

Texas Farm and Ranch Lands
Conservation Program

2024
EVALUATION
REPORT

Highlighting the economic, ecological and
agricultural values of conserved lands

AN INDEPENDENT REPORT PREPARED BY:



Summary

The vast expanse of Texas encompasses some of the most diverse and ecologically rich landscapes in the United States. Over 80% of the state falls under the designation of privately-owned *working lands*. These lands represent farms, ranches and forestlands that help supply food, fiber and water, as well as provide opportunities for outdoor recreation, foster healthy environments and support human wellbeing. Despite their importance, working lands in Texas are under threat of increasing land conversion and fragmentation, due in large part to rapid population growth and rising land market values.

To help safeguard the public benefits derived from working lands, the Texas Legislature created the *Texas Farm and Ranch Lands Conservation Program* (TFRLCP, or hereafter, the program) in 2005, with the responsibility of providing state funds to qualified non-profits and governmental agencies to acquire voluntary conservation easements on working lands. Originally TFRLCP was overseen by the Texas General Land Office but was later transferred to the Texas Parks and Wildlife Department (TPWD) in 2016, when the first state funding appropriation was awarded.

The goal of this report was to examine the conservation easements executed under the TFRLCP between 2016 and September 2024. Specifically, we evaluated economic, agricultural and ecological benefits secured through the protection of these properties as well as the financial efficiency of state funds to protect working lands from fragmentation and development.

KEY FINDINGS

The program has proven successful in providing value-added benefits to Texas residents. Due to the program's financial efficiency and the high landowner interest in participation, continued support of TFRLCP would be beneficial to the state. Our program assessment determined the following:

Financial Efficiency

- 23:1 (\$) return on investment
- 9:1 (\$) leverage of external funds
- \$222/acre state contribution
- 60% of applications unfunded

Agricultural & Ecological Values

- \$590M in ecosystem services over a 20-year period
- \$4.1M/annually in agricultural commodities
- \$16.4M/annually in water replacement savings
- \$22.6M/annually in coastal and inland flood prevention



TEXAS FARM AND RANCH LANDS CONSERVATION PROGRAM

About the Program

Working lands in Texas provide valuable goods, services and financial benefits needed to support a healthy population and economy. While some derived benefits are easily quantified in economic terms, such as agricultural production, others like clean water, wildlife habitat or flood control generally lack formal market structures that help describe their importance in terms of public funding. By assessing the contributions of TFRLCP's conserved properties in respect to financial value, we can better understand the strength of this program as a means to safeguard our state's future well-being.

Since 2016, TFRLCP has received \$2M every biennium, resulting in conservation of prime working lands across the state. This money has leveraged nearly \$53M in federal and private funding over that time. The program properties are selected through a rigorous

application process, which assesses the land based on various categories—working land status, threat of development or other conversion from productive working lands, cost effectiveness, watershed quality benefits, fish and wildlife habitat benefits, contribution to a conservation landscape, and terms of the conservation easement. Twenty-seven conservation easements have been fully executed and another ten are currently in final contracting.

The following sections assess the economic, ecological and agricultural values of the program properties conserved to date, to demonstrate the benefits secured through state investment. This report serves to update a previous program assessment, which only captured the value of projects funded through 2020.

Conservation Easement

A written, legal agreement between a property owner and a "holder" of the conservation easement, under which a landowner voluntarily restricts certain uses of the property in order to protect its productive, natural or/and cultural features. The conservation easement is tied to the property in perpetuity, meaning that regardless of who owns the property, the terms will remain in place.

North/East

Bartush Ranch: 1,498 acres
Ebel Ranch: 520 acres*
Gary Lee Price Ranch: 230 acres*
Jon James Prairie: 224 acres*

West

CE Miller Ranch: 11,342 acres*
Pietila Ranch: 6,469 acres

Central

5H Ranch: 247 acres
Albritton Ranch: 1,828 acres
Burluson Ranch and Maruna: 420 acres
Collins Ranch: 531 acres
Cypress Creek Acres: 211 acres*
Donop Llano River Ranch: 423 acres
Dreamcatcher Ranch: 210 acres
Honey Creek Spring Ranch: 638 acres
Inspiring Oaks: 1,014 acres
John Knox Ranch: 259 acres*
Krause Ranch: 1,640 acres
Lazy Bend Ranch: 145 acres
Montell Creek Ranch: 404 acres
Open V Ranch: 200 acres
Puryear Ranch: 425 acres
Santa Anna: 950 acres
Shannon Ranch: 367 acres
Spicewood Ranch: 562 acres
Thrasher Leon River Ranch: 551 acres*

South/Gulf Coast

Arborland Grassland: 110 acres
Cane Bayou: 2,300 acres*
Onion Bayou: 450 acres*
Oyster Bayou: 458 acres
J. Warren Grassland: 60 acres*
Javelina Ranch: 280 acres
JTW Ranch: 432 acres
Lavaca Ranch: 552 acres
Longleaf Ridge: 5,438 acres
Grosse - Mid Island Ranch: 227 acres
Spread Oaks Ranch: 5,332 acres

On the Map

The program strives to fund projects throughout the state, prioritizing ecologically diverse, productive working lands that are under threat of near-term development (Figure 1). Many of the TFRLCP properties border other conserved lands, such as state and federal parks or privately-owned properties also under conservation easement, effectively expanding the conservation footprint to a landscape-level scale. By selecting properties across the state, localized benefits of the program, such as flood prevention or water resource protection, are experienced by a range of communities in need.

