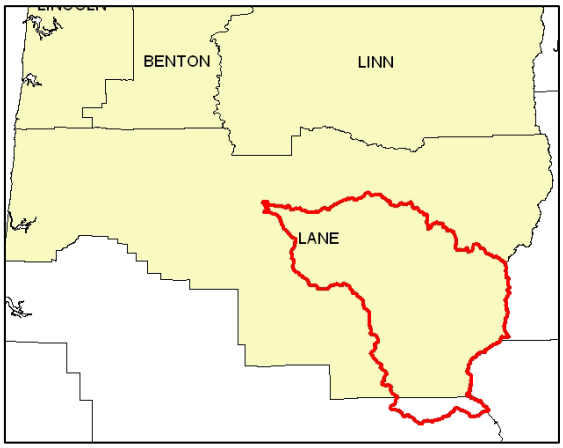
Middle Fork Willamette
17090001

8-Digit Hydrologic Unit Profile

SWCD	Acres
East Lane	824,305
Douglas	49,511
Klamath	355
Deschutes	42



Introduction

The Middle Fork Willamette 8-Digit Hydrologic Unit Code (HUC) subbasin is comprised of 874,000 acres, mostly in Lane County. Ninety-one percent of the subbasin is forestland, most of which is under industrial ownership. The remaining land, most of which supports grass, hay, pasture, orchards, vineyards, berries, and Christmas trees, typically is used by small-acreage operators.

The primary resource concerns are poor water quality and deteriorating aquatic and terrestrial habitat. There is also increasing development pressure, decreasing agricultural profitability, and a growing number of landowners with little resource management experience.

There are about 300 operations and 500 operators in the subbasin. Operators of the larger, well-established operations tend to have a positive attitude toward conservation, and they are adopting conservation practices. Operators of the much more numerous small operations are amenable to conservation; however, they also require significantly more technical assistance. A concerted effort by the local conservation partnership will be needed to increase the diffusion of conservation among these less experienced landowners.

The Eugene NRCS Service Center, East Lane Soil and Water Conservation District, Cascade Pacific Resource Conservation and Development (RC&D) office, and Middle Fork Willamette Watershed Council provide conservation assistance in the subbasin.

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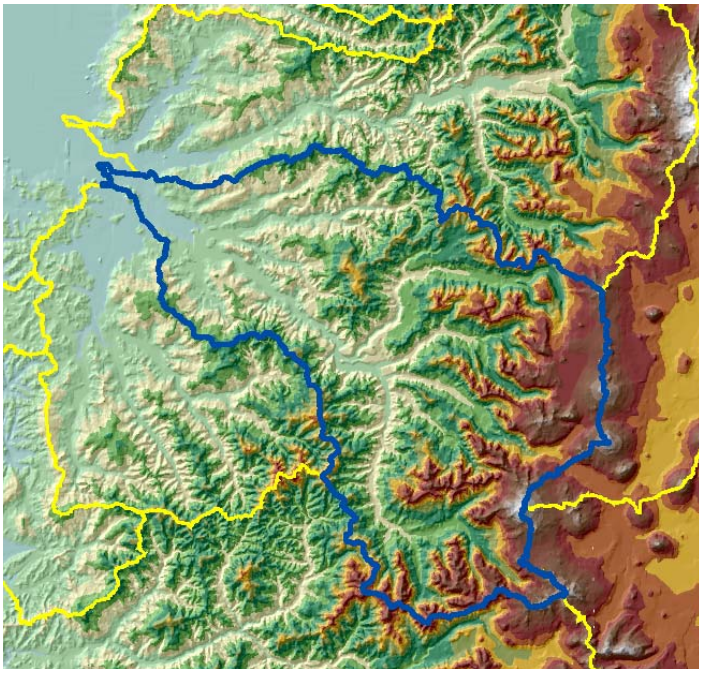

