

**\*\*11/4/03 DRAFT\*\***

**Fire Regime Condition Class (FRCC) Interagency Handbook  
Reference Conditions**

**Modeler:** Douglas Zollner

**Date:** 8/20/03

**PNVG Code:** TSAV

**Potential Natural Vegetation Group:** Texas Savanna

**Geographic Area:** Texas thornscrub, Edwards Plateau, Cross Timbers, Southern Tallgrass Prairie

**Description:** Rolling plains and karst plateaus of north-central, central and south-central Texas. These plant communities occur on a wide variety of soils and landscape positions intermixed with prairies (mid and tall grass). They often invade grasslands with reduced fire frequencies and altered grazing regimes. Occurring as relatively low stature savannas but more frequently (especially currently) as brushy or thorny shrublands. Historical accounts of expansive mesquite savannas are no longer extant on the landscape.

**Fire Regime Description:** Fire Regimes II and III (Frequent, mixed and stand replacement severity). In areas with sparse fine fuels (common occurrence) the fire are wind driven shrub fires. In areas with heavier fine fuels the fires are mosaics with mixed severity.

**Vegetation Type and Structure**

Class	Percent of Landscape	Description
A: post replacement	45	Post fire community is composed of short to tall grasses, forbs, and resprouting shrubs to 3' tall. May have scattered larger live trees, cover less than 10%.
B: mid-development closed	20	Mid-seral, closed canopy shrubland with shrubs (small tress) to 6' tall and a sparse to moderate herbaceous understory. Cover more than 35%. May have scattered larger live trees, cover less than 10%.
C: mid- open	20	Mid-seral, open canopy shrubland with shrubs (small tress) to 6' tall and a sparse to dense herbaceous understory. Cover less than 35%. May have scattered larger live trees, cover less than 10%.
D: late- open	5	Late-seral, open canopy with trees and shrubs more than 6' tall and a sparse to dense herbaceous understory. Cover less than 35%.

E: late- closed	10	Late-seral, closed canopy with trees and shrubs more than 6' tall and a sparse herbaceous understory. Cover more than 35%.
Total	100	

---

### Fire Frequency and Severity

Fire Frequency-Severity	Modeled Probability	Pct, All Fires	Description
Replacement Fire	.05	50	Primarily top-killing in A, B, E
Non-Replacement Fire	.05	50	Mosaic fire in all types.
All Fire Frequency*	.1	100	Fire return interval of "less than 10 Years". Severity normally top-killing except for mesquite or with sparse fuels.

---

\*Sum of replacement fire and non-replacement fire probabilities.

### References

Ansley, R. J., Jones, D. L., Kramp, B. A. 1995. Response of honey mesquite to single and repeated summer fires. In Research Highlights vol. 26 Lubbock, TX. Texas Tech Univ., 13-14.

Ansley, R. J., Cadenhead, J. F., Kramp, B. A. 1996a. Mesquite savanna: A brush management option. *The Cattleman*. 82: 10-12.

Ansley, R. J., Jones, D. L., Kramp, B. A. 1996b Use of different intensity fires to convert Prosopis woodlands to grasslands or savannas. In: West, N. ed. Proceedings of the 5<sup>th</sup> International Rangelands Congress, vol. 1. Soc. Range management. pp 13-14.

Ansley, R. J., Jones, D. L., Tunnel T. R. Kramp, B. A., Jacoby, P. W. 1998. Honey mesquite canopy response to single winter fires: relation to fine fuel, weather and fire temperatures. *International J. of Wildland Fire*. 8: 241-252.

Archer, S. 1994. Woody plant encroachment into southwestern grasslands and savannas: ratios, patterns, and approximate causes. In: Vavra, M, Laycock, W. A., Pieper, R. D. eds. Ecological implications of livestock herbivory in the West. Soc. For Range Management: 13-68.

Archer, S. 1995. Tree-grass dynamics in a Prosopis-thronscrub savanna parkland: reconstructing the past and predicting the future. *Ecoscience*. 2: 83-99.

