Applegate – 17100309

8-Digit Hydrologic Unit Profile

SWCD	Acres
Jackson	261,287
Josephine	173,331
Illinois	201

Introduction

The Oregon part of the Applegate 8-Digit Hydrologic Unit Code (HUC) subbasin is comprised of 435,000 acres in Jackson and Josephine Counties. Eighty-four percent of the subbasin is forestland, and fourteen percent is used for pasture, hay, and grass. Pasture is included on commercial dairies, beef operations, and many small-acreage farms. There are 11 permitted CAFOs and over 3,000 permitted animals in the subbasin.

The primary resource concern on the forestland is the impact of soil erosion from forest roads and landings on fish and wildlife. Other significant resource concerns include streambank erosion, diminishing water quality, invasive weeds, and minimal pasture management. Economic, political, and social issues, such as a lack of technical assistance, unavailability of labor, high resource management requirements, perceived land use constraints, and controversy between new and longtime residents, impede the diffusion of conservation on the agricultural lands in the subbasin.

There are 526 farms and 851 operators in the Applegate subbasin. Ninety-four percent of the farms are less than 180 acres in size. Many owners of the small-acreage operations, especially the small woodlot owners, have little experience with natural resource management and are in the subbasin primarily for the rural lifestyle. Social capital is minimal in the subbasin, and local communities cannot be expected to effectively support natural resource management. Conservation marketing and additional technical and financial assistance are needed to substantially increase the diffusion of conservation throughout the Applegate subbasin.

Conservation assistance in the subbasin is largely provided by the Medford NRCS Service Center, Jackson and Josephine Soil and Water Conservation Districts, Southwest Oregon Resource Conservation and Development (RC&D) office, and Applegate River and Williams Creek Watershed Councils.

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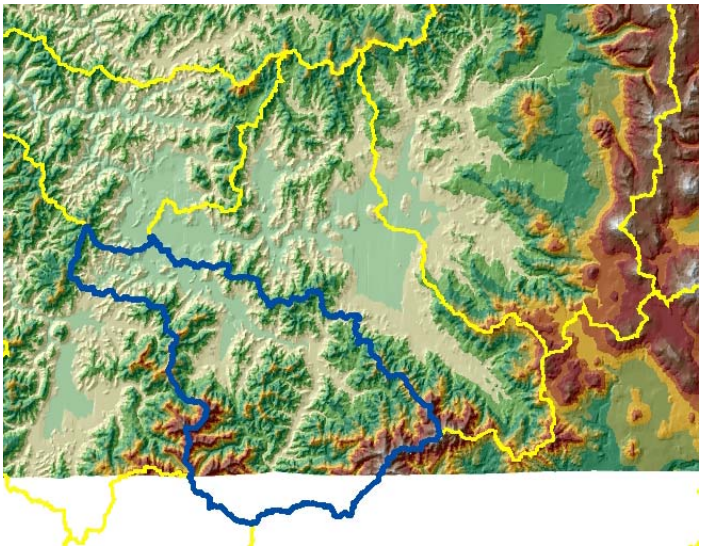

