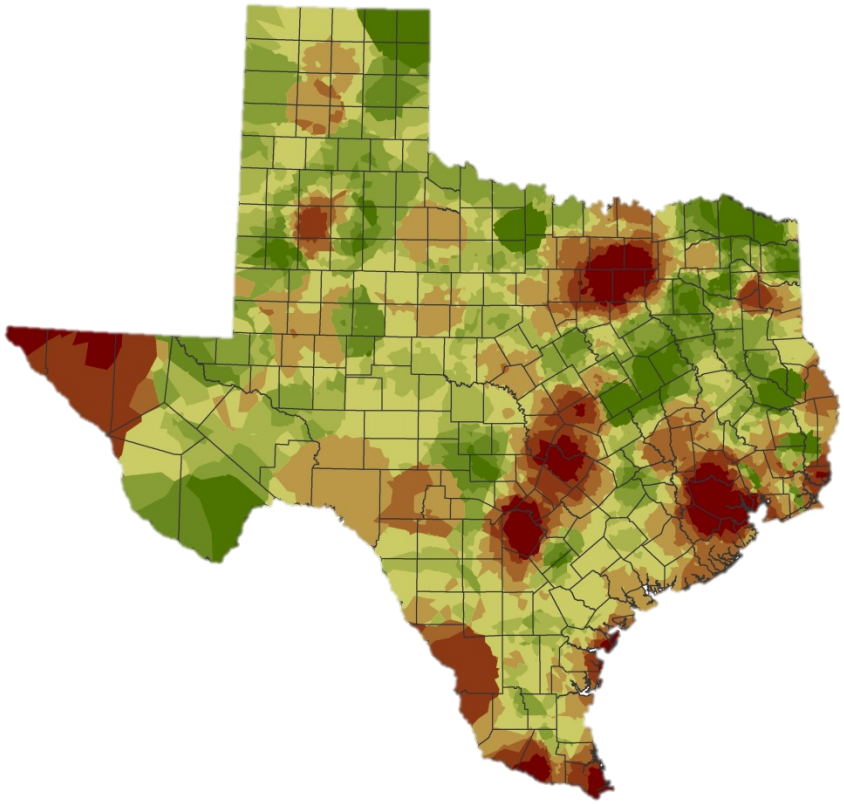
TEXAS A&M UNIVERSITY
AGRICULTURE & LIFE SCIENCES

TEXAS A&M AGRILIFE RESEARCH | EXTENSION

Texas Land Trends

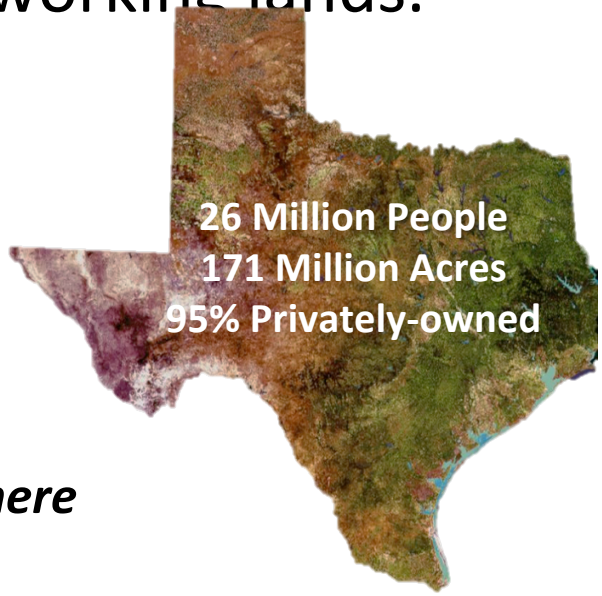


Texas A&M Institute of Renewable Natural Resources
Roel R. Lopez

TEXAS A&M IRNR

Value of Rural Lands

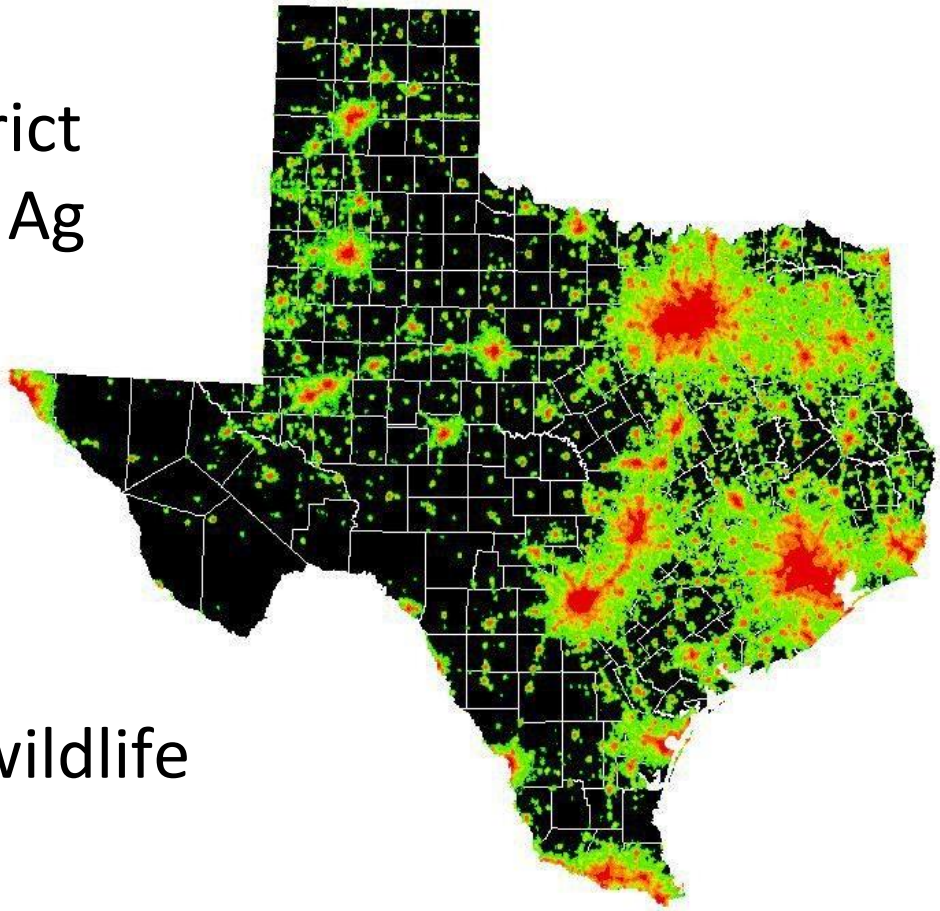
- Rural working lands play an unseen yet critical role in water/food sustainability and national/energy security.
- *Effective* conservation will require innovative solutions to sustaining private rural working lands.
- **Presentation Outline:**
  - Changes in human demographics
  - Changes in land uses/values
  - Linkage to critical issues – *Water*.



"Water conservation starts where the first rain drop falls"

Texas Land Trends – *The Data*

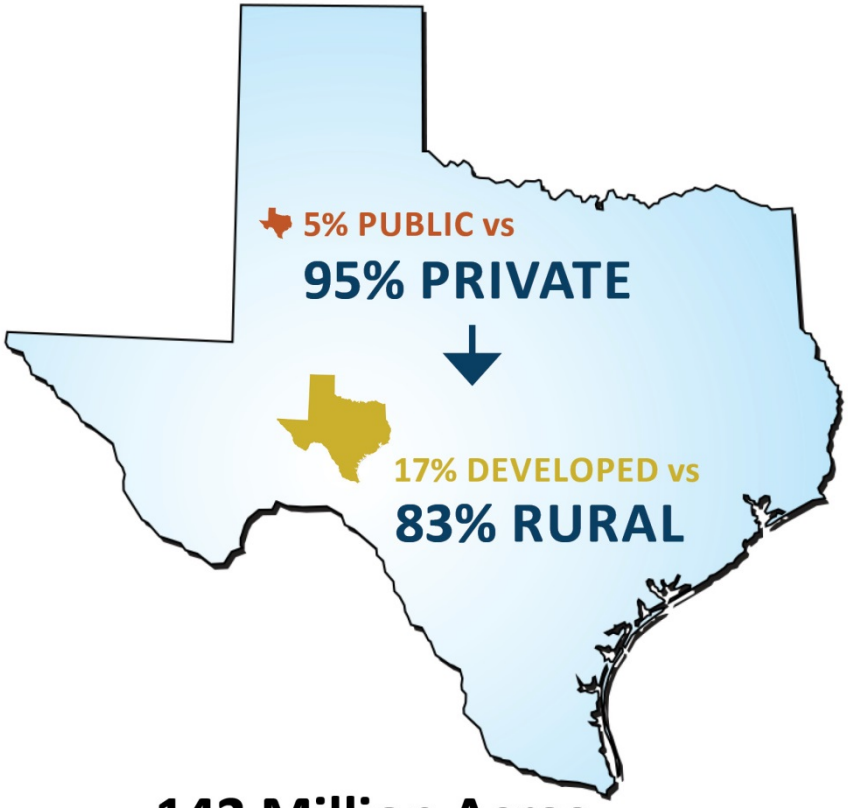
- Trends in land use (1997-2012)
- Primary datasets used
  - County Appraisal District
  - USDA NASS Census of Ag
- Relationships among
  - Land Value
  - Land Ownership
  - Land Use
- ***Working Lands*** – farms, ranches, family forests, wildlife (e.g., 1D, 1D1)




CHANGING PEOPLE

Changing Texas

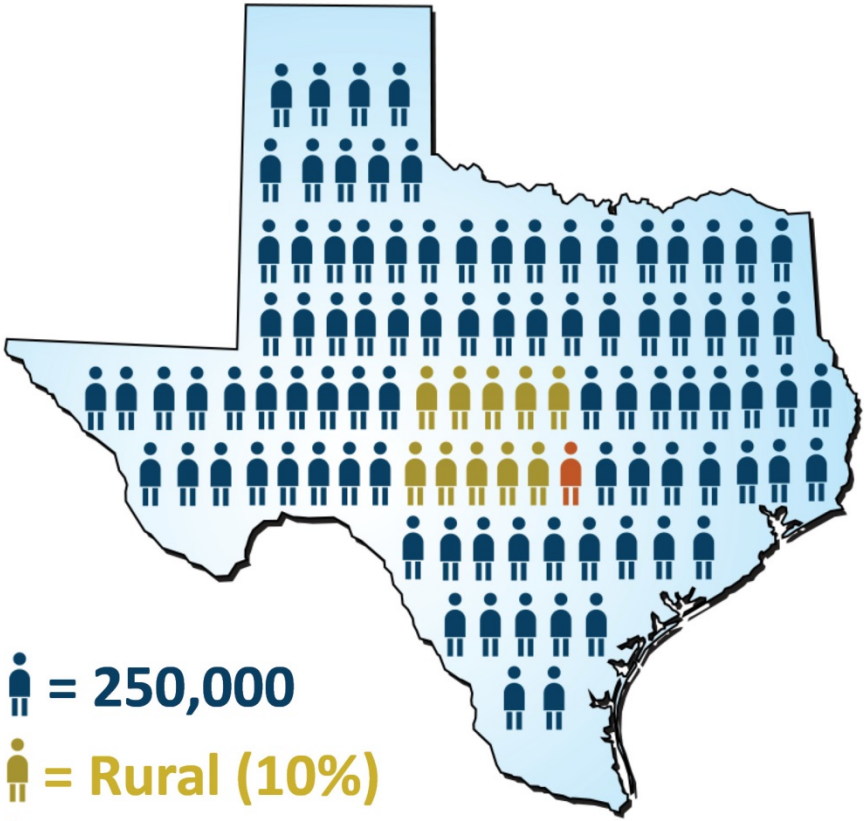
171 Million Acres...