- Bonner, F. T., Vozzo, J. A. 1987. Seed biology and technology of *Quercus*. GTR-SO-66. New Orleans, LA: USDA, FS, Southern Forest Exp. Sta. 21P.
- Box, T. W., Gould, F. W. 1959. An analysis of the grass vegetation of Texas. *Southwestern Naturalist*. 3: 124-129.
- Britton, C. M., Wright, H. A. 1971 Correlation of weather and fuel variables to mesquite damage by fire. *J. of Range Management*. 24: 136-141.
- Brown, David E. 1982. Plains and Great Basin grasslands. In: Brown, David E., ed. *Biotic communities of the American Southwest—United States and Mexico*. *Desert Plants*. 4(1-4) 115-121.
- Brown, James K., Smith, Jane Kapler, eds. 2000. *Wildland fire in ecosystems: effects of fire on flora*. Gen. Tech. Rep. RMRS-GTR-42-vol. 2. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 257 p.
- Ethridge, D. E., Pettit, R. D., Suddeth, R. G, Stoecher, A. L. 1987. Optimal economic timing of range improvement alternatives: Southern High Plains. *J. of Range Management*. 40(6): 555-559.
- Fisher, C. E. 1977. Mesquite and modern man in southwestern North America. In: Simpson, B B. ed. *Mesquite: its biology in two desert ecosystems*. US/IBP Synthesis Series 4. Stroudsburg, PA: Dowden, Hutchinson and Ross, Inc. 177-188.
- Fuhlendorf, S., Smeins, F. E. Grant, W. E. 1996. Simulation of a fire-sensitive ecological threshold: a case study of Ashe Juniper on Edwards Plateau of Texas, USA. *Ecological modeling*. 90: 245-255.
- Garrison, George A, Bjugstand, Ardell jr., Duncan, Don A., Lewis, Mont E. and Smith, Dixie R. 1977. Vegetation and environmental features of the forest and rangeland ecosystem. *Ag. Handb.* 475. Washington DC: USDA 68 pp.
- Herbal, Carlton H. 1979. Utilization of grass and shrublands of the southwestern United States. In Walker, B. H. ed. *Management of semiarid ecosystems*. Vol. 7. *Developments in agriculture and managed forest ecology*. Amsterdam: Elsevier Scientific Publishing.
- Kuchler, A. W. 1964. Manual to accompany the map of potential vegetation of the conterminous United States. Special Publications No. 36. New York: American Geographical Society. 77 p.
- McPherson, G, R. 1992. Ecology of oak woodlands in Arizona. In Ffolliott, P. F. and others, Tech eds. *Ecology and management of oak and associated*

woodlands: perspectives in the southwestern United States and Northern Mexico; Sierra Vista, AZ. RMRS-GTR-218 Fort Collins, CO: USDA-FS Rocky Mountain Forest And Range Exp. Sta.: 24-33.

Mecke, Mike B. 1996. Historical Vegetation Changes in the Edwards Plateau of Texas and the Effects upon Watersheds. In Proc: Watershed 96. EPA 7 pages.

Schmidt, Kirsten M, Menakis, James P., Hardy, Colin C., Hann, Wendel J., Bunnell, David L. 2002. Development of coarse-scale spatial data for wildland fire and fuel management. Gen. Tech. Rep. RMRS-GTR-87. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 41 p. + CD.

Wright, Henry A. 1978. Use of fire to manage grasslands of the Great Plains: Central and Southern Great Plains. In Hyder, Donald N. ed. Proceedings, 1<sup>st</sup> international rangelands congress; 1978 14-18.

Wright, Henry A.; Thompson, Rita. 1978. Fire effects. In: Fire Management: Prairie plant communities: proceedings of a symposium and workshop; USDA, FS, Intermountain Research Sta. Fire Sciences Lab, Missoula Mt.

U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (2002, December). Fire Effects Information System, [Online]. Available: <http://www.fs.fed.us/database/feis/> . Data base accessed 16 August 2003.

# VDDT Results