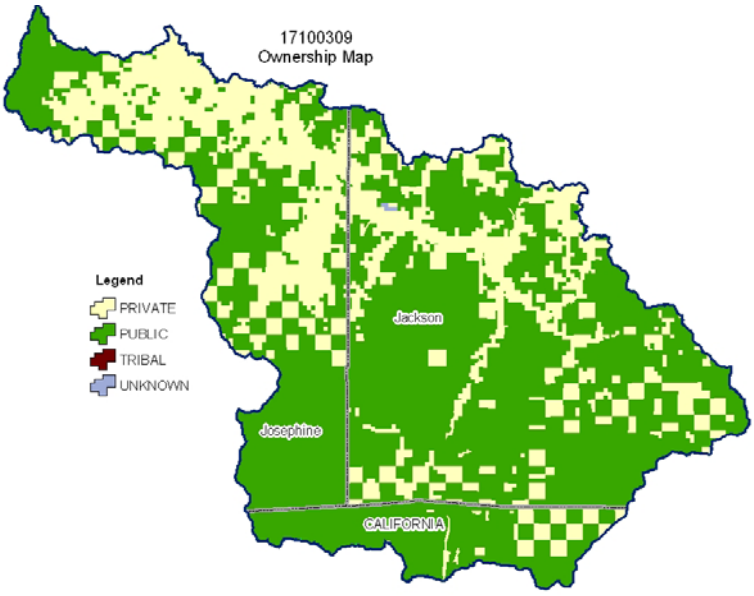

Produced by the Water Resources Planning Team Portland, OR

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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	257,800	59%	105,700	24%	0	0%	**363,600**	**84%**
Grain Crops	*	---	*	---	0	0%	*****	**---**
Conservation Reserve Program Land [a]	0	0%	0	0%	0	0%	**0**	**0%**
Grass/Pasture/Hay	24,600	6%	34,000	8%	0	0%	**58,700**	**14%**
Orchards/Vineyards	0	0%	0	0%	0	0%	**0**	**0%**
Row Crops	*	---	*	---	0	0%	*****	**---**
Shrub/Rangelands	5,500	1%	*	---	0	0%	**7,800**	**2%**
Water/Wetlands/Developed/Barren	*	---	*	---	0	0%	*****	**---**
Oregon HUC Totals [b]	**288,600**	**66%**	**145,700**	**34%**	**0**	**0%**	**434,500**	**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:

- Approximately 24 percent of private forestland is under industrial forest ownership (OSU, Forestry Sciences Laboratory).
- Pasture is included on commercial dairy and beef operations as well as on small farms and ranchettes.
- Much of the private forestland is grazed.
- Land used for grain is being converted to pasture due to the current profitability of the cattle industry.
- Specialty crops are grown for fresh market (based on local interviews of staff).
- During the last decade there has been a significant increase in vineyards, approximately 9,000 acres in Jackson County.
- Some herbal crops are cultured for pharmaceuticals.

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	6,900	26%	1.5%
	Pastureland	19,200	74%	4%
	Total Irrigated Lands	**26,100**	**100%**	**6%**

(Continued on the following pages)

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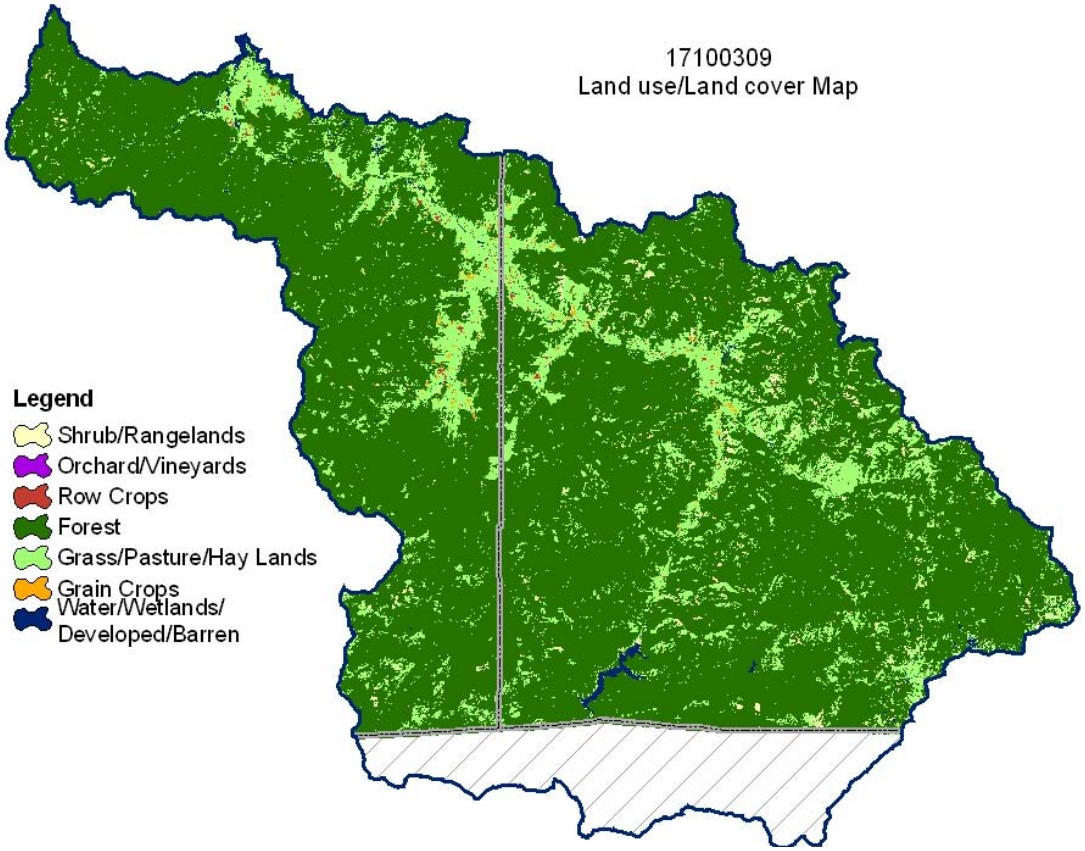

