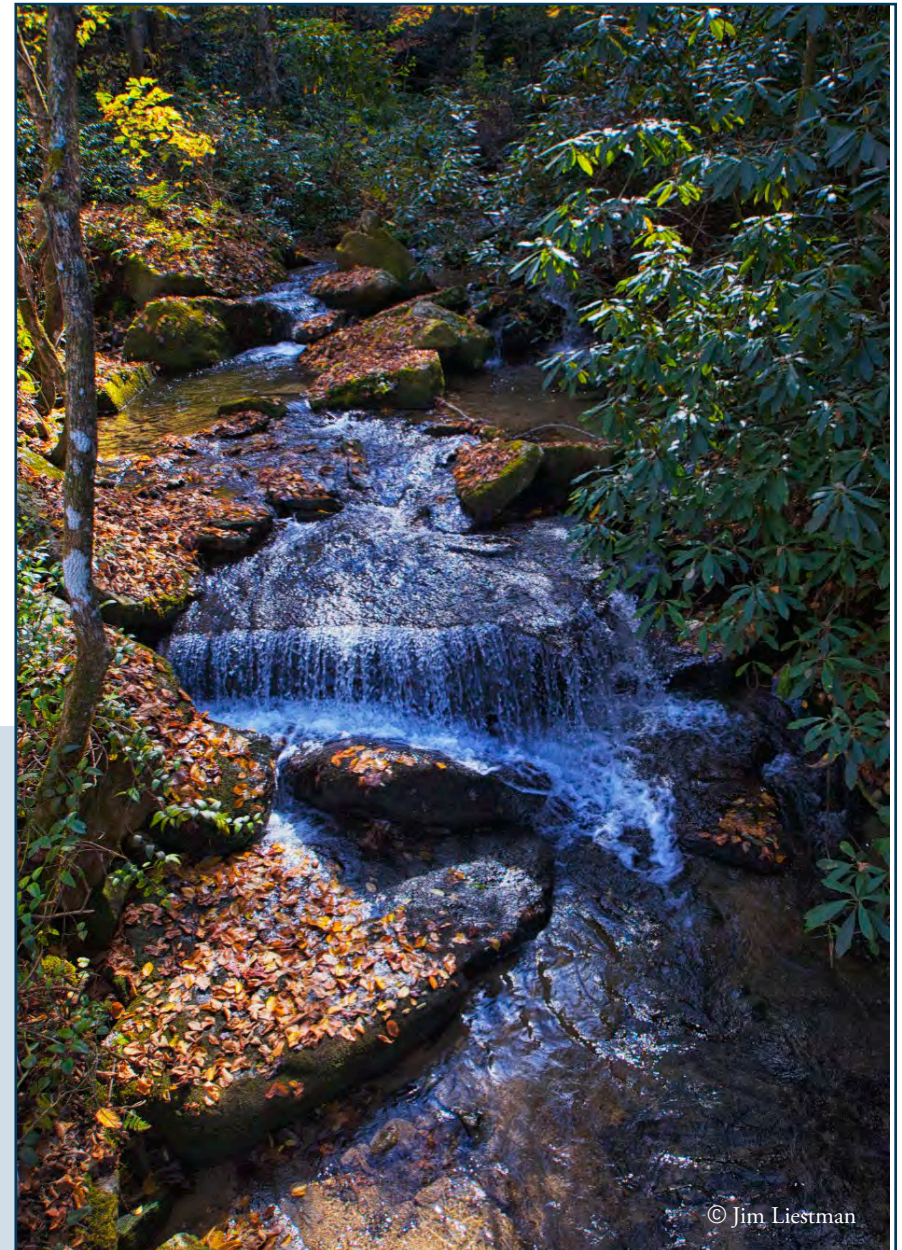
Shoal Creek Watershed Planning

The Meadows Center's Watershed Services team partnered with Alan Plumer Associates, City of Austin and Shoal Creek Conservancy to undertake a feasibility study and preparatory work for an urban watershed plan to restore and protect Shoal Creek and its springs flow. The information collected resulted in a report that includes plan goals, priorities, potential funding mechanisms, timeliness and outreach strategies to provide a starting point for a campaign and strategy to engage the watershed community and develop a Watershed Management Plan for the Shoal Creek Watershed.