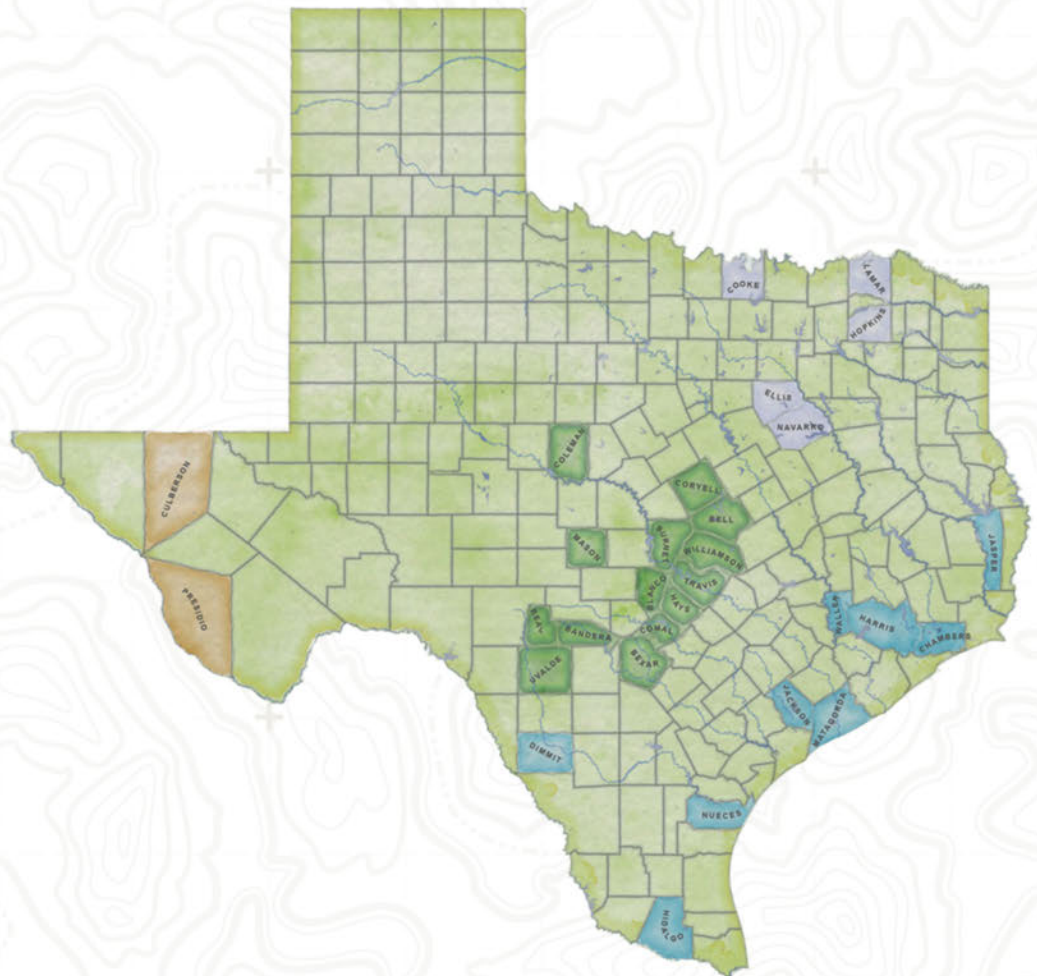
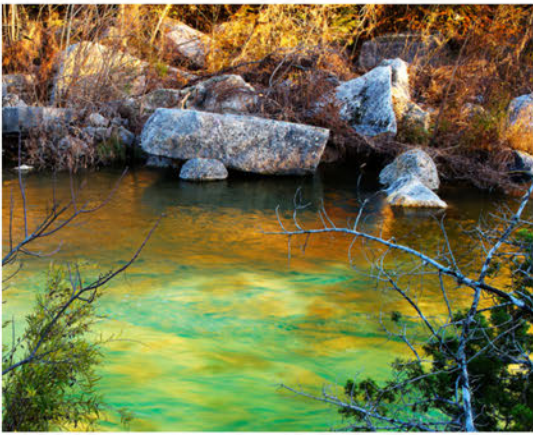


Figure 1. Counties with projects executed and pending under the Texas Farm and Ranch Lands Conservation Program, 2016 to 2023. Does not include projects executed under the Texas General Land Office (pre-2016).

*Pending transaction, as of September 2024



KRAUSE RANCH

This working cattle ranch is a picturesque example of the Texas Hill Country. Property features include rugged hills and incised canyons with hundreds of natural springs that create a five-mile-long aquatic network feeding the West Frio River. Throughout are historical and cultural markers such as dinosaur footprints, fossils, segments of 1800's wagon trails and signs of Native American habitation.