...142 Million Acres

Private Working Lands

Population: 26 Million...



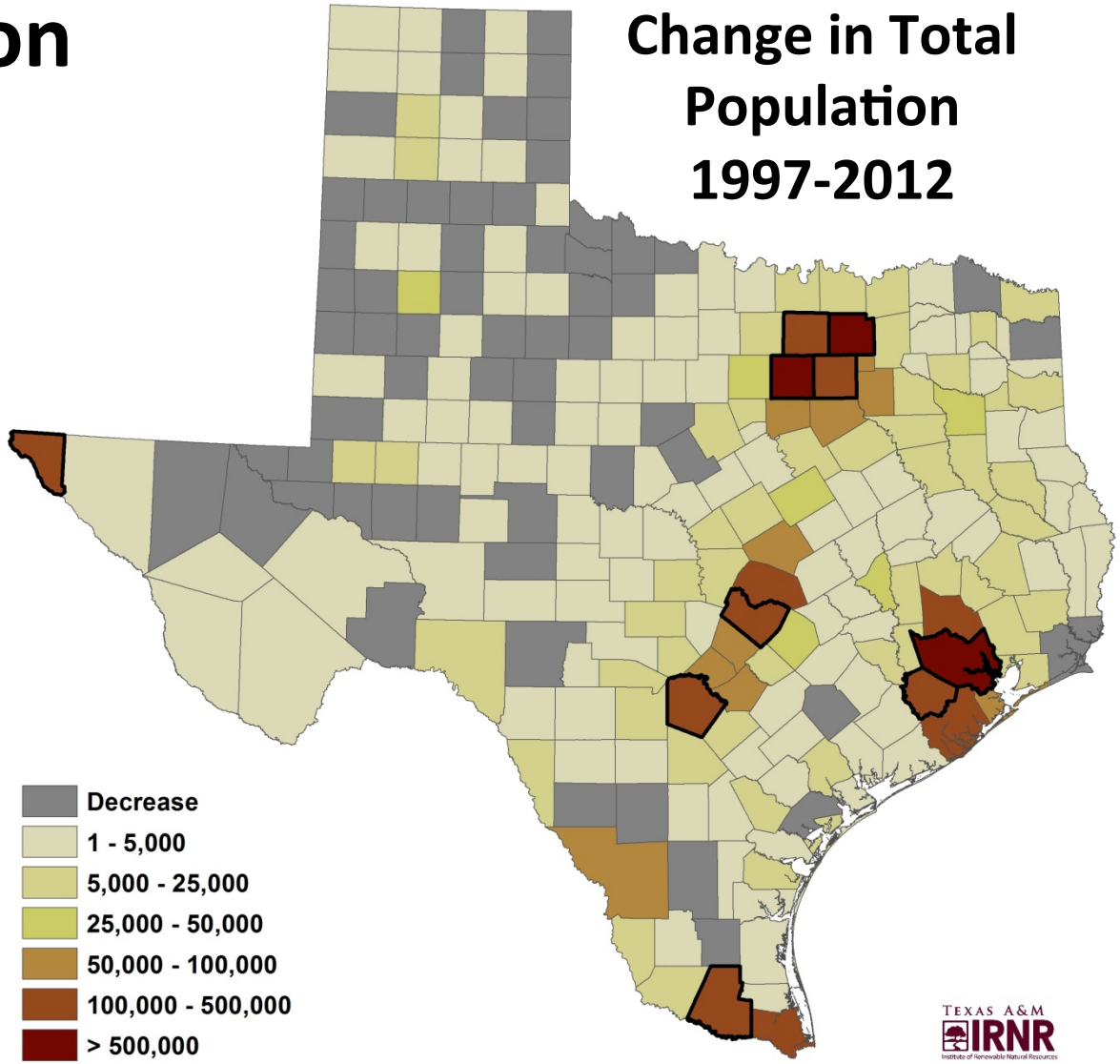
= 250,000

= Rural (10%)

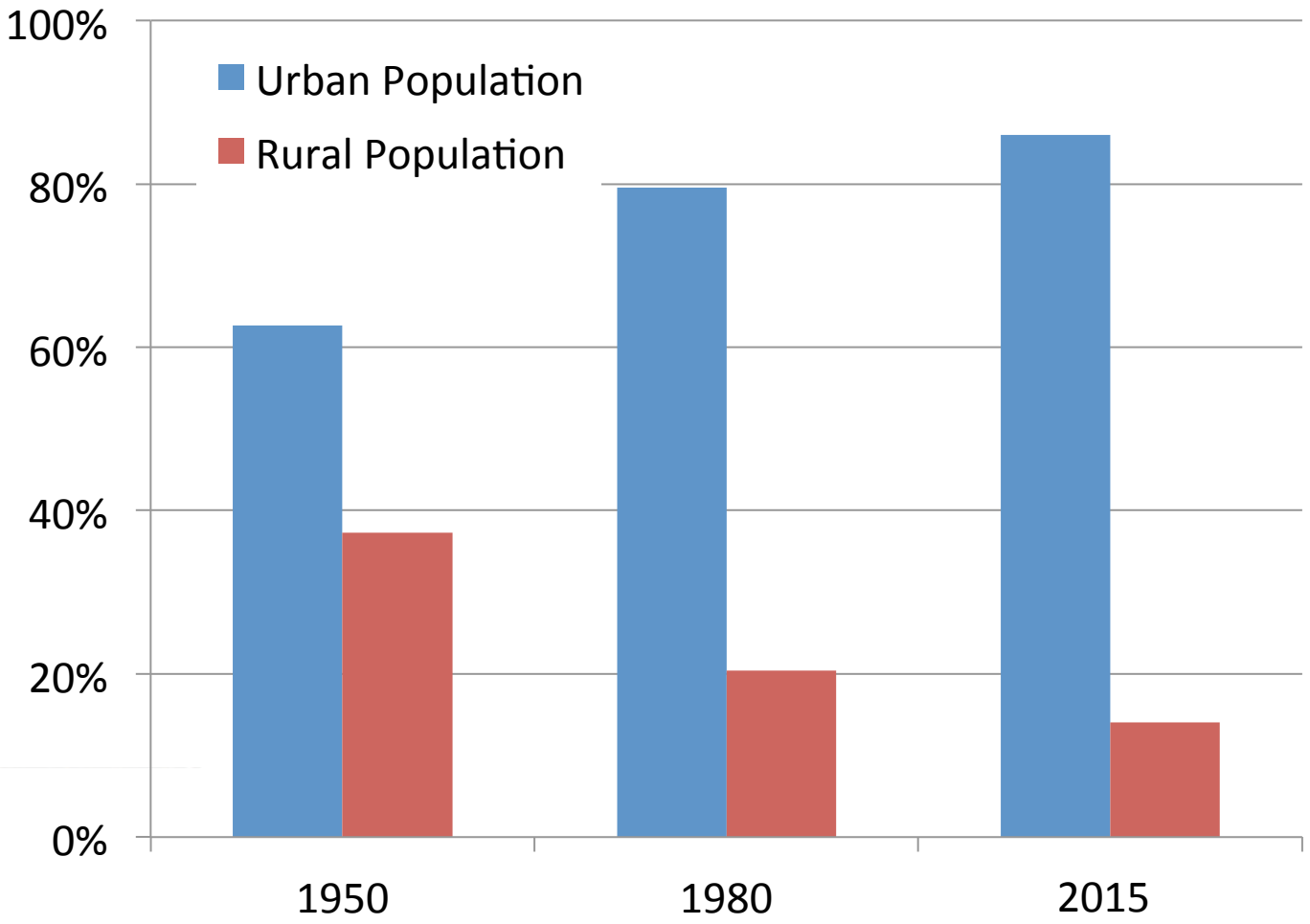
= Landowners (<1%)

Texas Population

- 1997 – 19 Million
- 2012 – 26 Million
- 36% increase
- 500,000/year
- 65% of increase occurred within *Top Ten Populated* Counties

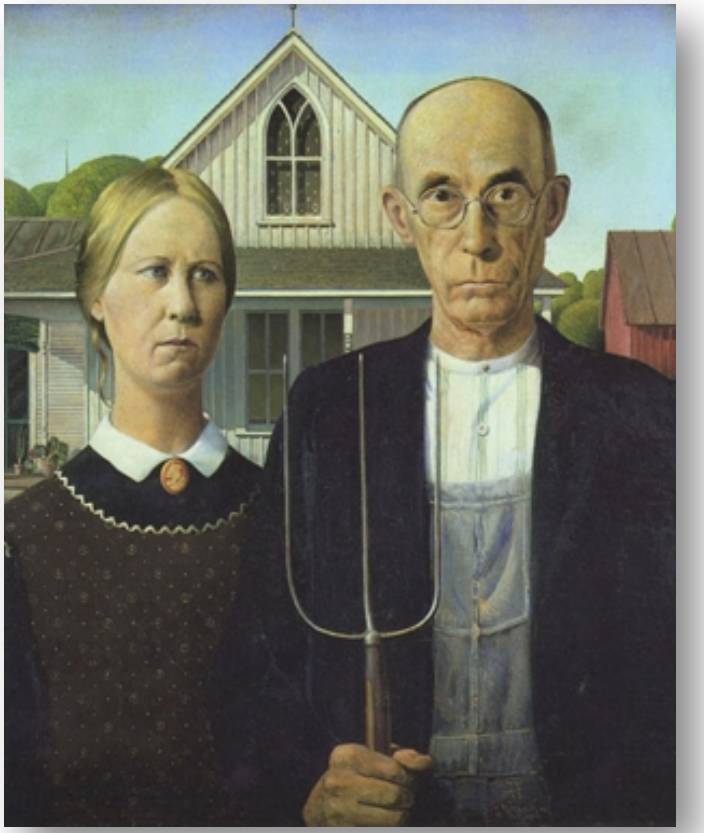


Texas Rural and Urban Populations



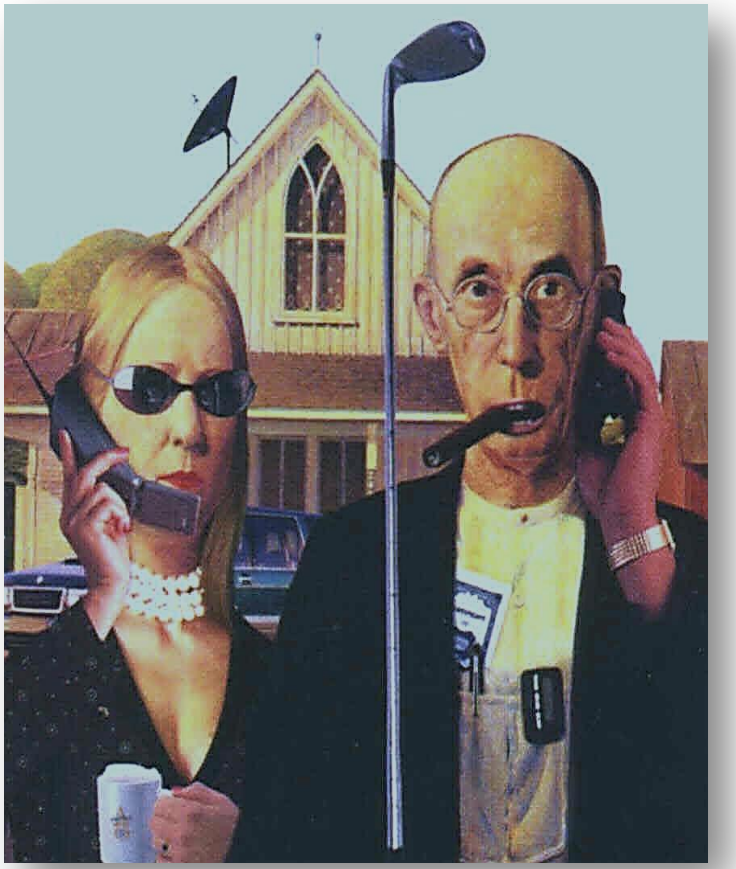
Landowner Demographics

- In 2007, the average farmer – 57 years old; average forest landowners – 65 years old.
- During the next two decades, the U.S. will witness the largest intergenerational transfer of rural lands in its history.