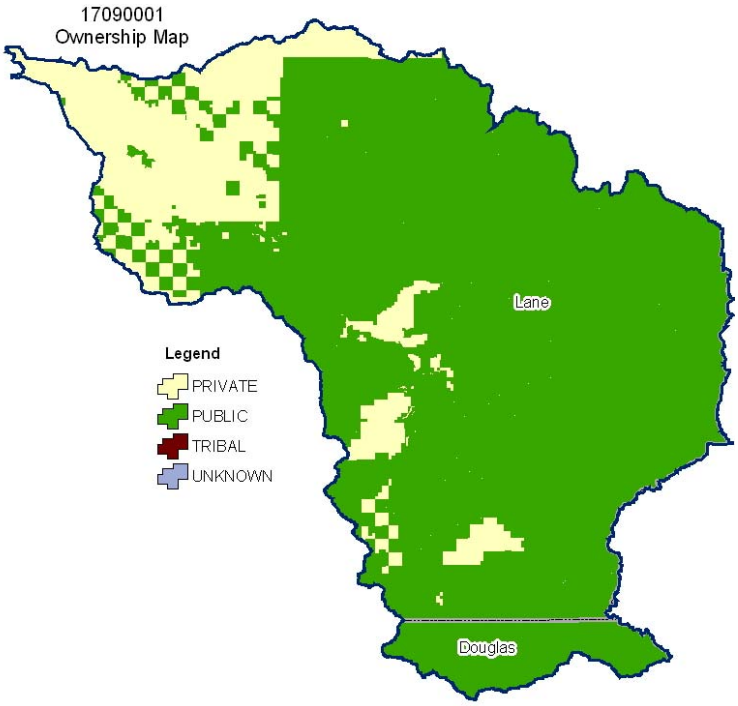

Produced by the Water Resources Planning Team Portland, OR

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Physical Description

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ALL NUMBERS IN THIS PROFILE ARE FOR OREGON ONLY

Land Cover/Land Use (NLCD[12])	Ownership - (2003 Draft BLM Surface Map Set[11])							
	Public		Private		Tribal		Totals	%
	Acres	%	Acres	%	Acres	%		
Forest	682,700	78%	113,300	13%	0	0%	796,000	91%
Grain Crops	*	---	*	---	0	0%	*	---
Conservation Reserve Program Land [a]	0	0%	*	---	0	0%	*	---
Grass/Pasture/Hay	13,600	2%	28,500	3%	0	0%	42,100	5%
Orchards/Vineyards	0	0%	*	---	0	0%	*	---
Row Crops	*	---	*	---	0	0%	*	---
Shrub/Rangelands	8,800	1%	*	---	0	0%	10,600	1%
Water/Wetlands/Developed/Barren	15,500	2%	8,200	1%	0	0%	23,700	3%
Oregon HUC Totals [b]	**720,600**	**82%**	**153,300**	**18%**	**0**	**0%**	**873,900**	**100%**

**: Less than 1 percent of total acres. See below for special considerations.*
a: Estimate from Farm Service Agency records and includes CRP/CREP.
b: Totals are approximate due to rounding and small unknown acreages.

Special Considerations for this 8 Digit HUC:

- Eighty percent of private forestland is under industrial forest ownership (OSU, Forestry Sciences Laboratory).
- Grain commonly is grown in rotation with grass seed and other crops.
- Orchards/Vineyards/Berries includes other perennial crops such as hops, mint, nursery stock, and Christmas trees. (Pacific Northwest Ecosystem Research Consortium)
  - ~ Orchards/Vineyards/Berries - 1,100 acres
  - ~ Nursery stock - 50 acres
  - ~ Christmas trees - 1,000 acres
- Grass/Pasture/Hay includes approximately:
  - ~ 1,000 acres of grass seed and turf(Pacific Northwest Ecosystem Research Consortium)
  - ~ 6,300 acres of pasture (Pacific Northwest Ecosystem Research Consortium)
  - ~ 2,300 acres of hay (Pacific Northwest Ecosystem Research Consortium)
- Pasture is included on commercial dairy and beef operations as well as small farms and ranches.
- Urban land comprises 13,800 acres.

Irrigated Lands (1997 NRI[13] Estimates for Non-Federal Lands Only)	Type of Land	ACRES	% of Irrigated Lands	% of HUC
	Cultivated Cropland	0	0%	0%
	Uncultivated Cropland	0	0%	0%
	Pastureland	0	0%	0%
	Total Irrigated Lands	**0**	**0%**	**0%**

(Continued on the following pages)

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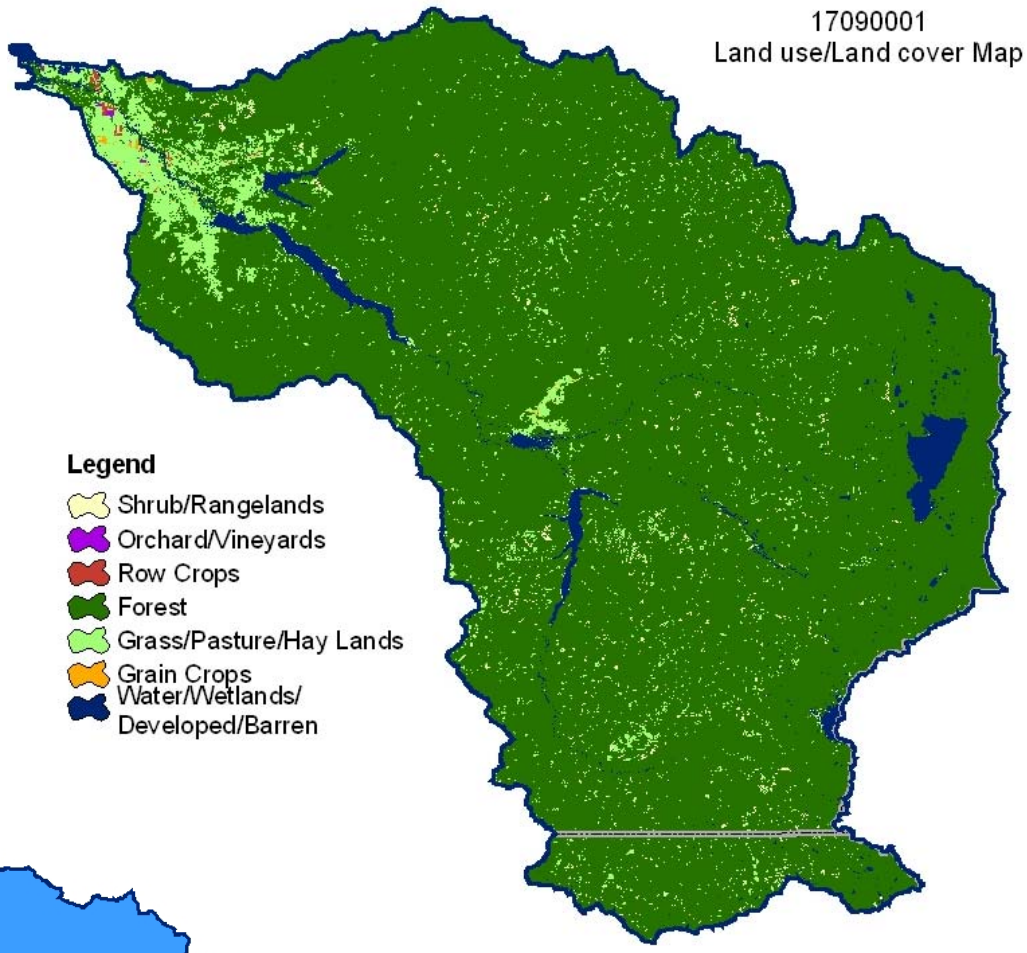

