Texas Land & Water Trends
Realizing the Public Benefit of Rural Working Lands

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Texas Land Trends
Texas Land Trends

2000-2010
20.6% Population Growth
Increase of 4.3 Million to 25.1 million

Forecasts for 2020
29.6 Million

Forecast for 2060
46.3 million (almost double from 2010)
### Growing States, 2000-2010

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>281,421,906</td>
<td>308,745,538</td>
<td>27,323,632</td>
<td>9.7%</td>
</tr>
<tr>
<td>Texas</td>
<td>20,851,820</td>
<td>25,145,561</td>
<td>4,293,741</td>
<td>20.6%</td>
</tr>
<tr>
<td>California</td>
<td>33,871,648</td>
<td>37,253,956</td>
<td>3,382,308</td>
<td>10.0%</td>
</tr>
<tr>
<td>Florida</td>
<td>15,982,378</td>
<td>18,801,310</td>
<td>2,818,932</td>
<td>17.6%</td>
</tr>
<tr>
<td>Georgia</td>
<td>8,186,453</td>
<td>9,687,653</td>
<td>1,501,200</td>
<td>18.3%</td>
</tr>
<tr>
<td>North Carolina</td>
<td>8,049,313</td>
<td>9,535,483</td>
<td>1,486,170</td>
<td>18.5%</td>
</tr>
<tr>
<td>Arizona</td>
<td>5,130,632</td>
<td>6,392,017</td>
<td>1,261,385</td>
<td>24.6%</td>
</tr>
</tbody>
</table>

15.7% of numerical change in U.S.
Texas Land Trends

2007 Population

% Change 1997-2007

Legend:
- Decreasing: 25% - 50%
- 1% - 5%
- 50% - 75%
- 10% - 25%
- >75%

Population:
- 66 - 3,174
- 3,175 - 5,135
- 5,136 - 8,802
- 8,803 - 13,687
- 13,688 - 18,811
- 18,812 - 25,077
- 25,078 - 39,578
- 39,579 - 66,514
- 66,515 - 142,519
- 142,520 - 3,801,506

% Change:
- Decreasing: 25% - 50%
- 1% - 5%
- 50% - 75%
- 10% - 25%
- >75%
1997-2007

85% of Population Growth in 25 High-growth Counties.
Texas Land Trends

Loss of Agricultural Lands
1997-2007

- 2.1 Million Acres Converted
- 40% of conversion in the top 25 high-growth counties.

(red indicates high conversion rates)
Land “Consumption” Rates

149 acres per 1000 new residents.
With current rates of land consumption, high-growth areas will consume another 1.4 million acres by 2020.
Rural Land Values
Texas Land Trends

Rural Land Values

2007

Change from 1997 to 2007

- <$347
- $347 - $582
- $583 - $921
- $922 - $1,192
- $1,193 - $1,440
- $1,441 - $1,737
- $1,738 - $2,208
- $2,209 - $3,388
- $3,389 - $7,097
- >$7,097

- Decreasing
- $881 - $1,377
- $0 - $282
- $1,378 - $2,975
- $283 - $570
- >$2,976
- $571 - $880

Texas Water Resources Institute
A&M Institute of Renewable Natural Resources
Trends in Rural Land Values, 1997-2007

Percent Change

Edwards Plateau
Llano Uplift
Oak Woods & Prairies
Blackland Prairie
Rolling Plains
South Texas Brush Country
Gulf Coast Prairies & Marshes
Pinney Woods
Coastal Sand Plain
Trans Pecos
High Plains

Texas -- Statewide

Texas – Statewide
Texas Land Trends

Change in area of Farms & Ranches by Size Class, 2002-2007

Texas – Statewide

Area (acres)

<100 100-500 500-1000 1000-2000 2000-5000 >5000

-1,000,000 -500,000 0 500,000 1,000,000
# Texas Land Trends

## Status and Trends of Land Use (97-07)

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Acres</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry Cropland</td>
<td>20.3 million</td>
<td>-7.5%</td>
</tr>
<tr>
<td>Native Rangeland</td>
<td>92.6 million</td>
<td>-1.77%</td>
</tr>
<tr>
<td>Non-Native Pasture</td>
<td>11.0 million</td>
<td>+3%</td>
</tr>
<tr>
<td>Forest</td>
<td>7.7 million</td>
<td>+3%</td>
</tr>
<tr>
<td>Irrigated Cropland</td>
<td>5.4 million</td>
<td>+0.3%</td>
</tr>
<tr>
<td>Wildlife Mgmt.</td>
<td>2.4 million</td>
<td>+2,407%</td>
</tr>
</tbody>
</table>

2.1 million acres of rural working lands converted to non-open space uses
Texas Land Trends

U.S. Drought Monitor
Texas

Drought Conditions (Percent Area)

