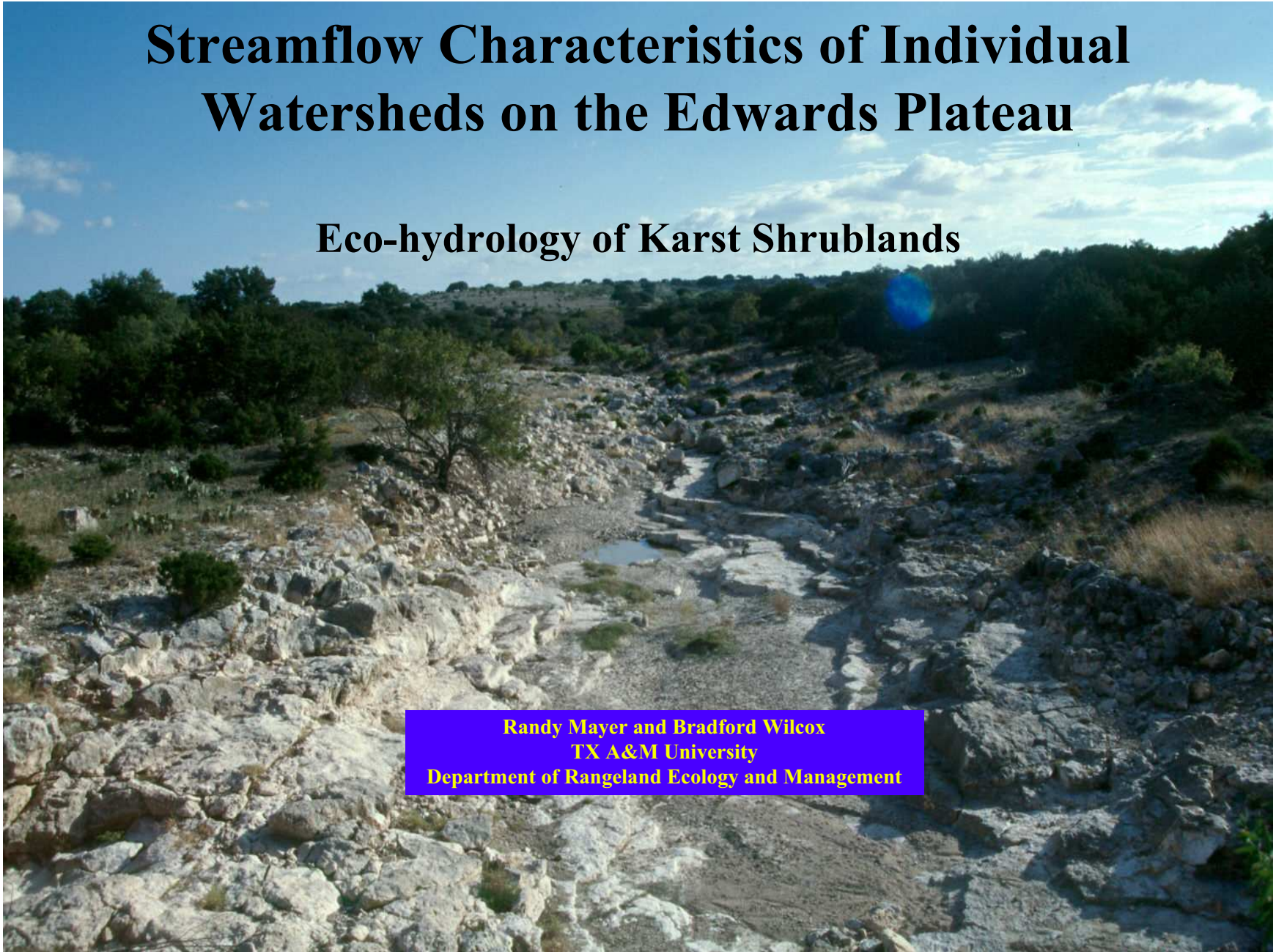


Streamflow Characteristics of Individual Watersheds on the Edwards Plateau

Eco-hydrology of Karst Shrublands

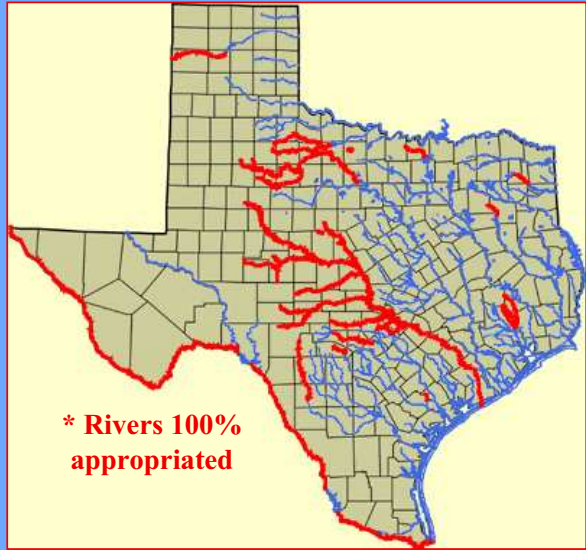
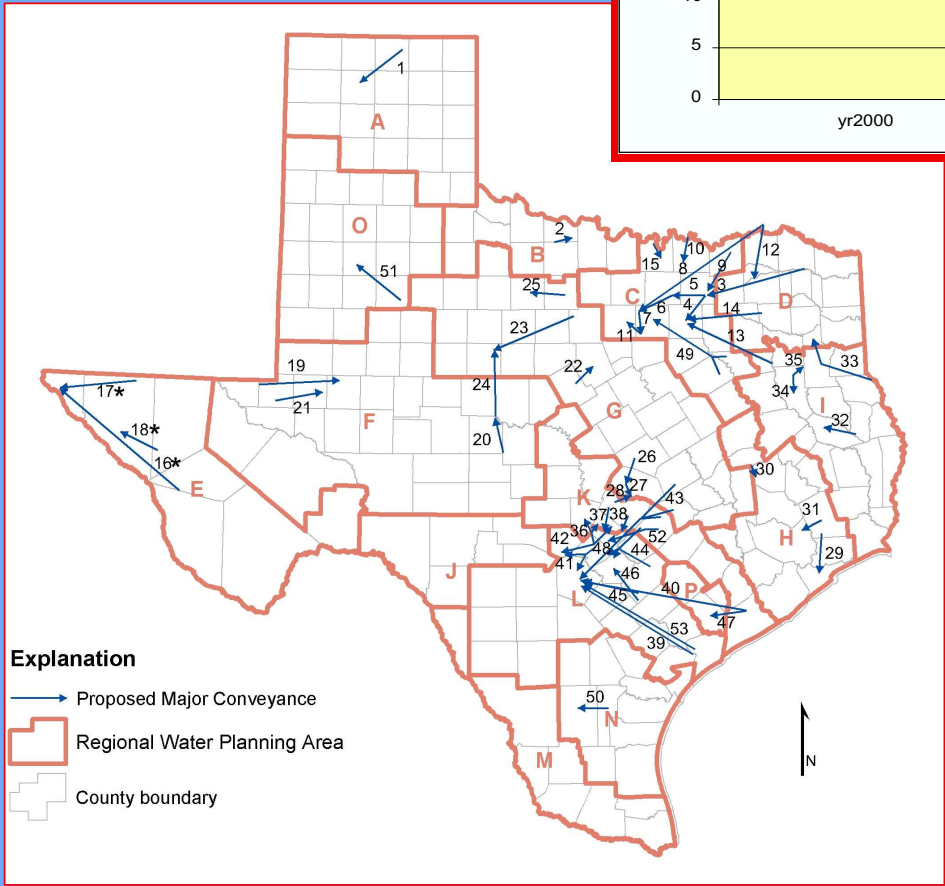
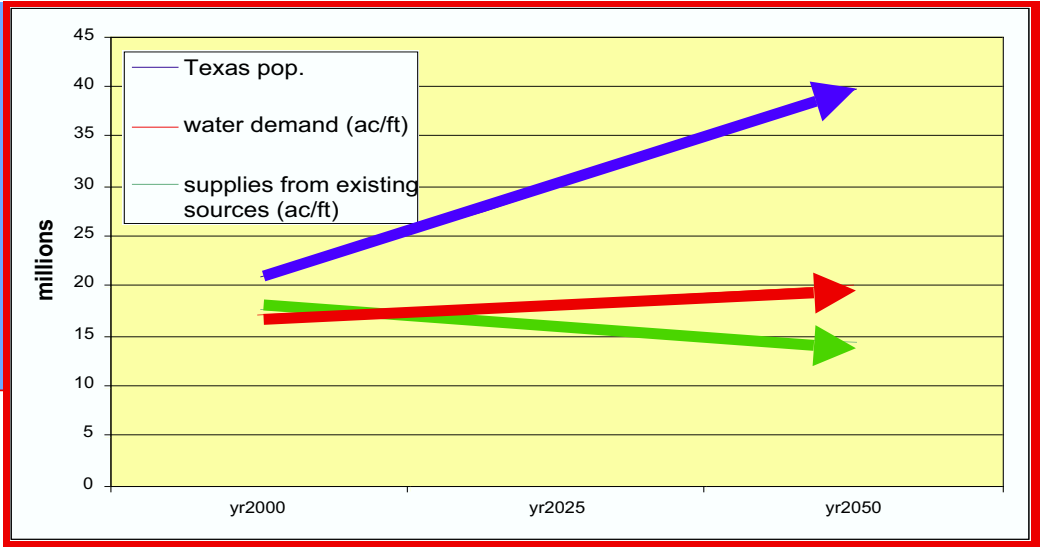
**Randy Mayer and Bradford Wilcox
TX A&M University
Department of Rangeland Ecology and Management**





- **Climate:** precipitation, 375-800mm
temperature, 18-20 degrees C
- **Geology:** Edwards & Glen Rose limestones
with large areas exposed
- **Soils:** Shallow calcareous, rocky, underlain
by fractured limestone

