

13 ANNOTATED BIBLIOGRAPHY

LITERATURE

Adamus, P.R. 2001. *Guidebook for hydrogeomorphic (HGM)-based assessment of Oregon Wetland and Riparian Sites: Statewide classification and profiles*. Oregon Division of State Lands, Salem. OR.

This reference was used to obtain information about the effect of wetlands on landscapes. This is a widely used and well-respected reference for the northwest.

Adamus, P.R., and Fields, D. 2001. *Guidebook for hydrogeomorphic (HGM)-based assessment of Oregon Wetland and Riparian Sites: I. Willamette Valley ecoregion impounding and slope/flats subclasses*. Oregon Division of State Lands, Salem, OR.

See above. This document is specific to the Willamette Valley ecoregion.

Baldwin, Ewart. 1964. No title listed. University of Oregon Cooperative Bookstore, Eugene, Oregon. *In USFS 1998*.

This reference provides information on Mt. Mazama's eruption; however, no additional information was provided for this reference in USFS 1998.

Behnke, R.J. 1992. Native trout of Western North America. *Am. Fish. Soc. Monograph* 6.

This is a standard reference for identifying native trout species found in western North America. Species life history and habitat needs are described along with other useful information regarding trout distribution within the region.

Belsky, A.J. 1996. Viewpoint: Western juniper expansion: Is it a threat to arid northwestern ecosystems? *Journal of Range Management* 49:53-59.

This reference was helpful in evaluating the effects of juniper expansion on arid habitats in the study area.

Binns, A. 1967. *Peter Skene Ogden: Fur trader*. Binfords & Mort, Portland. Oregon.

A book-length account of Ogden's biography, focusing on explorations throughout the west. Ogden was one of the earliest European visitors to the Upper Williamson watershed, and provided useful anecdotal descriptions of environmental and social conditions. For example, Ogden discussed the presence of beaver, the location of tribal settlements, and the availability of game animals.

Bond, C.E., and T.T. Kan. 1973. *Lampetra entosphenus minima* n. sp. A dwarfed parasitic lamprey from Oregon. *Copeia* 1973(3); 568-574 *in* Kostow, 2002.

This reference provides information on the Miller Lake lamprey that was cited in Kostow 2002. There is no further information on this reference.

Bowden, Jack. *Railroad Logging In Klamath Country*. Oxford University Press, New York, 2003.

Written and published locally, this document includes a wealth of textual and photographic representations of logging in the Upper Williamson. Of particular use were maps of temporary lines laid throughout the watershed. Also useful were discussions of relationships between railroad companies and logging interests, including the Bureau of Indian Affairs.

Bryce, S.A., and A.J. Woods. 2000, November 29. *Level III and IV ecoregion descriptions for Oregon*, Draft 8.

This document is part of the metadata for the ecoregion GIS layer that was used in the assessment. This document provides brief descriptions of the various ecoregions in the state and was helpful in describing the ecoregions within the study area.

Buchanan, D.V., M.L. Hanson, and R.M. Hooton. 1997. *Status of Oregon's bull trout*. Oregon Department of Fish and Wildlife, Portland, OR. Executive Summary available on-line at

<http://www.dfw.state.or.us/ODFWhtml/Research&Reports/BullTrout.html>

The spatial and temporal distributions of bull trout provided in this document are used as a baseline for fisheries managers. The GIS maps also provide data layers for critical spawning and juvenile rearing areas, or as a method to compare distribution changes through time.

Burroughs, Jr., E.R., M.A. Marsden, and H.F. Haupt. 1972. Volume of snowmelt intercepted by logging roads. *Journal of the Irrigation and Drainage Division, American Society of Civil Engineers* 98(1R1):1-12.

This document provides information that is useful for determining the impacts of roads on basin hydrology.

Castro, J.M., and P.L. Jackson. 2001. Bankfull discharge recurrence intervals and regional hydraulic geometry relationships: Patterns in the Pacific Northwest, USA. *Journal of the American Water Resources Association* 37(5):1249-1262. Also accessed on-line at www.awra.org

No additional information available for this reference.

Clifton, C.A. 1989. Effects of vegetation and land use on channel morphology. In R.E. Gresswell, B.A. Barton, and J.L. Kershner (eds.), *Practical approaches to riparian resource management*. U.S. Bureau of Land Management, Government Printing Office, Washington D.C. pp. 121-129.

No additional information available for this reference.

Conaway, Jeffrey Scott. 2000. Hydrogeology and paleohydrology in the Williamson River Basin, Klamath County, Oregon. Master's Thesis, Portland State University.

This study is, in part a hydrogeologic reconnaissance that suggests directions for future work. It provides great detail of the geology, hydrogeology and paleohydrology of the study area.

Connelly, Brian. 1992. *The cumulative effects of forest management on peak flows during rain-on-snow events*. Master's Thesis. Abstract available at <http://depts.washington.edu/cwws/Theses/connelly.html>

The results of this study suggest that there is a wide range of forest harvest effects on the size of peak flows during ROS events depending on the meteorological conditions during the storm and the initial snowpack conditions.

Cowlin, R.W., P.A. Briegleb, and F.L. Moravets. 1942. *Forest resources of the ponderosa pine region of Washington and Oregon*. U.S. Department of Agriculture, Forest Service, Washington, DC: Misc. Publication 490.

This study documents the historic effort to complete an inventory of forest resources across Oregon and Washington. It summarizes the results of forest inventory efforts undertaken in eastern Washington and Oregon during the 1930's and 1940's.

Cray, E. 1989. *An Illustrated history of northern Klamath County*. Maverick Publications. Bend, Oregon.

Provided general perspectives on the settlement of the region immediately north of the Upper Williamson, including the development of logging companies that were active in the Upper Williamson watershed. Discussions of reservation logging and acquisition of former reservation lands after Termination. Included many good photographs of early life in Northern Klamath County.

Cummings, M.L., and J.M. Melady. 2002. *Hydrogeology of the Klamath Marsh, Klamath County, Oregon*.

This evaluation of the geology and hydrology of the Klamath Marsh suggests high permeability and groundwater potential in the vicinity of the marsh. Primary author is the head of the Geology Department at Portland State University.

Currens, K.P. 1997. *Evolution and risk in conservation of Pacific salmon*. Thesis (Ph.D.). Oregon State University.

This reference was cited by Roger Smith at Oregon Department of Fish and Wildlife in relation to redband trout and the use of genetic markers to identify introduced genetic material.

Daly, C., R.P. Neilson, and D.L. Phillips. 1994. A statistical-topographic model for mapping climatological precipitation over mountainous terrain. *Journal of Applied Meteorology* 33:140-158.

This document provides an analytical model that combines point precipitation data and digital elevation model data to generate spatial estimates of annual and monthly precipitation. These methods resulted in the Oregon Climate Service maps for mean annual and monthly precipitation that are used in this assessment.