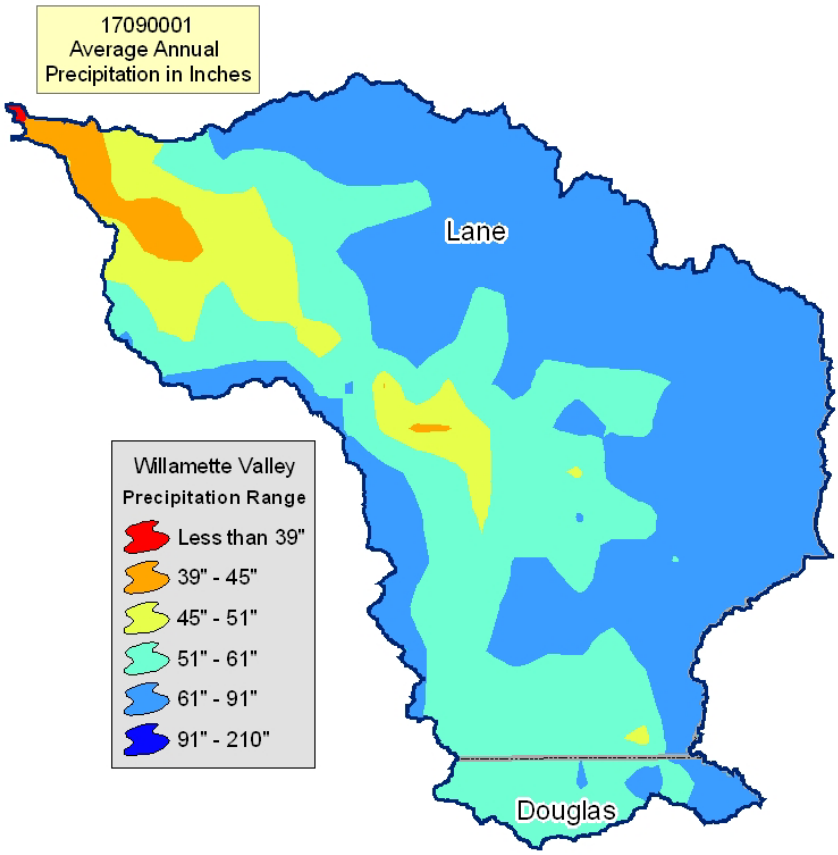

Common Resource Area Map

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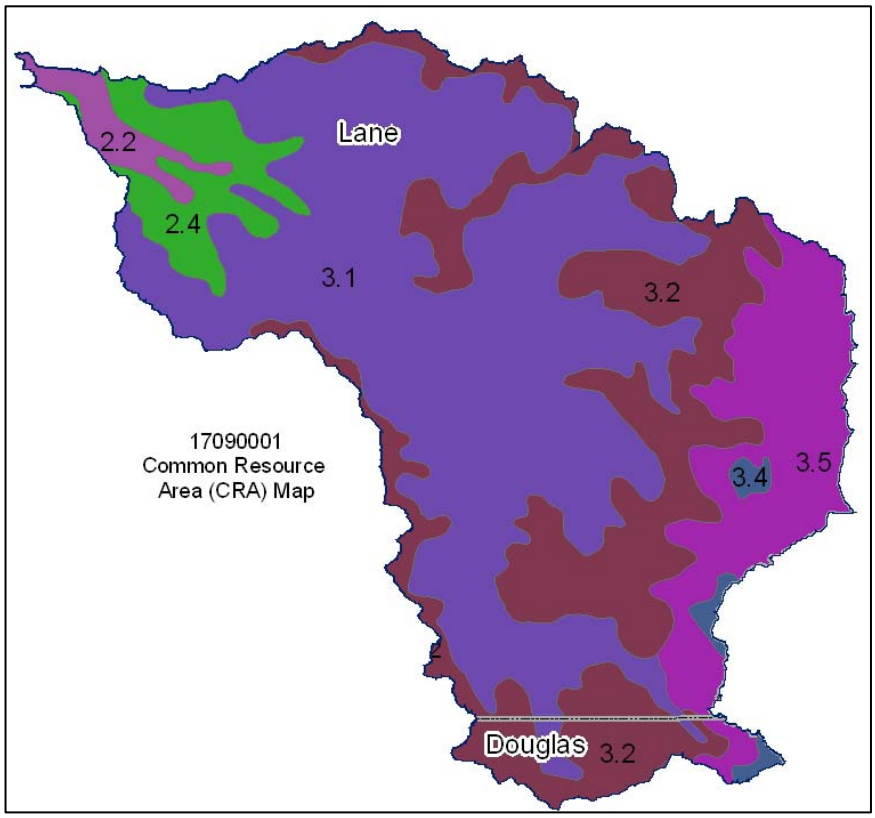
Only the major units are described below - for a description of all units within the HUC, go to: http://ice.or.nrcs.usda.gov/website/cra/viewer.htm



2.4 – Willamette and Puget Valleys - Valley Foothills: This unit is comprised of the foothills of the Willamette Valley. The soils are underlain by basalt and sedimentary bedrock and are typically red and clayey. The vegetation is Douglas-fir and Oregon white oak. The temperature regime is mesic, and the moisture regime is xeric. The unit does not support western hemlock, which is characteristic of the adjacent units in the Coast and Cascade MLRA's.