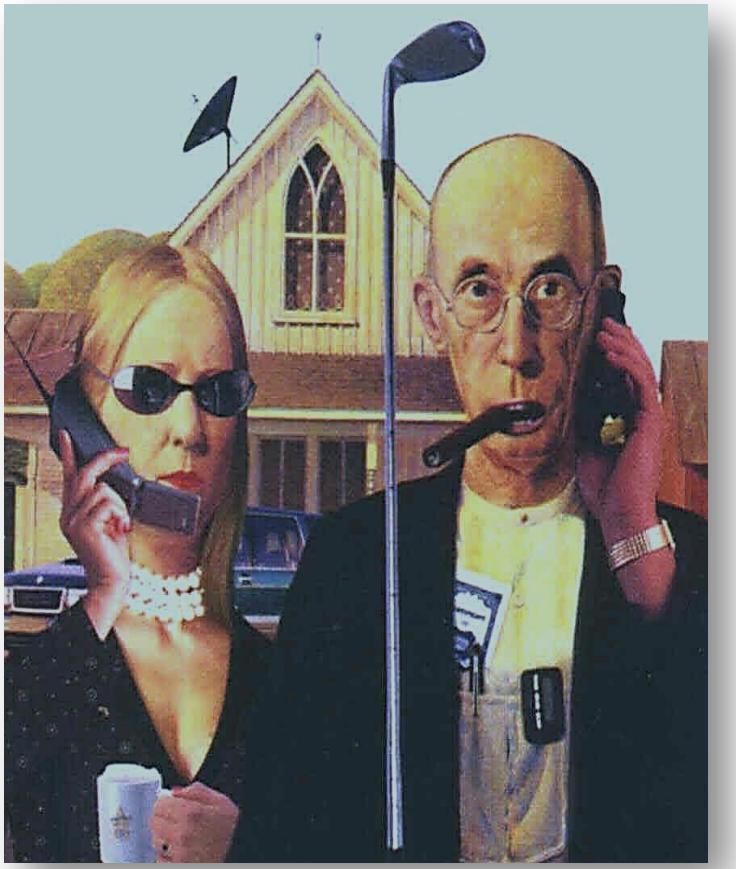
Landowner Demographics

- Future private landowner?
- Younger generation less tied to the land.
- Concerns - estate taxes on holdings
- Buyers/developers who want to make a better return on their investments than farming or ranching can provide.



Landowner Demographics

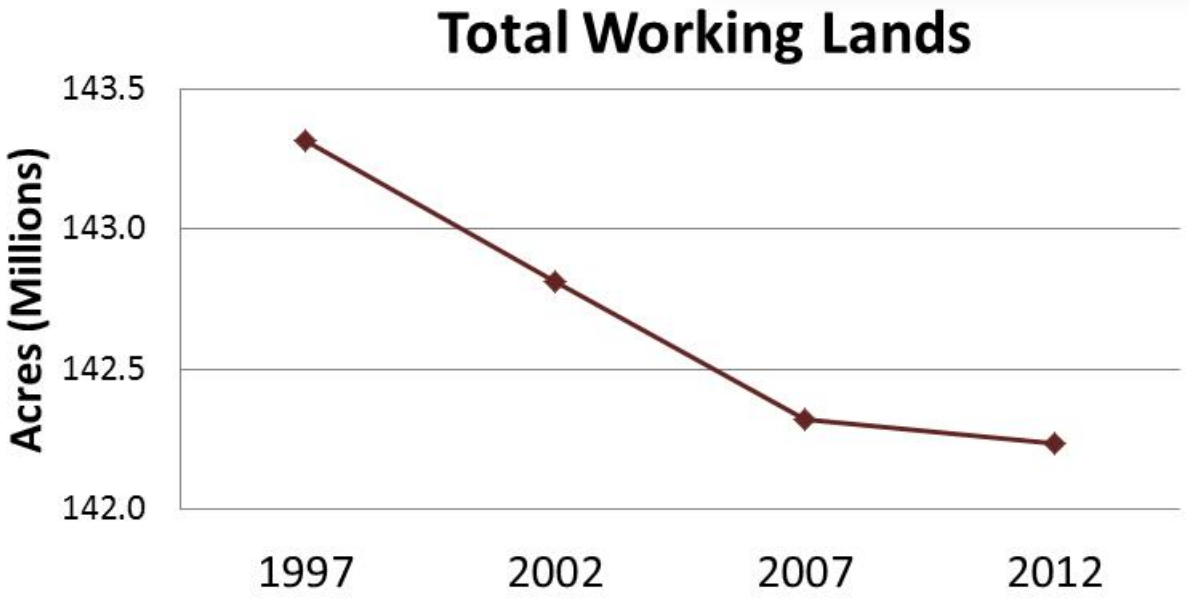
- Absentee ownerships
  - 45% of ownerships
- Part of farm
  - 42% of ownerships
- New ownerships (<10 yrs)
  - 25% of ownerships



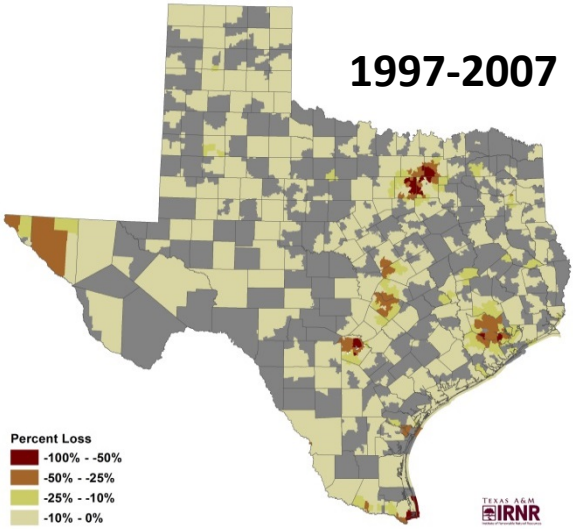

CHANGING…PLACES

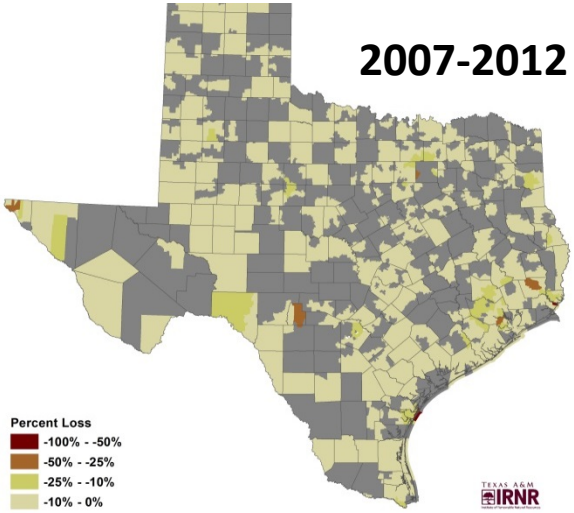
Working Land Loss

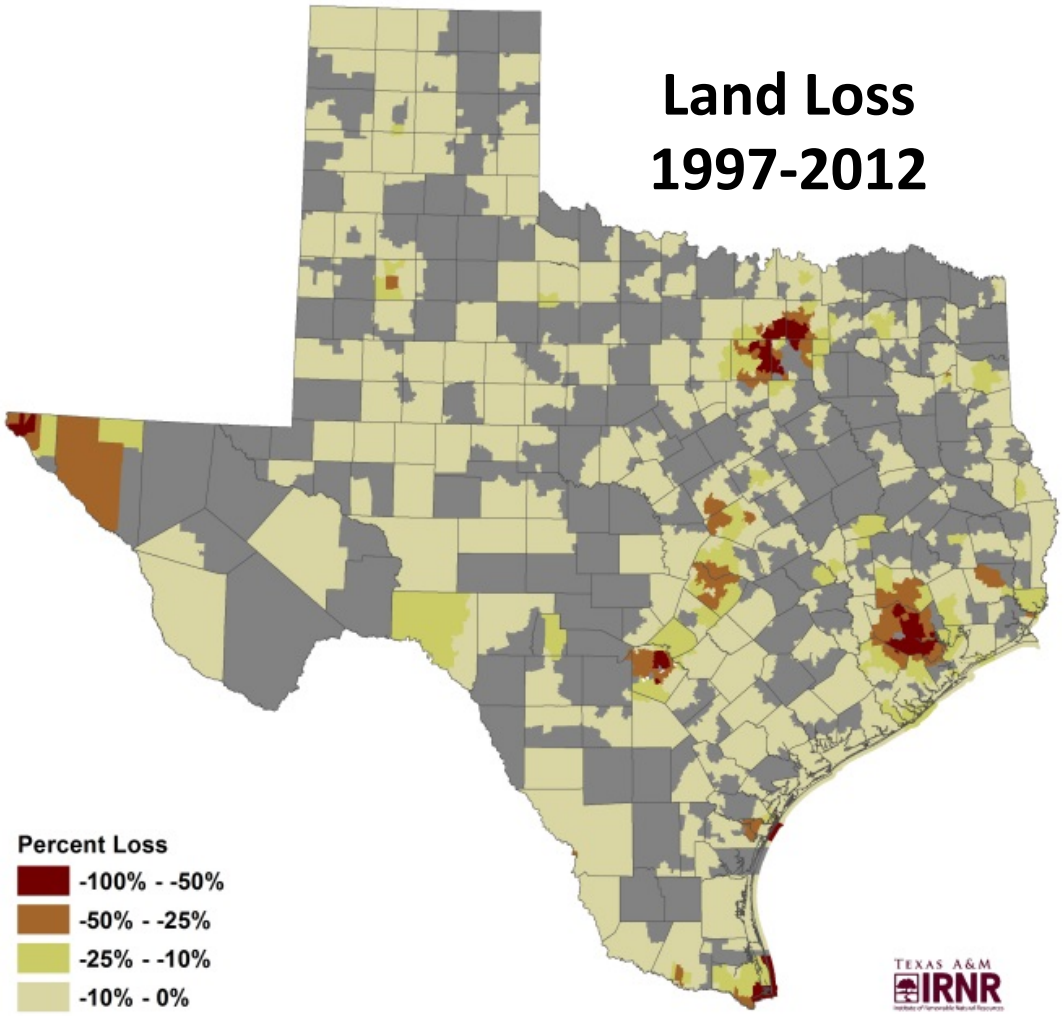
- 1997 – 143 Million acres
- 2012 – 142 Million acres
- Loss ~1 Million acres