DEQ – See Oregon Department of Environmental Quality.

Dorr, J., K.W. Greulich, E.S. Nicita, J. Skalka. 2004. *Ecological unit inventory of the Winema portion, Fremont-Winema National Forests, Oregon*. Interim Report #6. USDA Forest Service. Klamath Falls, OR.

This document describes the type, pattern and proportional extent of ecological types as they are mapped across the Fremont-Winema Forests. Ecological units are designated based on soil, landform, lithology, plant communities, climate, and hydrological characteristics encountered across the landscape.

Drew, H.J. 1979. *Weyerhaeuser Company: A history of people, land and growth*. Weyerhaeuser Company. Klamath Falls, Oregon.

Commissioned by Weyerhaeuser Company, this history focuses on the harvest of company-owned lands in the Klamath region. Includes a considerable amount of useful information on the evolution of logging practices over a seventy-five year period, starting in the late 19th century. Of particular interest are discussions of the management of the Long-Bell timber tract.

Dunne, T., and L.B. Leopold. 1978. *Water in environmental planning*. W.H. Freeman and Company, San Francisco, California.

This document is a textbook describing general hydrological functions that continues to be used for academic coursework. Well-respected and commonly used reference.

EarthInfo. 1996. National Climatic Data Center Summary of the Day, Hourly Precipitation, and Surface Airways data on CD-ROM. EarthInfo, Inc., 1898 South Flatiron Court, Boulder, CO

This reference provided the data for Table 3-4, Station Information for Climate Stations in the Vicinity of the Upper Williamson River Subbasin

Elmore, W., and R.L. Beschta. 1987. Riparian areas: Perceptions in management. *Rangelands* 9(6):260-265.

This reference presents issues and concerns that affect the approach to managing riparian areas and encourages private land owners and users and managers of public lands to reconsider the effects of current management activities on riparian areas.

Franklin, J. R., and C. T. Dyrness. 1973. *Natural vegetation of Oregon and Washington*. USDA Forest Service General Technical Report PNW-8. Pacific Northwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture, Portland, Oregon.

This text remains one of the most important references for researching and describing natural vegetation communities within Oregon and Washington.

Froese, R. and D. Pauly. Editors. 2005. FishBase. World Wide Web electronic publication. www.fishbase.org, version (03/2005).

This is an extensive, interactive website that provides a wealth of world-wide fish-related information.

Gedney, D.R., D.L. Azuma, C.L. Bolsinger, and N. McKay. 1999. *Western juniper in eastern Oregon*. United States Department of Agriculture, Forest Service, Pacific Northwest Research Station General Technical Report PNW-GTR-464. Available on-line at www.fs.frd.us/pnw/pubs/gtr_469.pdf

This report analyzes and summarizes a 1988 inventory of western juniper in eastern Oregon. The inventory sampled all private and public lands in eastern Oregon. Detailed statistics were developed of the area, volume, and ownership of juniper forests. Maps and statistics of change during the past half century are shown based on past inventories and historical records. Large-scale maps of the past and present range of juniper and their occurrence in relation to ownership, elevation, precipitation, and soils are also included.

Gorman, T., and Smith, T. 2001. *Fish passage at road crossing assessment: Culvert inventory summary*. Winema National Forest.

This report provides the results of an assessment of fish passage at road crossings for all known fish-bearing streams within the Winema National Forest.

Harr, R.D. 1981. Some characteristics and consequences of snowmelt during rainfall in western Oregon. *Journal of Hydrology* 53:277-304.

Early reference describing the effects of snowmelt on hydrological events in the northwest. Still referred to in rain-on-snow and other hydrological research in the region.

Harr, R.D. 1983. Potential for augmenting water yield through forest practices in western Washington and western Oregon. *Water Resources Bulletin* 19(3):383-393.

Large-scale study that evaluates the potential for increasing water yields by modifying forest management practices. Estimates that water yields may be increased by 3-6% by modifying forest management practices.

Harr, R.D. 1986. Effects of clearcutting on rain-on-snow runoff in western Oregon: A new look at old studies. *Water Resources Research* 22 (7):1095-1100.

Evaluates the effects of clearcutting on hydrological yields during rain-on-snow events. Still referred to in rain-on-snow and other hydrological research in the region.

Harr, R.D., R.L. Fredriksen, and J. Rothacher. 1979. *Changes in streamflow following timber harvest in southwestern Oregon*. USDA Forest Service, Pacific Northwest Forest and Range Experiment Station, Portland, Oregon. Research Paper PNW-249.

Results of a study evaluating the potential for increasing water yields by modifying forest management practices. Still referred to in forest management and hydrology research in the region.

Helvey, J.D. 1980. Effects of a north central Washington wildfire on runoff and sediment production. *Water Resources Bulletin* 16(4):627-634.

Common reference for research on wildfires and sediment, turbidity and erosion.

Hyde, D.O. 1971. *Wilderness ranch*. Nick Lyons Books. New York, New York.

Yamsi Ranch, at the headwaters of the Williamson River, is the setting for this lively meditation on what it means to be a rancher in the West in the latter half of the 20th century.

INFISH – See USFS 1995b.

Interagency Advisory Committee on Water Data. 1982. Guidelines for determining flood-flow frequency: Bulletin 17B of the Hydrology Subcommittee, Office of Water Data Coordination, U.S. Geological Survey, Reston, Virginia.

This document provides the techniques necessary to determine stream flow recurrence intervals, which allows for a comparison of events from a wide variety of watershed sizes.

Johnson, K.N., J.F. Franklin, and D.L. Johnson. 2003. *A plan for the Klamath Tribes' management of the Klamath Reservation Forest*. Draft, December 1.2003.

This document describes the desired future condition of the forests of the former reservation lands that are now part of the Winema and Fremont National Forests.

Jones, J.A., F.J. Swanson, B.C. Wemple, and K. Snyder. 2000. Effects of roads on hydrology, geomorphology, and disturbance patches in stream networks. *Conservation Biology*, 14(1): 76-85.

This article outlines a view of how road networks interact with stream networks at the landscape scale and, based on examples from recent and current research, illustrates how these interactions might affect biological and ecological processes in stream and riparian systems.

Kan, T.T. 1975. *Systematics, variation, distribution and biology of lampreys of the genus Lampetra in Oregon*. Cited in Kostow, K. 2002, *Oregon Lampreys: Natural history status and problem analysis*. Oregon Department of Fish and Wildlife.

This reference provides information on lamprey presence in Miller Lake.

