

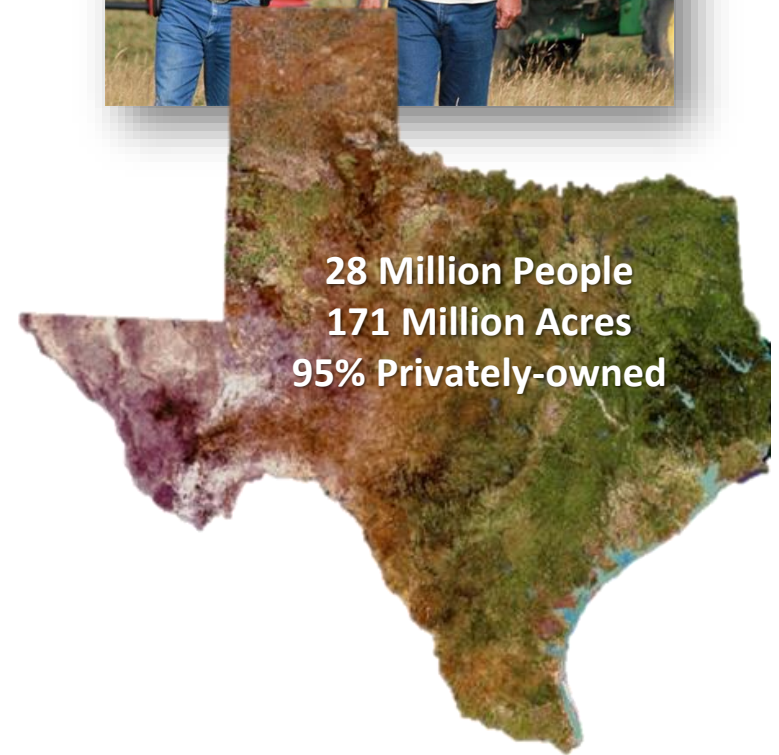


The Value of Texas Conserved Lands

Roel R. Lopez

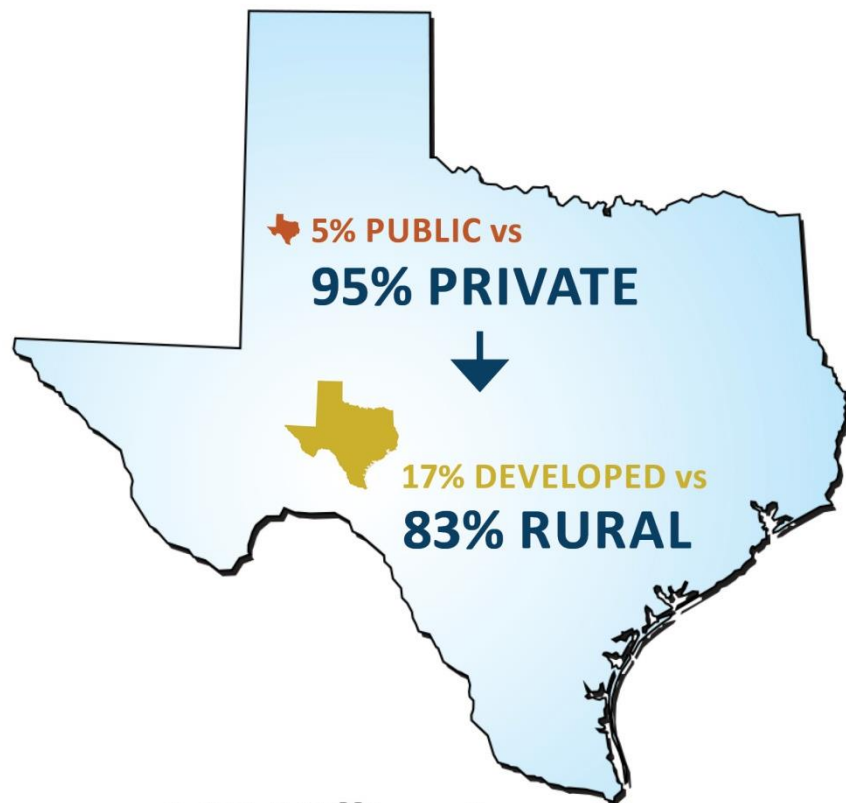
Value of Rural Lands

- Rural working lands – critical role in providing water, food, energy, and national security
- *Effective* conservation requires innovative solutions to sustaining private rural working lands
- ***Working Lands*** – farms, ranches, family forests, wildlife (e.g., 1D, 1D1)