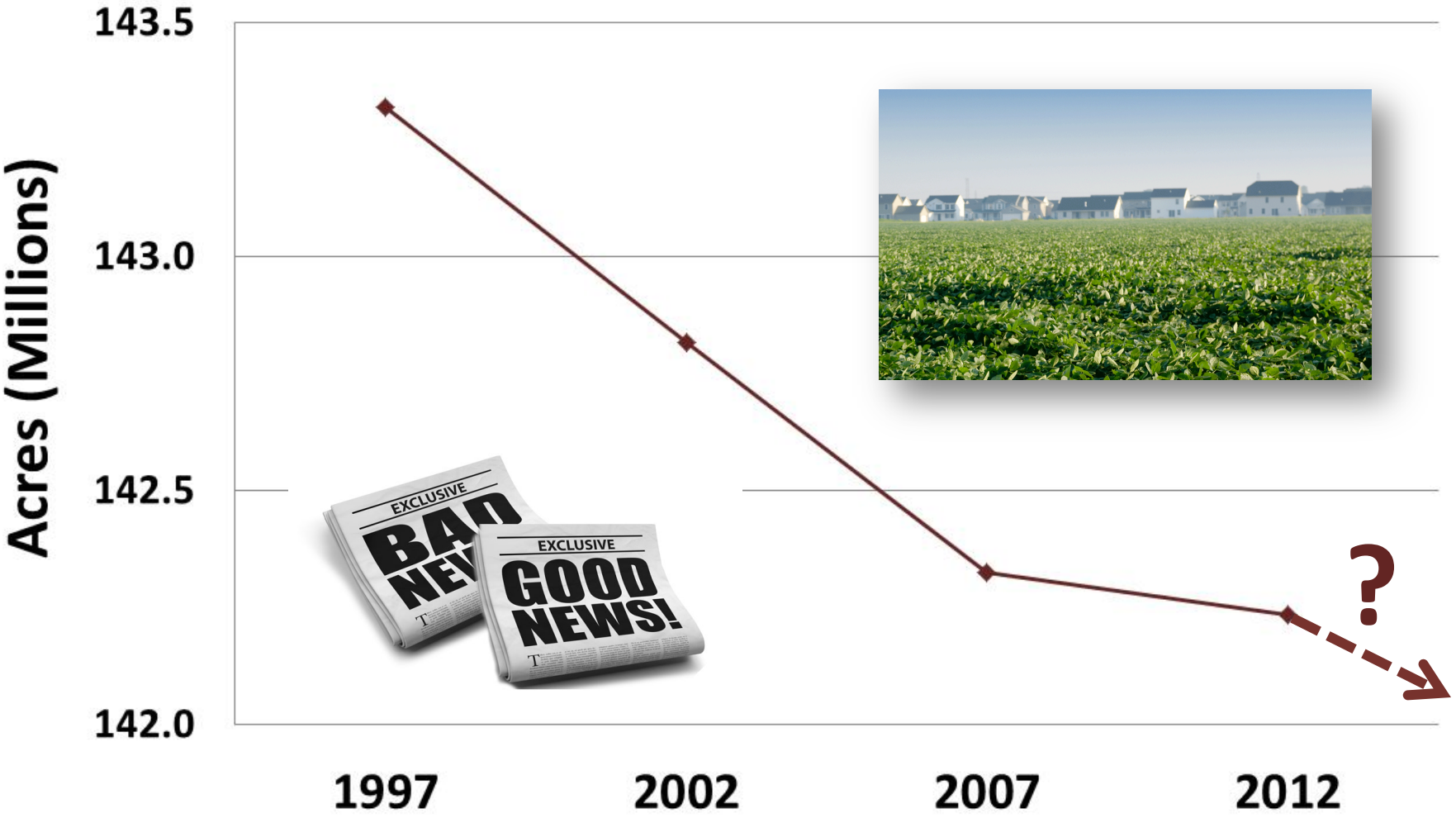
Working Land Loss







Working Land Loss – *Future*?

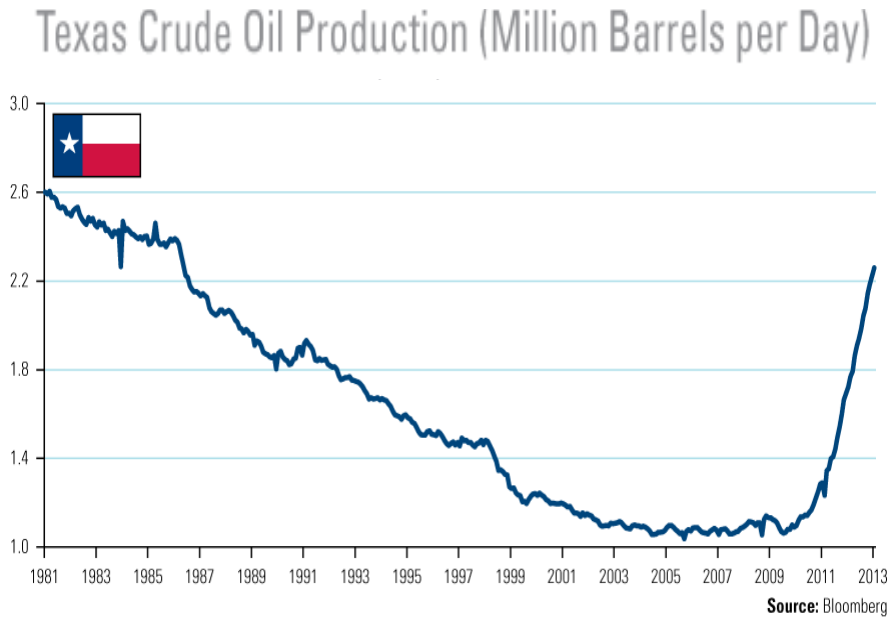



THE GOOD
THE BAD
AND
THE UGLY
ARI (C)ZACH BELISSIMO 2008

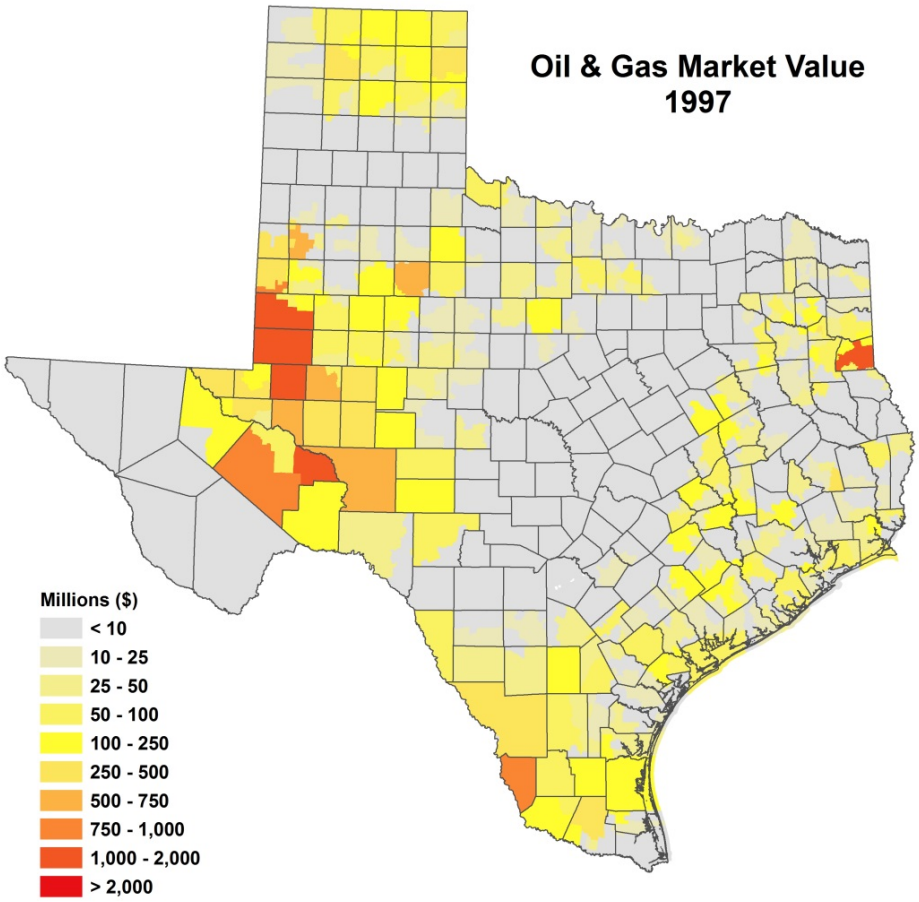
The Good….

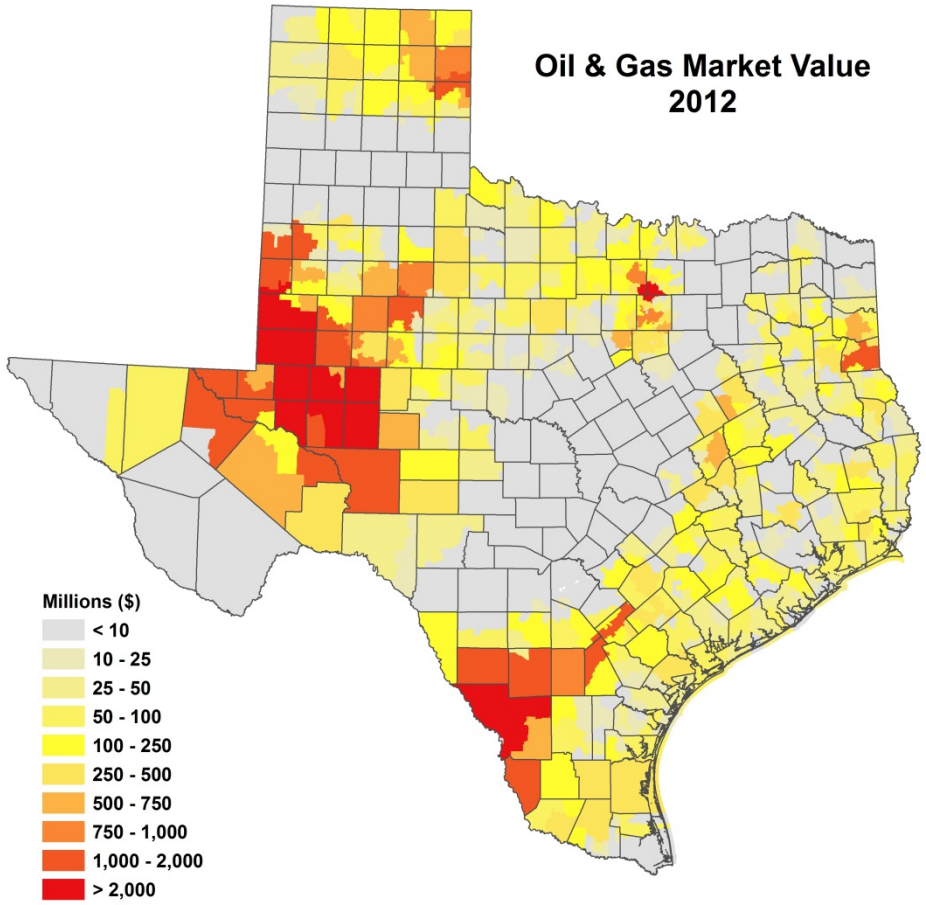
Oil and Gas

- *Game Changer*—Texas is leading crude oil production state in part to 3 large shale gas plays
  - Barnett, Haynesville and Eagle Ford
- U.S. oil production expected to exceed that of Saudi Arabia by 2017
- Eagle Ford Shale Story
  - $87B in revenue (2014)
  - Since 2014, natural gas production has *doubled* and oil production has increased *6X*.

