

Report prepared for H.J. Andrews Experimental Forest Long-Term Ecological Research Program. Posted on the Andrews Forest webpage: www.fsl.orst.edu/lter.

Fire History Database and Map Layer: Northwest Forest Plan Area

August 29, 2005

Danielle Robbins¹
Dept. of Forest Science
Oregon State University
Corvallis, Oregon

Frederick J. Swanson
Pacific Northwest Research Station
USDA Forest Service
Corvallis, Oregon

Tree-rings and the charcoal record from lake cores have been used to reconstruct fire history in the Pacific Northwest (Washington, Oregon, and northern California). As more studies are completed, there is a need to compile these sources for comparison with each other and for use by natural resource managers. In addition, as we scale management up to the landscape level, accessing fire history data from over broad areas becomes that much more important.

Studies as of May 2005 that were within the Northwest Forest Plan area were documented and mapped. This is likely not a complete list of fire histories for the region. Fire histories were compiled by examining sources cited in other studies, through database searches, and through personal communication with J.K. Agee and C.N. Skinner.

Approximate point locations for 38 studies were placed without access to specific coordinates from most authors and in some cases points were placed in the approximate area based on administrative boundaries (i.e. a specific National Forest). Charcoal studies are underrepresented on this map, with only three sources listed. See map on page 5.

Bibliography

Agee, J.K. 1991. Fire History Along an Elevational Gradient in the Siskiyou Mountains, Oregon. *Northwest Science*. 65:188-199.

Agee, J.K., Finney, M., and de Gouvenain, R. 1990. Forest Fire History of Desolation Peak, Washington. *Can. J. For. Res.* 20: 350-356.

Agee, J.K., and Krusemark, F. 2001. Forest Fire Regime of the Bull Run Watershed, Oregon. *Northwest Science*, **75**(3): 292-306.

¹ Contact information: oregonforestfire@yahoo.com

- Bork, J.L. 1984. Fire History in Three Vegetation Types on the Eastern Side of the Oregon Cascades. PhD, Oregon State University, Corvallis.
- Brown, P.M., and Baxter, W.T. 2003. Fire History in Coast Redwood Forests of the Mendocino Coast, California. *Northwest Science*, **77**(2): 147-158.
- Brown, P.M., Kaye, M.W., and Buckley, D. 1999. Fire History in Douglas-fir and Coast Redwood Forests at Point Reyes National Seashore, California. *Northwest Science*, **73**(3): 205-216.
- Brown, P.M., and Swetnam, T.W. 1994. A Cross-dated Fire History from Coast Redwood Near Redwood National Park, California. *Can. J. For. Res.*, **24**: 21-31.
- Chappell, C.B. 1991. Fire Ecology and Seedling Establishment in Shasta red fir (*Abies magnifica var shastensis*) Forests of Crater Lake National Park, Oregon. M.S. thesis, University of Washington, Seattle.
- Connelly, K.P., and Kertis, J.A. 1991. Augusta Fire History. A Report Submitted to Blue River Ranger District, Willamette National Forest.
- Garza, E.S. 1995. Fire History and Fire Regimes of East Humbug and Scorpion Creeks and Their Relation to the Range of *Pinus lambertiana* Dougl. M.F., Oregon State University, Corvallis.
- Gray, A. 1990. Forest Structure on the Siouxon Burn, Southern Washington Cascades: Comparison of Single and Multiple Burns. M.S. thesis, University of Washington, Seattle.
- Hemstrom, M.A., and Franklin, J.F. 1982. Fire and Other Disturbances of the Forests in Mount Rainier National Park. *Quaternary Research*, **18**: 32-51.
- Heyerdahl, E.K., Swanson, F.J., and Agee, J.K. 1993.* Fire History Database of the Western United States: Preliminary Report Covering Oregon and Washington, USDA FS, Pacific Northwest Research Station; EPA; University of Washington, College of Forest Resources.
- Impara, P.C. 1997. Spatial and Temporal Patterns of Fire in the Forests of the Central Oregon Coast Range. PhD, Oregon State University, Corvallis.
- Long, C.J. 1995. Fire History of the Central Coast Range, Oregon: A CA. 9000 Year Record from Little Lake. MA, University of Oregon, Eugene.

* This is not a reconstructed fire history, but a database of fire histories before 1993. This database includes fire histories for areas located outside of the NWFP region.