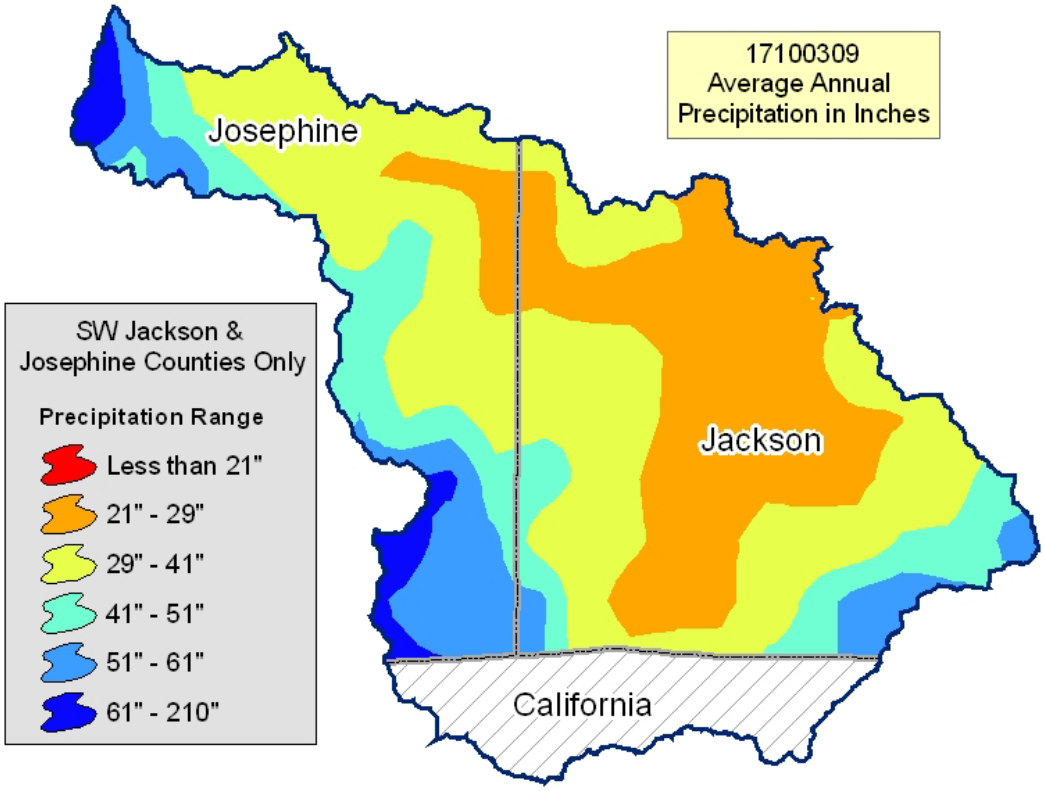

Common Resource Area Map

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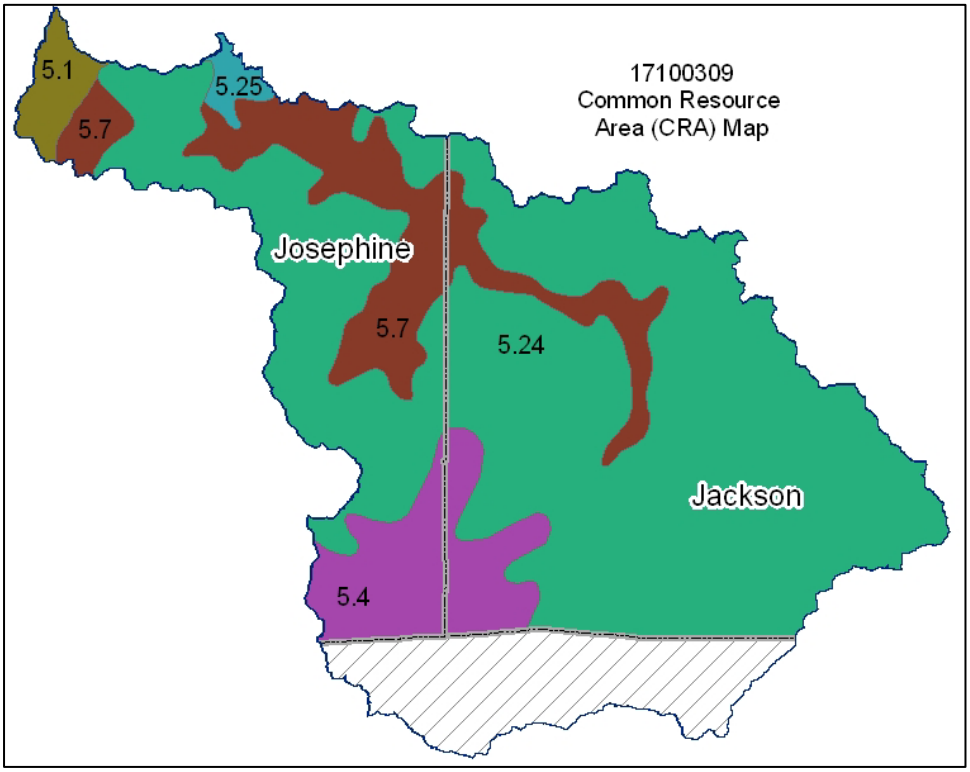
Only the major units are described below - for descriptions of all units within the HUC, go to: http://ice.or.nrcs.usda.gov/website/cra/viewer.htm



5.1 – Siskiyou-Trinity Area - Gasquet Mountain Ultramafics: This unit encompasses ultramafic rock in the Josephine ophiolite. The soil temperature regime is dominantly mesic, and the soil moisture regime is xeric. Common vegetation includes Jeffrey pine, lodgepole pine, and Port Orford cedar. This unit drains to the Smith River and tributaries of the Klamath River.

5.24 – Siskiyou-Trinity Area - Inland Siskiyous: This unit comprises most of the MLRA. It is characterized by mountains. The geology is comprised of metasediment, metavolcanic rock, and granitic rock. The vegetation is dominantly Douglas-fir, ponderosa pine, madrone, and scattered Oregon white oak. The temperature regime is dominantly mesic with small areas that are frigid, and the moisture regime is dominantly xeric with some north-facing slopes that are udic. The udic areas adjacent to MLRAs 1 and 3 are characterized by supporting western hemlock.

5.25 - Siskiyou-Trinity Area - Rogue and Illinois Valleys: This unit is comprised of the terraces and flood plains of the Rogue and Illinois River Valleys. The temperature regime is mesic, and the moisture regime is xeric. This unit contains small areas of foothill landforms but not to the extent of those in unit 5.28.