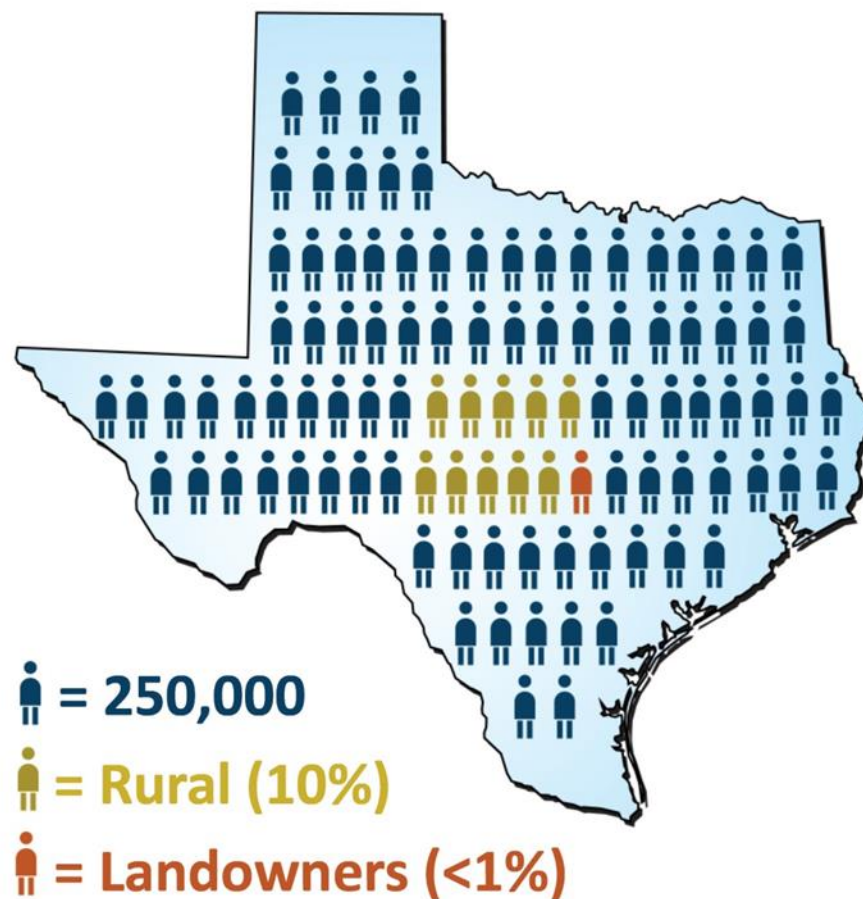
Changing Texas

171 Million Acres...



...142 Million Acres
Private Working Lands

Population: 28 Million

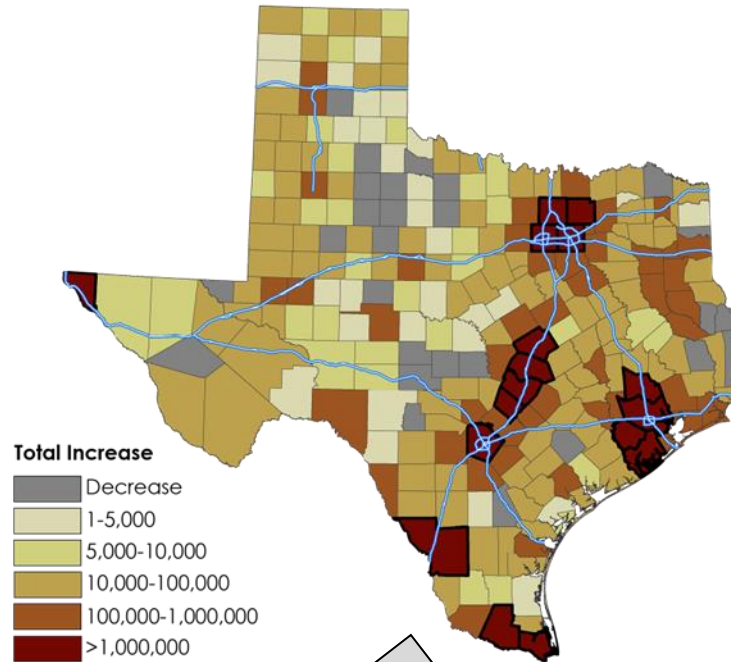


Changing Texas – *Process*

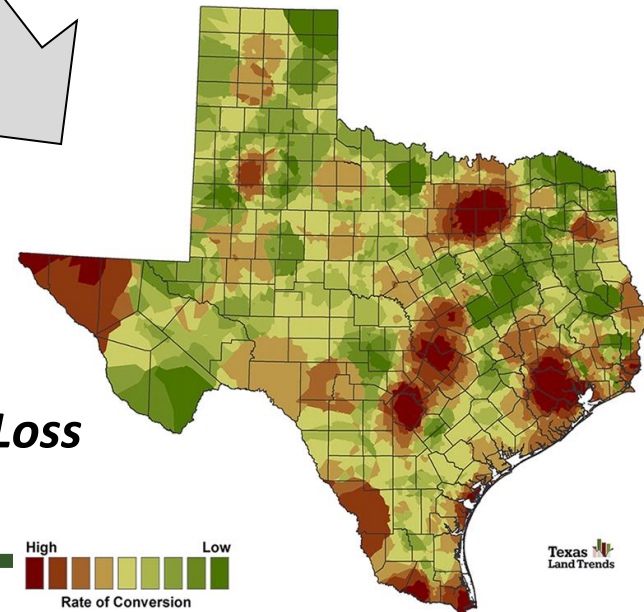


Texas Population

- 1997 – 19 M
 - 2017 – 28 M
 - 2050 – Between 40-55 M
- Population increases expected around surrounding urban centers and counties
 - Public needs and demands on natural resources will increase



Working Land Loss



Value of Rural Lands?



Public Benefits – “Ecosystem Services”

- Private lands provide “ecosystem services” or public benefits to communities.
 - Provisioning services
 - Regulating services
 - Supporting services
 - Cultural services
- Disturbances or alterations to functioning landscapes/ecosystems can lead to loss or degradation of “ecosystem services”



Provisioning Services



FOOD

- Freshwater and marine fisheries
- Hunting
- Crops
- Livestock and Aquaculture



WATER

- Forests generate precipitation
- Mountain streams supply snowmelt
- Soils recharge groundwater

Provisioning Services



FIBER/FUEL

- Forests
- Mangroves
- Plantations
- Crops



GENETIC DIVERSITY

- Disease resistance
- Pre-adaptations to emerging threats
- Source of new crops

Regulatory Services



CLIMATE

- Net sink of CO²
 - Forests
 - Wetlands (peat formation)
 - Oceans



DISEASE/PEST REGULATION

- Resist introduction of invasives
- Native plants and animals develop resist endemic pathogens
- Insect populations are controlled, rarely becoming serious pests

Regulatory Services



FLOOD/NATURAL HAZARDS

- Wetlands, barrier islands, sand dunes, and coral reefs dissipate wind and storm surges
- Soils absorb rainfall, reducing flooding



WATER/AIR PURIFICATION

- Wetlands purify water by removing nutrients and degrading organic wastes
- Plants absorb air pollutants and provide oxygen

Regulatory Services



WASTE TREATMENT

- Microorganisms break down organic wastes
- Soils capture and immobilize heavy metals



POLLINATION

- 90% of flowering plants depend on animals for pollination
- Pollinators are critically important to agricultural production

Supporting Services

- Nutrient cycling
- Soil formation
- Primary production
- Converts sunlight into food for heterotrophs
- Produces atmospheric O₂