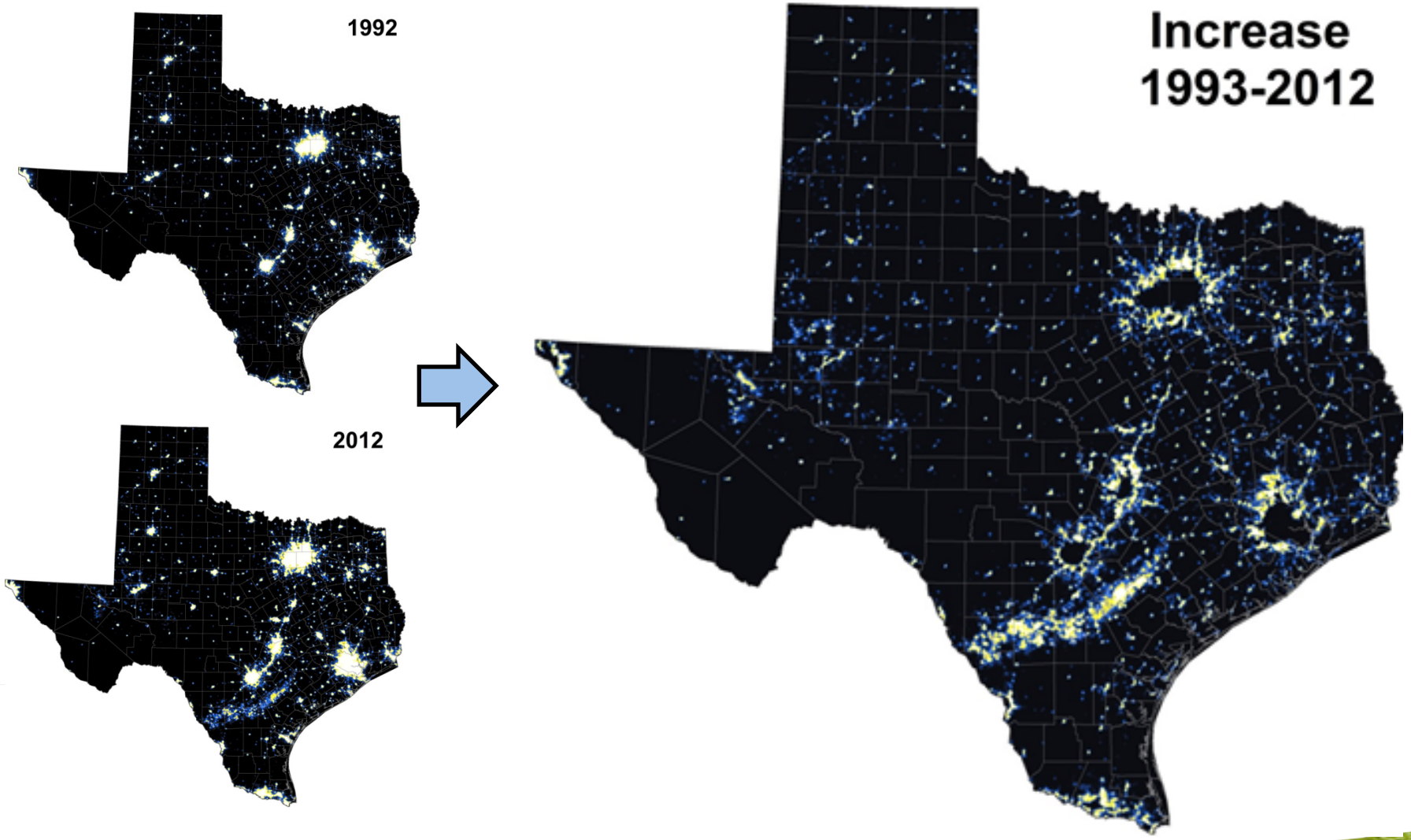


Oil and Gas


Oil & Gas Market Value
1997
Millions ($)
< 10
10 - 25
25 - 50
50 - 100
100 - 250
250 - 500
500 - 750
750 - 1,000
1,000 - 2,000
> 2,000

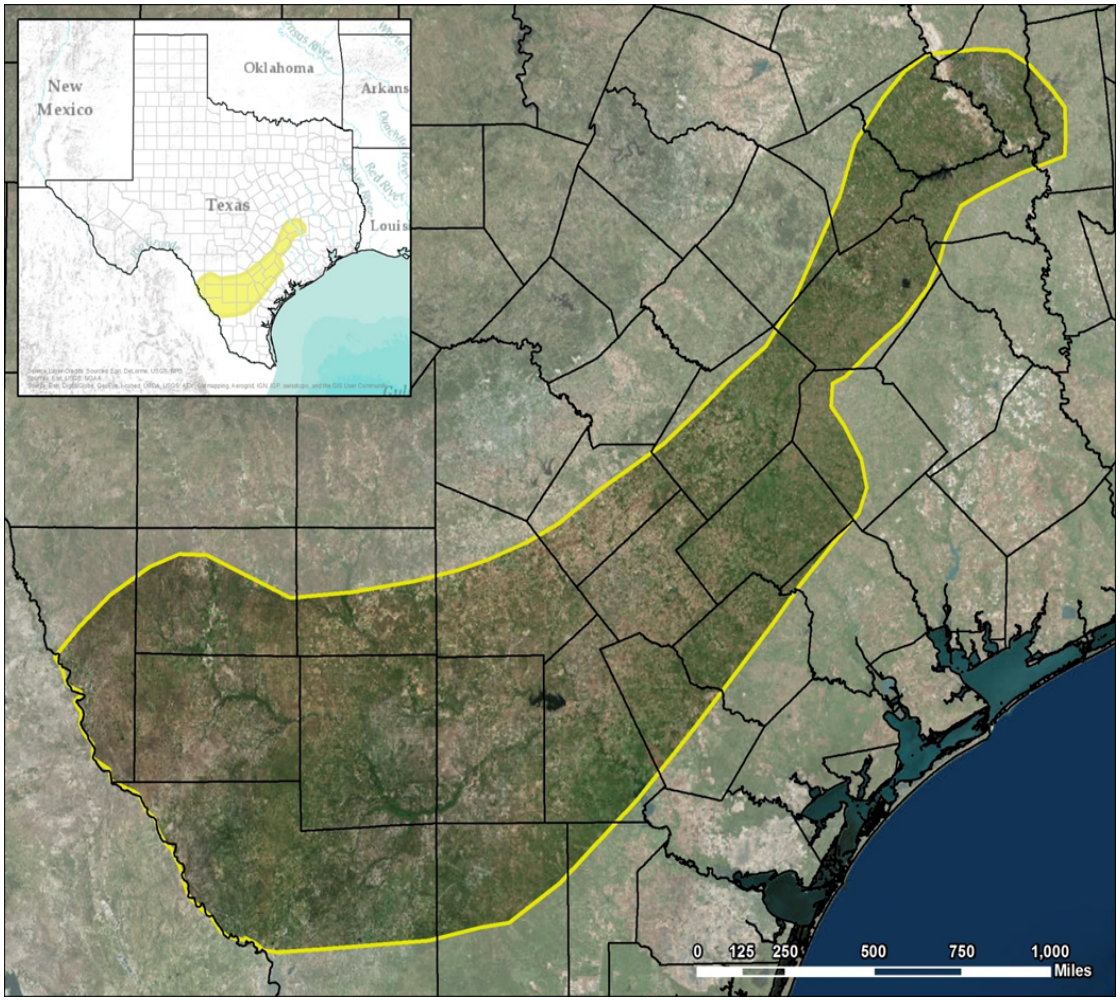

Oil & Gas Market Value
2012
Millions ($)
< 10
10 - 25
25 - 50
50 - 100
100 - 250
250 - 500
500 - 750
750 - 1,000
1,000 - 2,000
> 2,000