<table>
<thead>
<tr>
<th></th>
<th>None</th>
<th>D0-04</th>
<th>D1-04</th>
<th>D2-04</th>
<th>D3-04</th>
<th>D4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>0.52</td>
<td>99.48</td>
<td>95.06</td>
<td>82.60</td>
<td>62.47</td>
<td>25.27</td>
</tr>
<tr>
<td>Last Week</td>
<td>0.52</td>
<td>99.48</td>
<td>95.51</td>
<td>82.89</td>
<td>62.47</td>
<td>25.27</td>
</tr>
<tr>
<td>3 Months Ago</td>
<td>0.00</td>
<td>100.00</td>
<td>100.00</td>
<td>96.60</td>
<td>91.87</td>
<td>72.61</td>
</tr>
<tr>
<td>Start of Calendar Year</td>
<td>0.01</td>
<td>99.99</td>
<td>97.83</td>
<td>84.81</td>
<td>67.32</td>
<td>32.36</td>
</tr>
<tr>
<td>Start of Water Year</td>
<td>0.00</td>
<td>100.00</td>
<td>100.00</td>
<td>99.16</td>
<td>96.65</td>
<td>85.75</td>
</tr>
<tr>
<td>One Year Ago</td>
<td>20.16</td>
<td>79.84</td>
<td>59.13</td>
<td>25.36</td>
<td>9.48</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Intensity:
- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

http://droughtmonitor.unl.edu

Laura Edwards, Western Regional Climate Center and South Dakota S

Released Thursday, January 19, 2012

USDA National Drought Mitigation Center
2012 Texas State Water Plan

• Adopted December 15, 2011
• Sent to the Governor January 5, 2012
• Represents the 9th water plan since the inception of the Texas Water Development Board in 1957 after the drought of the 1950’s

In serious drought conditions, Texas does not and will not have enough water to meet the needs of its people, businesses, and agricultural enterprises.
2010 Existing Supplies

Amount of water that can be produced with current permits, contracts, and existing infrastructure during drought.

- **Surface**: 8,427,432 acre-feet/year
- **Ground**: 8,073,609 acre-feet/year
- **Reuse**: 482,164 acre-feet/year
- **Existing Supplies**: 16,983,205 acre-feet/year

- **Municipal**: 4,851,201 acre-feet/year
- **Manufacturing**: 1,727,808 acre-feet/year
- **Mining**: 296,230 acre-feet/year
- **Steam/Electric**: 733,179 acre-feet/year
- **Irrigation**: 10,079,215 acre-feet/year
- **Livestock**: 322,966 acre-feet/year
- **Projected Demand**: 18,010,599 acre-feet/year

**Note:** all values reported in acre-feet/year
Source: Texas Water Development Board 2012 State Water Plan (Draft)
2060 Scenario

Amount of water that can be produced with current permits, contracts, and existing infrastructure during drought

- Surface: 8,968,541
- Ground: 5,688,293
- Reuse: 613,701
- Existing Supplies: 15,270,535
- Municipal: 8,414,492
- Manufacturing: 2,882,524
- Mining: 292,294
- Steam/Electric: 1,620,411
- Livestock: 371,923
- Irrigation: 8,370,554
- Projected Demand: 21,952,198

Note: all values reported in acre-feet/year
Source: Texas Water Development Board 2012 State Water Plan (Draft)
2060 Existing Supplies vs. Projected Demands

Amount of water that can be produced with current permits, contracts, and existing infrastructure during drought

- **Surface Water**: 8,968,541
- **Ground Water**: 5,688,293
- **Reuse**: 613,701

**Projected Supply**: 15,270,535

**Projected Demand**: 21,952,198

**Projected Shortfall**: 6,681,663

- **Municipal**: 8,414,492
- **Manufacturing**: 2,882,524
- **Mining**: 292,294
- **Steam/Electric**: 1,620,411
- **Livestock**: 371,923
- **Irrigation**: 8,370,554

* Dashed line denotes values from 2010.
Note: all values reported in acre-feet/year
Source: Texas Water Development Board 2012 State Water Plan (Draft)
2060 Recommended Water Mgmt. Strategies

Where do we come up with the water?

- **Conservation**
  - Irrigation: 1,505,465
  - Municipal: 647,361
  - Other: 23,432

- **New Sources**
  - New Reservoirs: 1,499,671
  - Other Surface Water: 3,050,049
  - Ground Water: 800,795

- **Desalination**
  - Sea, Ground, Surface Water: 309,782

- **Other Strategies**
  - Reuse: 915,589
  - Conjunctive, Aquifer Storage, & Other: 252,695

- **Projected Supply with New Strategies**
  - 9,004,839
  - 2,323,176

**Projected Shortfall**
- 6,681,663

**Note:** all values reported in acre-feet/year
Total Capital Costs of Recommended Water Management Strategies By Water use Category
($53.1 Billion)

- Municipal (86%)
  - $45.8
- Irrigation (7%)
  - $2.3
- Steam-Electric (4%)
  - $1.2
- Livestock (<.1%)
  - $0.4
- Mining (<1%)
  - $0.4
- Manufacturing (6%)
  - $3.4

- Total Capital Costs: $53.1 Billion
A Few Take Home Points

• Rate of rural land conversion have increased
• Population of Texas expected to double by 2060
• Tremendous demand for land and water
• ~85% of Texans live in metropolitan areas
• History shows that after major droughts significant legislative action has been taken to address water issues
Realizing the Link between Private Lands and Public Benefit

“Saving the water and the soil must start where the first raindrop falls.”

*Lyndon B. Johnson, 1947*
Realizing the Link between Private Lands and Public Benefit

• Commodities
  – Food and fiber
  – Water quality/quantity

• Ecosystem Services
  – Clean air
  – Wildlife habitat
  – Flood mitigation
  – Open Space (*links to national defense*)
Challenge

- Primary predictor of land conversion is loss of economic profitability
- Development of ecosystem markets
  - Wildlife habitat
  - Flood mitigation
  - Open Space (*links to national defense*)
- Incentivizes conservation
- Additional revenue for the landowner
http://www.texaslandtrends.org

Or

http://www.txlandtrends.org