Cultural Services

- Aesthetic
- Spiritual
- Educational
- Recreational



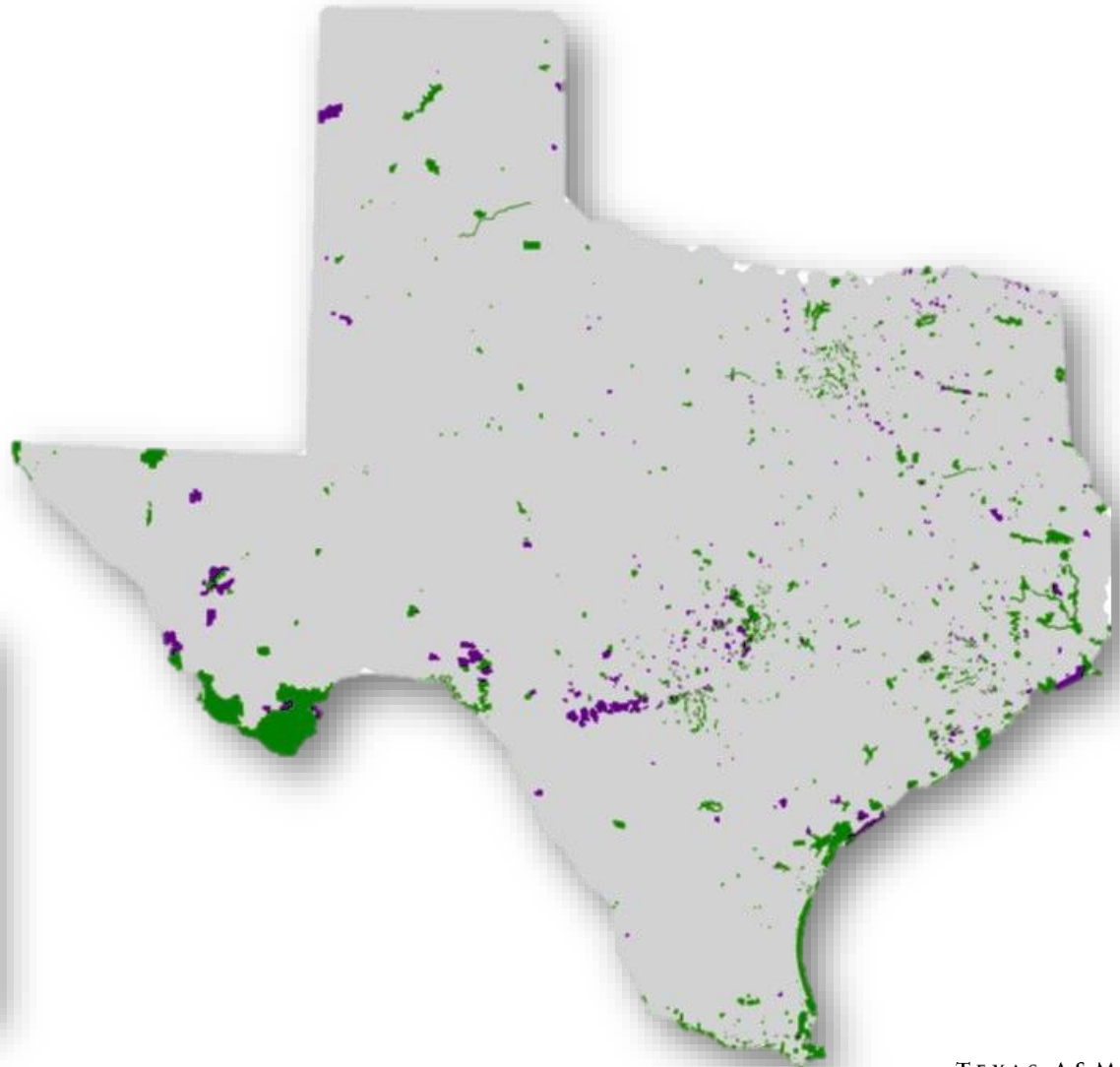
Importance of “Ecosystem Services”

- Approximately 60% of ecosystem services have been degraded or currently being used unsustainably (e.g., freshwater)
- Degradation of ecosystem/ecological functions creates imbalances
- Ecosystem functions are either expensive or impossible to replace with technological solutions
- Estimated economic value of all ecosystem services: \$33 trillion/year

Public Benefits of Private Lands?

Texas Conserved Lands

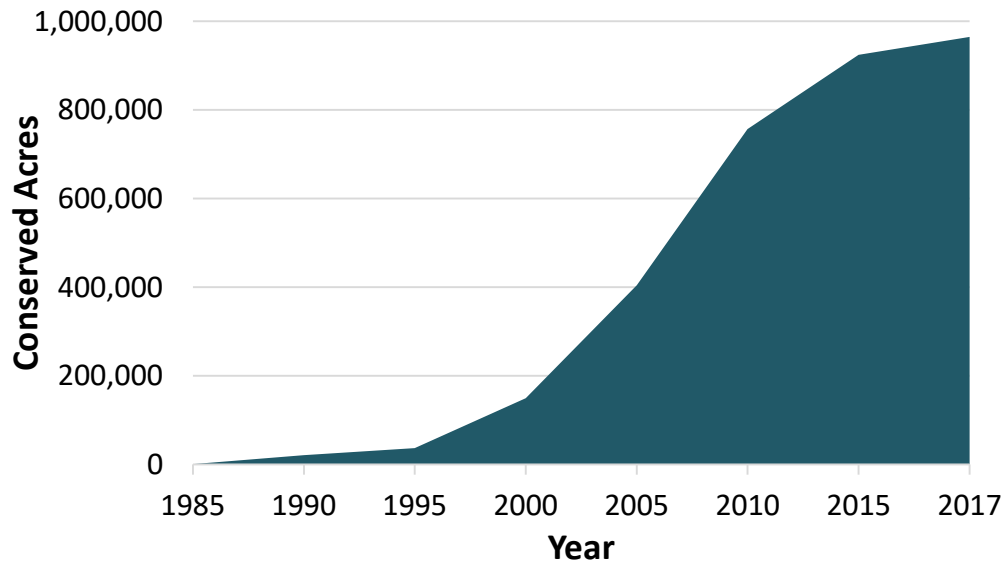
- 1.6 M acres
(total lands)
- 980K acres
(private lands)



