Upper Llano River Watershed Protection Plan

Tyson Broad
Watershed Coordinator
Llano River Field Station
Edwards Plateau –
Traditional Agriculture
Edwards Plateau
Hunting Leases
Edwards Plateau - Sparsely Populated

Segovia, Texas
Elev. 1710
Pop. 4 Dogs, 6 Cats, 3 Armadillos
12 Ducks, 1 Road Runner
Lots of Deer
10 or 15 People
Llano River @ Junction began recording October 1, 1915.

Highest recorded flow 319,00 cfs in 1935

Lowest recorded flow is 3.7 cfs in 1956

It’s never ceased flowing in recorded history
Seven Hundred Springs
Upper Llano River Watershed
Source of Springs

b. Edwards—Trinity (Plateau)
From Ron Green et al 2010
• 24 out 110 years (22%)
• 6 or 7 years during 50s
• 6 times since 1982
• Zero times 1963-1982
Land Stewardship efforts increase the absorption capacity of the Watershed.
Traditional Watershed Protection Plan

Reactive
Healthy Watershed Initiative
Stakeholders

• Municipalities
• County Governments
• SWCDs
• GCDs
• NGOs
• State and Federal Agencies
• Local landowners
# Upper Llano River Watershed Protection Plan

**Proactive Local Stakeholder Process**  
**Address Water Quality and Water Quantity**

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Bacterial Pollution Feral Hogs
Feral Hog Taskforce

Share information and resources
Land Management

Upland Land Management

Over 500,000 ac. in watershed is in medium to high density brush
Brush Control to Enhance Water Supply

Model Output identifies areas with greatest potential for water yield from brush control.
Net ET - Average Year (1958-1982)
Brush Control to Enhance Water Supply

Unique Paired Watershed Research Opportunity

Increase recharge by 75,000 acre-feet per year

Upper Glen Rose Formation

b. Edwards—Trinity (Plateau)

Elevation-- 1900'
Riparian Restoration
Axis are a big part of the problem
From Ron Green et al 2010

Annual Recharge v Annual Precipitation (ac-ft)

- Edwards: 547 cfs
- Kimble: 391 cfs
- Real: 236 cfs
- Sutton: 13 cfs
Elephant in the Room

Uh folks...?
• Average temperature over 110 year period is 69.9°F
• During drought of 50s above average for 7 years with peak of 71.4°F
• Above normal 4 of 5 years from 2008-2012 with peak of 73.2°F
• Annual average temperature has increased 1.7 degrees since 1906
Figure 1. Historical carbon emissions (black) continue to increase from one decade to the next. This report examines how Austin’s climate might change if the world follows Representative Concentration Pathway (RCP) 8.5, a higher scenario with continued dependence on carbon-intensive fossil fuels (orange) or RCP 4.5, a lower scenario where replacing fossil fuels with zero-carbon alternatives reduces and ultimately stabilizes global carbon emissions (green). Data: CDIAC, IIASA
National Climate Change Viewer (NCCV)

12-09-2016: The National Climate Change Viewer has been updated with all new hydroclimate modeling data.

Time Period: Annual Mean  Model: Mean Model  Variable: Max Temperature  Region Type: State/Counties  Region: Kimble

Contiguous United States  Texas  Kimble

Kimble - 3.8 °F

RCP 4.5  
2050-2075
12-09-2016: The National Climate Change Viewer has been updated with all new hydroclimate modeling data.

RCP 8.5
2050-2075
North Llano River at 0 cfs

Now more than ever.