

Introduction

The Southern High Plains of Texas (also known as the *Llano Estacado*) are in the southernmost subdivision of the High Plains section of the Great Plains Physiographic Province. Most of the Southern Great Plains is comprised of upland sites that were once grasslands dominated mostly by shortgrass plains that supported large herds of native buffalo. However, topographic diversity on the Southern High Plains is subtle and important: sandy soils were characterized by tall grass prairie or sand shinnery oak; major drainages (or draws) that cross the Southern High Plains from the northwest to the southeast provide the setting for plant communities that support considerable shrub diversity; and the escarpments that border the Southern High Plains historically have supported a rich complex of woody species.

Following European settlement in the 1500s, the grasslands of the Southern High Plains underwent vegetation change characterized by invasion by shrubs and trees. Invasion of woody plants cannot be attributed to any single environmental factor, although overgrazing by domestic livestock is often cited as the reason shrubs and trees have become dominant in the grasslands. Weather cycles and changing fire regimes have been perhaps as important as any other factor in contributing to the increase in woody plants. Woody plants are now a dominant species that must be reckoned with if the Southern Great Plains is ever again to become grassland.

The C₃ warm-season shrubs and trees, mostly *Juniperus* sp. and honey mesquite (*Prosopis glandulosa*), are commonly thought of as “using” large quantities of water that would otherwise be available for grass production if the woody plants were not present. Certainly, woody plants must have water to live just as does any other plant. However, the amount of water that is consumed by invasive woody plants is often misunderstood and/or misrepresented. Although many of the invasive woody plants have been referred to as “extravagant” water “users” or water “thieves,” these plants growing on dry sites (for example, shallow soils, upland sites, sloping hillsides) usually do not have access to large quantities of soil water. Therefore, like their grass counterparts, they are adapted to the semi-arid conditions under which they have evolved.

Fire is a natural part of the environmental conditions of the southern Great Plains. However, man has changed the fire

regime and vegetation changes that this area has experienced are also a consequence of changes in the historical fire regime. Some ecologists have suggested that there is no such thing as a grassland climax. In this view, fire played an important role either in eliminating woody species within the grasslands or in keeping woody plants suppressed, allowing grasses to dominate.

The theme of the Thirteenth Wildland Shrub Symposium was developed to examine the “pristine” vegetation of the Southern High Plains of Texas and the use of controlled fire, or prescribed burns, to manipulate the woody vegetation and return the grasslands to the more desirable grasses that once dominated the region. We also included a review of water use by woody vegetation from a scientific rather than an emotional viewpoint that is often found in popular opinion. As always, a wider array of topics was encouraged to broaden one’s knowledge of shrub dominated rangelands.

In addition to both oral and poster presentations of scientific data on shrublands, a field trip provided an opportunity to view shrub invasion of some of the formerly- dominated grasslands of the Southern High Plains and Panhandle of Texas. The field trip included stops with presentations at a saltcedar (*Tamarix gallica*)-infested riparian site, a sand shinnery oak (*Quercus havardii*)-dominated rangeland, and a mesquite-dominated grassland. The final stop of the field tour provided an opportunity to view native shrub communities on an escarpment along tributaries of the Red River in Texas at Caprock Canyons State Park.

The symposium provided an excellent opportunity for presentations of scientific changes in vegetation throughout geologic and recorded history of the Southern High Plains and an opportunity to see some of these changes in the field. It also provided an opportunity to broaden our knowledge concerning shrub ecology and general shrub biology. It was an excellent educational experience.

We would like to extend our thanks to the landowners who graciously allowed us to visit their properties. Special thanks go to the staff at Caprock Canyons State Park for hosting our final stop and for providing a pleasant site for a delightful meal at the end of our trip. We would also like to thank the presenters and moderators whose participation in this symposium made it a success.

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