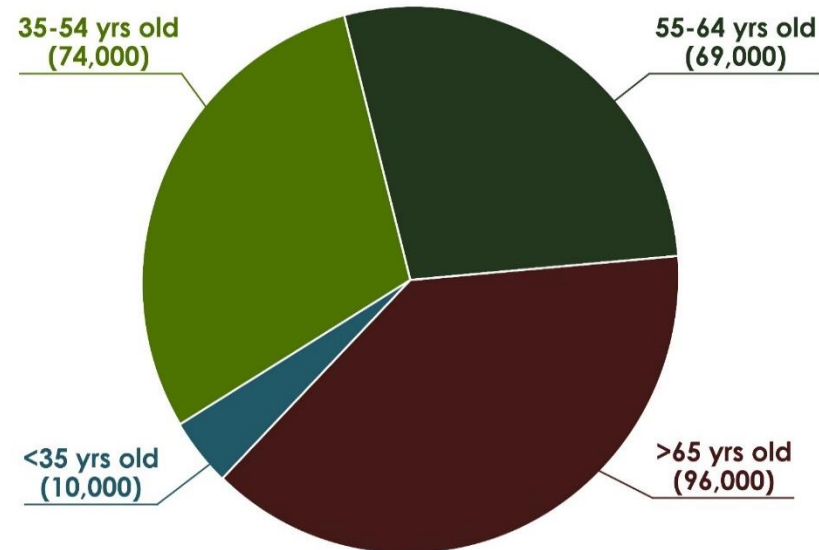
Increasing Landowner Interest

- Land transfers – Largest in TX history
 - Younger generations taking over operations
- Reasons for owning land – Shifting
 - Recreation, hunting, and wildlife enjoyment
- Smaller property sizes – Increasing
 - Properties become less profitable

Cumulative Acres Under Conservation Easement



Aging Landowners

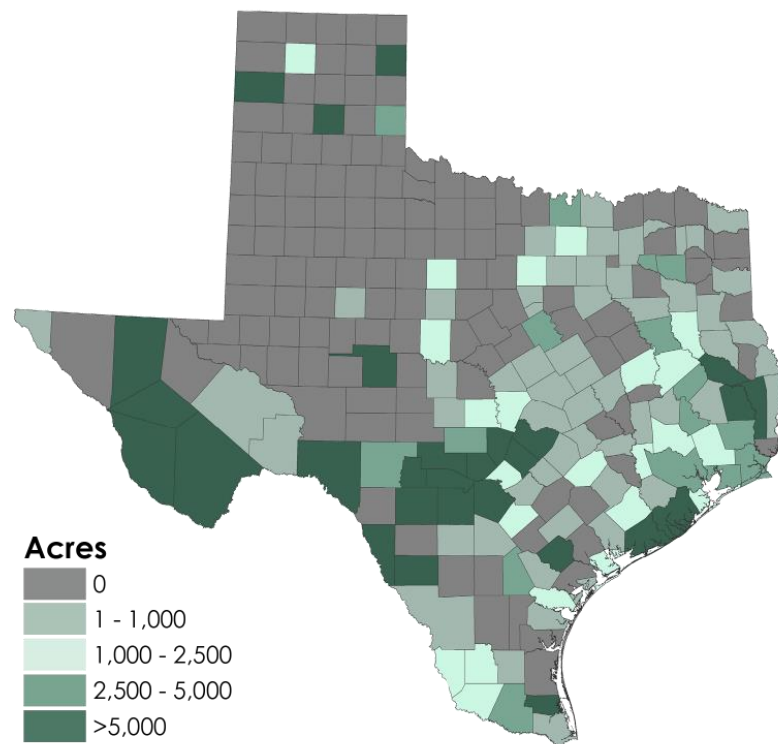


Conservation Value of These Lands

Potential **annual economic value** of lands currently under conservation easement