3.1 - Olympic and Cascade Mountains - Western Cascades Lowlands and Valleys: This unit comprises the lower elevations of the Cascade Mountains, adjacent to the Valley Foothills unit (2.4). The bedrock is basalt, andesite, and rhyolite. The vegetation is Douglas-fir and western hemlock. This unit is one of the most important timber-producing areas in the Northwest. The temperature regime is mesic, and the moisture regime is udic.

3.2 - Olympic and Cascade Mountains - Western Cascades Montane Highlands: This unit comprises the middle to high elevations of the Cascades. The vegetation is Douglas-fir, western hemlock, mountain hemlock, Pacific silver fir, and noble fir. Elevation typically is above about 3,000 feet. The mountains are highly dissected with steep slopes. The temperature regime is frigid and "warm" cryic, and the moisture regime is udic. This unit normally has a deep annual snowpack.

3.5 - Olympic and Cascade Mountains - Northern Cascade Crest Montane Forest: The Cascade Crest Montane Forest CRA consists of an undulating plateau punctuated by volcanic buttes and cones that reach a maximum elevation of about 6,500 feet. This unit is extensively forested with mountain hemlock and Pacific silver fir. The temperature regime is cryic, and the moisture regime is udic. Although this unit has the same moisture and temperature regime as does unit 3.3, this unit is noticeably more moist and the break between units 3.3 and 3.5 is transitional.

Physical Description – Continued

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		ACRES	ACRE-FEET
Irrigated Adjudicated Water Rights *(OWRD[4])*	Surface	63,199	160,780
	Well	69,329	176,377
	Total Irrigated Adjudicated Water Rights	132,528	337,157
Stream Flow Data	USGS 14152000 MIDDLE FORK WILLAMETTE RIVER, AT JASPER, OR	**Total Avg. Yield**	2,946,815
		May – Sept. Yield	817,119
		MILES	**PERCENT**
Stream Data[5] **Percent of Total Miles of Streams in HUC*	Total Miles – Major (100K Hydro GIS Layer)	1,390	---
	303d/TMDL Listed Streams (DEQ)	197	14%
	Anadromous Fish Presence (StreamNet)	98	7%
	Bull Trout Presence (StreamNet)	50	4%
		ACRES	**PERCENT**
Land Cover/Use[2] Based on a 100-foot stretch on both sides of all streams in the 100K Hydro GIS Layer	Forest	30,840	89%
	Grain Crops	5	0%
	Grass/Pasture/Hay	1,325	4%
	Orchards/Vineyards	2	0%
	Row Crops	19	0%
	Shrub/Rangelands – Includes CRP Lands	331	1%
	Water/Wetlands/Developed/Barren	2,117	6%
	Total Acres of 100-foot Stream Buffers	**34,638**	**---**
Land Capability Class *(Croplands & Pasturelands Only)* *(1997 NRI[3] Estimates for Non-Federal Lands Only)*	**1** – slight limitations	1,700	10%
	2 – moderate limitations	8,600	52%
	3 – severe limitations	4,700	29%
	4 – very severe limitations	1,400	9%
	5 – no erosion hazard, but other limitations	0	0%
	6 – severe limitations; unsuitable for cultivation; limited to pasture, range, forest	0	0%
	7 – very severe limitations; unsuitable for cultivation; limited to grazing, forest, wildlife habitat	0	0%
	8 – miscellaneous areas; limited to recreation, wildlife habitat, water supply	0	0%
	Total Croplands & Pasturelands	**16,400**	**---**

Confined Animal Feeding Operations – Oregon CAFO Permit – 12/2004

Animal Type	Dairy	Feedlot	Poultry	Swine	Mink	Other
No. of Permitted Farms	0	0	0	0	0	0
No. of Permitted Animals	0	0	0	0	0	0

Resource Concerns

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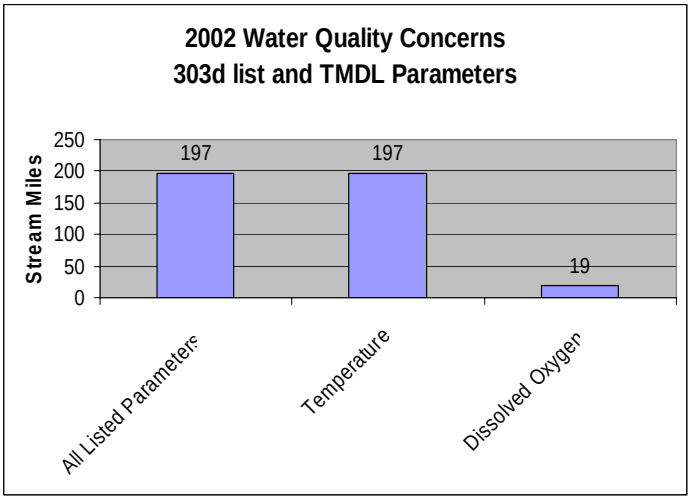
Tons of Soil Loss by Water Erosion: Due to the limited amount of non-Federal cropland and pastureland within this HUC, no reliable NRI soil loss estimates are available.