- Long, C.J. 2003_a, b. ° Holocene Fire and Vegetation History of the Oregon Coast Range, USA. PhD, University of Oregon, Eugene.
- McNeil, R.C., and Zobel, D.B. 1980. Vegetation and Fire History of a Ponderosa Pine-White Fir Forest in Crater Lake National Park. *Northwest Science*, **54**: 30-46.
- Means, J.E. 1980. Dry Coniferous Forests in the Western Oregon Cascades. PhD, Oregon State University, Corvallis.
- Mohr, J.A., Whitlock, C., and Skinner, C.N. 2000. Postglacial Vegetation and Fire History, Eastern Klamath Mountains, California, USA. *The Holocene*, **10**(4): 587-601.
- Morrison, P.H., and Swanson, F.J. 1990. Fire History and Pattern in a Cascade Range Landscape. General Technical Report PNW-GTR-254, USDA FS, Pacific Northwest Research Station, Portland.
- Olson, D.L. 2000. Fire in Riparian Zones: A Comparison of Historical Fire Occurrence in Riparian and Upslope Forests in the Blue Mountains and Southern Cascades of Oregon. M.S. thesis, University of Washington, Seattle.
- Robbins, D. 2005. Temporal and Spatial Variability of Historic Fire Frequency in the Southern Willamette Valley Foothills of Oregon. M.S. thesis, Oregon State University, Corvallis.
- Simon, S.A. 1991. Fire History in the Jefferson Wilderness Area East of the Cascades Crest. Final Report to the Deschutes National Forest Staff.
- Stewart, G.H. 1986. Forest Development in Canopy Openings in Old-growth Pseudotsuga Forests of the Western Cascade Range, Oregon. *Can. J. For. Res.*, **16**: 558-568.
- Stuart, J.D., and Salazar, L.A. 2000. Fire History of White Fir Forests in the Coastal Mountains of Northwestern California. *Northwest Science*, **74**(4): 280-285.
- Taylor, A.H., and Skinner, C.N. 1998. Fire History and Landscape Dynamics in a Late-Successional Reserve, Klamath Mountains, California, USA. *For. Ecol. and Man.*, **111**: 285-301.
- Teensma, P.D. 1987. Fire History and Fire Regimes of the Central Western Cascades of Oregon. PhD, University of Oregon, Eugene.
- Wetzel, S.A., and Fonda, R.W. 2000. Fire History of Douglas-fir Forests in the Morse Creek Drainage of Olympic National Park, Washington. *Northwest Science*, **74**(4): 263-278.
- Van Norman, K.J. 1998. Historical Fire Regime in the Little River Watershed, Southwestern Oregon. M.S. thesis, Oregon State University, Corvallis.

° Two locations (a and b) were placed on the map to reflect the large area covered for this fire history.