Night Time Illumination



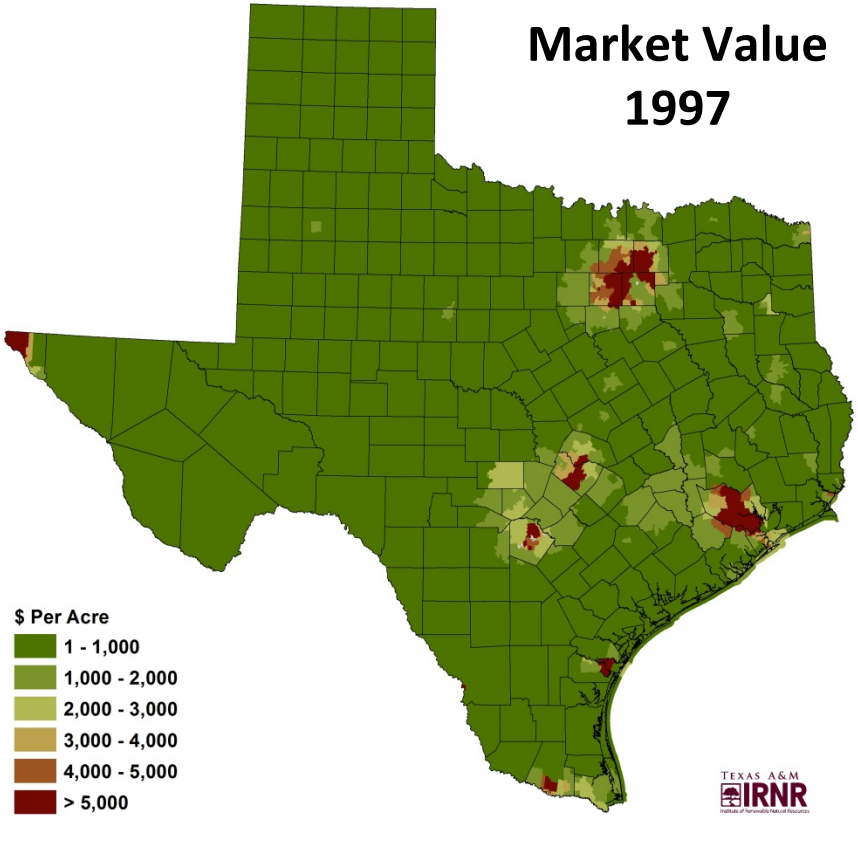
Oil and Gas – *Eagle Ford Shale*

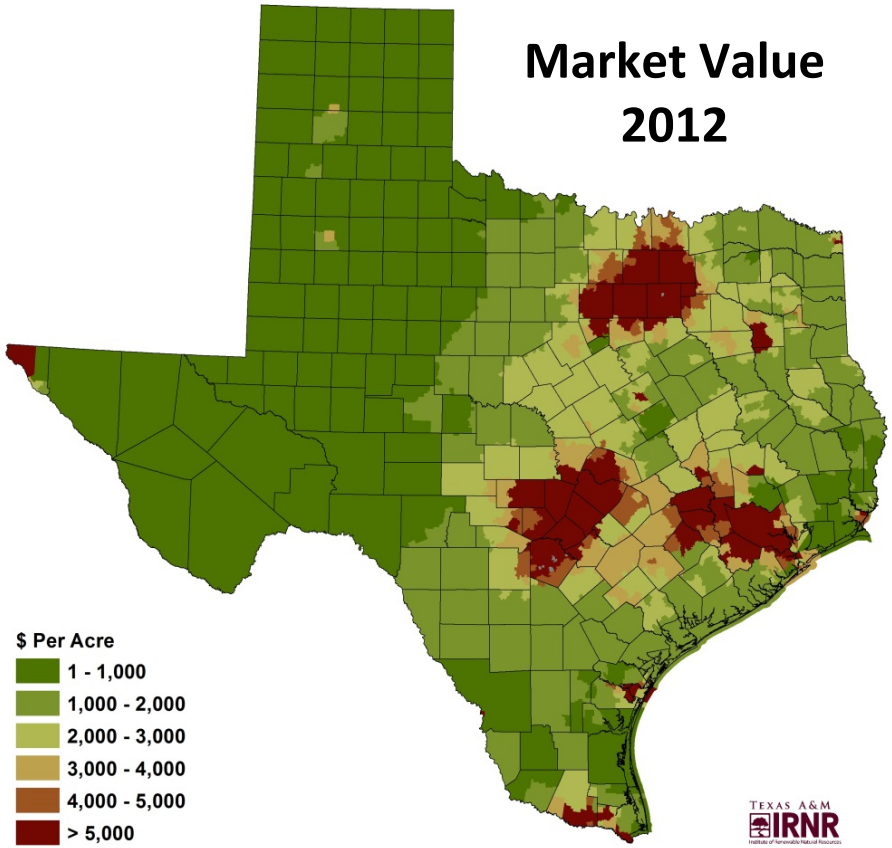
- Landsat 1993-2014 - CDA
- Estimated increase:
  - 23,000 well pads
  - 84,000 acres
  - 65% of construction occurred 2011-2014



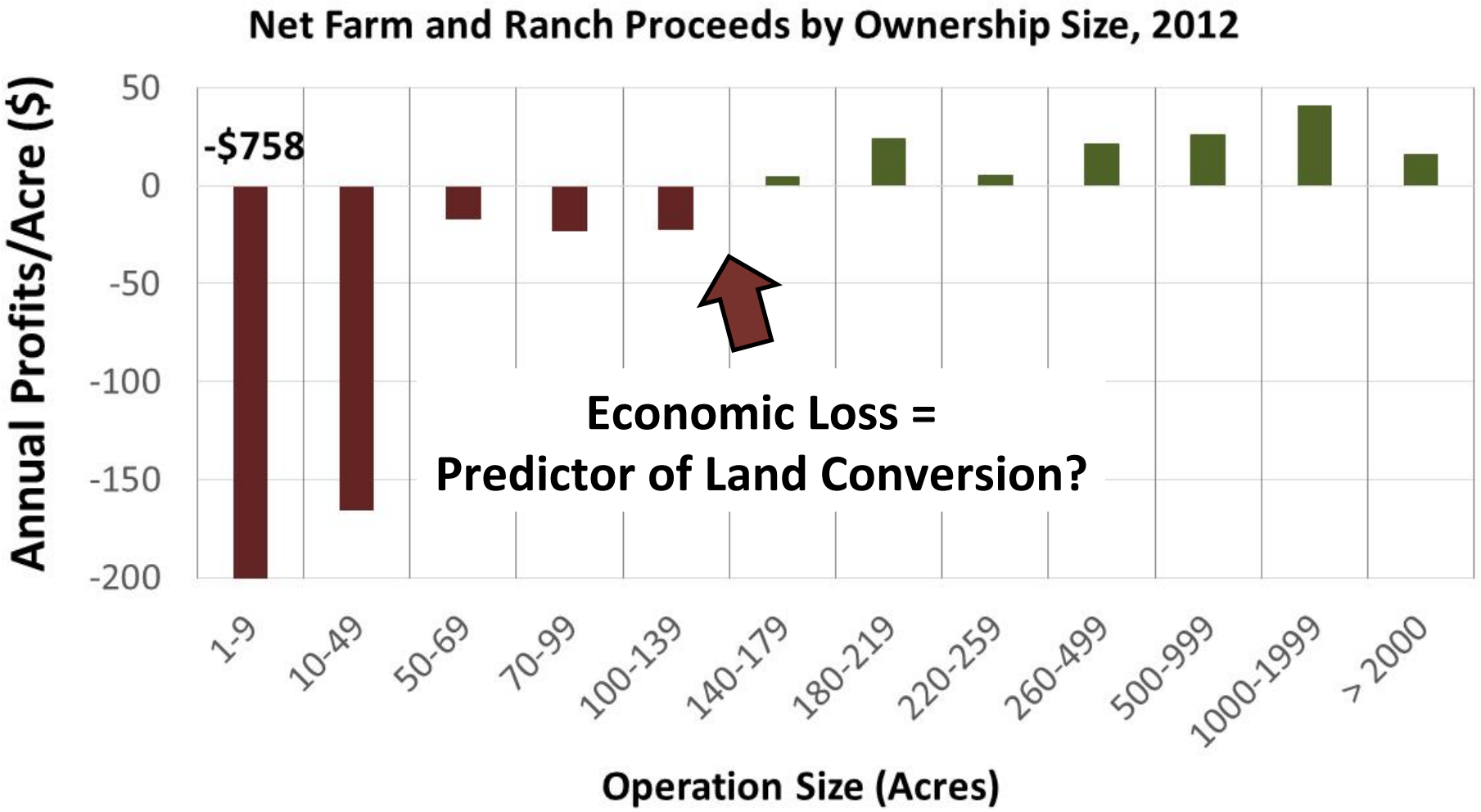
The Bad….

Market Value - *Driver*





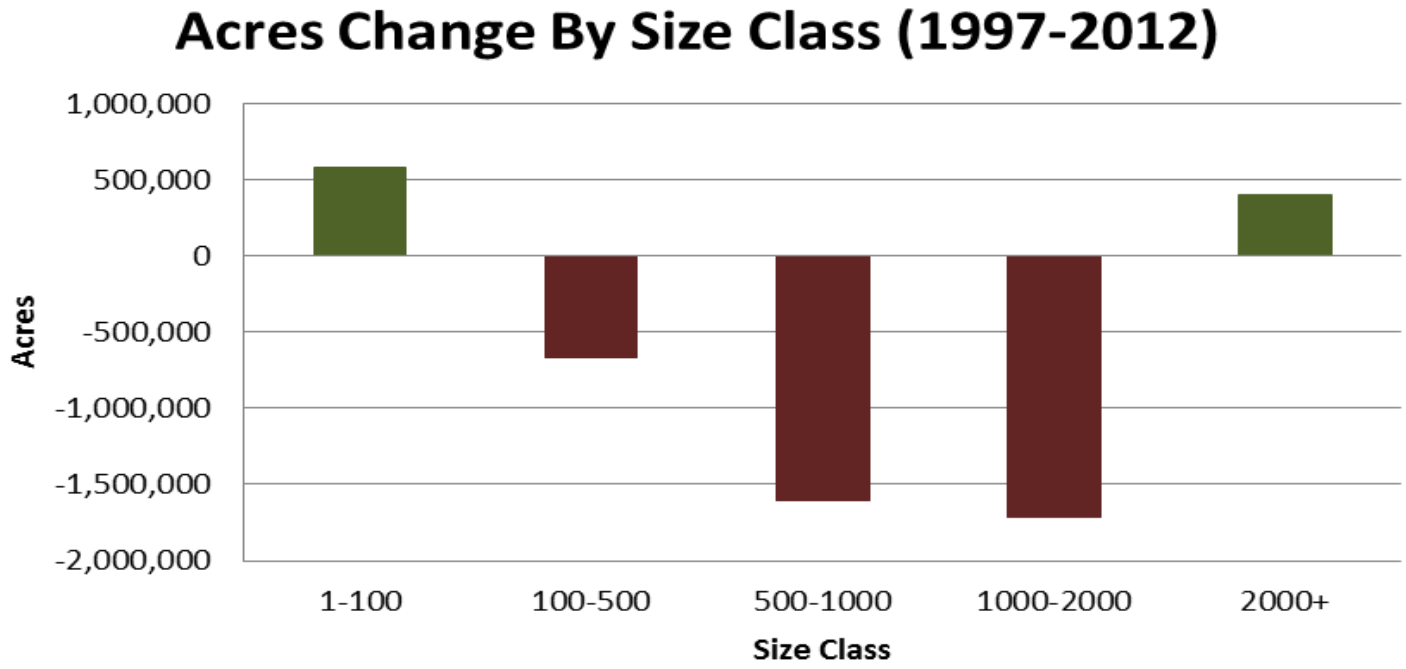
Farm and Ranch Proceeds - *Driver*



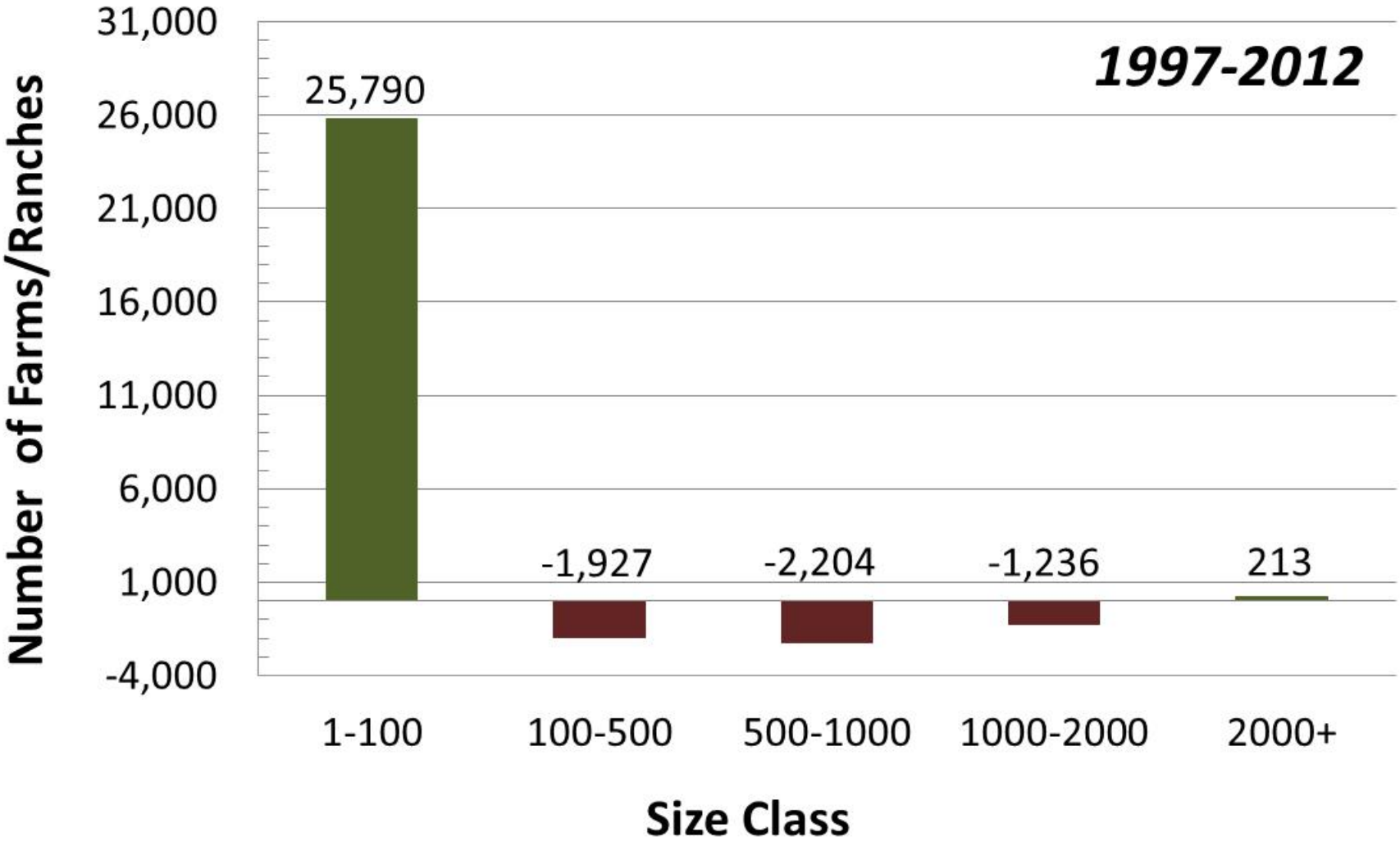
The Ugly….