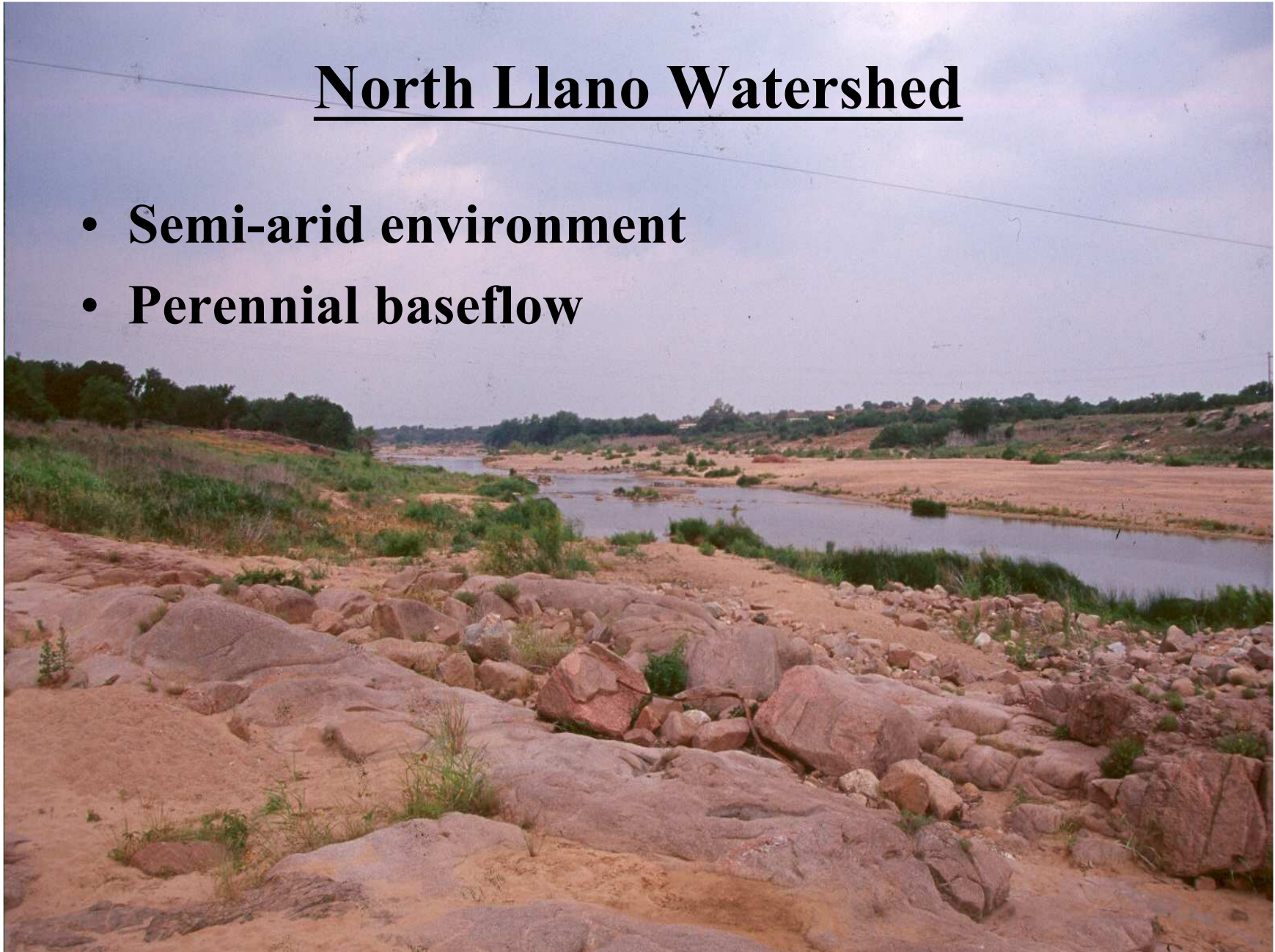




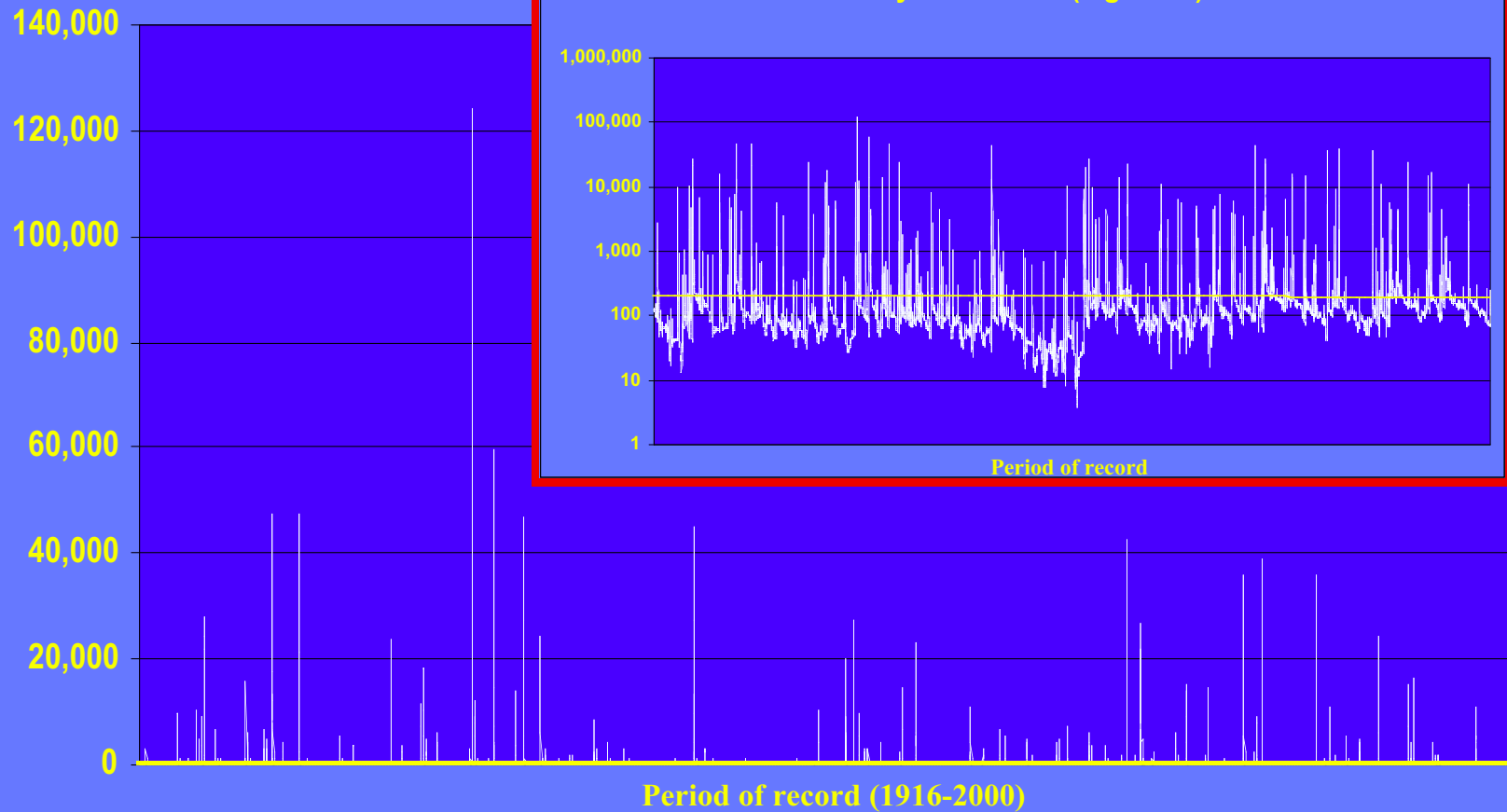