From this report, the Shoal Creek Conservancy, the City of Austin and watershed stakeholders will develop a comprehensive Watershed Plan to restore and protect Shoal Creek and provide a path to a resilient, healthy and safe creek. The Plan's short- and long-term innovative and science-based solutions will protect the watershed from flooding and erosion; ensure water quality and flow; and restore ecological function and ecosystem services. 🌿

QUICK FACTS: SHOAL CREEK WATERSHED

- Watershed drainage area is 12.9 square miles (8,000 acres)
- About 27% of the watershed is over the Edwards Aquifer Recharge Zone
- About 30% of the watershed has tree canopy cover
- 71% of the watershed was developed before the 1991 Urban Watersheds Ordinance regulations
- Watershed impervious cover is about 53%, one of the highest in the City of Austin
- There are 339 flood detention and 100 water quality treatment basins in the watershed, however, they manage only about 21% of the impervious cover



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LEADERSHIP

The Meadows Center is a leader in water and environment management and policy topics in Texas, the U.S., and abroad.

We convene stakeholders to address critical water and natural resource concerns and the grand challenges that we will face in the decades to come.

BY THE NUMBERS

\$222,273

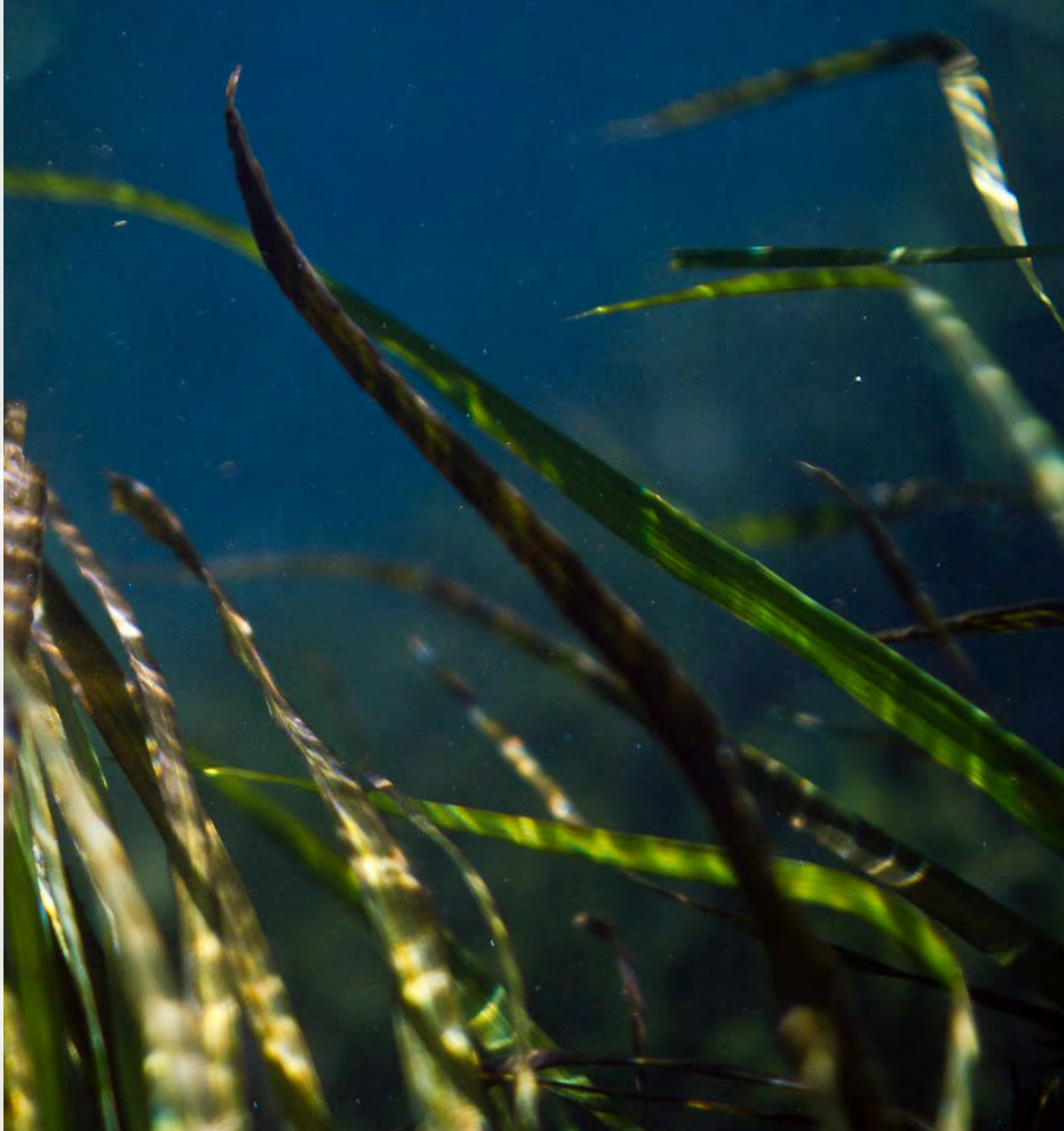
Total donations raised to support our mission