Kostow, K. 2002. Oregon Lampreys: Natural history status and problem analysis. Oregon Department of Fish and Wildlife. Available on internet at:
<http://rainbow.dfw.state.or.us/nrimp/information/docs/fishreports/FinalOregonLampreysReport.pdf>

This document provides current information on the distribution, life histories and biology of lampreys in Oregon and provides a summary of the issues that limit lamprey management. The paper concludes that the lack of information on basic species identity and the lack of systematic monitoring of lamprey abundance and distribution are the two biggest issues in the state.

Kauffman, J.B., Beschta, R.L., and W.S. Platts. 1993. *Fish habitat improvement projects in the Fifteenmile Creek and Trout Creek basins of central Oregon: Field review and management recommendations*. Prepared for the Bonneville Power Administration, project 86-079:84-062. Available on-line at www.efw.bpa.gov/Environment/EW/WEP/DOCS/REPORTS/HABITAT/H18955-1.pdf

This document evaluates the potential fish habitat improvement projects in the central Oregon study area and provides recommendations for riparian restoration and management.

Keppeler, E.T. 1998. The summer flow and water yield response to timber harvest. In: *Proceedings of the Conference on Coastal Watersheds: The Caspar Creek Story*. USDA Forest Service, Albany, CA. Gen. Tech. Rep. PSW-168. pp. 35-43.

In this paper a regression analysis was used to compare annual yield, summer flow volume, and minimum streamflow between three different creeks for a 35-year period.

King, J.G., and L.C. Tennyson. 1984. Alteration of streamflow characteristics following road construction in north central Idaho. *Water Resources Research* 20(8): 1159-1163.

An insightful paper on the effects of roads on aquatic systems in mountainous forests.

Kinney, J.P. 1950. *Indian forest and range: A history of the administration and conservation of the redman's heritage*. Forestry Enterprises. Washington, D.C.

A tremendous resource, written by an official of the Bureau of Indian Affairs during most of the era in which harvest took place on the reservation. Highly detailed information regarding harvest amounts, pricing, negotiations, revenue distribution, and policy development. Also includes a substantial treatment of grazing policy and practice on reservation lands.

Kittredge, W. 1987. *Owning it all*. Graywolf Press. St. Paul, MN.

Written by the son of the rancher who owned the Klamath Marsh, and developed the drainage and irrigation infrastructure for much of the marsh's pasture lands. Includes anecdotal accounts of landscape conditions and razing/husbandry practices. Also provides qualitative perspective on the culture of pre- and post-reservation European settlement.

Kittredge, W. 2000. *Balancing water: Restoring the Klamath Basin*. University of California Press. Berkeley, CA.

A collaboration between two photographers and a writer (Kittredge), this book tells the story in words and pictures of the complex relationship between the human and natural history of the region.

Lamm, W.E. 1944. *Lumbering in Klamath*. Lamm Lumber Company, Modoc Point, Oregon.

A small booklet written by a descendant of the Lamm family, which was active in much of the Upper Williamson during the early part of the century. The Lamm family built a large mill at Modoc Point, and used both rail and river to move logs to this mill.

La Marche, J.L., 2002. *Big Springs hydraulic field study*. Bend, Oregon: Oregon Department of Water Resources. Regional Hydrologist, Oregon Water Resources Department, 1340 NW Wall St., Bend OR.

A hydrological analysis of the water balance within the Big Springs basin, downstream of the Klamath Marsh. Analyzes groundwater, surface flows and irrigation diversions and return flows.

La Marche, Jonathan. 2004a. Unpublished overview of general subbasin streamflow characteristics in the Upper Klamath Basin.. Regional Hydrologist, Oregon Water Resources Department, 1340 NW Wall St., Bend OR.

Excellent overview of hydrology in the Upper Klamath Basin. Information will be included in the ongoing OWRD/USGS cooperative groundwater study in the Klamath basin.

Logan, R. 2002. *Oregon's forest protection laws: an illustrated manual*. Oregon Forest Resources Institute. Portland, Oregon.

Recognized as the 2002 Forestry Book of the Year by the National Forestry Association. The manual was produced by the Oregon Forest Resources Institute and the Oregon Department of Forestry to help woodland owners, foresters, loggers and the timber industry understand and comply with Oregon forest practice regulations.

Lorion, C.M., D.F. Markle, S.B. Reid and M.F. Docker. 2000. Redescription of the presumed extinct Miller Lake lamprey (*Lampetra minima*). *Copeia*. 2000(4): 1019-1028 in Kostow, 2002.

The authors compare new specimens with the type series and other Klamath Basin lampreys and redescribe the Miller Lake lamprey.

MacDonald, L.H., and J.D. Stednick (with committee assistance). 2003. *Forests and water: A state of the art review for Colorado*. CWRI Completion Report 196. Sponsored by Colorado River Water Conservation District, Colorado River Water Conservation Resources Institute, Denver Water, and Northern Colorado River Conservancy District. Colorado State University, Fort Collins, Colorado. PDF file available at <http://cwri.colostate.edu/pubs/series/completionreport/cr196.pdf>

This document summarizes the research that has been conducted on the relationship between forests and water in the State of Colorado, using information from 1910 to the present.

Magilligan, F.J., and P.F. McDowell. 1997. Stream channel adjustments following elimination of cattle grazing. *Journal of the American Water Resources Association*. 33(4):867-878.

Evaluates the effects of grazing on stream channels and riparian areas and their ability to recover. Research uses comparative enclosure techniques.

Manci, K.M. 1989. *Riparian ecosystem creation and restoration: A literature summary*. U.S. Fish and Wildlife Service Biological Report 89(20):1-59. Available on-line at www.npwrc.usgs.gov/resource/lieteratr/repareco/repareco.htm

This summary provides a source of currently available literature, riparian ecosystem information and an overview of the status of riparian ecosystems in the U.S., a discussion of several riparian functions, and a review of some techniques used for planning, implementing, monitoring, and measuring project success of riparian ecosystem creation/restoration efforts. Case studies of various riparian ecosystem creation or restoration projects are used to demonstrate these techniques and to report some results of their use.

Mantua, N. 2001. The Pacific decadal oscillation. In: *Encyclopedia of Global Environmental Change*, Volume 1, The Earth System: Physical and Chemical Dimensions of Global Environmental Change. John Wiley & Sons.

This document describes climatic variation in the northwest and was used in describing the climate changes in the upper Williamson River study area.

Mantua, N.J., S.R. Hare, Y. Zhang, J.M. Wallace, and R.C. Francis. 1997. A Pacific decadal climate oscillation with impacts on salmon. *Bulletin of the American Meteorological Society* 78:1069-1079.

Similar to Mantua 2001 but describes the potential impacts of the climatic variations on salmon.

May, C.W., R.R. Horner, J. Karr, B.W. Mar, and E.B. Welch. 1997. Effects of urbanization on small streams in the Puget Sound lowland ecoregion. *Watershed Protection Techniques* 2(4):483-493.

