

Testimony of Phillip N. Wright
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Mr. Chairman and members of the committee, my name is Phillip Wright and I am a Range Management Specialist with the U.S. Department of Agriculture/Natural Resources Conservation Service office in Hondo, Texas. I appreciate the opportunity to be here today and share with the committee the results of a 10 year study examining the effects of brush management on water supply and water quality. The term “brush management” is used here to refer to removing Ashe Juniper, commonly referred to as cedar, and allowing native grasses to reestablish naturally. In the past, there has been anecdotal evidence that brush management on grazing lands helped restore local spring flows. There have also been several small-scale studies that have examined the effects of brush management.

Beginning in 2001, NRCS and the U.S. Geological Survey, in cooperation with State and local entities, began a study to evaluate the effects of brush management on a watershed scale. The study was done in cooperation with a number of state and local entities including Edwards Region Grazing Lands Conservation Initiative, the State Soil and Water Conservation Board, Texas Parks and Wildlife Department, Edwards Aquifer Authority, San Antonio River Authority, Guadalupe Blanco River Authority, and San Antonio Water System. The study area was 560 acres of Hill Country land in and adjacent to Honey Creek State Natural Area in Comal County and located in the Edwards Aquifer catchment area.

Precipitation entering the study area can leave through stream flow, through evapotranspiration, or through the ground water. Evapotranspiration is the combined process of evaporation and water emitted from plants.

The results of 10 years of collecting rainfall, stream flow and evapotranspiration data were recently published. After brush management and allowing native grasses to reestablish in the study area a decrease in evapotranspiration was observed.

The reduction in evapotranspiration represents a general average change during the study period at the site, and can vary from year to year depending on environmental conditions. The reduction in evapotranspiration resulted in a calculated increase in the potential amount of water that could go into ground water.

In addition, a reduction in suspended sediments in the stream flow was observed in the treated water, as compared to the untreated watershed, following brush management and the reestablishment of grasses.

We hope that this study will make a contribution to our knowledge about the hydrologic cycle in south-central Texas. Aquifer recharge is of obvious importance to those who depend upon groundwater supplies. Further soil erosion is an important issue because it causes sediment buildup in lakes and reservoirs reducing their water storage capacity.

As a range management specialist, I can testify that there are additional benefits from brush management such as improved forage for livestock and wildlife and increased biodiversity but those effects were not examined in this study.

An overview of the findings and methodology are summarized in the fact sheet which we are providing to the committee. The full report is available upon request or on line at <http://pubs.usgs.gov/sir/2011/5226>. I would be glad to answer any questions you might have about the study and the findings