95

Total partners across Texas

15

Years mentoring and inspiring the next generation of conservation leaders



A Non-Revenue Water Policy Template for Local Adoption

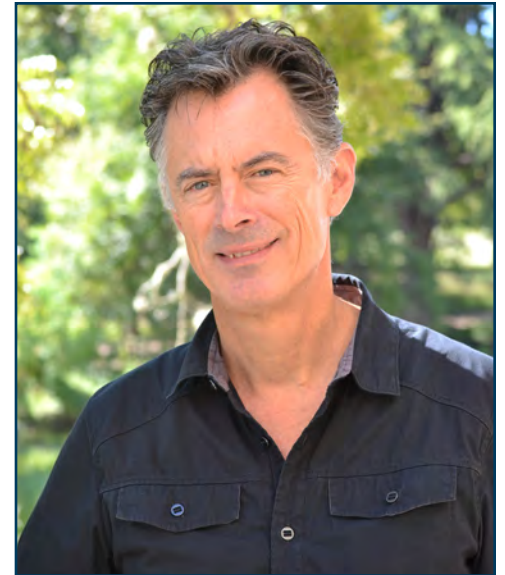
According to the American Society of Civil Engineers, an estimated 14 to 18 percent of treated water is lost each day due to leaky, aging pipes; the amount of clean drinking water lost every day could support 15 million households. This lost water is costing local governments and utilities lost revenue or unrecovered costs of production, as well as, wasting taxpayer and ratepayer dollars.

Dr. Timothy Loftus, Chief Conservation Officer at The Meadows Center, teamed up with the Alliance for Water Efficiency to produce a Non-Revenue Water Policy for local governments to adopt by resolution. Finalized in November 2016 and endorsed by the American Water Works Association, the policy serves as guidance and a local commitment to provide the best water infrastructure management practices.

The policy provides a means to address non-revenue water by controlling leakage, managing pressure and correcting poor metering and accounting practices. 🌿



[BIT.LY/NONREVENUEPOLICY](https://bit.ly/nonrevenuepolicy)



Texas-Israeli Water Innovation Showcase

The water sector is changing rapidly – new technologies are driving innovations toward water recovery, sustainable water management, desalination and more. Israel, a world leader in water efficiency and innovation, is at the forefront of this change.

The Meadows and the Texas-Israel Chamber of Commerce co-hosted a Texas-Israeli Water Innovation Showcase on May 5, 2017 at Texas State to highlight cutting-edge water innovations and solutions for Texas water challenges. The showcase explored how Texas can leverage Israeli water technology to meet future water challenges. This executive showcase brought together key leaders in the water industry and in water policy, from both Texas and Israel. 🌿

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“Texas and Israel are natural strategic partners and we are excited to show how incredible technology from Israel is game-changing for the state of Texas.”

Toba Hellerstein,
CEO of Texas-Israel Chamber of Commerce



Texas Environmental Flows Initiative

The Meadows Center coordinates the Texas Environmental Flows Initiative, a collaboration with Ducks Unlimited, Harte Research Institute, National Wildlife Federation and The Nature Conservancy. The objective of the Initiative is to execute at least one significant water transaction with demonstrable benefit to ecological resources injured by the Deepwater Horizon oil spill, thereby demonstrating the conservation value of voluntary market transactions to meet environmental water needs in Texas.