This paper suggest that flow impairment begins when percent total impervious area (% TIA) in a watershed reaches 10% and develops a relationship between % TIA and road density.

Miller, R.F. and J.A. Rose. 1999. Fire history and western juniper encroachment in sagebrush steppe. *Journal of Range Management* 52:550-559.

This study was undertaken to test the hypothesis that the post-settlement expansion of juniper was synchronous with the introduction of domestic livestock, reduction in fire frequency, and optimal climate conditions for plant growth. This research documents the fire history and western juniper woodland chronology for a sagebrush steppe in a 5,000 ha watershed in south central Oregon.

Minobe, S. 1997. A 50-70 year climatic oscillation over the North Pacific and North America. *Geophysical Research Letters* 24:683-686.

This document describes climatic variation in the North Pacific and was used in describing the climate changes in the upper Williamson River study area.

Mitsch, W.J. and J.G. Gosselink. 1986. *Wetlands*. Van Nostrand Reinhold, New York, NY.

Standard textbook describing the general characteristics of wetlands.

Moore, J.W. and J.M. Mallatt. 1980. Feeding of larval lamprey. *Can. J. Fish Aquat. Sci.* 37:1658-1664 in Kostow, 2002.

Describes the feeding process of larval lampreys.

Mote, P., M. Holmberg, and N. Mantua. 1999. *Impacts of climate variability and change - Pacific Northwest*. A report of the Pacific Northwest Regional Assessment Group for the U.S. Global Change Research Program. Prepared by the JIASO/SMA Climate Impacts Group, University of Washington. JIASO Contribution #715

Provides a broad discussion of the potential impacts of climate change in the northwest and how we can best adapt to those changes.

Natural Resource Conservation Service (NRCS). 2004. Snowcourse and SNOTEL data. Available on-line at <http://www.wcc.nrcs.usda.gov/snotel/Oregon/oregon.html>.

Snowpack and snowfall data used in the discussion on climate within the study area.

Nelson, C. H., P.R. Carlson, and C.R. Bacon. 1988. *The Mount Mazama climatic eruption (~6900 yr B.P.) and resulting convulsive sedimentation on the Crater lake caldera floor, continent, and ocean basin*. Geological Society of America Special Paper 229. U.S. Geological Survey, Menlo Park, CA.

Technical geological document describing the sedimentation impacts of the Mt. Mazama eruption.

NOAA (National Oceanic and Atmospheric Administration). 2004. Cooperative weather station descriptions. Available on line at <http://www.ncdc.noaa.gov/oa/climate/stationlocator.html>

Historic and current weather station data used in the discussion on climate within the study area.

OCS (Oregon Climate Service). 1998. Oregon average monthly and annual precipitation, 1961-1990. Oregon Climate Service, Oregon State University, Strand Hall Corvallis, OR 97331. Digital maps available at <http://www.ocs.orst.edu/prism/>

No additional information.

OCS (Oregon Climatic Service). 2004a. General descriptions of Oregon's climatic zones. Oregon Climate Service, Oregon State University, Strand Hall, Corvallis, OR. Online at <http://www.ocs.orst.edu/reportspage2.html>

No additional information.

OCS (Oregon Climatic Service). 2004b. Composite monthly precipitation and air temperature data for Oregon climate division #5. Oregon Climate Service, Oregon State University, Strand Hall Corvallis, OR 97331. Available on-line at http://www.ocs.orst.edu/pub_ftp/climate_data/divisions/clim_divs.html

No additional information.

OCS (Oregon Climatic Service). 2004c. Maximum and minimum temperatures (Normals) for the Time period 1971-2000. 2.5 arc-minute (~4 km) grid data set for the conterminous United States. Oregon Climate Service, Oregon State University, Strand Hall Corvallis, OR 97331. Digital maps available at <http://www.ocs.orst.edu/prism/>

No additional information.

Olson, R, and W.A. Hubert. 1994. *Beaver: Water resources and riparian habitat manager*. University of Wyoming, Laramie, Wyoming.

Source suggests that land management should not embrace total protection or reduction of beaver populations, but rather discretionary management that promotes adequate harvest where conflict occurs or protection where habitat enhancement is needed for other multiple uses.

Oregon Department of Environmental Quality (DEQ). 2002a. *Upper Klamath Lake drainage Total Maximum Daily Load (TMDL) and water quality management plan (WQMP)*. May, 2002. Includes associated electronic data.

TMDLs are written plans with an analysis that establishes that waterbodies will attain and maintain water quality levels specified in water quality standards. The WQMP describes strategies for how the UKL drainage TMDL will be implemented and achieved.

Oregon Department of Environmental Quality (DEQ). 2002b. *Attachment 1: Upper Klamath Lake drainage TMDL, Upper Klamath Lake drainage stream temperature analysis – vegetation, hydrology, and morphology*. May, 2002.

The intent of this analytical effort is to improve the understanding of the UKL drainage stream temperature dynamics in both spatial and temporal scales.

Oregon Department of Environmental Quality (DEQ). 2004a. Database search of 1998 DEQ 303 (d) list.

303(d) list provides water quality information on water quality-limited streams within the State of Oregon.

Oregon Department of Environmental Quality (DEQ). 2004b. Database search of DEQ Environmental Cleanup Site Information System.

This database provides general information on hazardous waste cleanup sites within the State of Oregon.

Oregon Department of Fish and Wildlife (ODFW). 1999. *Aquatic inventories project habitat and reach data coverages and metadata*. May 1999. Available on internet <http://oregonstate.edu/Dept/ODFW/freshwater/inventory/sworgis.html>

A comprehensive database that is used in fish management and planning activities.

Oregon Department of Fish and Wildlife (ODFW). 2004. Electronic fish distribution for Oregon. Available on the internet <http://rainbow.dfw.state.or.us/nrimp/information/index.htm>

No additional information.

ODFW. 2004b. Web document report with species descriptions for Oregon native fish – Chapter 3, Rainbow/Redband/and Steelhead. Retrieved June 22, 2004 from <http://www.dfw.state.or.us/odfwhtml/research&reports/wildfish/chapter3.html>

No additional information.

ODFW. 2004c. Web document report with species descriptions for Oregon native fish – Chapter 5, Kokanee and Sockeye Salmon. Retrieved June 23, 2004 from <http://www.dfw.state.or.us/odfwhtml/research&reports/wildfish/chapter5.html>

No additional information.

ODFW. 2004e. Web document report with species descriptions for Oregon native fish – Chapter 6. Retrieved June 23, 2004 from <http://www.dfw.state.or.us/odfwhtml/research&reports/wildfish/chapter6.html>

No additional information.