North Llano Watershed

- **Semi-arid environment**
- **Perennial baseflow**



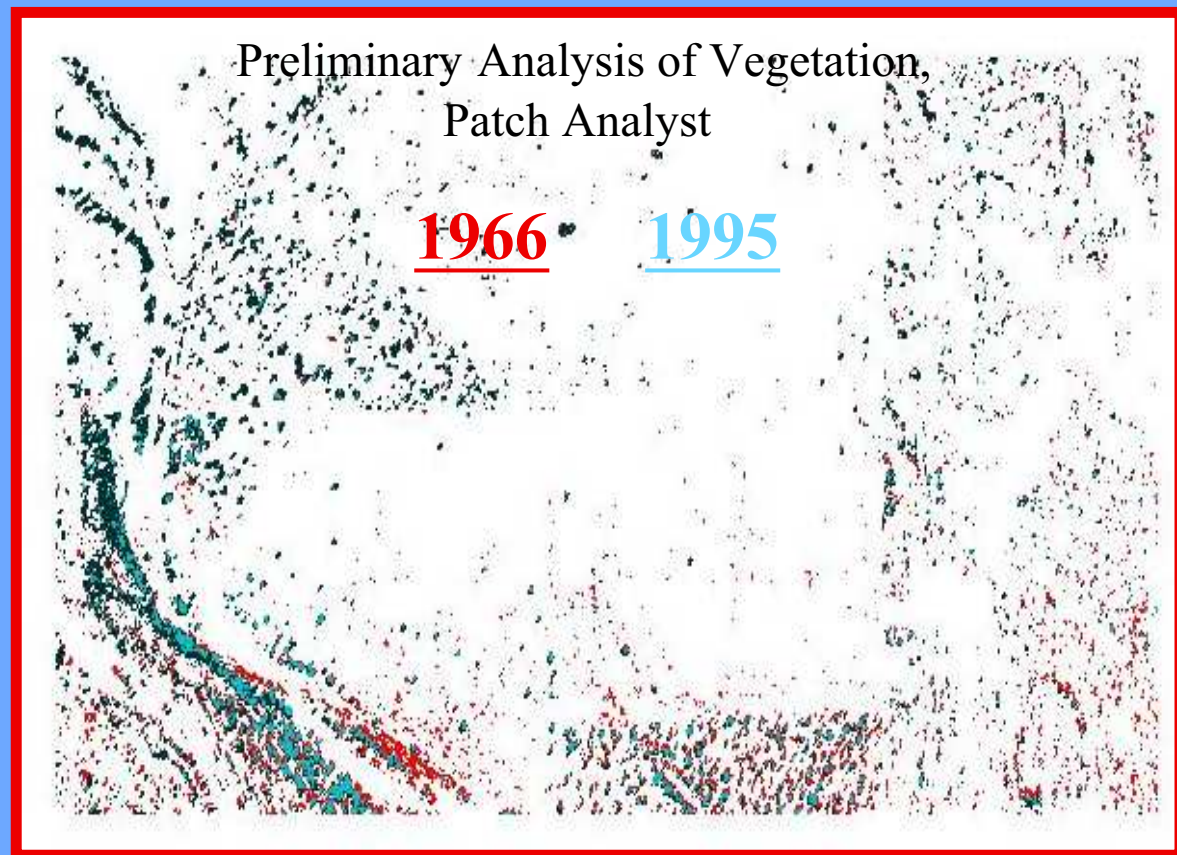
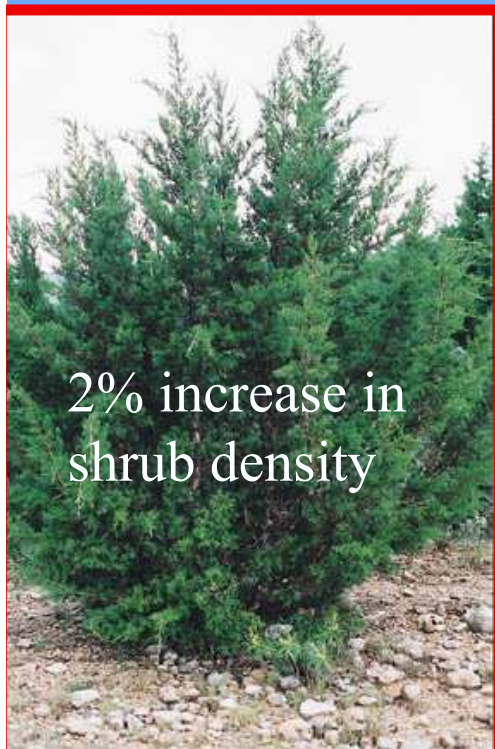
Daily Streamflow