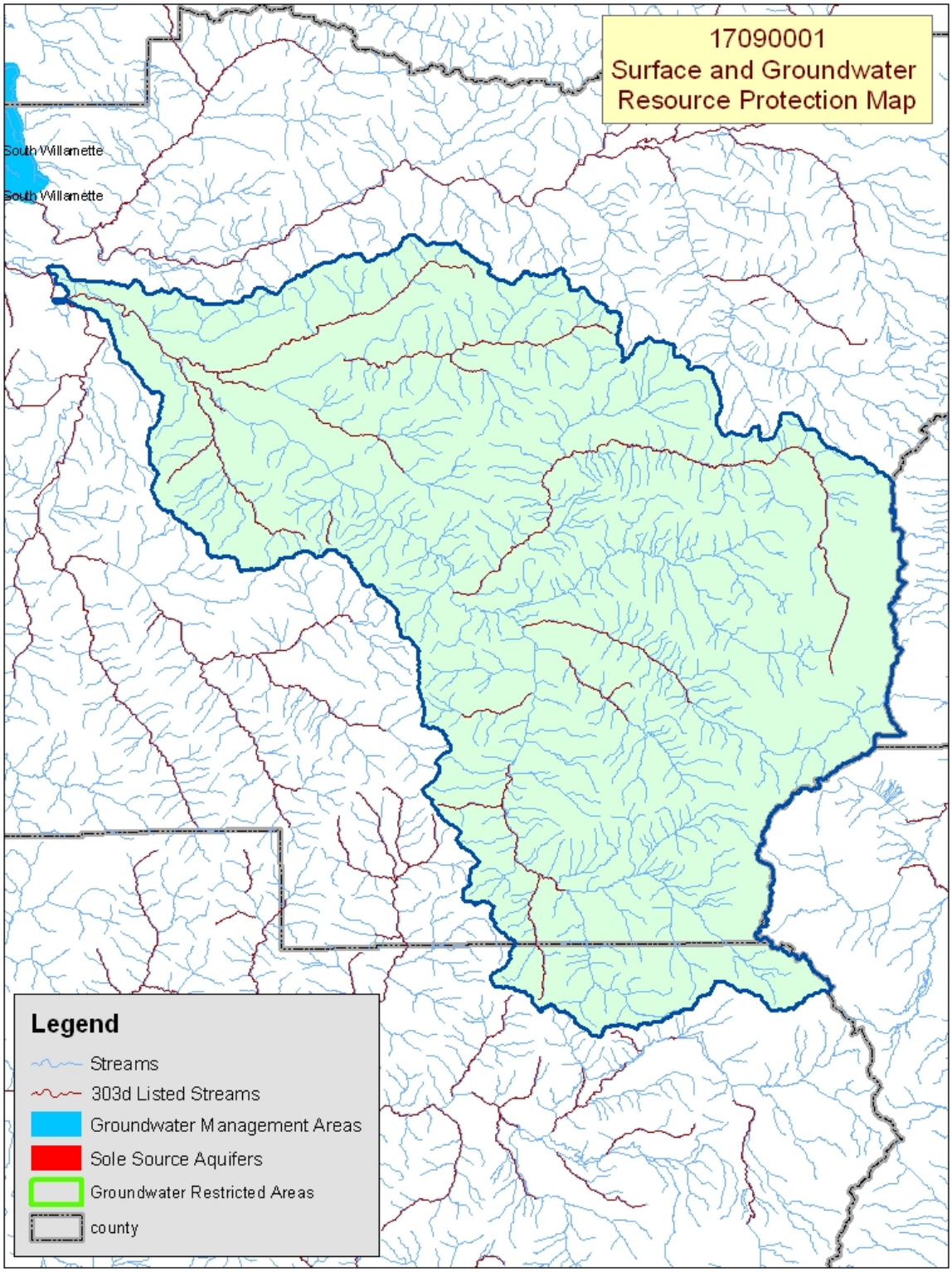


- All of the listed stream miles exceed State water quality standards for temperature. Elevated stream temperatures may be due to inadequate riparian shade, stream channel widening, and other anthropogenic or natural causes.
- Conservation practices that can be used to address these water quality issues include livestock waste management, grazing management, and use of riparian buffers.

Watershed Projects, Plans, Studies, and Assessments			
NRCS Watershed Projects[6]		NRCS Watershed Plans, Studies, and Assessments[7]	
Name	Status	Name	Status
None	None	None	None
ODEQ TMDL's[8]		ODA Agricultural Water Quality Management Plans[9]	
Name	Status	Name	Status
Columbia & Willamette Rivers Willamette Basin	Completed Completed	Southern Willamette Valley	Completed

OWEB Watershed Council[10]	Watershed Council Assessments[11]	NWPCC Subbasin Plans and Assessments[18]
Lost Creek Watershed Group Middle Fork Willamette Council	Lower Middle Fork Willamette River Watershed Assessment (Lower Three Watersheds)	Willamette Subbasin Plan

(Continued on page 8)



Map Footnote [17]