Oregon Water Resources Department (OWRD). 2001. *Water rights in Oregon: An introduction to Oregon's water laws and water rights system*. Oregon Water Resources Department, 158 12th ST. NE, Salem, OR 97301. 54 pages.

Provides a fundamental explanation of water law and water rights in Oregon.

OWRD. 2004a Water Availability Reporting System (WARS). Available on-line at <telnet://wars.wrd.state.or.us>

Estimated streamflow and surface water availability in Oregon. Requires a Telnet helper, which is a program that allows your computer to open a terminal session with mainframe computers

OWRD. 2004b Water Rights Information System (WRIS). Available on-line at <http://www.wrd.state.or.us/waterrights/wris.shtml>

The WRIS is a warehouse of information pertaining to water right applications, permits, certificates, transfers, leases and related information. It is a relatively straightforward interface to very complex information. The information is derived from the interpretations of paper, water rights records.

OWRD. 2004c. GIS data coverages describing water rights and water use. Downloaded from <http://www.wrd.state.or.us/maps/wrexport.html>.

Spatial data used to create the water rights maps used in the assessment.

OWRD. 2004d. Streamflow data. Downloaded from <http://www.wrd.state.or.us/>.

Streamflow data used to describe the hydrology of the assessment area.

Oregon Watershed Enhancement Board (OWEB). 1999. *Oregon aquatic habitat restoration and enhancement guide*. 775 Summer Street NE, Suite 360, Salem, OR.

This guide was developed to provide public guidance on restoration and enhancement measures that could provide a benefit for aquatic ecosystem recovery. It also provides standards for some restoration activities that are required to be met when using state funds for aquatic habitat restoration.

Partners in Flight. 2000. *East-Slope Cascade Mountains Bird Conservation Plan*.

This document was prepared to stimulate and support an active approach to conservation of landbirds in the East-Slope Cascades of eastern Oregon and Washington. Recommendations are intended to guide planning efforts and actions, direct expenditures, and stimulate monitoring and research to support landbird conservation. The recommendations also are expected to be the foundation for developing detailed conservation strategies at multiple geographic scales to ensure functional ecosystems with healthy populations of landbirds.

Pennsylvania Fish and Boat Commission (PFBC). 2004. On-line version of Pennsylvania Fishes publication. Retrieved August 9, 2004 from http://sites.state.pa.us/PA_Exec/Fish_Boat/pafish/fishhtms/chapindx.htm

Document used to describe the life history of the brown bullhead in the fisheries section of the assessment.

Perdue, E.M., C.R. Lytle, M.S. Sweet, and J.W. Sweet. 1981. *The chemical and biological impact of Klamath Marsh on Williamson River, Oregon*. Portland, Oregon: Portland State University, Environmental Sciences and Resources.

This investigation focuses primarily on water chemistry of waters flowing in and out of the marsh, but does not include a discussion of water quality within the various regions and different aquatic habitats of the marsh itself.

Platts, W.S. 1981. *Influence of forest and rangeland management of anadromous fish habitat in western North America; effects of livestock grazing*. USDA Forest Service, Intermountain Forest and Range Experiment Station, Boise, Idaho. General Technical Report PNW-124.

This paper documents current knowledge on interactions of livestock and fish habitat. Included are discussions of incompatibility and compatibility between livestock grazing and fisheries, present management guidelines, information needed for problem solving, information available for problem solving, and future research needs.

Potter, I.C. 1980. *Ecology of larval and metamorphosing lampreys*. *Can. J. Fish. Aquat. Sci.* 37:1641-1657. in Kostow, 2002.

Provides a thorough description of the life history, ecology and growth process of larval and metamorphosing lampreys.

Regional Ecosystem Office (REO). 1995. *Ecosystem Analysis at the Watershed Scale: Federal guide for watershed analysis*. Version 2.2, Rev. August 1995. Regional Interagency Executive Committee and Intergovernmental Advisory Committee, Regional Ecosystem Office. Portland, Oregon.

Describes a six step process to meld social values, biological capabilities, and physical characteristics of the landscape at the watershed level. This process was used to prepare the federal watershed analyses within the assessment area.

Regional Ecosystem Office (REO). 2004. Electronic information (hydrologic units and digital elevation models) downloaded from internet at <http://www.reo.gov/gis/>

Provided the 3rd, 4th and 5th field watershed boundaries used in the assessment.

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General discussion of wetland morphology and hydrology.

Rice, R. M., Tilley, F.B., and P.B. Datzman. 1979. A Watershed's Response to Logging and Roads: South Fork Caspar Creek, California, 1967-1976. USDA Forest Service Research Paper PSW-146. 12 pp.

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Sanborn, Jennifer. 2004. *Ninemile fuels reduction and habitat restoration projects wildlife report*. U.S. Forest Service. April 20, 2004.

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An issue of the Shaw Historical Quarterly, this document is a series of scholarly articles written specifically for this issue. It is an extremely useful compendium of information from a wide variety of sources, giving both general perspective and detailed data on the development and evolution of logging in the Upper Klamath Basin as a whole.

State Service Center for GIS (SSCGIS). 2004. Electronic information (hydrologic units, ownership, geology, dams, and water bodies) downloaded from internet at <http://www.sscgis.state.or.us/>

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Stern, T. 1965. *The Klamath Tribe: A people and their reservation*. The American Ethnological Society, Monograph 41, June Helm, Editor. University of Washington Press, Seattle and London.

Describes the history of the Klamath Tribes. Useful for the discussion of the history of the assessment area.

Storck, P., D.P. Lettenmaier, B.A. Connelly, and T.W. Cundy. 1995. *Implications of forest practices on downstream flooding: Phase II Final Report*. University of Washington. TFW-SH20-96-001. Available on-line at nwifc.wa.gov/cmerdoc/TFW_SH1-20_96_001.pdf

Uses computer simulation models to better understand the effects of forest harvesting on hydrologic response, and on flood peaks in particular.

Stout, Wendell. 1977.

This reference was cited in the fish presence/absence excel spreadsheet prepared jointly by ODFW, USFWS, and Winema National Forest for the Upper Klamath Lake basin. A detailed citation was not available.

Trojnar, J.R. and R.J. Behnke. 1974. Management implications of ecological separation between two introduced populations of cutthroat trout in a small Colorado Lake. *Transactions of the American Fisheries Society*. 103:423-430. in Behnke, 1992.

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United States Department of Agriculture (USDA) Natural Resources Conservation Service. 2004. *Upper Klamath Basin rapid subbasin assessments (Butte Valley summary, Middle Lost River summary, Sprague River subbasin summary, Tulelake summary, Upper Klamath Lake summary, Upper Klamath River East summary, Upper Lost River summary)*. Prepared for the Klamath SWCD & Lava Beds/Butte Valley RCD.