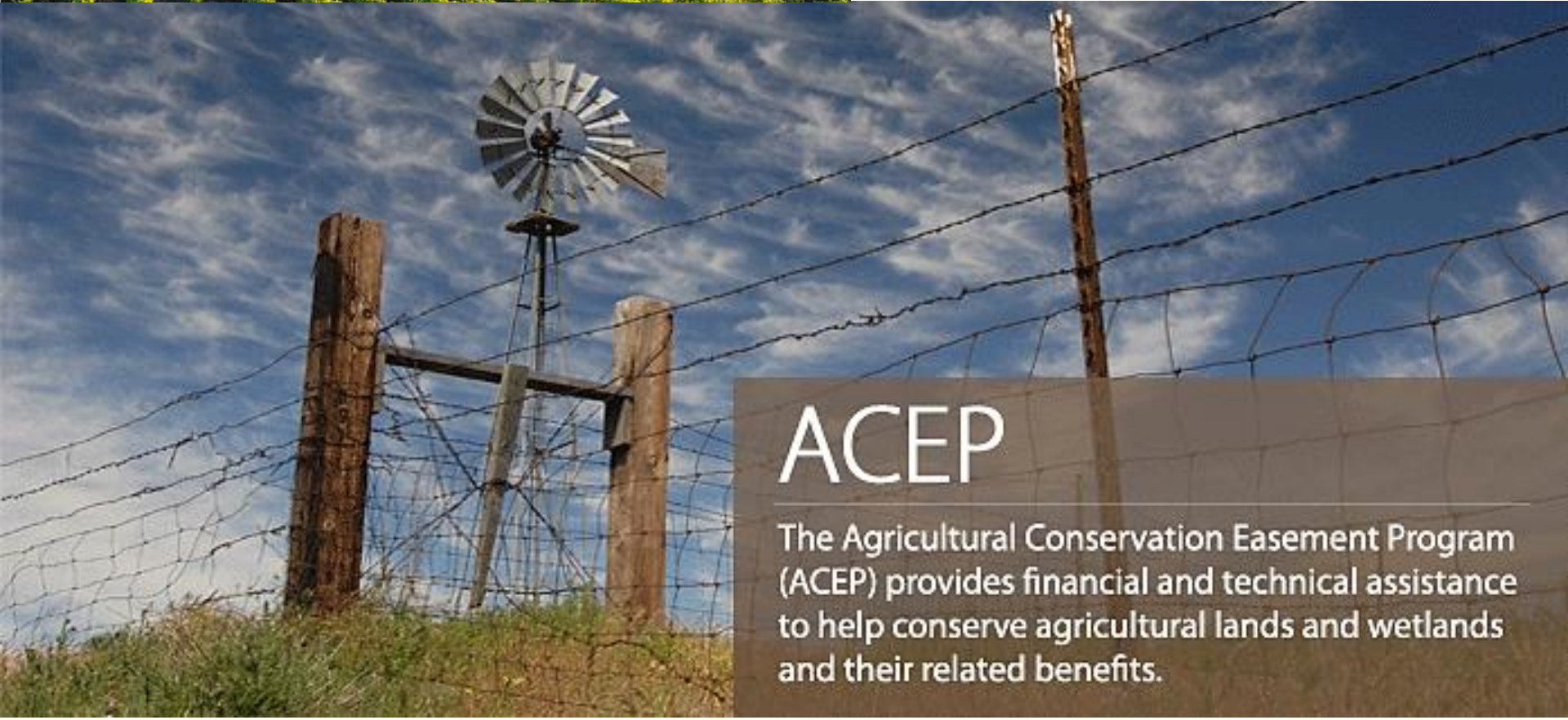
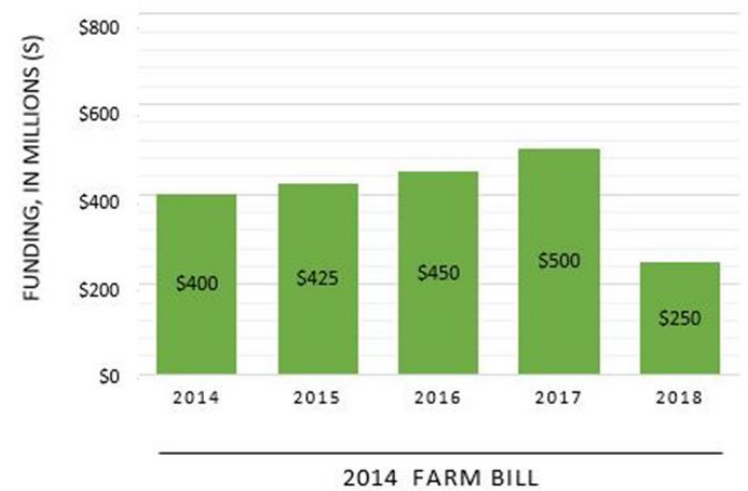
- **Agricultural Production**
 - **\$63.1 M** in ag commodities
- **Water**
 - **\$207 M** in water replacement
- **Wildlife**
 - **\$5.8 M** in consumptive uses