The Initiative builds on the State of Texas' considerable investments in the science of environmental flows, which are the freshwater needed to maintain water quality and the overall health of streams, creeks and rivers, wetlands, and bays and estuaries. All of these systems depend on adequate environmental flows to deliver social and economic benefit to Texans.

Recognizing the need to balance human and environmental water demands, the Texas Legislature in 2007 passed Senate Bill 3 (SB 3), which directed the Texas Commission on Environmental Quality (TCEQ) to adopt environmental flow standards "adequate to support a sound ecological environment, to the maximum extent reasonable considering other public interests and other relevant factors." Voluntary water transactions have been recognized as one important tool for restoring and protecting flows in Texas's river basins and bays and estuaries. 🌿

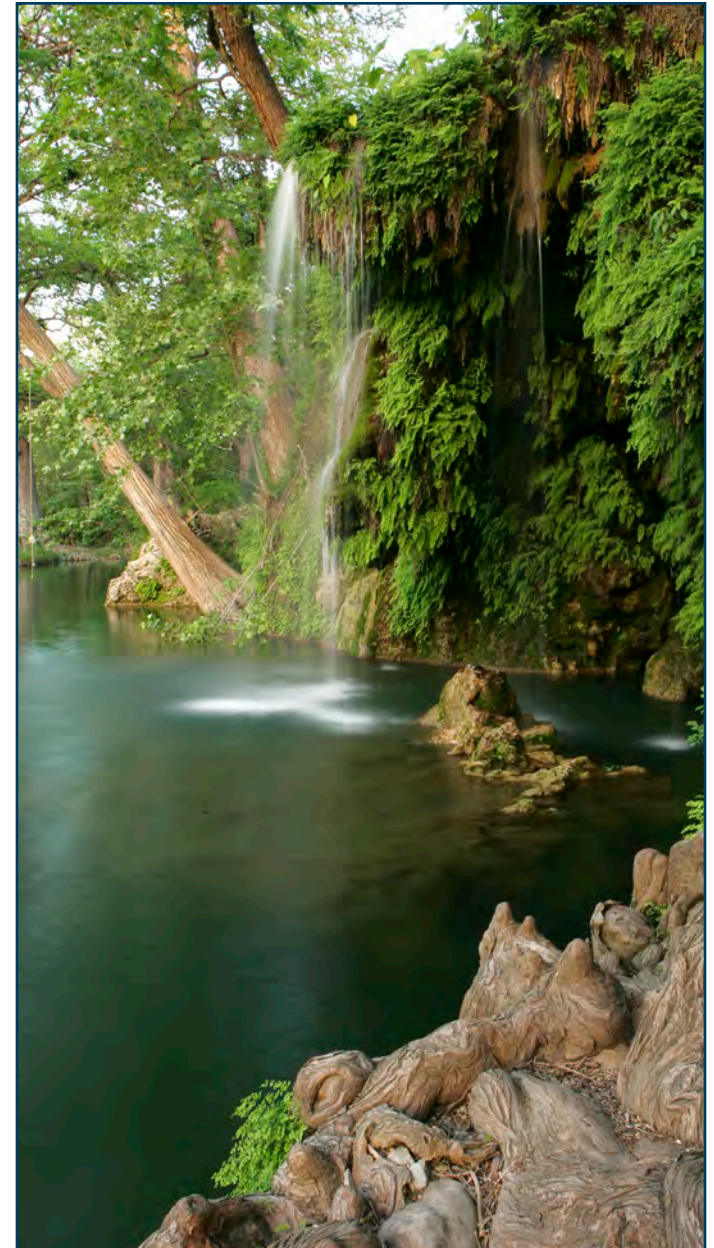


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"Over the past year, our team has been blazing the trail for translating the science of freshwater and estuarine ecology into transactions that can create ecological benefits for these critical resources. We're doing something that's never been done before in Texas, and because we're focused on benefits to bays and estuaries, we're actually breaking new ground nationally in ecological modeling for water transaction design. It's incredibly challenging but the challenge is part of the reward."