Prepared in response to a request for timely information with which to make urgent decisions regarding conservation opportunities for restoring and protecting natural resources on private, agricultural land in the Upper Klamath Basin. Eight assessments were completed in only 18 months using existing information, field reconnaissance, and discussions with knowledgeable members of the community.

USDA, Soils Conservation Service. 1985. Soil Survey of Klamath County, Oregon. Southern Part.

Maps and descriptions of all soil types within the southern part of Klamath County. Does not include the upper Williamson River assessment area.

U.S. Dept. of Agriculture and U.S. Dept. of the Interior. (USDA/USDI). 1994. Record of decision for amendments to Forest Service and Bureau of Land Management planning documents within the range of the northern spotted owl: Standards and guidelines for management of habitat for late-successional and old-growth forest related species within the range of the northern spotted owl. Portland, OR: Interagency SEIS Team, 1994.

Presents a combination of land allocations managed primarily to protect and enhance habitat for late-successional and old-growth forest related species, and standards and guidelines for the management of those land allocations.

U.S. Forest Service (USFS). Undated. *Assessment of the Jack and Mosquito Creek watersheds. Draft 1.0*. Winema National Forest.

Provides a general description of ecosystem structure, process, and function occurring within the Mosquito Creek and Jack Creek watersheds. Intended to provide the foundation for proposed changes in land management and to aid in making sound decisions for project level analyses.

USFS. 1990. *Land and resource management planning, The Forest Land and Resource Management Plan, Winema National Forest*. Retrieved on July 7, 2004 from <http://www.fs.fed.us/r6/winema/management/forestplan/1990plan/index/shtml>

Critical document that provides guidance for the management of the Winema National Forest.

USFS. 1995a. *Hog, Yoss and Skellock: An Assessment of the Hog Creek, Yoss Creek and Skellock Draw subwatersheds*. February, 1995. Chiloquin Ranger District Watershed Assessment Team. Chiloquin Ranger District, Winema National Forest.

The intent of this assessment is to provide a general description of ecosystem structure, processes, and functions occurring within the Hog, Yoss and Skellock watersheds. It is a blend of current scientific knowledge, information gathered during on-site visits, interviews with local publics familiar with the area, and a review of existing records and documents.

USFS. 1995b. *Inland Native Fish Strategy (INFISH) environmental assessment: Decision notice and finding of no significant impact (FONSI) –Intermountain, Northern, and Pacific Northwest regions*.

Intended to provide interim direction to protect habitat and populations of resident native fish outside of anadromous fish habitat. This direction is in the form of riparian management objectives, standards and guidelines, and monitoring requirements.

USFS. 1995c. Amendment 8 (Decision Notice for the Revised continuation of Interim Management Direction Establishing Riparian, Ecosystem and Wildlife Standards for Timber Sales) to the Winema National Forest Land and Resource Management Plan. Retrieved on August 11, 2004 from

<http://www.fs.fed.us/r6/winema/management/forestplan/1990plan/index.shtml>

This amendment (6/5/95) revised the "Interim Management Direction Establishing Riparian, Ecosystem and Wildlife Standards for Timber Sales." Also known as Regional Forester's Forest Plan Amendment 2 or the "Eastside Screens."

USFS. 1996b. *Mazama watershed analysis*. Chemult Ranger District, Winema National Forest.

Prepared to help guide project planning during the implementation of the Northwest Forest Plan on the Chemult Ranger District. Intended to review existing information and develop conceptual strategies to sustain viable ecosystems.

USFS. 1996c. *Upper Williamson Watershed Analysis*. Chiloquin and Chemult Ranger Districts Assessment Team (Note: same team members as listed for the Chiloquin Ranger District Hog, Yoss, and Skellock assessment). August, 1996. Chiloquin and Chemult Ranger Districts, Winema National Forest.

Intended to provide a general description of ecosystem structure, processes, and functions occurring within the Williamson River Basin Watershed. Prepared to provide a foundation for project level analysis and support decision making. Uses a blend of assessment formats and focuses on the issues defined by the Chiloquin District Ranger.

USFS. 1997. *Aquatic module: Mega Williamson watershed analysis (Everything that flows into Klamath Marsh)*. No date, but section V, Water Quality, is labeled "Edited 5/14/97." No author or publishing organization shown.

Possibly intended as an amendment to the Upper Williamson Watershed Analysis. Describes existing conditions for water quality and aquatic species and habitat.

USFS. 1998. *Big Bill – The Williamson River Basin watershed analysis*. Winema National Forest, Chiloquin and Chemult Ranger Districts.

Intended to provide a general description of ecosystem structure, processes, and functions occurring within the Williamson River Basin Watershed. Prepared to provide a foundation for project level analysis and support decision making.

USFS. 2004. *Winema National Forest water temperature data for various gage stations located throughout the Upper Williamson River basin for various years between 1990 and 2003*. Provided to David Evans and Associates in 2004.

Data used in the preparation of the water quality discussions in the assessment.

U.S. Fish and Wildlife Service (USFWS). (Ranges from 1981 to present: Publication date varies for each 7.5-foot quad). National Wetlands Inventory (NWI) Metadata.. Online linkages available at <ftp://ftp.nwi.fws.gov/arcdata> and at <ftp://ftp.gov.shapedata>.

Metadata for the National Wetlands Inventory (NWI) spatial data. NWI provides estimated wetland boundaries based on analysis of aerial and satellite imagery.

USFWS. 2002. *Birds of conservation concern 2002*. Division of Migratory Bird Management, Arlington, Virginia.

Identifies species, subspecies and populations of all migratory, non-game birds that, without additional conservation actions, are likely to become candidates for ESA listing.

USFWS. 2004. Digital National Wetlands Inventory data. Available on-line at <http://www.nwi.fws.gov/>

Spatial NWI data that provides estimated wetland boundaries based on analysis of aerial and satellite imagery.

U.S. Geological Survey (USGS). 1999. Oregon-Land Cover Data Set, Edition: 1. 1 arc second (approximately 30 meter) raster digital data set. U.S. Geological Survey, Sioux Falls, SD. Available on-line at <http://seamless.usgs.gov/>

Provides the Oregon land cover spatial data used in the preparation of maps for the assessment.

USGS. 2004a. National Elevation Dataset (NED), 1/3 arc-second (approximately 10-meter) digital elevation model data. Available on-line at <http://seamless.usgs.gov/>

Provides GIS topographic information for the assessment area.

USGS. 2004b. USGS *Water quality data for various locations in Upper Williamson River basin collected in 1992 and 1993*. Retrieved from internet in July of 2004. Available on-line at <http://nwis.waterdata.usgs.gov/or/nwis/qwdata>

Water quality data used in the preparation of the water quality discussion in the assessment.

Washington Forest Practices Board (WFPB). 1994. *Standard methodology for conducting watershed analysis, Version 2.1*. Washington Department of Natural Resources, Forest Practices Division, Olympia, Washington.

