

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

**Modeler:** Kelly Pohl

**Date:** 8/18/03

**PNVG Code:** PPDF3

**Potential Natural Vegetation Group:** Ponderosa pine-Douglas-fir

**Geographic Area:** Central Rockies

**Description:** Generally found in upper montane zone on steep to gentle slopes and all aspects, especially southerly.

**Fire Regime Description:** Primarily Fire regime group I, but includes surface and mixed severity fires at varying intervals (MFIs range from 7-65 years). Occasional replacement fires may also occur.

### Vegetation Type and Structure

Class	Percent of Landscape	Description
A: post replacement	15	Openings with grass, shrub, and forbs created after replacement fire. May have seedlings of ponderosa pine or other species (e.g., <i>Larix occidentalis</i> , <i>Pseudotsuga menziesii</i> , <i>Abies</i> spp.)
B: mid-development closed	10	>30% canopy cover of sapling or pole Douglas-fir and ponderosa pine.
C: mid- open	20	<30% canopy cover of sapling or pole ponderosa pine with some Douglas-fir.
D: late- open	45	<30% canopy cover of mature ponderosa pine with occasional Douglas-fir in patches. Other species ( <i>Abies</i> spp., <i>Larix occidentalis</i> ) may be present.
E: late- closed	10	>30% canopy cover of mature Douglas-fir with ponderosa pine and other species ( <i>Abies</i> spp.) present.
Total	100	

### Fire Frequency and Severity

Fire Frequency-Severity	Modeled Probability	Percent, All Fires	Description
Replacement Fire	.005	15	Occasional stand-replacement fires, mostly in B and E.
Non-Replacement Fire	.025	85	Frequent (15-65 year) surface and mosaic fires in B, C, D, and E. Fires generally maintain open types and decrease density in closed types.
All Fire Frequency*	.03	100	

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

### References

Agee, James K. 1993. Fire ecology of Pacific Northwest Forest. Island Press: Washington, DC. 493 p.

Allen, Robert B., Peet, Robert K., and Baker, William L. 1991. Gradient analysis of latitudinal variation in southern Rocky Mountain forests. *Journal of Biogeography* 18: 123-139.

Anderson, Leslie, Carlson, Clinton E., and Wakimoto, Ronald H. 1987. Forest fire frequency and western spruce budworm outbreaks in western Montana. *Forest Ecology and Management* 22: 251-260.

Arno, Stephen F. 1980. Forest fire history in the northern Rockies. *Journal of Forestry* 78(8): 460-465.

Arno, Stephen F. 2000. Fire in western forest ecosystems. In: Brown, James K., Smith, Jane Kapler, eds. *Wildland fire in ecosystems: Effects of fire on flora*. General Technical Report RMRS-GTR-42 vol. 2. Ogden, UT: US Department of Agriculture, Forest Service, Rocky Mountain Research Station: 97-120.

Arno, Stephen F., Scott, Joe H., Hartwell, Michael G. 1995. Age-class structure of old growth ponderosa pine/Douglas-fir stands and its relationship to fire history. Research Paper INT-RP-481. Ogden, UT: US Department of Agriculture, Forest Service, Intermountain Research Station: 25 p.

Baker, William L., and Ehle, Donna. 2001. Uncertainty in surface fire history: the case of ponderosa pine forests in the western United States. *Canadian Journal of Forest Research* 31: 1205-1226.

Brown, James K., Arno, Stephen F., Barrett, Stephen W., and Menakis, James P. 1994. Comparing the prescribed natural fire program with presettlement fires in the Selway-Bitterroot Wilderness. *International Journal of Wildland Fire* 4(3): 157-168.

Brown, Peter M., Kaufmann, Merrill R., and Shepperd, Wayne. 1999. Long-term, landscape patterns of past fire events in a montane ponderosa pine forest of central Colorado. *Landscape Ecology* 14: 513-532.

Brown, Peter M., Ryan, Michael G., and Andrews, Thomas G. 2000. Historical surface fire frequency in ponderosa pine stands in Research Natural Areas, central Rocky Mountains and Black Hills, USA. *Natural Areas Journal* 20: 133-139.

Brown, Peter M., and Shepperd, Wayne D. 2001. Fire history and fire climatology along a 5 degree gradient in latitude in Colorado and Wyoming, USA. *Palaeobotanist* 50: 133-140.

Crane, M. F. 1982. Fire ecology of Rocky Mountain Region forest habitat types. Final Report to the US Department of Agriculture, Forest Service, Region Two, 15 May 1982. Purchase order NO. 43-82X9-1-884.

Kaufmann, Merrill R., Regan, Claudia M., and Brown, Peter M. 2000. Heterogeneity in ponderosa pine/Douglas-fir forests: age and size structure in unlogged and logged landscapes of central Colorado. *Canadian Journal of Forest Research* 30: 698-711.

Keane, Robert E., Arno, Stephen F., and Brown, James K. 1990. Simulating cumulative fire effects in ponderosa pine/Douglas-fir forests. *Ecology* 71(1): 189-203.

Laven, R.D., Omi, P. N., Wyant, J. G., and Pinkerton, A. S. 1981. Interpretation of fire scar data from a ponderosa pine ecosystem in the central Rocky Mountains, Colorado. In Stokes, M. A., and Dieterich, John H., technical coordinators. *Proceedings of the Fire History Workshop, October 20-24, 1980, Tucson, AZ*. General Technical Report RM-81. Fort Collins, CO: US Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station: 46-49.

Peet, Robert K. 1978. Latitudinal variation in southern Rocky Mountain forests. *Journal of Biogeography* 5: 275-289.

Peet, R. K. 1988. Forests of the Rocky Mountains. In: M.G. Barbour and W. D. Billings, eds. Terrestrial Vegetation of North America. Cambridge: Cambridge University Press: 64-102.

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.

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/> **SUPPLY ACCESS DATE HERE**.

# VDDT Results

