4/29/04 DRAFT

Fire Regime Condition Class (FRCC) Interagency Handbook Reference Conditions

Modeler: Doug Havlina Date: 8/13/03 PNVG Code: JUST1

Potential Natural Vegetation Group: Juniper Steppe-Infrequent

Geographic Area: Pacific Northwest, Columbia Plateau, Great Basin.

Description: PNVG common on mountain slopes, high plateaus, scablands, and rimrock sites. Soils are shallow, stony, and low in organics. The climate is the most xeric for any tree occurring in the western U.S. Associates may include big sagebrush spp., curlleaf mountain mahogany, bitterbrush, rabbitbrush spp., and a variety of arid land bunchgrasses. Stand development patterns range from savannahs to old-growth individuals on rocky sites.

Fire Regime Description: Fire Regimes III and IV; primarily moderately long-to long interval (e.g., 100-200 yr) mixed severity- and stand replacement fires.

Vegetation Type and Structure

Class	Percent of	Description
	Landscape	
A: post	5	Post-fire community of scattered forbs and
replacement		perennial grasses
B: mid-	5	Mid-seral, dense (>40% cover) juniper stands
development		with bare ground and occasional forbs and
closed		grasses
C: mid- open	20	Mid-seral, open (<40% cover) juniper stands
		with perennial grasses and forbs in interspaces
D: late- open	55	Late-seral, open (<40% cover) juniper
		community with well represented
		shrub/herbaceous community
E: late- closed	15	Uncommon developmental stage. Late-seral,
		closed (>40% canopy) juniper community.
		Depauperate or non-existent shrub and
		herbaceous community.
Total	100	

Fire Frequency a				
Fire Frequency-	Modeled	Pct, All	Description	
Severity	Probability	Fires		

Replacement Fire	.003	35 Stand replacement fire follo	wing
		successive years of high	
		precipitation and fine fuel accumulation	
Non-Replacement	.0055	65 Surface and mosaic fires in	
Fire		herbaceous layer; occasior	al single-
		tree mortality	_
All Fire Frequency*	.0085	100	

^{*}Sum of replacement fire and non-replacement fire probabilities.

References

Agee, James K. 1990. The Historical Role of Fire In Pacific Northwest Forests. In: Walstad, J.K., Radosevich. S.R., and Sandberg, D.V. (editors). *Natural and Prescribed Fire in Pacific Northwest Forests*. Oregon State University Press, Corvallis, OR. P. 25-38.

Agee, James K. 1993. Fire Ecology of Pacific Northwest Forests. Island Press, Washington D.C. 493 p.

Anderson, Hal E. 1982. Aids to Determining Fuel Models For Estimating Fire Behavior. Gen. Tech. Rep. INT-122. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station. 22 p.

Arno, Stephen F. 2000. Fire in western forest ecosystems. In: Brown, James K.; Kapler-Smith, Jane, eds. 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: 97-120.

Arno, Stephen F., and Menakis, James P. 1997. Fire Episodes in the Inland Northwest (1540-1940) Based on Fire History Data. Gen. Tech. Rep. INT-GTR-370. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 17 p.

Bates, Jon. 1997. Fire and Juniper Expansion in the Chewaucan Basin, Oregon. Western Juniper Forum Proceedings, 1997. Oregon Agriculture Research Station. p. 23-25.

Bedell, T.E., Eddleman, L.E., Deboodt, T., and Jacks, C. 1993. Western Juniper - Its Impact and Management in Oregon Rangelands. Oregon State University Extension Service. Bulletin EC 1417. 15 p.

Bork, Joyce L. 1984. Fire History in Three Vegetation Types on the Eastern Side of the Oregon Cascades. PhD. Dissertation, Oregon State University. 56 p.

Bradley, Anne F., Noste, Nonan V., and Fischer, William C. 1992. Fire Ecology of Forests and Woodlands in Utah. Gen. Tech. Rep. GTR- INT-287. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 127 p.

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.

Everett, Richard L., and Ward, Kenneth. 1984. Early Plant Succession on Pinyon-Juniper Controlled Burns. Northwest Science, Vol. 58, No. 1. p. 57-68.

**INCOMPLETE CITATION: Evers, Louisa. 2002. "Fire Regimes of Oregon and Washington". Unpublished Draft. 3 p.

Eyre, F. H., ed. 1980. Forest cover types of the United States and Canada. Washington, DC: Society of American Foresters. 148 p.

Franklin, J.F., and Dyrness, C.T. 1973. Vegetation of Oregon and Washington. Research Paper PNW-80. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station. 216 p.

Gruell, George E. Historical and Modern Roles of Fire in Pinyon-Juniper. In: Proceedings, USDA Forest Service RMRS-P-9. p. 24-28.

Gruell, George E., Eddleman, Lee E., and Jaindl, Ray. 1994. Fire History of the Pinyon-Juniper Woodlands of Great Basin National Park. Technical Report NPS/PNROSU/NRTR-94/01. U.S. Department of Interior, National Park Service, Pacific Northwest Region. 27 p.