A technical publication used by qualified scientists to assess the condition of public resources such as water quantity and quality and slope stability at specific sites. Forest managers use these scientific assessments to develop site-specific prescriptions that further regulate what forest practices may be carried out in individual Watershed Administrative Units while still protecting its public resources.

Washington Forest Practices Board (WFPB). 1997. *Standard methodology for conducting watershed analysis, Version 4.0*. Washington Department of Natural Resources, Forest Practices Division, Olympia, Washington.

See above.

Watershed Professionals Network (WPN). 1999. *Oregon watershed assessment manual*. Prepared for the Governor's Watershed Enhancement Board, Salem, OR.

Describes the standard methods used to conduct watershed assessments in the State of Oregon. This document provided the guidance for the preparation of this assessment.

Watershed Professionals Network (WPN). 2002. *Trout Creek watershed assessment*. Prepared for the Bonneville Power Administration and the Trout Creek Watershed Council.

The purpose of the assessment is to characterize historical and current watershed conditions in the Trout Creek Watershed (Deschutes Basin). Intended to evaluate opportunities for improvements in watershed conditions, with particular reference to improvements in the aquatic environment. Follows the approach outlined in the Oregon watershed assessment manual.

Weddel, B.J., K.L. Gray, and J.D. Foster. 1998. *Draft – History and ecology of Lower Klamath, Tule Lake, Upper Klamath, and Klamath Forest National Wildlife Refuges, Oregon and California*. Prepared for U.S. Department of the Interior, Fish and Wildlife Service, Portland, Oregon.

Used to describe historical habitat conditions of the Klamath Marsh.

Wetzel, R.G., 1983. *Limnology*, 2nd Ed. New York: Saunders College Publishing.

Considered an excellent textbook and reference discussing lake and river aquatic systems.

Weyerhaeuser Company, 1995. *Temperature monitoring reports for Klamath Falls (Sand Creek #1, Sand Creek #2, Aspen Creek #1, Aspen Creek #2, Deep Creek #1, Deep Creek #2, Deep Creek #3)*.

Results of water temperature monitoring on Sand, Aspen and Deep Creeks.

Weyerhaeuser Company. 1996. *Deep, Sand, Aspen and Coyote watershed analysis*, Parts I and II (with appendices). January 1996.

This document provides an integration of the various components of the Deep, Sand, Aspen and Coyote Creek watershed analysis including geology, geomorphology, sediment, hydrology, riparian function and fish habitat. Also includes management implications of the results of the analysis.

Ziemer, R.R. 1998. *Flooding and stormflows*. In Proceedings of the Conference on Coastal Watersheds: The Caspar Creek Story, pp. 15-24, General Technical Report PSW-168, USDA Forest Service, Albany, Calif.

Results of a study on the effects of road building and timber harvest on storm flow at the North and South Forks of Caspar Creek in north coastal California.

PERSONAL COMMUNICATIONS

- Anderson, Neil. Fisheries Biologist, Winema National Forest. 2004.
- Dunsmoor, Larry. Fisheries Biologist. Klamath Tribes. 2004-2005.
- Ford, Walt. Refuge Manager, Klamath Marsh National Wildlife Refuge. 2004-2005
- Gress, Ray. Oregon Department of Forestry. 2004.
- Haugen, Jerry, Environmental coordinator, Fremont-Winema National Forest. August 10 and 11, 2004.
- Johnson, B. District Forester, Timber Resource Services, L.L.C. March 5, 2004.
Interoffice Communication *re* Longbell Tract Road Improvements.
- Lucas, Walt. Fremont-Winema, Water Resources Team, U.S. Forest Service. 2005.
- Malone, Sue. Natural Resources Conservation Service. 2004.
- Mattenberger, Sue. Hydrologist, U.S. Fish and Wildlife Service-Ecosystem Restoration Office. 2005.
- Michaels, Norm. Silviculturalist, Fremont-Winema National Forest, Lakeview, Oregon. 2005.
- Nevill, M., Forest Range Specialist/Botanist, Fremont-Winema National Forest. August 10, 2004.
- Nicita, Eric, U.S. Forest Service. 2004.
- Nicol, M.E., (Landowner). August 20, 1986. Letter to: Mr. Roger Johnson, Refuge Manager, Klamath Basin National Wildlife Refuges, Rt. 1, Box 74, Tulelake, CA 96134. Subject: conversation on sale of Klamath Marsh Property.
- Pickerell, Loretta. Oregon Department of Environmental Quality. 2004.
- Ragan, Rick. District Forester, Winema National Forest, Chiloquin Ranger District. 2004.
- Sanborn, Jennifer. Biologist, Chiloquin Ranger District. Winema National Forest. 2004.
- Smith, Roger. Fisheries Biologist, Oregon Department of Fish and Wildlife. 2004.
- Sturdevant, Deborah. Oregon Department of Environmental Quality. 2004.
- Svejcar, Tony. Rangeland Scientist-Research Leader, U.S. Department of Agriculture, Agricultural Research Service, Burns, Oregon. 2005.