Resource Concerns - Continued

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Resource Concerns / Issues by Land Use							
SWAPA +H Concerns	**Specific Resource Concern / Issue**	**Grass \ Pasture \ Hay**	**Grain Crops**	**Row Crops**	**Perennial Crops (Orch / Vine / Berries)**	**Shrub / Range**	**Forest**
Soil Condition	Soil Compaction	X		X			
Water Quality, Groundwater	Nutrients and Organics	X		X			
Water Quality, Surface	Low Dissolved Oxygen	X	X	X	X		X
	Temperature	X	X	X	X		X
	Pathogens	X					
	Aquatic Habitat Suitability	X					X
Plant Suitability	Site and Intended Use Suitability	X					X
Plant Condition	Productivity, Health, and Vigor						X
Animal Habitat, Domestic	Management	X		X			
Animal Habitat, Wildlife	Water - Quantity and Quality	X		X			
	Management	X		X			
Human, Economics	Low or Unreliable Profitability	X	X	X			
Human, Social	Low Community Well-Being						X

Grass / Pasture / Hay Lands

- Ponding and flooding are concerns only on small farms in the watershed.
- Many small, hobby farms are in areas of pastureland. Landowners work another job, have little resource management or agriculture experience, require considerable technical assistance outside of normal business hours, and can be difficult to contact.
- Pressure for development and urban encroachment are significant problems for areas of pastureland near cities and towns.

Grain, Row, and Perennial Crops

- Residue, nutrient, and pest management and use of filter strips and buffers are necessary to control erosion and protect water quality.

Rangeland and Forestland

- Presence of invasive, noxious weeds is due in large part to poor management, especially on small-acreage operations.

FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES[12]	
THREATENED SPECIES	**CANDIDATE SPECIES**
Mammals- Canada lynx **Birds –** Bald eagle, Northern spotted owl **Fish –** Chinook salmon, Steelhead, Chum salmon, Bull trout **Invertebrates –** Fender's blue butterfly **Plants –** Golden paintbrush, Willamette daisy, Howellia, Bradshaw's lomatium, Kincaid's lupine	**Fish** – Coho salmon **Birds –** Yellow-billed cuckoo, Streaked horned lark **Invertebrates -** Taylor's checkerspot **Amphibians and Reptiles –** Oregon spotted frog **PROPOSED SPECIES** - None
ESSENTIAL FISH HABITAT[13] - Chinook	

Census and Social Data[/14]

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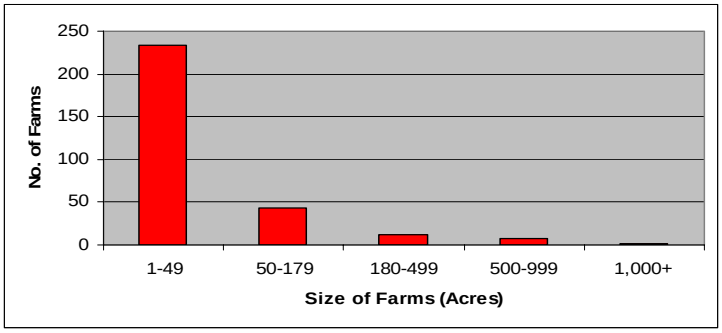


Number of Farms: 299

Number of Operators: 501

- Full-Time Operators: **149**
- Part-Time Operators: **352**

Estimated Level of Willingness and Ability to Participate in Conservation[/15]:

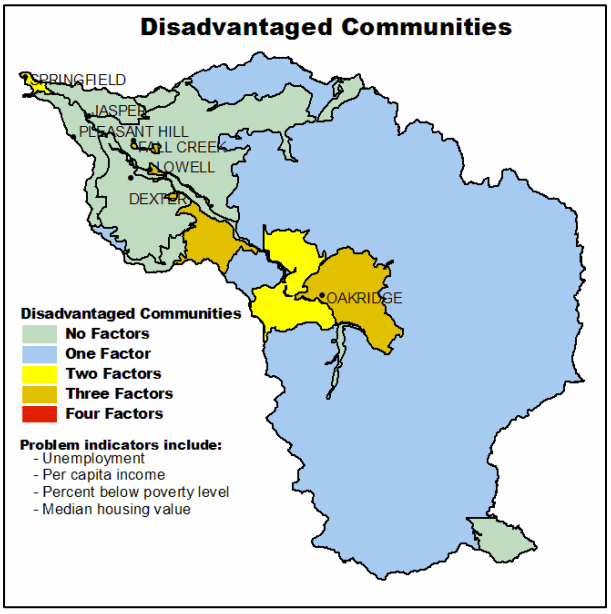
Among operators of well-established large operations: High

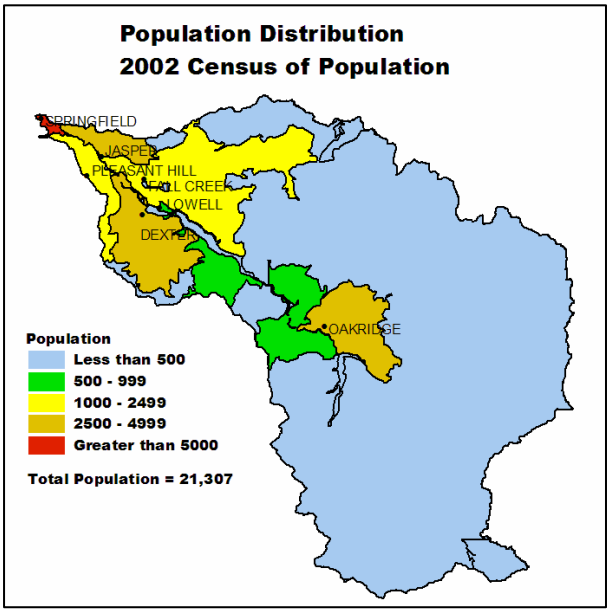
Most of these operators have conservation plans and are implementing them. They are aware of local resource issues and have a positive stewardship attitude. Conservation adoption could increase if practices and systems could be tailored to meet the particular needs of these producers.