Hall, Frederick C. 1980. Fire History – Blue Mountains, Oregon. Presented at: Fire History Workshop, University of Arizona, Tucson, AZ.

Hardy, Colin C., Kirsten M. Schmidt, James P. Menakis, R. Neil Samson. 2001. Spatial data for national fire planning and fuel management. Int. J. Wildland Fire. 10(3&4): 353-372.

Hessburg, P.F., Smith, B.G., Salter, R.B., Ottmar, R.D., and Alvarado, E. 2000. Recent changes (1930s-1990s) in spatial patterns of interior northwest forests, USA. Forest Ecology and Management 136 (2000) 53-83.

Hironaka, M., Fosberg, M.A., and Winward, A.H. 1983. Sagebrush-Grass Habitat Types of Southern Idaho. University of Idaho, College of Forestry, Wildlife, and Range Sciences Bulletin Number 35. 44 p.

Johnson, C.G., and Simon, S.A. 1987. Plant Associations of the Wallowa-Snake Province. U.S. Forest Service Region 6 Ecological Technical Paper 255A-86.

Kilgore, B.M. 1981. Fire in ecosystem distribution and structure: western forests and scrublands. p. 58-89. In: H.A. Mooney et al. (Technical Coordinators). Proceedings: Conference on Fire Regimes and Ecosystem Properties, Honolulu, 1978. Gen. Tech. Rep. WO-GTR-26.

Kuchler, A.W. 1964. Potential Natural Vegetation of the Conterminous United States. American Geographic Society Special Publication No. 36. 116 p.

McKenzie, Donald, Peterson, David L., and Agee, James K. 2000. Fire Frequency in the Interior Columbia River Basin: Building Regional Models from Fire History Data. Ecological Applications, 10(5), 2000. p. 1497-1516.

Miller, Rick, Baisan, Chris, Rose, Jeff, and Pacioretty, Dave. 2001. Pre-and Post-Settlement Fire Regimes in Mountain Big Sagebrush and Aspen: The Northwestern Great Basin. Final Report to the National Interagency Fire Center. 28 p.

Miller, Richard F., Svejcar, Tony J., and Rose, Jeffrey A. Impacts of western juniper on plant community composition and structure. J. Range Manage. 53:574-585. November 2000.

Miller, Richard F., and Rose, Jeffrey A. 1999. Fire history and western juniper encroachment in sagebrush steppe. J. Range Manage. 52:550-559. November 1999.

Ott, Jeffrey, E., McArthur, E. Durant, and Sanderson, Stewart C. 2001. Plant Community Dynamics of Burned and Unburned Sagebrush and Pinyon-Juniper Vegetation in West-Central Utah. In: Proceedings, USDA Forest Service RMRS-P-9. p. 177-190.

Platou, Karen A. 1985. Plant Successional Patterns on Seral Sagebrush/Grass Ranges in Northern Nevada. M.S. Thesis, University of Nevada, Reno. 105 p.

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.

Soule', Peter T., and Knapp, Paul A. 1999. Western juniper expansion on adjacent disturbed and near-relict sites. J. Range Manage. 52:525-533. September 1999.

Soule' Peter T., and Knapp, Paul A. 2000. *Juniperus occidentalis* (western juniper) establishment history on two minimally disturbed research natural areas in central Oregon. Western North American Naturalist (60)1, p. 26-33.

Tausch, Robin J., and West, Neil E. 1987. Differential Establishment of Pinyon and Juniper Following Fire. The American Midland Naturalist 119(1). p. 174-184.

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/ [Accessed: 1/31/03].

USDI Bureau of Land Management, Idaho State Office. 1999. Proceedings: Sagebrush Steppe Ecosystems Symposium. (Entwistle, Patricia G., DeBolt, Ann M., Kaltenecker, Julienne H., and Steenhof, Karen [Compilers]). Publication No. BLM/ID/PT-001001+1150. 145 p.

Wall, Travis G., Miller, Richard F., and Svejcar, Tony J. 2001. Juniper encroachment into aspen in the Northwest Great Basin. J. Range Manage. 54:691-698. November 2001.

Ward, Kenneth V. 1977. Two-Year Vegetation Response and Successional Trends for Spring Burns in the Pinyon-Juniper Woodland. M.S. Thesis, University of Nevada, Reno. 54 p.

Wright, Henry A., Neuenschwander, Leon F., and Britton, Carlton M. 1979. The role and use of fire in Sagebrush-Grass and Pinyon-Juniper Plant Communities. Gen. Tech. Rep. INT-GTR-58. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 48 p.

Young, James A., and Evans, Raymond A. 1981. Demography and Fire History of a Western Juniper Stand. J. Range Manage. 34:501-505. November 1981.

Young, James A., and Evans, Raymond A. 1978. Population Dynamics after Wildfires in Sagebrush Grasslands. J. Range Manage. 31:283-289. July 1978.

VDDT RESULTS