PIETELLA RANCH



Pietella supports livestock grazing along with one of the few wild elk herds in Texas. Adjoined to Guadalupe Mountains National Park, this property features a rich desert landscape with habitat consisting of high desert grasslands that contain relic stands of alligator juniper and Texas madrone.



LONGLEAF RIDGE

Nestled in the conservation corridor between the Sabine and Angelina National Forests and the Big Thicket National Preserve, this property integrates timber production with forest management. Notable features include pristine creeks and waterfalls created by Catahoula rock outcrops, rare plant communities such as pitcher plant bogs and some of the last longleaf pine forest in Texas.

BARTUSH RANCH



One of the first Lone Star Land Steward award winners (1997) from TPWD, this ranch has pioneered wildlife management programs, integrating land stewardship practices such as managed grazing, no-till agriculture, prescribed burning and antlerless deer harvest throughout its old-growth hardwoods and native grasslands.

Financial Efficiency

Maximizing the state's investment is a key objective of the TFRLCP. To cover the easement acquisition, closing costs and monitoring fees, program funds can be combined with external contributions from federal programs, counties and municipalities, land trusts and other private sources. A strength of the program has been the ability to leverage state funds to meet cost-share or match requirements for federal conservation programs. Additionally, the program has gained significant value from the financial contributions made by landowners. Most program landowners have opted to donate all or a considerable portion of the conservation easement value (bargain sale reduction), while many contribute funds to cover closing costs and the long-term stewardship monitoring of their lands. We examined the financial efficiency of the program considering only the 27 fully executed projects to date.

\$59.2M

TOTAL INVESTMENT

Contributions from multiple funding sources amplified the state's \$6.8M in program dollars.

23:1

RATE OF RETURN

\$23 worth of land value was protected for every \$1 of program investment.

9:1

LEVERAGING POWER

All projects utilized matching funds from federal and/or private sources.

\$222/acre

STATE CONTRIBUTION

Properties were conserved at a considerably low price compared to the average state land market value of \$3,021/acre.

60%

APPLICANTS UNFUNDED

The majority of applications were not contracted due to funding shortfalls.

Landowner Interest in Conservation

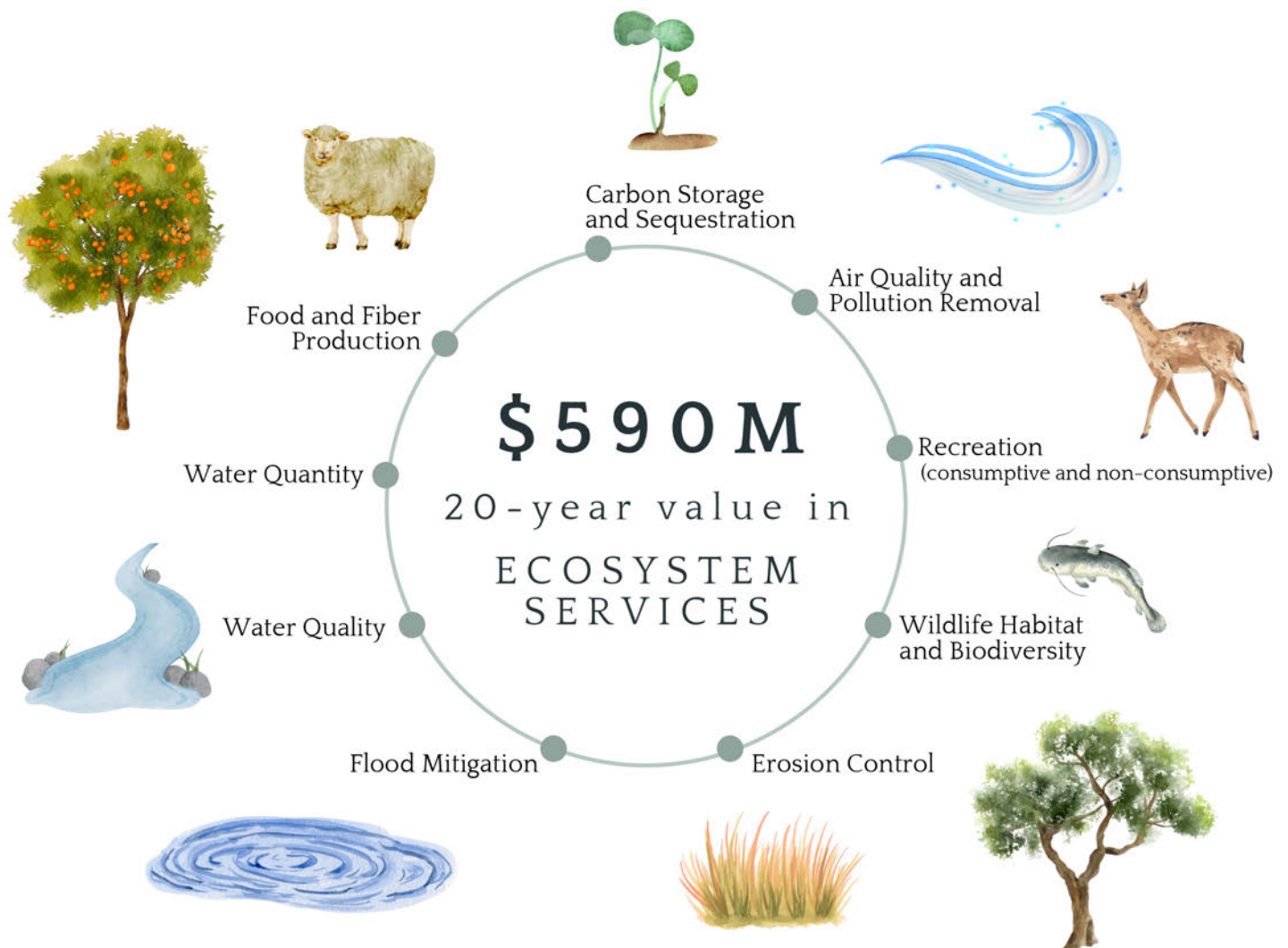
A recent survey by the Texas Land Trust Council discovered that although all surveyed land trusts have interested landowners, over 70% have to decline potential conservation easements each year due to funding constraints.