Among operators of small operations: Moderate

Eighty percent of the farms in the subbasin are less than 50 acres in size and are in areas of pastureland or small-acreage woodlots. Most of these landowners work another job, have little resource management experience, require significant one-on-one technical assistance (outside of normal business hours), and can be difficult to contact. Generally, these landowners are willing to adopt conservation practices but they are unable to do so. The conservation partnership in the subbasin needs to work together to provide technical assistance committed to meeting the needs of small-acreage landowners.

Evaluation of Social Capital[/16]: The strengths of the communities in the subbasin are that the residents are well-educated, tend to complete projects, and have the ability to solve problems. Participation in community organizations tends to be low, and effective leadership is not consistent. Conservation systems will become more widely diffused throughout the subbasin as residents deem them important to their quality of life.





Progress / Status

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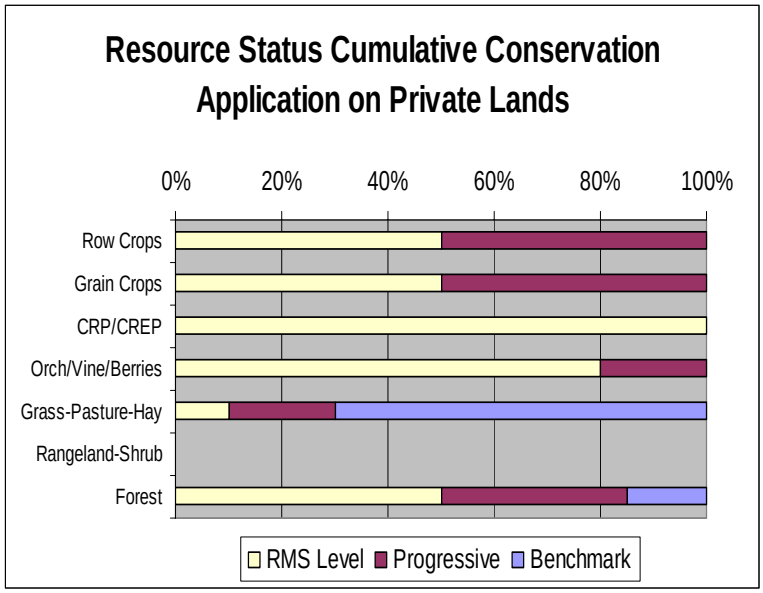
PRMS Data	FY99	FY00	FY01	FY02	FY03	Avg / Year	Total
Total Conservation Systems Planned (Acres)	53	621	15	22	690	280	1,401
Total Conservation Systems Applied (Acres)	7	20	0	231	193	90	451
Conservation Treatment (Acres)							
Waste Management	0	0	0	0	0	0	0
Buffers	0	8	0	3	2	3	13
Erosion Control	0	0	0	0	0	0	0
Irrigation Water Management	33	0	0	0	0	7	33
Nutrient Management	53	0	0	0	690	149	743
Pest Management	0	0	0	0	0	0	0
Prescribed Grazing	20	20	0	0	690	146	730
Trees & Shrubs	4	13	8	0	0	5	25
Conservation Tillage	0	0	0	0	0	0	0
Wildlife Habitat	8	19	1	2	75	21	105
Wetlands	0	0	0	0	0	0	0



Estimates are based on information received from local conservationists in the watershed.

- Progress has been limited over the last 5 years.
- Row crop (e.g. corn, beans, and cole crops) farmers commonly rely on crop consultants representing canneries and fertilizer dealers. Most are implementing some conservation, but it is not necessarily at the RMS level.
- Farmers who grow perennial crops (berries, vineyards, nursery stock, etc) commonly do not seek assistance from NRCS or SWCDs, but most are meeting RMS quality criteria.
- Much of the pasture that is at the benchmark level is on small farms.
- Private industrial forest owners typically do not work with NRCS or SWCDs; however, their lands usually comply with State forest practices act requirements.
- Much of the non-industrial, private forestland is not managed for forage or timber. Commonly, this land does not comply with the State forest practices act requirements.

Lands Removed from Production through Farm Bill Programs

- Conservation Reserve Program (CRP): **5 acres**
- Wetland Restoration Program (WRP): **None**
- Conservation Reserve Enhancement Program (CREP): **2 acres**

Footnotes/Bibliography

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1. Ownership Layer – Source: The 1:24,000 scale public ownership layer is the land ownership/management for public entities, including Federal, Tribal, State, and local entities. This is a seamless, statewide Oregon Public Ownership vector layer composed of fee ownership of lands by Federal, State, Tribal, county, and city agencies. The layer is comprised of the best available data compiled at 1:24,000 scale or smaller, and the line work matches GCDB boundary locations and ORMAP standards where possible. The layer is available from the State of Oregon GIS Service Center: http://www.gis.state.or.us/data/alphalist.html. For current ownership status, consult official records at appropriate Federal, State, and county offices. Ownership classes grouped to calculate Federal ownership vs. non-Federal ownership by the Water Resources Planning Team.