Sharlene Leurig,
Environmental Flows Initiative Project Director



Texas Water Symposium: Creating and Maintaining Healthy Watersheds

The Meadows Center partnered with the Texas State Department of Geography, Texas Public Radio and the Hill Country Alliance to host a Texas Water Symposium in February 2017 focused on gathering diverse perspectives about the challenges and benefits of Watershed Protection Programs in Texas and abroad—and the future of Texas water resources.

Watershed protection plans are a tool to bring landowners together to protect critical water resources and offer opportunities to leverage local resources with state and national dollars toward conservation solutions. Millions of dollars have been invested in watershed protection plans for Hill Country rivers and creeks, funding best management practices, restoration, and low impact development.

Panelists included representatives from the City of Austin, the U.S. Environmental Protection Agency, the Texas State Soil and Water Conservation Board, the San Marcos River Foundation, The Meadows Center and the Texas Commission on Environmental Quality. 🌿



Water Grand Challenges

In 2012, we partnered with the Cynthia and George Mitchell Foundation and the Meadows Foundation to launch a groundbreaking initiative known as Water Grand Challenges, which brought together an influential and diverse group of stakeholders to grapple with urgent issues outside the normal envelope of water policy makers.

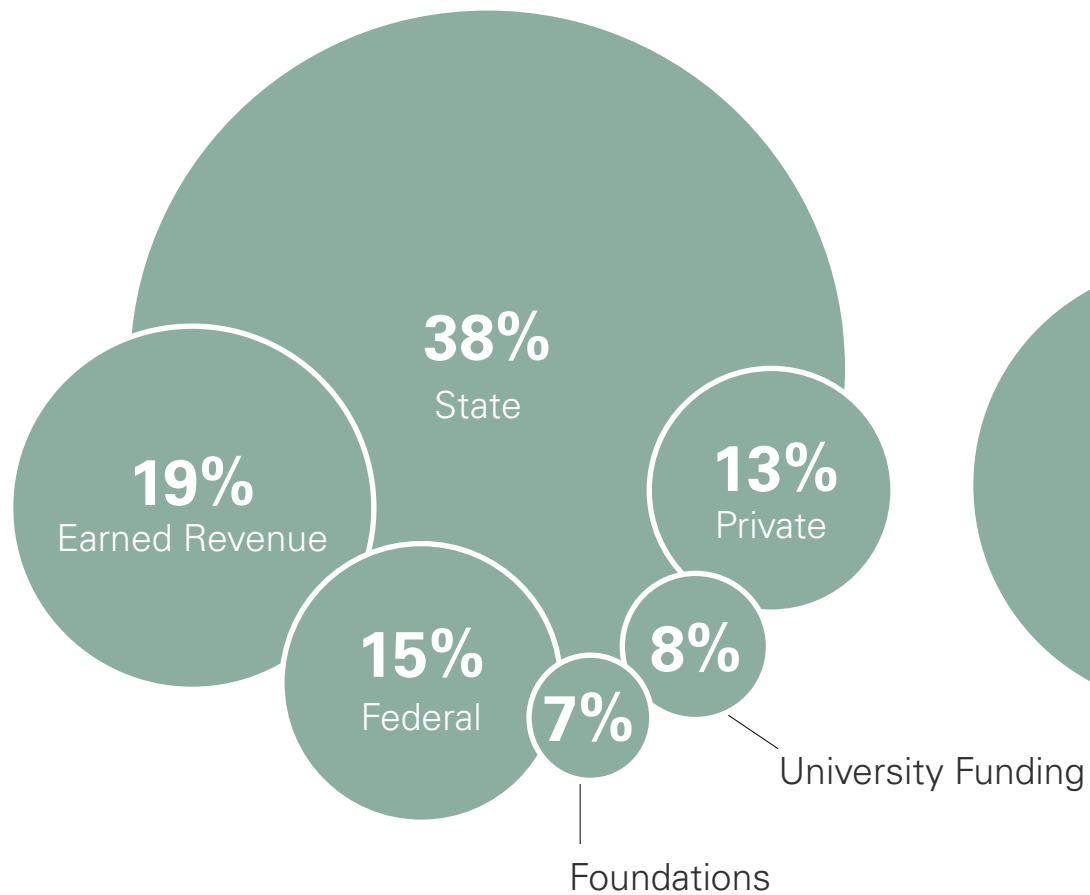
This year, the Water Grand Challenges Initiative working group held several meetings during Fall 2016 and hosted a broader meeting with key constituents in January 2017 to discuss the upcoming legislative session. As a result, the Water Grand Challenges working group developed a policy brief with the Texas Agricultural Land Trust about funding land conservation for water protection. This brief was used to engage key decision-makers during the 85th legislative session. 🌿