Cumulative Value

Public benefits derived from working lands come from naturally occurring functions and products the environment provides, often termed *ecosystem services*. These include agriculture commodities, water storage and management, and recreation, but extend to many other essential services and products. It is important to consider the collective value ecosystem services provide on a continual basis to best assess how financial investment into land conservation benefits our state.

To illustrate total ecological value the TFRLCP investments can yield over time, we calculated the potential value of ecosystem services the 27 executed and ten pending projects could produce over a 20-year period; however, this value is likely conservative and, in many cases, underestimated for some services.

We further assess key services in the following pages to emphasize the role these conserved lands play in addressing state challenges now and into the future.



Supporting Rural Economics

Texas depends on healthy and abundant natural resources to enhance quality of life for its residents as well as support the state's job market, revenue and ability to meet consumer demand for natural products and recreation.

Working lands are significant contributors to our state's economy, with a reported economic impact of \$186.1B annually to the food and fiber sector and employment that makes up 14% of the state's workforce. In recent years, the Texas food supply chain has been challenged due to the culmination of extreme weather events, the COVID-19 pandemic and even cyberattacks. These factors have disrupted food availability across Texas, further highlighting the importance of having in-state supplies of crop and animal products to ensure food security.

Rural land data indicates land fragmentation and conversion to non-agricultural uses are increasing at alarming rates. Texas Land Trends (2024) estimates we have lost over 2M acres of working lands in the last two decades and are currently losing more than 373K acres a year. Once lost to development, these lands will no longer produce food, fiber or the same level of environmental benefit as before.

According to our analysis, the TFRLCP properties have the potential to contribute \$4.1M annually in agricultural commodities, such as food and fiber.

Agritourism & Outdoor Recreation

The availability of outdoor activities are important for the physical and mental health of Texans, and also provide more fiscal stability for rural areas that don't often have robust economic inputs from other industries. A recent study estimated the impact of white-tailed deer hunting alone amounts to \$9.6B annually in economic contributions for the state.



Fostering Vital Resources



Conserving water resources and preparing for future water demand is critical in assuring state prosperity and quality of life for all residents and natural systems alike. Undeveloped lands act as natural filters to clean water and direct it into our aquifers, reservoirs, streams and rivers.

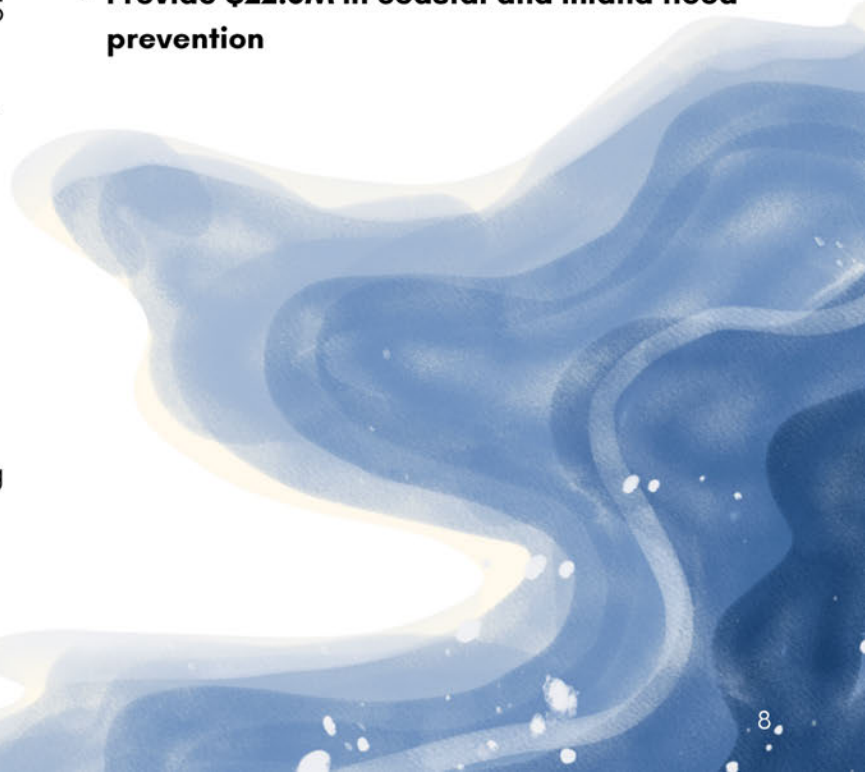
Water is a fundamental resource, and some of the most challenging issues in our state involve water development, management and distribution. We are faced with meeting the needs of a growing population and industries, in addition to protecting the wellbeing of our distinct flora and fauna. Between water basins and aquifers, our state annually relies on about 17.7M acre-feet of water these systems produce; Texas currently needs an estimated \$80B in water management strategies to avoid potential water shortages by 2070. The state's countless miles of rivers and streams also provide habitat for over 255 species of fish, not to mention numerous endemic aquatic species only found in Texas.