2. National Land Cover Dataset (NLCD) - Originator: U.S. Geological Survey (USGS); Publication date: 19990631; Title: Oregon Land Cover Data Set, Edition: 1; Geospatial data presentation form: Raster digital data; Publisher: U.S. Geological Survey, Sioux Falls, SD, USA; Online linkage: http://edcwww.cr.usgs.gov/programs/lccp/nationallandcover.html; Abstract: These data can be used in a geographic information system (GIS) for any number of purposes, such as assessing wildlife habitat, water quality, pesticide runoff, land use change, etc. The State data sets are provided with a 300-meter buffer beyond the State border to facilitate combining the State files into larger regions.

3. ESTIMATES FROM THE 1997 NRI DATABASE (REVISED DECEMBER 2000) REPLACE ALL PREVIOUS REPORTS AND ESTIMATES. Comparisons made using data published for the 1982, 1987, or 1992 NRI may produce erroneous results. This is because of changes in statistical estimation protocols and because all data collected prior to 1997 were simultaneously reviewed (edited) as 1997 NRI data were collected. All definitions are available in the glossary. In addition, this December 2000 revision of the 1997 NRI data updates information released in December 1999 and corrects a computer error discovered in March 2000. For more information: http://www.nrcs.usda.gov/technical/NRI/

4. Irrigated Adjudicated Water Rights – Water Rights Information System (WRIS), Oregon Water Resources Department, http://www.wrd.state.or.us/maps/wrexport.shtml

5. StreamNet is a cooperative venture of the Pacific Northwest's fish and wildlife agencies and tribes and is administered by the Pacific States Marine Fisheries Commission. StreamNet provided data and data services in support of the region's fish and wildlife program and other efforts to manage and restore the region's aquatic resources. Official StreamNet website: http://www.streamnet.org/

6. Natural Resources Conservation Service, Watershed Projects Planned and Authorized, http://www.nrcs.usda.gov/programs/watershed/Purpose.

7. Natural Resources Conservation Service, Watershed Plans, Studies, and Assessments completed, http://www.nrcs.usda.gov/programs/watershed/Surveys_Plng.html#Watershed%20Surveys%20and%20Plan

8. Oregon Department of Environmental Quality Total Maximum Daily Loads, http://www.deq.state.or.us/wq/TMDLs/TMDLs.htm

9. Oregon Department of Agriculture, Agricultural Water Quality Management Plans, http://www.oregon.gov/ODA/NRD/water_agplans.shtml

Footnotes/Bibliography Continued

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10. Oregon Watershed Enhancement Board, http://oregon.gov/OWEB/WSHEDS/index.shtml

11. Watershed Assessments completed by local watershed councils following the Oregon Watershed Assessment Manual, http://oregon.gov/OWEB/docs/pubs/ws_assess_manual.shtml.

12. NRCS Field Office Technical Guide, Section II, Threatened and Endangered List.

13. Magnuson-Stevens Fishery Conservation and Management Act, Public Law 94-265. As amended through October 11, 1996.

14. Data were taken from the 2002 Agricultural Census and adjusted by percent of HUC in the county or by percent of zip code area in the HUC, depending on the level of data available. Data were also taken from the U.S. Population Census, 2000.

15. Conservation participation was estimated using NRCS Social Sciences Technical Note 1801, Guide for Estimating Participation in Conservation, 2004. Four categories of indicators were evaluated: Personal characteristics, farm structural characteristics, perceptions of conservation, and community context. Estimates are based on information received from local conservationists in the watershed.

16. Social capital is an indicator of the community's ability and willingness to work together to solve problems. A high amount of social capital helps a community to be physically healthy, socially progressive, and economically vigorous. A low amount of social capital typically results in community conflict, lack of trust and respect, and unsuccessful attempts to solve problems. The evaluation is based on NRCS Technical Report Release 4.1, March, 2002: Adding Up Social Capital: An Investment in Communities. Local conservationists provided information to measure social capital. Scores range from 0 to 76.

17. Surface and Groundwater Resource Protection Map
    a. 2002 303d Listed Streams designated by Oregon Department of Environmental Quality and approved by the Environmental Protection Agency, Section 303d Clean Water Act, http://www.deq.state.or.us/wq/303dlist/303dpage.htm
    b. Groundwater Management Areas designated by the Oregon Department of Environmental Quality, Oregon Revised Statutes – Ground Water ORS 468B.150 to ORS 468B.190, http://www.deq.state.or.us/wq/groundwa/wqgw.htm
    c. Groundwater Restricted Areas designated by Oregon Water Resources Commission, Oregon Department of Water Resources, http://egov.oregon.gov/OWRD/PUBS/aquabook_protections.shtml
    d. The Sole Source Aquifer (SSA) Protection Program is authorized by Section 1424(e) of the Safe Drinking Water Act of 1974 (Public Law 93-523, 42 U.S.C. 300 et. seq), http://www.epa.gov/safewater/ssanp.html

18. Subbasin assessments and plans are developed by local groups (SWCDs, watershed councils, tribes, and others) as part of the Northwest Power and Conservation Council's fish and wildlife program in the Columbia River Basin. This program is funded and implemented by the Bonneville Power Administration. http://www.nwcouncil.org/fw/subbasinplanning/Default.htm.