Ownership Size - *Acres*

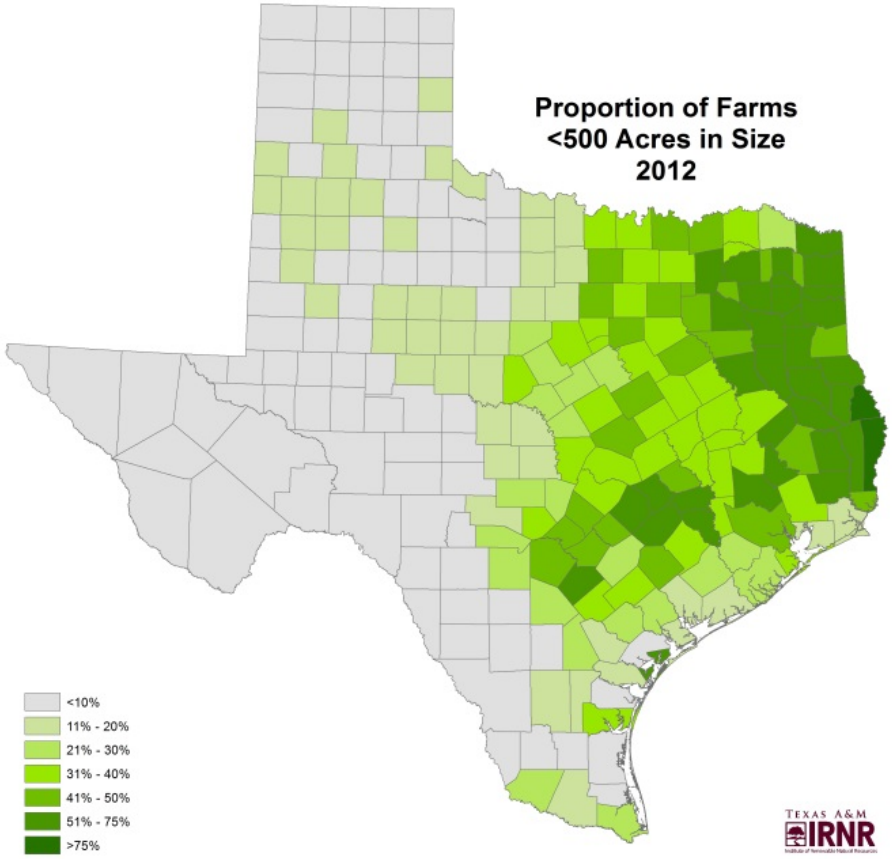
- Ownership size = fragmentation
- Increase (500K acres) of <100 acre farms
- Decrease (4M acres) of 100-2000 acre farms
- Increase (400K acres) of >2000 acre farms

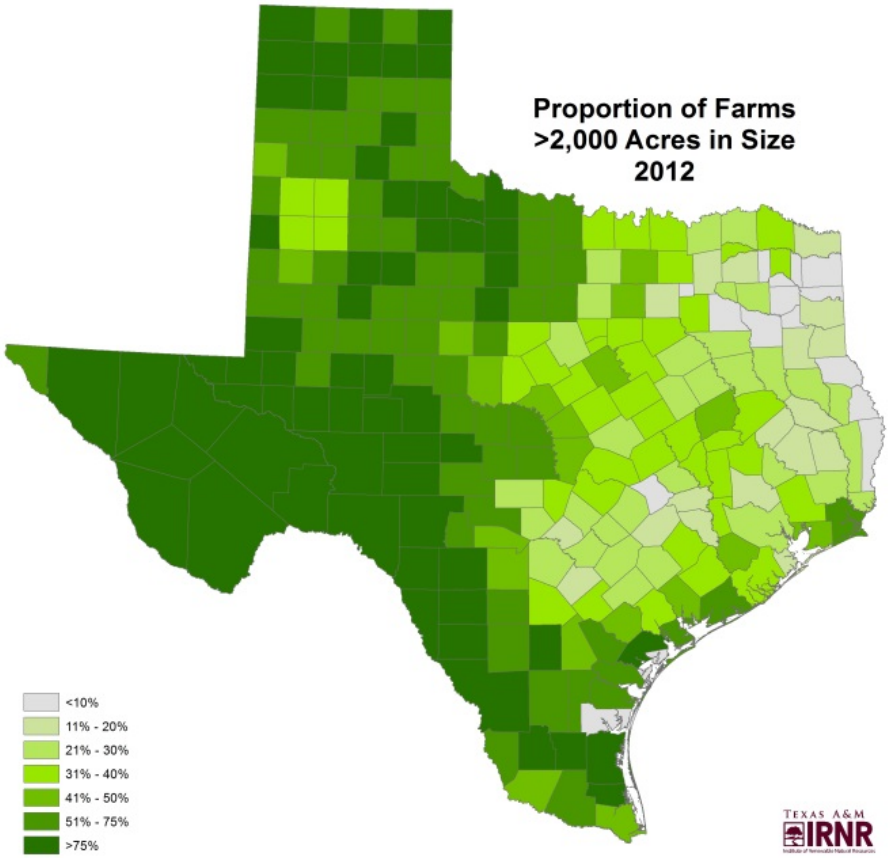


Ownership Size – *Number*

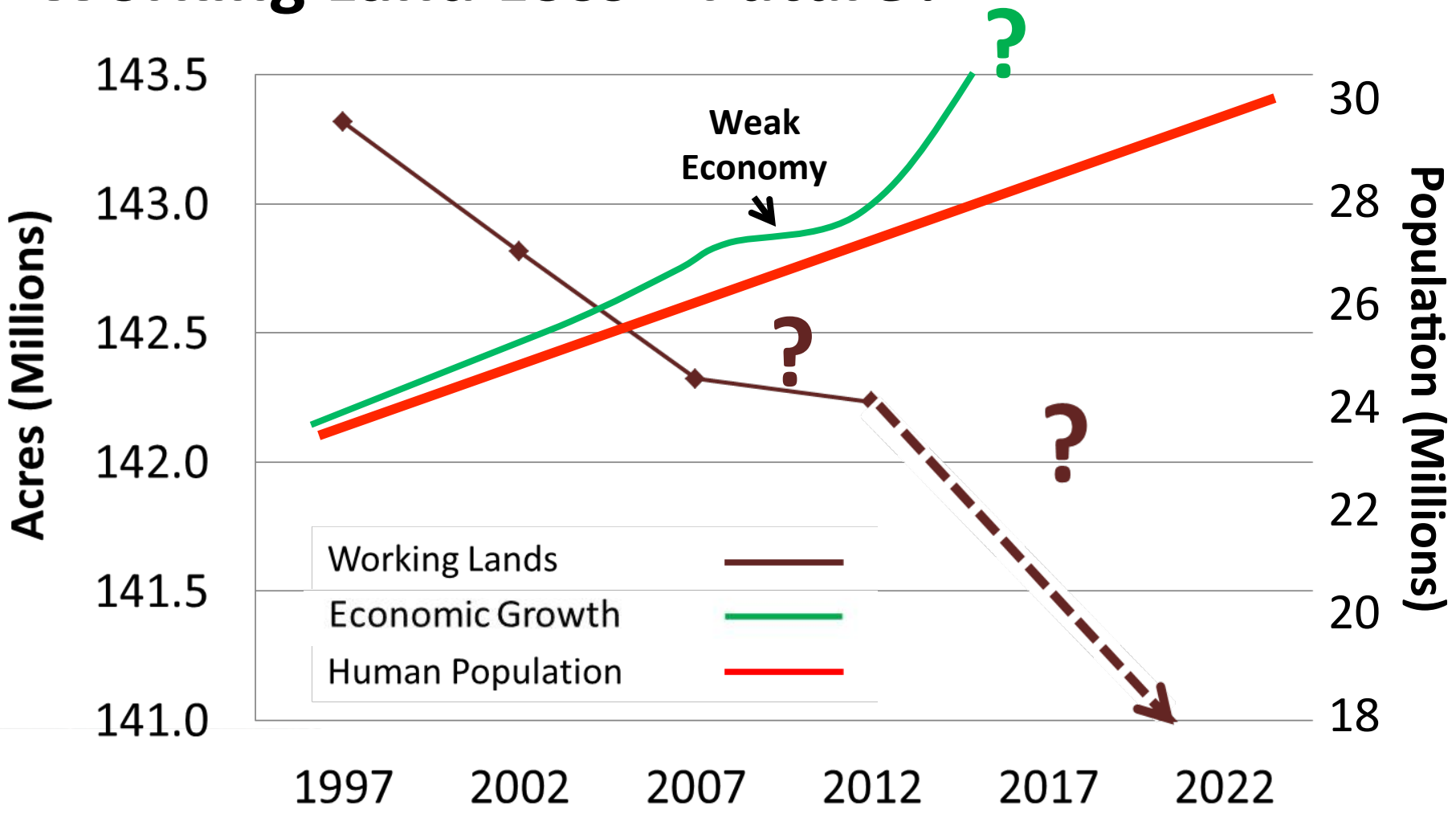


Ownership Size – *Distribution*





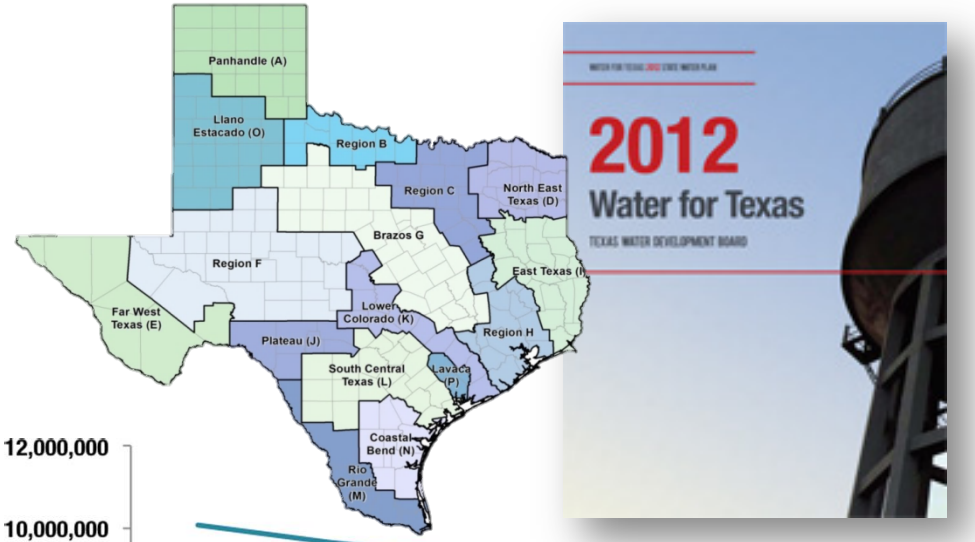
Working Land Loss – *Future*?