Inland and coastal flooding in Texas is a severe, recurring issue exacerbated by extreme weather events, rapid urbanization and inadequate land infrastructure, leading to significant environmental, economic and social impacts. Notably, Hurricane Harvey in 2017 resulted in unprecedented flooding, causing around \$125B in damages, displacing thousands of residents and leading to widespread environmental contamination.

Conservation of undeveloped, permeable lands helps to mitigate surface water declines and events of water excess by capturing rainfall, reducing runoff and increasing groundwater recharge.

TFRLCP properties have the potential to capture significantly more water than developed lands, which could yield substantial water values and savings. We estimated these properties could annually:

- **Support the water needs of 182K households**
- **Save \$16.4M in water replacement costs**
- **Provide \$22.6M in coastal and inland flood prevention**



Final Thoughts

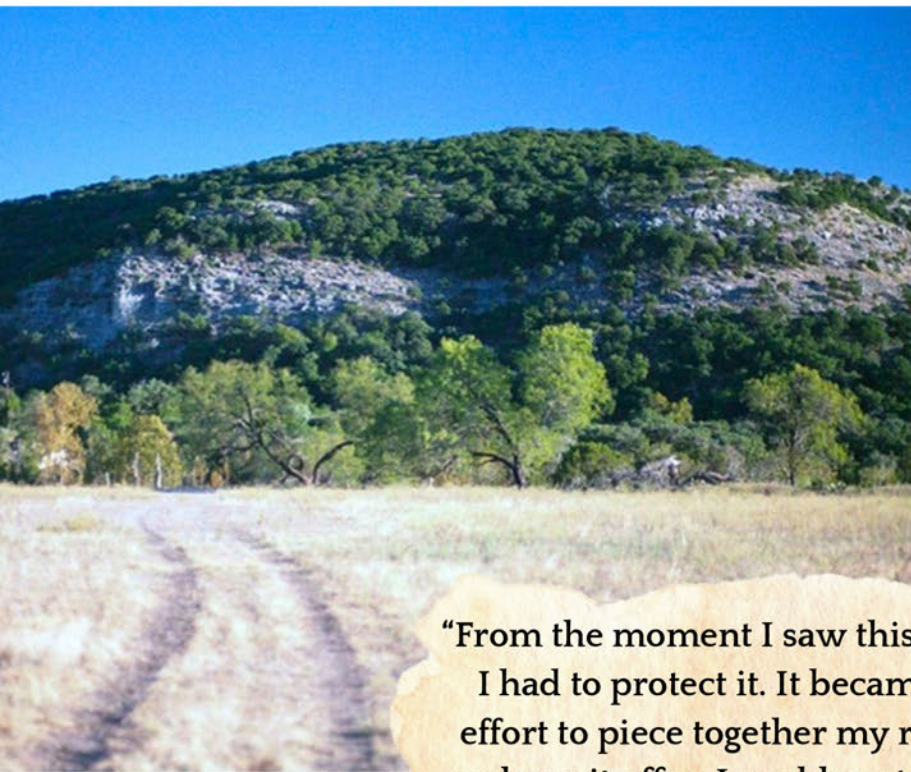
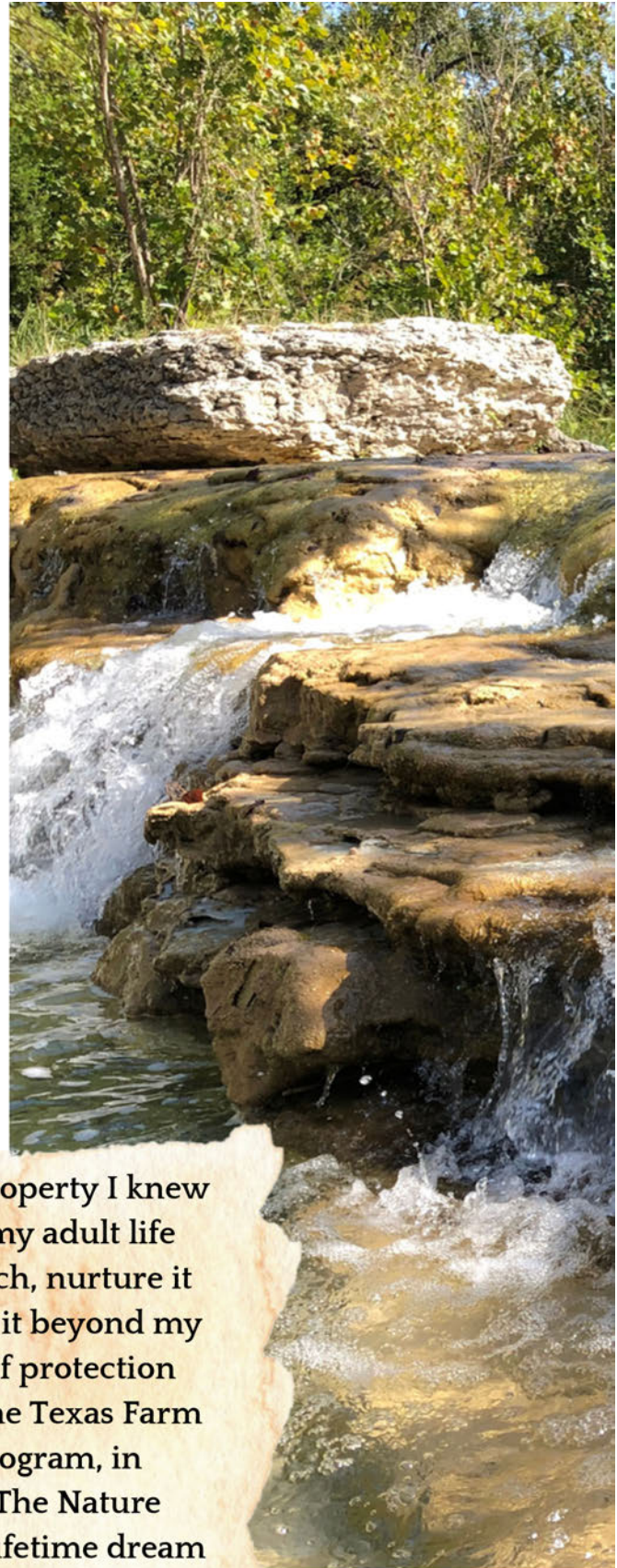
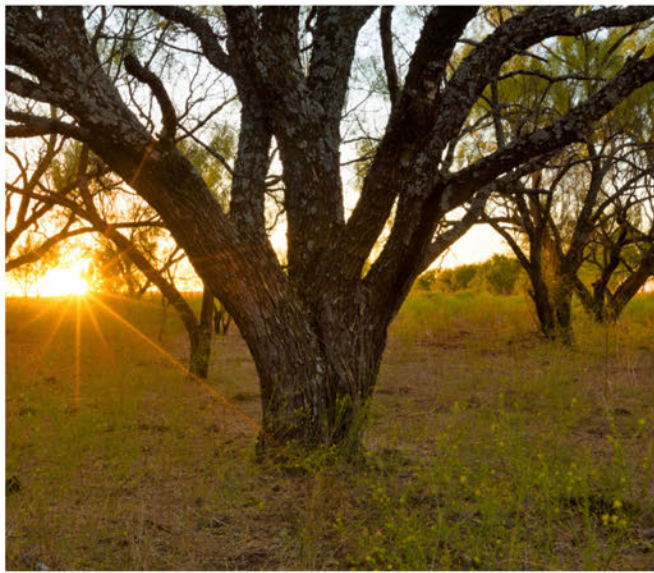
Working lands remain central to the economic prosperity of the state, quality of life for Texans and health of local environments, yet we are currently losing about 1,000 acres a day to non-agricultural uses. State-led efforts to finance working lands conservation are timely, as investments made today will yield exponentially greater economic benefits than a similar investment would yield years from now due to the ever-increasing value of rural lands in the state.

Population growth is expected to increase by more than 73% (from 29.7M to 51.5M residents) between 2020 and 2070, with areas around urban centers and major highways likely to experience the bulk of associated residential and commercial development. The demand for land in these areas will greatly influence the market value of rural real estate, making it increasingly more difficult for first-time landowners to start new working land operations, or for

existing ones to expand. This issue is amplified by an aging landowner population, as the majority (68%) are nearing or at retirement age and will soon be transferring or selling their property to new owners. The culmination of these pressures creates an uncertain future for the state's rural landscape, drawing special concerns for our ability to ensure food availability and other essential products and services provided by these lands.

For these reasons, the TFRLCP's mission to protect working lands from fragmentation and development is imperative. This program provides Texans with a tool to proactively maintain and enhance high-impact agricultural and ecological productivity derived from these lands. Continued support for the program would result in the conservation of more farm, ranch and forestlands that provide food, water and other essential benefits for all Texans.