Conservation Easements



Distribution of private lands under conservation easements by county, 2018.

NRCS ACEP



ACEP

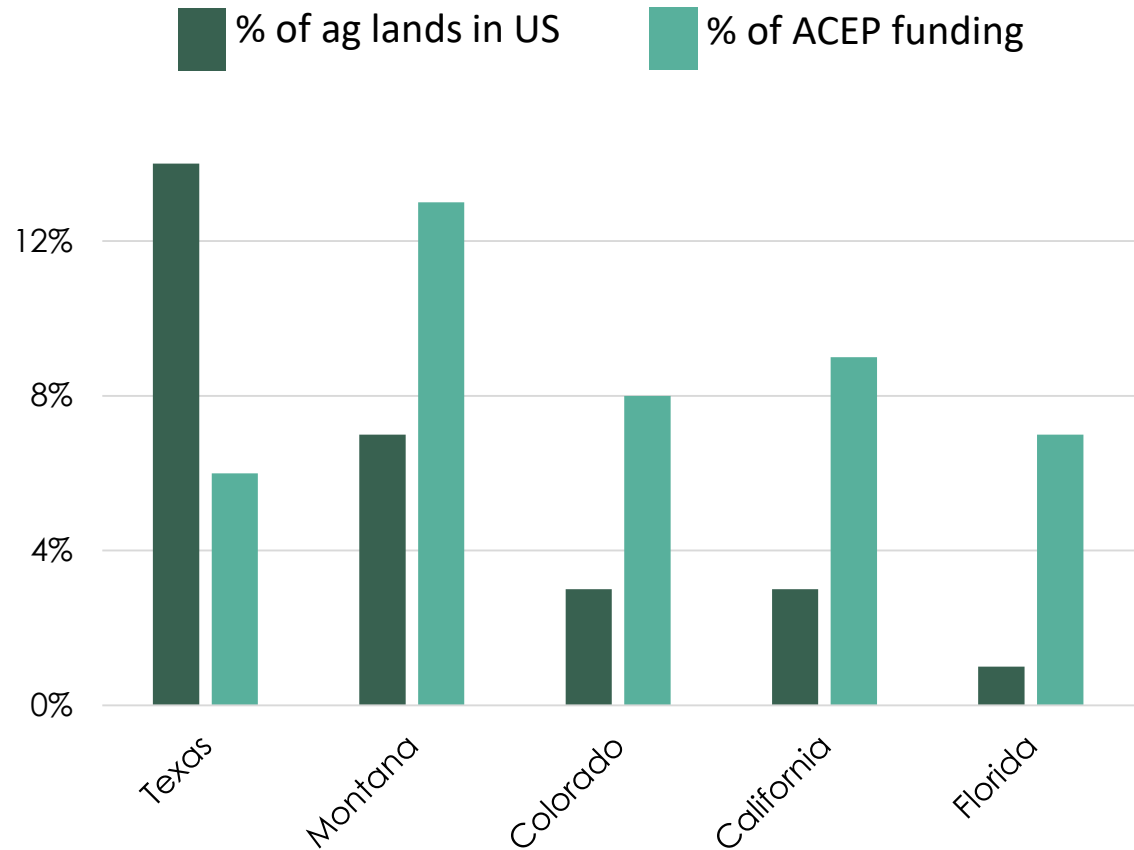
The Agricultural Conservation Easement Program (ACEP) provides financial and technical assistance to help conserve agricultural lands and wetlands and their related benefits.

Funding Sources

Significant potential for federal program dollars...

- *Agricultural Conservation Easement Program*
 - largest % of ag lands in US
 - #1 in assets, #5 in funding

Comparison of Top 5 ACEP funded states



DoD REPI

The Department of Defense's Readiness and Environmental Protection Integration (REPI) Program is a key tool for promoting innovative and land conservation partnerships that benefit national defense, neighboring communities and the environment.