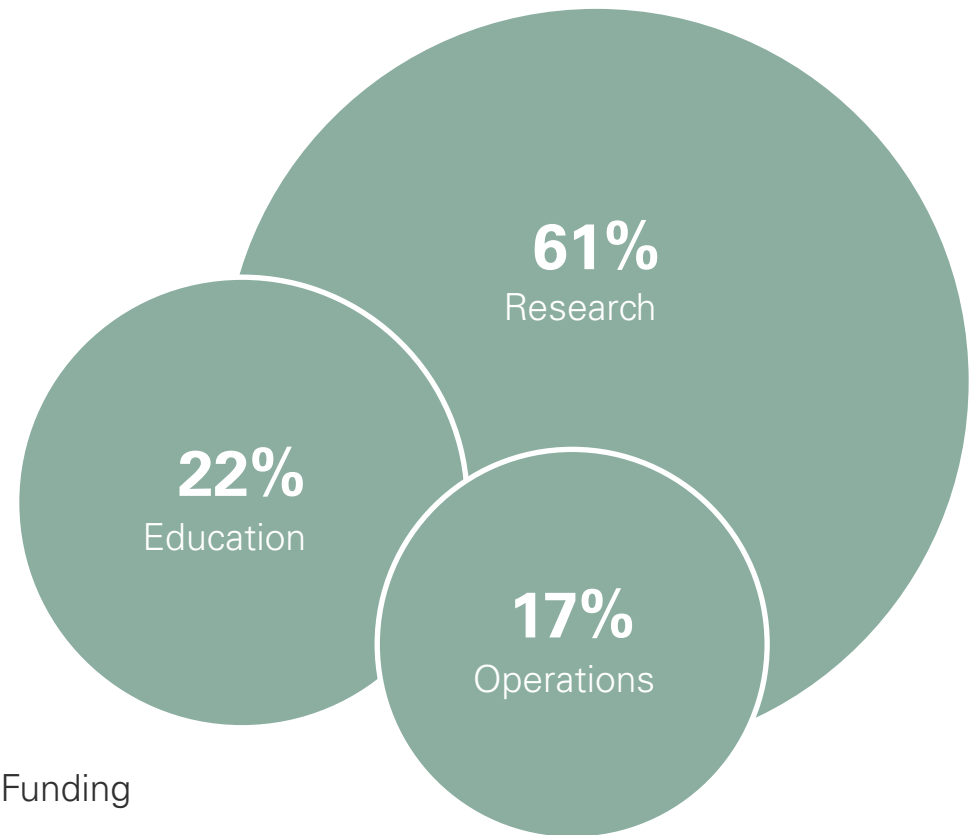
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Former President of Texas State University

Frederick 'Fritz' Hanselmann, Ph.D, M.P.A,

Lecturer and Director Underwater Archaeology and Exploration Program – University of Miami

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Walter Rast, Ph.D,

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Rachel Williams,

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DONORSPOTLIGHT

"I would like to thank for your hospitality on our visit to The Meadows Center, it was an unforgettable experience for my family and I. It is one thing reading about what the Center is doing in our grant reports, but a whole other experience witnessing it all in-person. It was wonderful to see all the work and research that is being done for our most valuable resource. My daughter's experience touring the campus began to sway her to a decision, but it was the tour at the Meadows Center that made her decide that Texas State will be the school she will be attending this fall! Thank you again for the impact you have made in all you do it is very commendable."

Alfonso Telesca,
Facilities Coordinator at the
Meadows Foundation

**This is not an complete list of donors, but highlights the financial supporters for this fiscal year. We apologize if we inadvertently omitted or incorrectly listed your name. Please let us know.*

Thank you to our financial supporters and donors!

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