“From the moment I saw this property I knew I had to protect it. It became my adult life effort to piece together my ranch, nurture it and pay it off so I could protect it beyond my ownership. The final hurdle of protection remained daunting. If not for the Texas Farm and Ranch Conservation Program, in partnership with NRCS and The Nature Conservancy, I’m not sure my lifetime dream would have been fulfilled. Thank you!”

-Gary Krause, Landowner of Krause Ranch

Appendices

Referenced Literature

Lund, A.A., G.W. Powers, R.R. Lopez, L.A. Smith, L.M. Olson, and L.F. Gregory. 2020. Texas farm and ranch lands conservation program: 2020 Evaluation report. Texas A&M Natural Resources Institute, Research Report Number 2020-1. College Station, Texas, USA.

Putman, A., R. Lopez, L. Smith, J. Uzquiano, A. Lund, D. Anderson, J. Gan, C. Ellis, J. Roberts, C. Kneuper, L. Ziehr and C. Ross. 2022. Texas ecosystem services: A statewide assessment. Texas A&M Natural Resources Institute, Research Report Number 2022- 1. College Station, Texas, USA.

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Texas Department of Agriculture. 2024. Texas ag stats. Austin, TX, USA.

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Methodology

The goal of the 2024 Evaluation Report is to describe the state's financial contribution to the purchase of agricultural conservation easements through the Texas Farm and Ranch Lands Conservation Program (TFRLCP or program), and to examine the economic and conservation value of these lands. We developed a framework for evaluating select economic, ecological and agricultural values of these properties, incorporating a variety of datasets, as follows.

The table below describes properties used in assessment calculations. Ecosystem services, agricultural and water value calculations used both executed and pending properties while the financial assessment only used properties that are fully executed.

Property	Contract Status	County	Acreage
5H Ranch	Executed	Bexar	247
Albritton Ranch	Executed	Bandera	716
Albritton Ranch Phase II	Executed	Bandera	1,112
Arborland Grassland	Executed	Waller	110
Bartush Ranch	Executed	Cooke	1,498
Burleson Ranch/Maruna	Executed	Bell	420
Cane Bayou	Pending	Chambers	2,300
CE Miller Ranch	Pending	Presidio	11,342
Collins Ranch	Executed	Williamson	531
Cypress Creek Acres	Pending	Hays	211
Donop Llano River Ranch	Executed	Mason	423
Dreamcatcher Ranch	Executed	Hays	210
Ebel Ranch	Pending	Hopkins	520
Gary Lee Price Ranch	Pending	Ellis/Navarro	230
Grosse - Mid Island Ranch	Executed	Nueces	227
Honey Creek Spring Ranch	Executed	Comal	638
Inspiring Oaks	Executed	Hays	1,014
J. Warren Grassland	Pending	Harris	60
Javelina Ranch	Executed	Hidalgo	280
John Knox Ranch	Pending	Comal/Hays	259
Jon James Prairie	Pending	Lamar	224
JTW Ranch	Executed	Dimmit	432
Krause Ranch	Executed	Real	1,640
Lavaca Ranch	Executed	Jackson	552
Lazy Bend Ranch	Executed	Hays	145
Longleaf Ridge	Executed	Jasper	5,438
Montell Creek Ranch	Executed	Uvalde	404
Onion Bayou	Pending	Chambers	450

Property	Contract Status	County	Acreage
Open V Ranch	Executed	Uvalde	200
Oyster Bayou	Executed	Chambers	458
Pietila Ranch	Executed	Culberson	6,469
Puryear Ranch	Executed	Travis	425
Santa Anna	Executed	Coleman	950
Shannon Ranch	Executed	Blanco	367
Spicewood Ranch Phase I	Executed	Burnet	562
Spread Oaks Ranch	Executed	Matagorda	5,332
Thrasher Leon River Ranch	Pending	Coryell	551

Financial Evaluation

The following calculations were only applied to projects (i.e., properties) contracted under the Texas Parks and Wildlife Department (TPWD) and that have been fully executed as of September 2024.

Calculations:

- **Total Investment (\$)** - Total amount of money from all contributors to obtain and implement required stewardship monitoring for program conservation easements
- **Return on Investment or Rate of Return (ratio)** - land market values vs TFRLCP \$ input
 - Appraised land market value (pre-conservation easement) / TFRLCP award
- **Leverage of External Funds or Leveraging Power (ratio)** - use of TFRLCP \$ to leverage external funds
 - Investment from all contributors / TFRLCP award
- **State Investment (\$/acre)** - average price per acre the state invested to conserve land
 - TFRLCP award / TFRLCP acreage
- **Requests Funded (%)** - applications funded from all funding periods
 - Total projects funded / Total project applications

Data Sources:

- TFRLCP and associated land trusts' financial data. Verified in 2024.
 - Applications for each funding period and their funding status (#)
 - Conservation easement acreage (acres)
 - Appraisal value (\$)
 - Note: We used the appraised value of the property before it went under conservation easement to describe the full value potential of the property. These appraisals were performed by professionals and served to inform the final contract negotiations.
 - Note: Some appraisals included more acreage than was put under easement. In these cases, the appraisal was broken down into a \$/acre amount and multiplied by the true easement acres to get an appraisal total for only the acres under easement.
 - Acquisition value (\$)
 - TFRLCP grant award (\$)
 - External contributions (\$)
 - Contributions from landowners - included cash contribution and in-kind donation
 - Award amount from federal entities such as USDA NRCS Agricultural Conservation Easement Program and USFS Forest Legacy
 - Contributions from land trusts, local government, and Non-governmental Organizations

Ecosystem Services Value

The following calculations were applied to all projects executed and pending under the program as of September 2024.