Parachute training is halted when housing developments are built near drop sites



Realistic combat training, pristine test environments, and operational capability are keys to keeping our service members safe. However, encroachment issues are creating obstacles that threaten military activities.



Flight testing, training, and operations are impeded by cellphone towers, wind farms, and developments

80% of military bases have surrounding development that is higher than the national average

Weapons testing and training causes noise, dust, and smoke complaints from nearby communities

Urban sprawl decreases habitat and may cause Federally protected species to seek sanctuary on military lands

Night training is compromised when light pollution from nearby commercial areas spreads

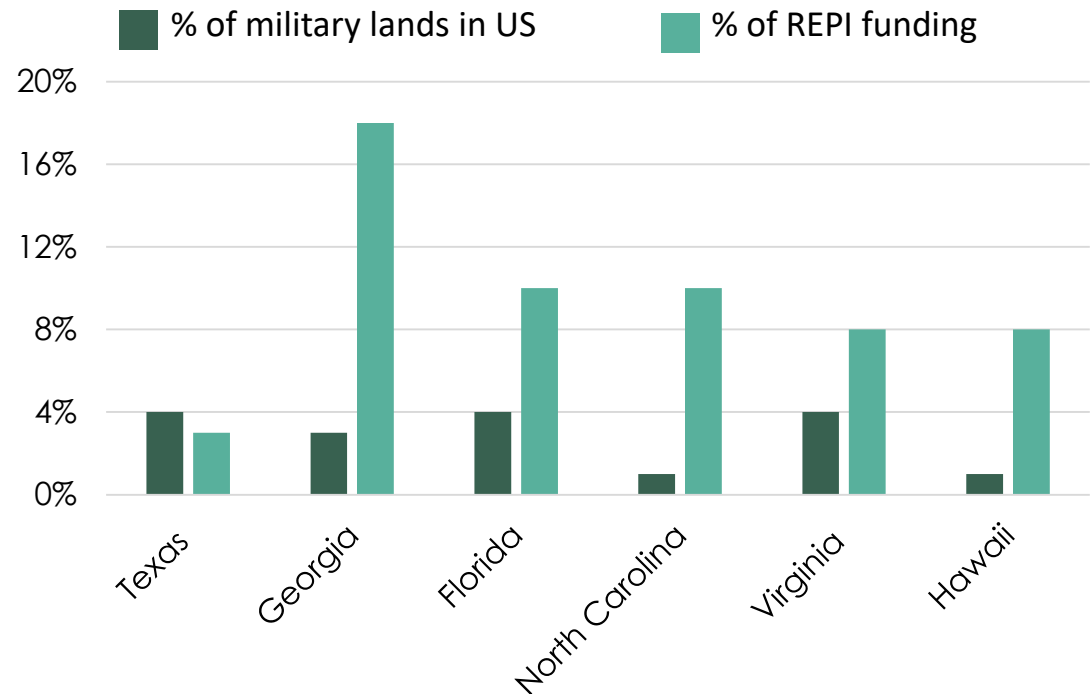


Funding Sources

Significant potential for federal program dollars...

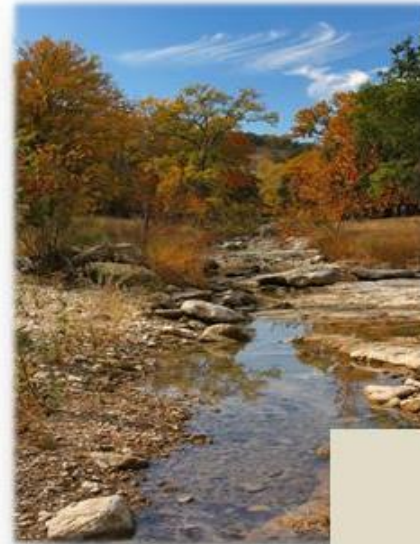
- *Readiness and Environmental Protection Integration Program*
 - 13 major military installations
 - ~500,000 acres of land
 - #5 in assets, #11 in funding

Comparison of TX and Top 5 REPI funded states



Final Thoughts...

- **Challenges** - More people, break-up of working lands, changing landowners.
- **Purpose of Reports** – illustrate the importance and monetary values of private lands.
- Communicate the *public benefits of private lands...*



Questions?



<http://nri.tamu.edu/>
<http://txlandtrends.org/>