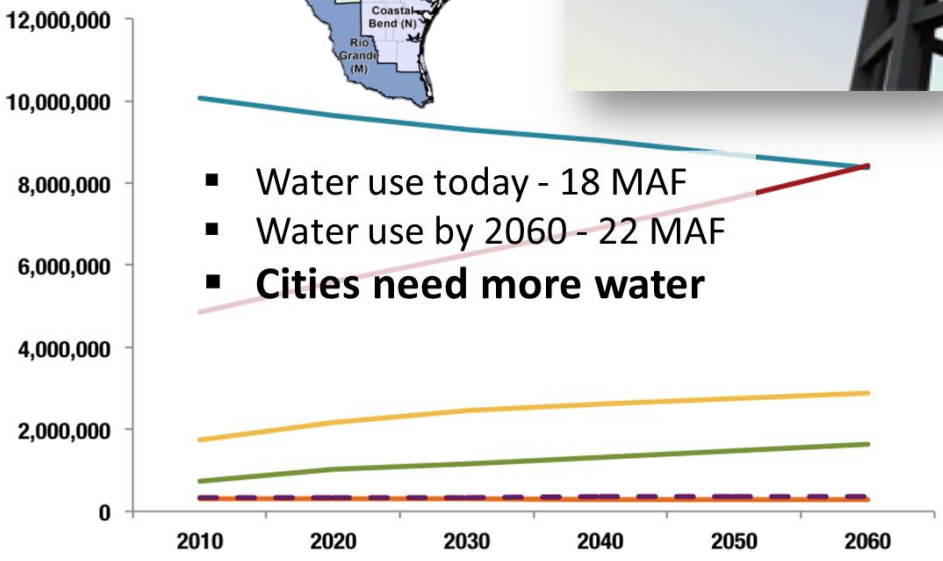



WATER-LAND CONNECTION

Water Demand and State Plan

- State water plan expected to generate 9 million acre-feet/year
- Implementation Costs = **$53 billion**
  - Up from $30.7 billion in 2007





Why “Land” Matters?

“Water conservation starts where the first rain drop falls”.

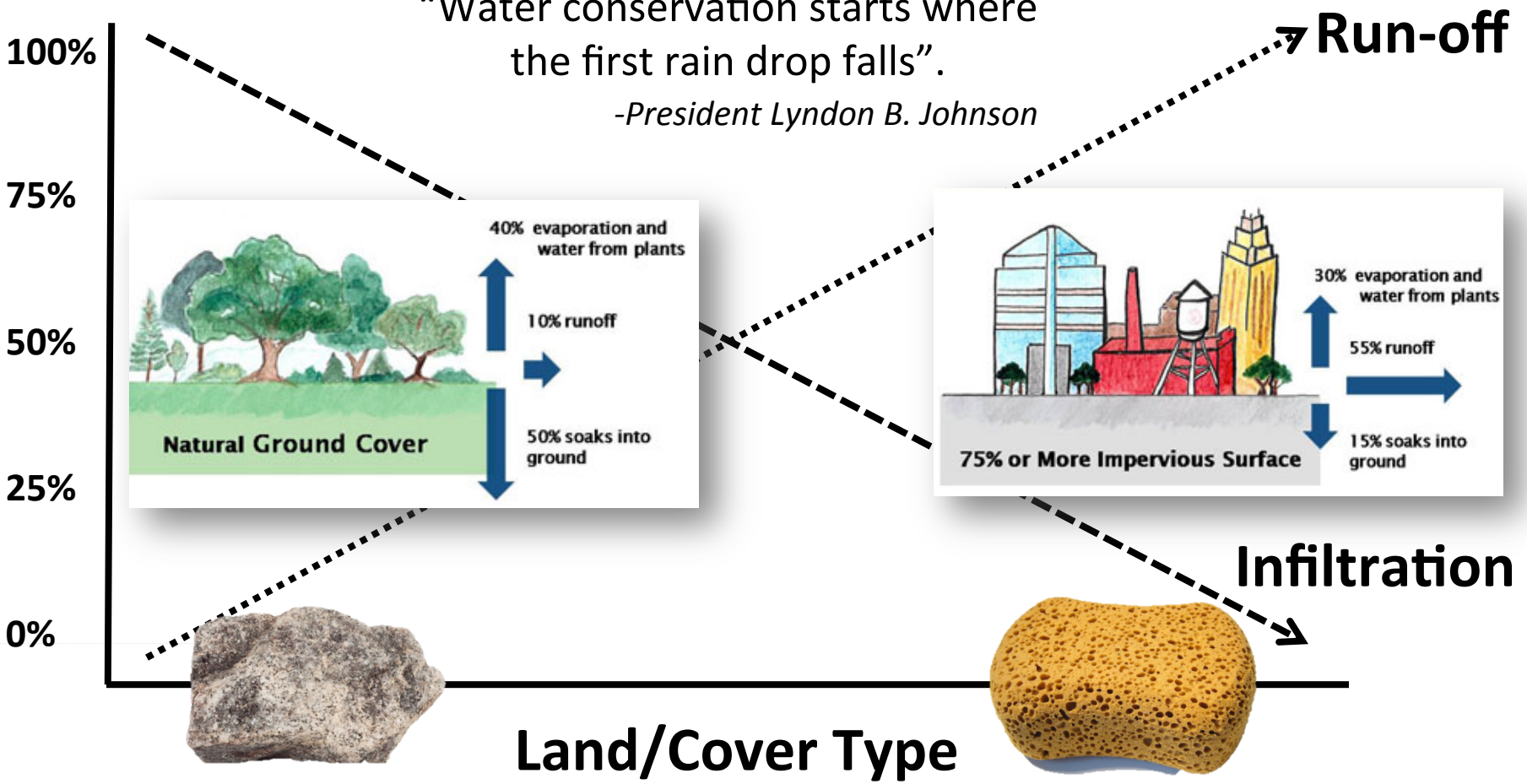
-President Lyndon B. Johnson

Versus

Water Conservation 101

"Water conservation starts where the first rain drop falls".

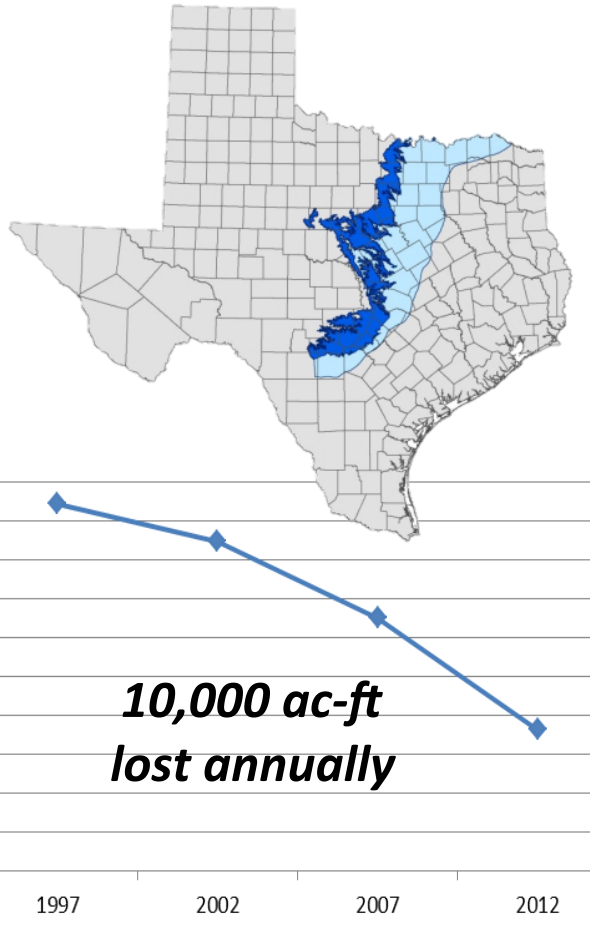
-President Lyndon B. Johnson

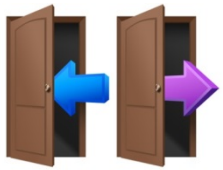


No Land, No Water?

- What loss does conversion from ranch to subdivision have on *potential* infiltration capacity?

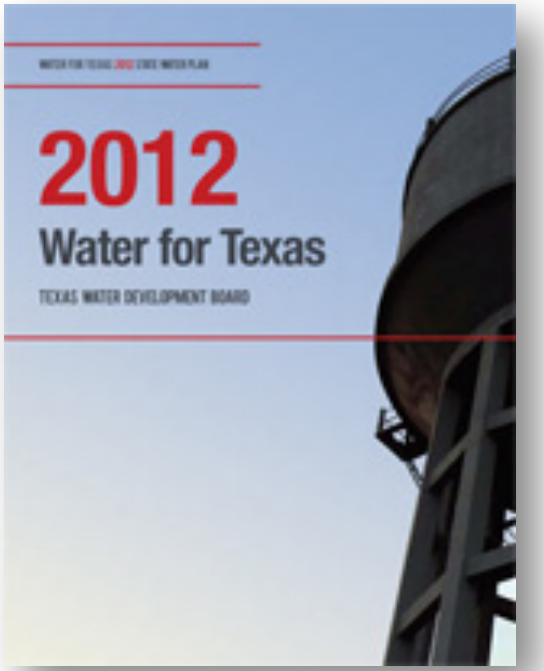
  Assumptions:
  - Average Rainfall – 35 inches/yr
  - 2.92 ac-ft from Rainfall/acre
    - 75% infiltration (good cover) = 2.19 ac-ft
    - 15% infiltration (impervious) = 0.44 ac-ft
  - 1.75 ac-ft Difference in Land Type on a per acre basis
- **Carrizo-Wilcox Aquifer** – ≈5,700 acres of farm/ranch land lost annually
- **≈10,000 ac-ft in potential infiltration capacity lost annually**
- Land conservation lower cost?





Land Conservation as Water Strategy?

- Should we consider the value of land conservation as a viable, cost-effective water strategy?
- Is “Land Infrastructure” as important as city infrastructure?
- Strategy in State Water Plan?



44K ac-ft annually

“Yesterday is not ours to recover, but tomorrow is ours to win or lose”.

-President Lyndon B. Johnson

The Grand Challenges…

- **Changing Places** – Loss of working lands, fragmentation and conversion.
- **Changing People** – Increasing human population, shifts in ethnicity and urban residents.
- **Changing Perspectives** – Aging landowners, different objectives, largest intergenerational transfer.

Way Forward

- Land conversion and fragmentation continues. Linked population size, land value, ownership size.
- How do we secure future energy, water, food, and ecosystem services from a dynamic but shrinking land base?
- Continued or new support of:
  - 1D and 1D1
  - Market-driven, incentive-based programs
  - Communicating the *public* benefit of private lands

Texas Land Trends

The Good, The Bad, and The Ugly

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Promoting Private Lands Stewardship through Research, Education, and Policy.

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http://txlandtrends.org/

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Roel R. Lopez
roel@tamu.edu

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