Calculation:

- **Ecosystem Services Value (\$)** - Project acres by county X \$/acre by service X 20 (years)
 - Sum all property calculations for program cumulative value

Data Source:

- Texas A&M Natural Resources Institute's *Texas Ecosystem Services: A Statewide Assessment* report (2022)- <https://nri.tamu.edu/publications/research-reports/2022/texas-ecosystem-services-a-statewide-assessment/>
 - County ecosystem service value/acre/year

Agricultural Value

The following calculations were applied to all projects executed and pending under the program as of September 2024.

Calculations:

- **Average Production Value by County (\$/acre)** - Total production value of working lands / total acres of working lands (by county)
 - Note: The Texas Comptroller of Public Accounts provided total acres and total value (\$) by land use for each independent school district (ISD) for 2022. Each ISD was aggregated to a county level according to the county in which their centroid lies (ISDs summed to determine county value).
- **Production Value of TFRLCP Property (\$/acre)** - \$/acre production value X Property acres (by county)
 - Sum all property calculations for program annual value

Data Source:

- Texas Comptroller of Public Accounts land use and land value dataset (2022)
 - Production value- the value of agricultural commodities produced by the land

Water Values

The following calculations were applied to all projects executed and pending under the program as of September 2024.

Calculations:

- **Support of household water needs (# of households)** - Average annual water use of one US household (acre-feet) / potential water capture of program properties (acre-feet)
 - Note: The average annual water use of one US household (0.33 acre-feet) was obtained from the United States Environmental Protection Agency's WaterSense program.
- **Potential captured water of the property to a watershed or groundwater supply (acre-feet of water)** - $50\% \text{ Infiltration Rate (acre-feet)} = (((\text{acreage} \times \text{average annual rainfall}) \times 27,154.3 \text{ gal}) / 325,851.6 \text{ gal}) / 2$
 - Note: Annual rainfall average by county was averaged over a 75-year period. An estimated 50% infiltration rate was applied to these rainfall rates based on a study by Arnold and Gibbons (1996), which states that natural ground cover infiltrates at approximately 50%, with 25% shallow infiltration and 25% deep infiltration.
 - Sum all property calculations for program annual value
- **Water management costs to implement strategies from Texas Water Development Board (TWDB): State Water Plan (Regional \$/acre-foot)** - Regional water management costs (\$) / regional water yield (acre-feet)
- **Relative replacement cost of those water resources if the properties were to be developed (\$)** - Potential captured water (acre-feet) X water management strategies by TWDB region (\$/acre-foot) by TWDB region
 - Sum all property calculations for program annual value
- **Inland Flood Prevention Value (\$)** - Project acres by county (acres) X inland flood prevention value by county (\$/acre)
 - Note: For counties without inland flood values, we averaged values for surrounding counties to use as a proxy value.
 - Sum all property calculations for program cumulative value
- **Coastal Flood Prevention Value (\$)** - Project acres by county (acres) X coastal flood prevention value by county (\$/acre)
 - Note: Coastal flood values were calculated only for properties within counties along the Gulf Coast
 - Sum all property calculations for program cumulative value

Data Sources:

- Texas Water Development Board's *2022 State Water Plan* (2022), Up to Amendment #2 - <https://www.twdb.texas.gov/waterplanning/swp/2022/index.asp>
 - Regional \$/acre-foot = capital cost / acre foot of water
 - Capital costs, by required online decade, of all recommended water management strategy projects by region (in millions; TWDB, Table 7.2)
 - Summed across 50-years to derive total capital costs to use in calculations
 - Annual volume of recommended water management strategies by region (acre-feet) (TWDB, Table 7.1)
 - Averaged across 50-years and then multiplied by 50 to determine 50-year total to use in calculations
 - Uses TWDB region in which property falls to derive numbers from both tables (TWDB, Figure ES.1 – Regional water planning areas)
 - Averaged regional numbers for Hays County properties since it spans two TWDB regions (L and K)
- PRISM Climate Group data - <https://prism.oregonstate.edu/explorer/>
 - Annual rainfall average by county, 1949-2023
- Texas Land Trust Council's *Valuing Economic Benefits of Texas Conservation Lands* report (2019) - https://texaslandtrustcouncil.org/wp-content/uploads/2019/03/TLTC_EcosystemServiceValuation_Report_wAppendix_2019_03_01_Final.pdf
 - Table A1 - Flood prevention values



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Bartush Ranch
📷 by Mary Del Olmo



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