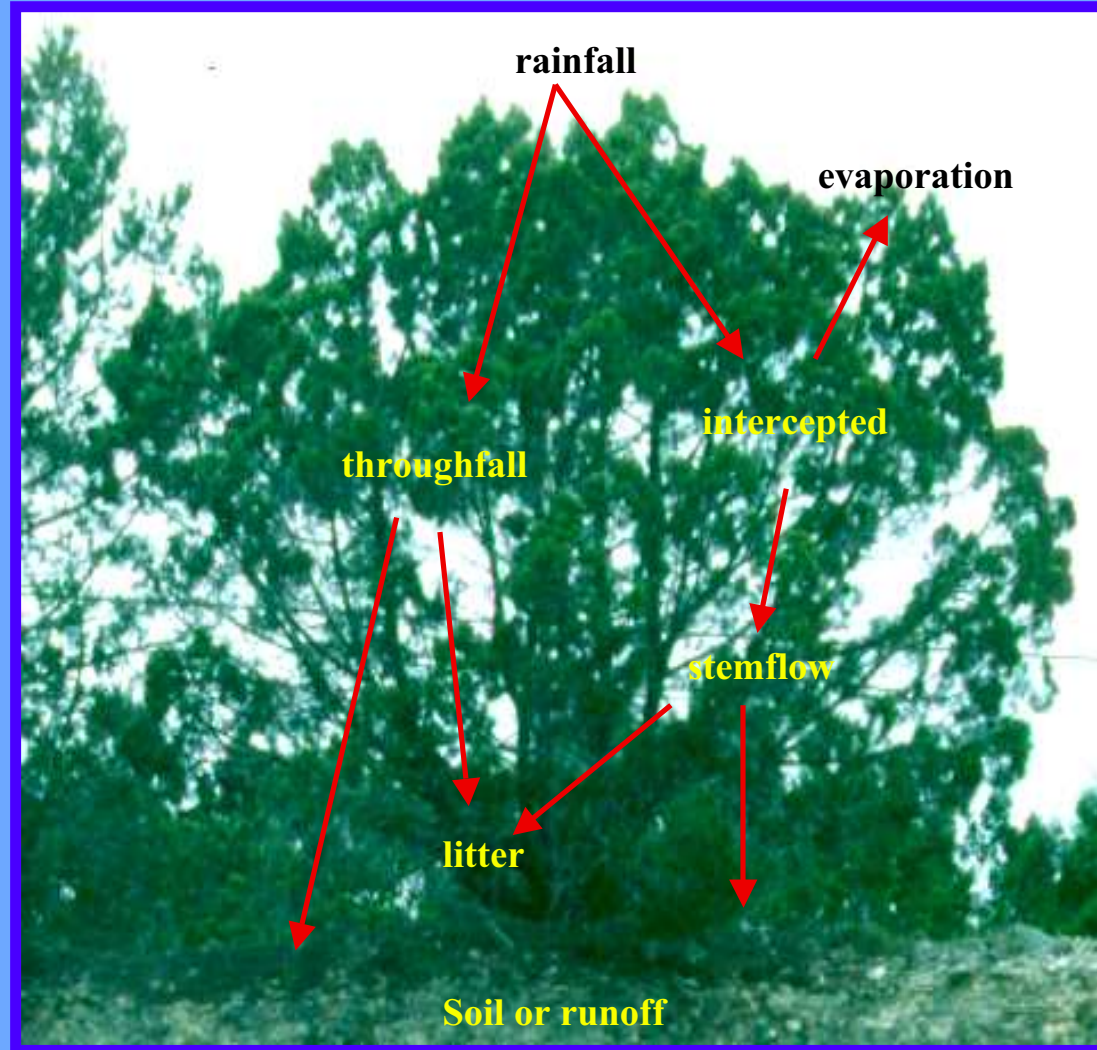


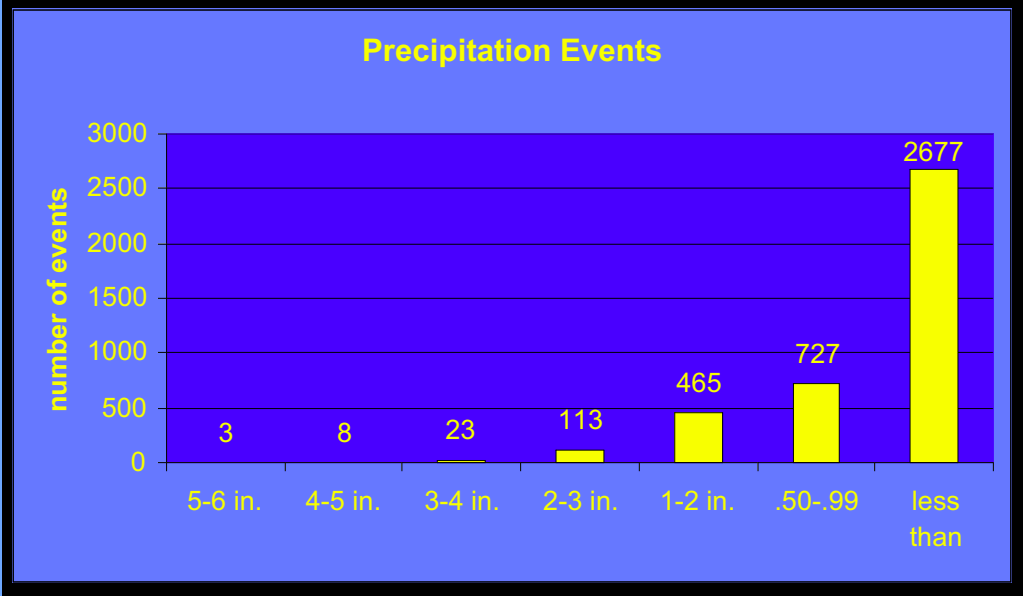
What is the Interaction of Shrubs and Hydrology Given this Type of Flow Regime?

- Widespread conversion of grasslands and savannas to shrublands in the last 100 years.
 - Mesquite, Ashe and redberry juniper
 - Dramatic shift of herbivory and fire regime