LIST OF GIS DATA SOURCES

See table on following pages

List of GIS Data Sources

Category	Layer	Source	Scale	Feature Type	File Type	Spatial Coverage	Origin	Metadata
Basedata	Aerial photography (color)	Department of Environmental Quality	5k	Raster	TIF	Williamson mainstems	DEQ	No
Basedata	Dams	Oregon Department of Fish and Wildlife	100k	Point	Coverage	State	ODFW	Yes
Basedata	Dams (BORC)	Oregon Institute of Technology	24k	Point	Coverage	Basin	Unknown	No
Basedata	Dams (federal)	Oregon Institute of Technology	24k	Point	Coverage	Basin	Unknown	No
Basedata	Dams (state)	Oregon Geospatial Data Clearinghouse	24k	Point	Coverage	State	Unknown	Yes
Basedata	DEM (10 Meter)	Bureau of Land Management	24k	Raster	GRID	State (1-degree cell)	BLM	Yes
Basedata	DEM (30 Meter)	Bureau of Reclamation	24k	Raster	GRID	Basin	BORC	No
Basedata	DOQ	Oregon Institute of Technology	24k	Raster	SID	Basin	USGS	No
Basedata	DRG	Bureau of Land Management	24k	Raster	SID	State (1-degree cell)	BLM	Yes
Basedata	Taxlots	Oregon Institute of Technology	24k	Polygon	Shapefile	Klamath County	Unknown	No
Environmental	103 Year Precipitation	Spatial Climate Analysis Service, Oregon State University	250k	Polygon	Coverage	State	NOAA	Yes
Environmental	Ecological Units	United States Forest Service	24k	Polygon	Coverage	Winema NF	USFS	No
Environmental	Ecoregions	Oregon Geospatial Data Clearinghouse	250k	Polygon	Coverage	State	Oregon Natural Heritage Program	Yes
Environmental	Erosion	United States Forest Service	24k	Polygon	Coverage	Fremont NF	USFS	No
Environmental	Fire history	United States Forest Service	24k	Polygon	Coverage	Winema NF	USFS	Yes
Environmental	Geology	Oregon Geospatial Data Clearinghouse	500k	Polygon	Coverage	State	USGS	Yes
Environmental	Geology (2003)	United States Geological Survey	24k	Polygon	Coverage	State	USGS	Yes
Environmental	Merged National Wetlands Inventory	Bureau of Reclamation	24k	Polygon, Point, Line	Geodatabase	Basin	USFW	No
Environmental	Peak flow	Oregon Department of Forestry	500k	Polygon	Shapefile	State	ODF	No
Environmental	Restoration projects	Oregon Water Enhancement Board	24k	Point	Table	Basin	OWEB	No
Environmental	Restoration projects (94-02)	United States Fish and Wildlife	24k	Point	Coverage	Basin	Unknown	No
Environmental	Soils	National Resources Conservation Service	24k	Polygon, Point, Line	Coverage	Klamath County, Crater Lake NP	NRCS	Yes
Environmental	Soils	United States Forest Service	24k	Polygon	Coverage	Winema NF, Fremont NF	USFS	No
Environmental	Wetlands 1905	Oregon Institute of Technology	24k	Polygon	Coverage	Basin	Unknown	No
Environmental	Wetlands 1940	Oregon Institute of Technology	24k	Polygon	Coverage	Basin	Unknown	No
Environmental	Wetlands 1968	Oregon Institute of Technology	24k	Polygon	Coverage	Basin	Unknown	No
Environmental	Wetlands 1989	Oregon Institute of Technology	24k	Polygon	Coverage	Basin	Unknown	No
Fish	Barriers	Oregon Department of Fish and Wildlife	100k	Point	Coverage	State	ODFW	Yes
Fish	Brook Trout	Oregon Department of Fish and Wildlife	100k	Line	Coverage	State	ODFW	Yes
Fish	Bull Trout	Oregon Department of Fish and Wildlife	100k	Line	Coverage	State	ODFW	Yes
Fish	Chum	Oregon Department of Fish and Wildlife	100k	Line	Coverage	State	ODFW	Yes
Fish	Cutthroat Trout	Oregon Department of Fish and Wildlife	100k	Line	Coverage	State	ODFW	Yes
Fish	Fish distribution	Oregon Institute of Technology	24k	Line	Coverage	Basin	Unknown	No
Fish	ODFW 2004 Fish Distribution	United States Forest Service	24k	Line	Table	Basin	ODFW	No
Fish	Rainbow Trout	Oregon Department of Fish and Wildlife	100k	Line	Coverage	State	ODFW	Yes
Fish	Steelhead	Oregon Department of Fish and Wildlife	100k	Line	Coverage	State	ODFW	Yes

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Category	Layer	Source	Scale	Feature Type	File Type	Spatial Coverage	Origin	Metadata
Landcover	1900 Vegetation	Bureau of Land Management	250k	Polygon	Coverage	State	BLM	Yes
Landcover	Historic vegetation	Oregon Geospatial Data Clearinghouse	100k	Polygon	Coverage	State	Oregon Natural Heritage Program	Yes
Landcover	Landcover	Department of Environmental Quality	5k	Polygon	Coverage	Williamson mainstems	DEQ	Yes
Landcover	National Land Cover Data Set	United States Geological Survey	100k	Raster	GRID	State	USGS	Yes
Landcover	Plant Communities	United States Forest Service	100k	Polygon	Coverage	Winema NF	USFS	Yes
Landcover	Vegetation (GAP)	United States Fish and Wildlife	100k	Raster	GRID	Basin	Humboldt State University	No
Landcover	Vegetation 1900	Oregon Department of Forestry	500k	Polygon	Shapefile	State	ODF	No
Landcover	Vegetation 1914	Oregon Department of Forestry	250k	Polygon	Shapefile	State	ODF	No
Landcover	Vegetation 1936	Oregon Department of Forestry	500k	Polygon	Shapefile	State	ODF	No
Political	Klamath Indian Reservation boundary 1888	United States Forest Service	100k	Polygon	Coverage	Basin	USFS	No
Political	Klamath Project	Bureau of Reclamation	24k	Polygon	Shapefile	Klamath Project	UC Davis	No
Political	Land management	Oregon Geospatial Data Clearinghouse	250k	Polygon	Coverage	State	State Service Center for GIS	Yes
Political	Ownership	United States Forest Service	24k	Polygon	Coverage	Winema NF, Fremont NF	USFS	No
Political	Public Land Survey System	Oregon Geospatial Data Clearinghouse	100k	Polygon	Coverage	State	USGS	Yes
Political	Watershed councils	Oregon Geospatial Data Clearinghouse	100k	Polygon	Coverage	State	GWEB	Yes
Transportation	Roads	United States Forest Service	24k	Line	Coverage	Winema NF, Fremont NF	USFS	No
Transportation	Streets	Oregon Institute of Technology	24k	Line	Shapefile	Klamath County	Unknown	No
Water	Flow and temp sites	Department of Environmental Quality	5k	Point	Shapefile	Williamson mainstems	DEQ	No
Water	Lakes	Bureau of Land Management	100k	Polygon	Coverage	State	BLM	Yes
Water	Lakes	The Nature Conservancy	100k	Polygon	Shapefile	Basin	Unknown	No
Water	Perennial streams	Oregon Institute of Technology	24k	Line	Coverage	Basin	OIT	No
Water	Points of diversion	Water Resources Department	24k	Point	Coverage	Basin	WRD	No
Water	Rivers	Oregon Geospatial Data Clearinghouse	100k	Line	Coverage	State	EPA	Yes
Water	Rivers	Oregon Geospatial Data Clearinghouse	250k	Line	Coverage	State	EPA	Yes
Water	Stream gages, compiled	Ed Salminen	24k	Point	Shapefile	Basin	Various	No
Water	Streams	The Nature Conservancy	24k	Line	Coverage	Basin	TNC/OIT	No
Water	Streams	United States Forest Service	24k	Line	Coverage	Winema NF, Fremont NF	USFS	No
Water	Streams	Department of Environmental Quality	5k	Line	Shapefile	Williamson mainstems	DEQ	Yes
Water	Waterbodies	Oregon Geospatial Data Clearinghouse	250k	Polygon	Coverage	State	USGS	No
Water	Watershed boundaries (HUCs 3, 4, 5, 6)	Regional Ecosystem Office	24k	Polygon	Coverage	State	REO	Yes