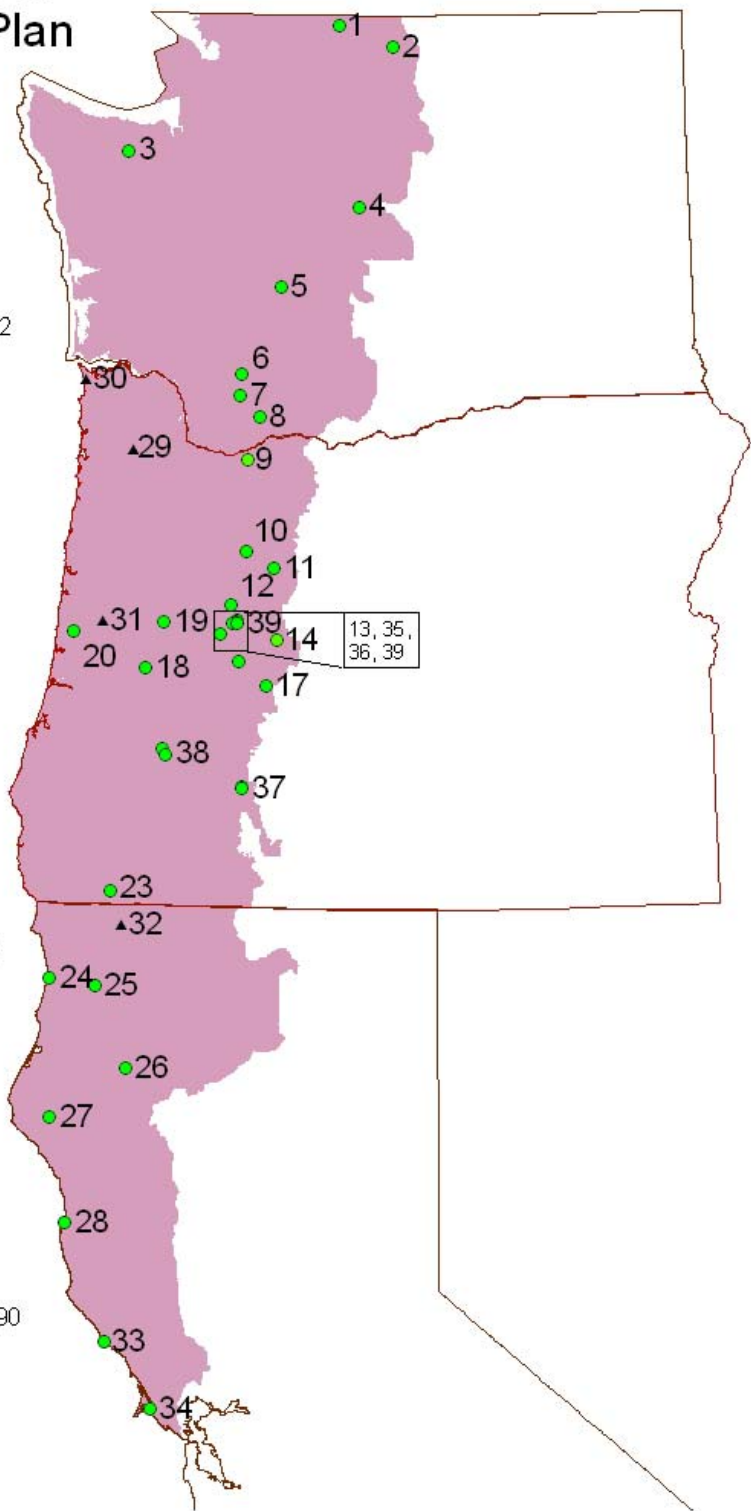
- Weisberg, P.J. 1996. Fire History in the Foothills of the Central Western Oregon Cascades, USA. Unpublished Report to the BLM, Eugene District.
- Weisberg, P.J. 1997. Fire History and Fire Regimes of the Bear-Marten Watershed and Some Relationships with Contemporary Stand Structures, BLM, Eugene.
- Weisberg, P.J. 1998. Fire History, Fire Regimes, and Development of Forest Structure in the Central Western Oregon Cascades. PhD, Oregon State University, Corvallis.
- Wetzel, S.A., and Fonda, R.W. 2000. Fire History of Douglas-fir Forests in the Morse Creek Drainage of Olympic National Park, Washington. *Northwest Science*, **74**(4): 263-278.
- Winter, L., Brubaker, L.B., Franklin, J.F., Miller, E.A., and DeWitt, D.Q. 2002. Initiation of an Old-growth Douglas-fir Stand in the Pacific Northwest: A Reconstruction from Tree-ring Records. *Can. J. For. Res.*, **32**: 1039-1056.
- Wright, C.S., and Agee, J.K. 2004. Fire and Vegetation History in the Eastern Cascade Mountains, Washington. *Ecological Applications*, **14**(2): 443-459.
- Yamaguchi, D.K. 1986. The Development of Old-growth Douglas-fir Forests Northeast of Mount St. Helens, Washington, Following an A.D. 1480 Eruption. PhD, University of Washington, Seattle.

Fire History Studies: Northwest Forest Plan

 NWFP Area

Fire Histories

- 1, Agee et al_1990
- 2, Finch_1984
- 3, Wetzel and Fonda_2000
- 4, Wright and Agee_2004
- 5, Hemstrom and Franklin_1982
- 6, Yamaguchi_1986
- 7, Gray_1990
- 8, Winter et al_2002
- 9, Agee and Krusemark_2001
- 10, Garza_1995
- 11, Simon_1991
- 12, Stewart_1984
- 13, Weiberg_1998
- 14, Kertis and Huff_1997
- 15, Weisberg_1997
- 16, Connelly and Kertis_1991
- 17, Bork_1984
- 18, Robbins_2005
- 19, Weisberg_1996
- 20, Imapra_1997
- 21, Van Norman_1998
- 22, Chappell_1991
- 23, Agee_1991
- 24, Brown and Swetnam_1994
- 25, Taylor and Skinner_1998
- 26, Stuart and Salazar_2000
- 27, Stuart_1987
- 28, Brown and Baxter_2003
- ▲ 29, Long_2003_a
- ▲ 30, Long_2003_b
- ▲ 31, Long_1995
- ▲ 32, Mohr et al_2000
- 33, Finney and Martin_1998
- 34, Brown et al_1999
- 35, Morrison and Swanson_1990
- 36, Teensma_1987
- 37, McNeil and Zobel_1980
- 38, Olsen_2000
- 39, Means_1980



Map of fire history locations within the Northwest Forest Plan area. Green circles = tree-ring studies; black triangles = charcoal studies.