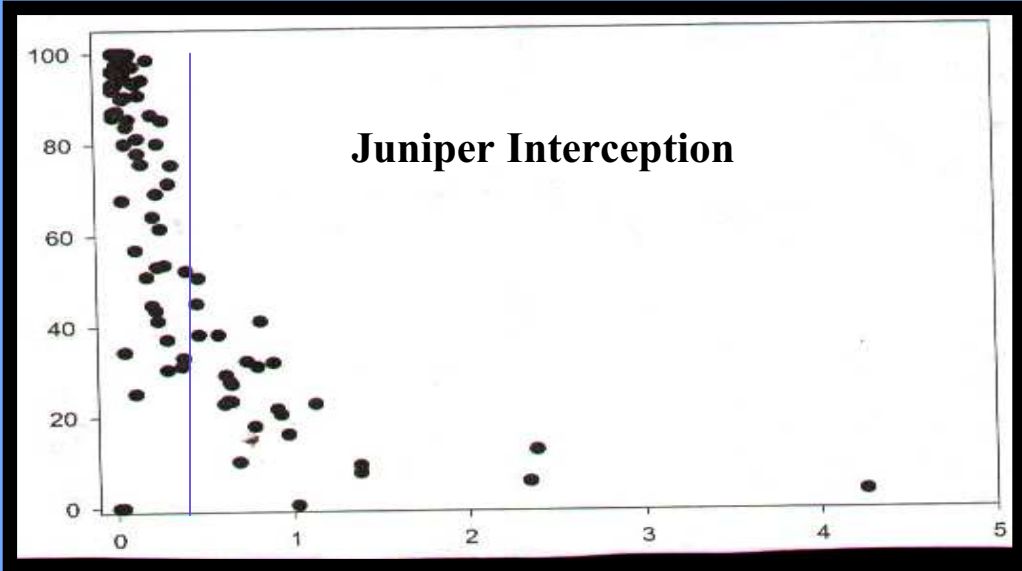


**Juniper
influence on
hydrologic
cycle**





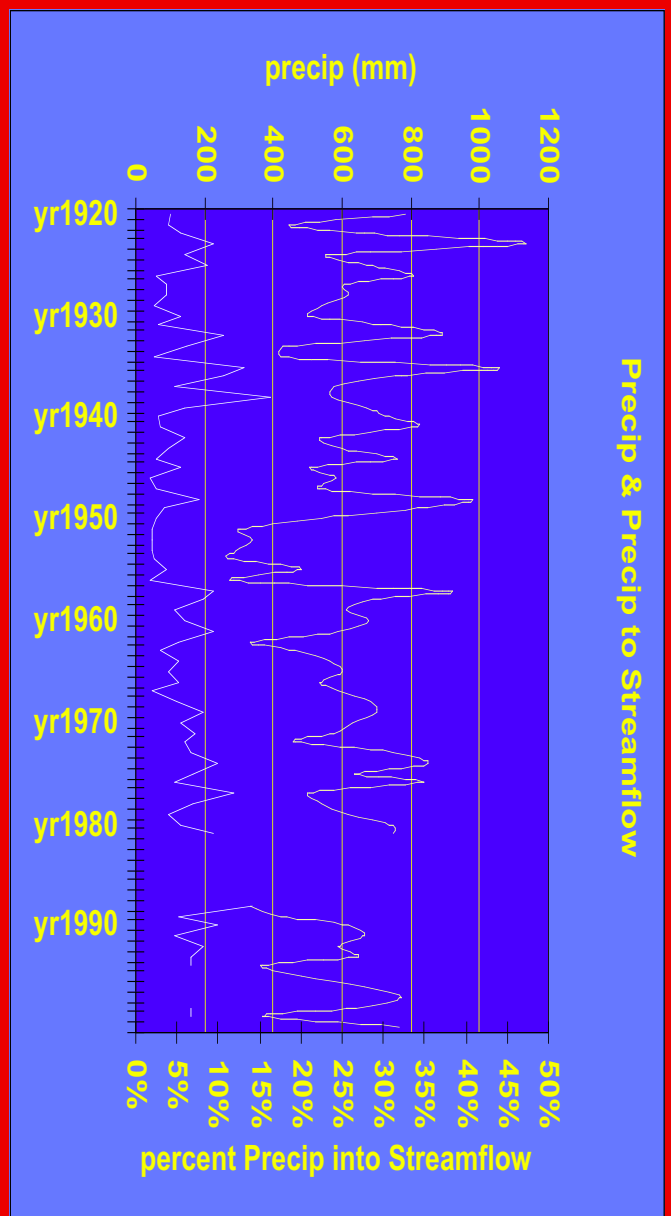
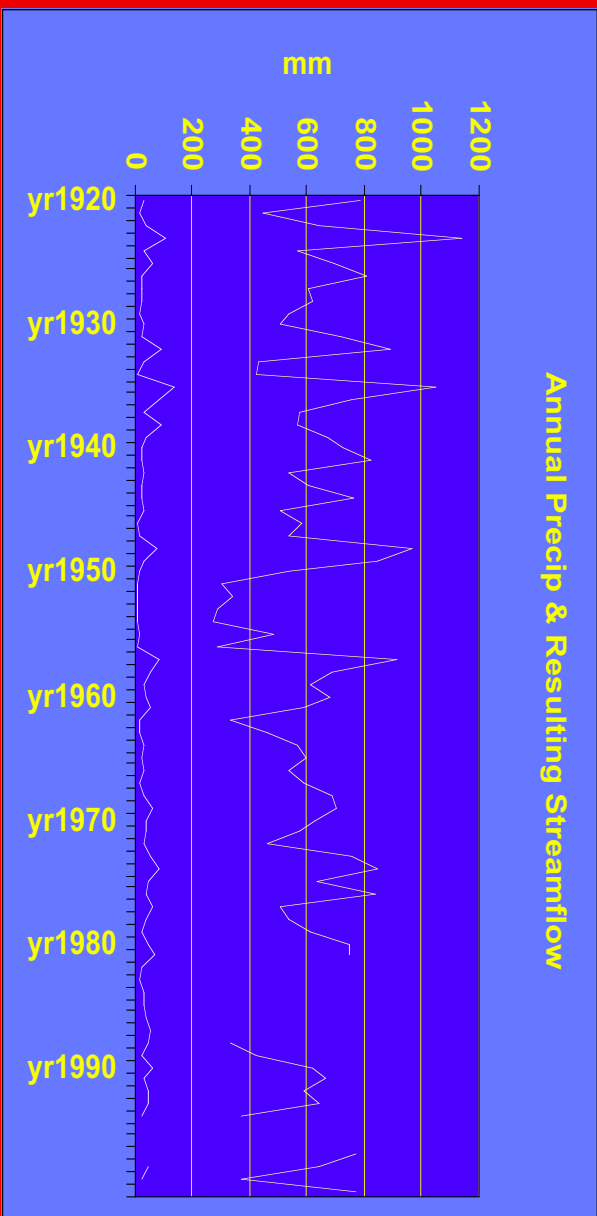
* Juniper interception is significant for small events, but has less influence on larger events



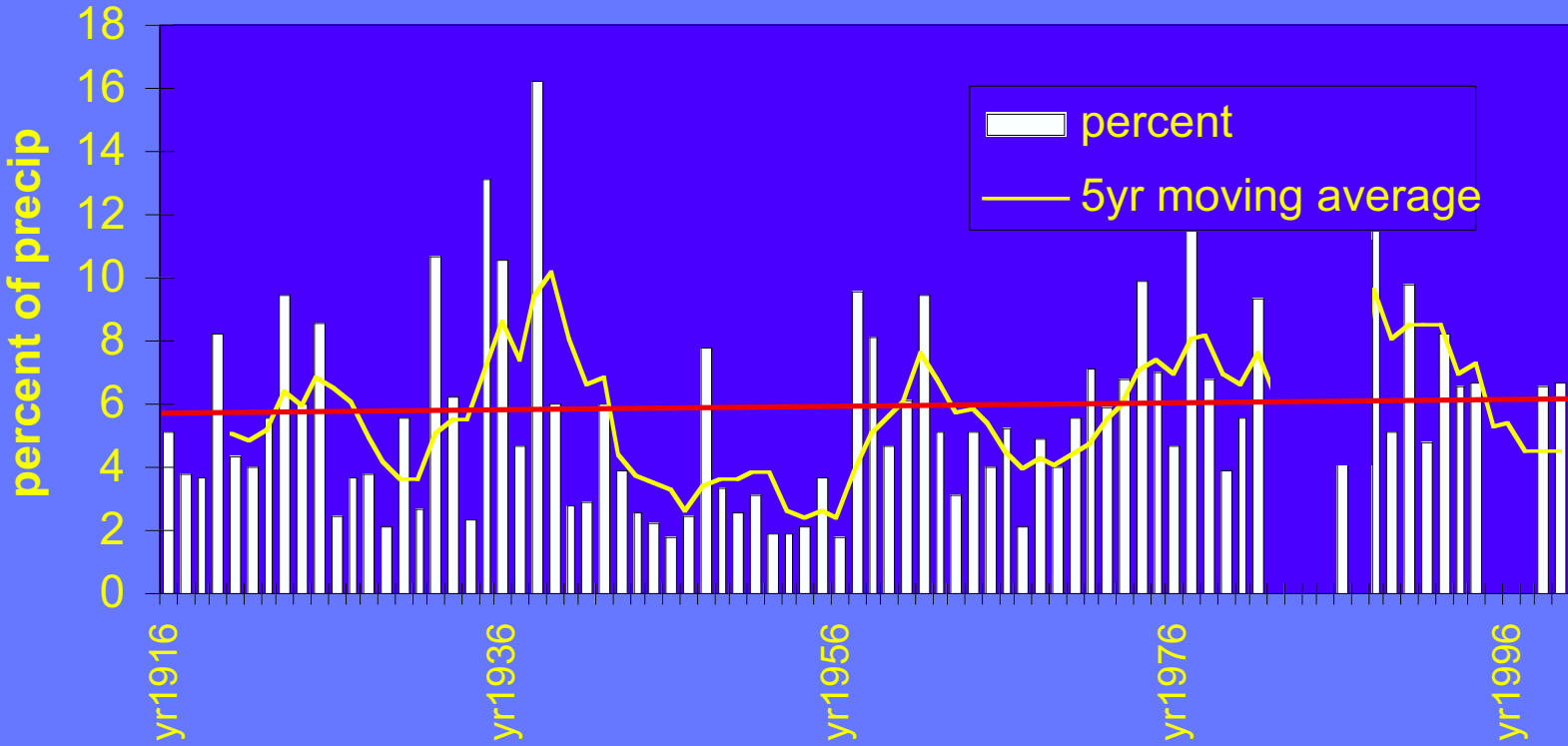
Percent interception

Precipitation events (in.)

* Keith Owens, TX A&M Research Center (Uvalde)



Runoff





Preliminary Conclusions

- It appears that the runoff necessary to fill reservoirs on the Edwards Plateau is generated by large precipitation events.
- Surface cover has less influence on these large events than the small events.
- While there are many benefits to shrub control in the North Llano basin, increasing *regional water yield* does not appear to be one of them.