5.4 – Siskiyou-Trinity Area - Red Butte: This unit is along a drainage divide between the Klamath River on the south and the Applegate River on the north. The soil temperature regime is dominantly frigid with some areas at the higher elevations that are cryic, and the soil moisture regime is xeric. Common vegetation includes white fir, red fir, and Jeffrey pine. This unit drains to the Applegate River on the north and to Indian Creek and other tributaries of the Klamath River.

5.7 – Siskiyou-Trinity Area - Siskiyou Foothills: This unit is characterized by foothills adjacent to the terrace and flood plain unit 5.1. This unit dominantly supports Oregon white oak, Pacific madrone, ponderosa pine, and scattered Douglas-fir. Significant areas of rangeland are scattered throughout the unit in areas of shallow soils. The temperature regime is mesic, and the moisture regime is xeric.

Physical Description – Continued

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		ACRES	ACRE-FEET
Irrigated Adjudicated Water Rights *(OWRD[4])*	Surface	24,650	78,612
	Well	1,822	4,559
	Total Irrigated Adjudicated Water Rights	26,472	83,171
Stream Flow Data	USGS 14369500 APPLEGATE RIVER, NEAR WILDERVILLE, OR	**Total Avg. Yield**	518,735
		May – Sept. Yield	108,805
		MILES	**PERCENT**
Stream Data[5] **Percent of Total Miles of Streams in HUC*	Total Miles – Major (100K Hydro GIS Layer)	700	---
	303d/TMDL Listed Streams (DEQ)	145	21%
	Anadromous Fish Presence (StreamNet)	69	10%
	Bull Trout Presence (StreamNet)	0	0%
		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	15,760	76%
	Grain Crops	109	<1%
	Grass/Pasture/Hay	4,028	19%
	Orchards/Vineyards	0	0%
	Row Crops	67	0%
	Shrub/Rangelands – Includes CRP Lands	315	2%
	Water/Wetlands/Developed/Barren	381	2%
	Total Acres of 100-foot Stream Buffers	**20,660**	**---**
Land Capability Class *(Croplands & Pasturelands Only)* *(1997 NRI[3] Estimates for Non-Federal Lands Only)*	**1** – slight limitations	0	0%
	2 – moderate limitations	10,800	29%
	3 – severe limitations	10,300	28%
	4 – very severe limitations	14,800	40%
	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	1,000	3%
	Total Croplands & Pasturelands	**36,900**	**---**

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

Animal Type	Dairy	Feedlot	Poultry	Swine	Mink	Other
No. of Permitted Farms	5	2	0	2	0	2
No. of Permitted Animals	2,380	415	0	294	0	75

Resource Concerns

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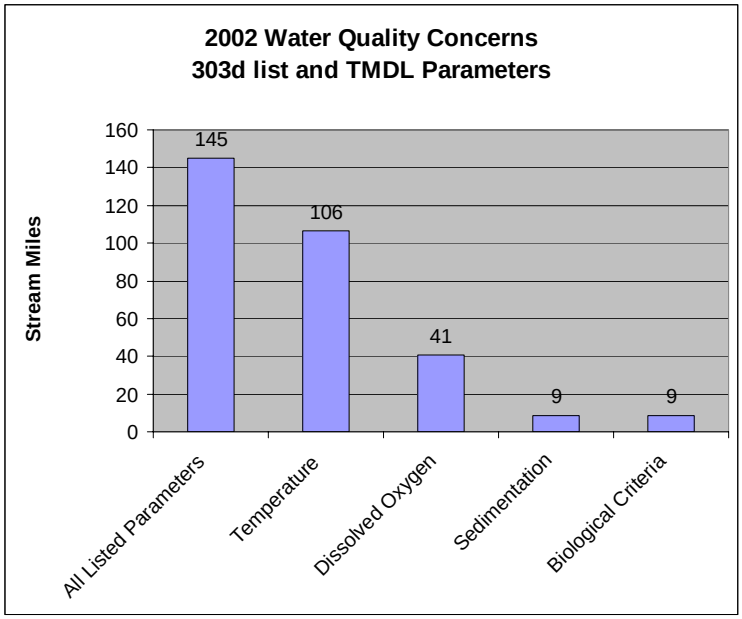
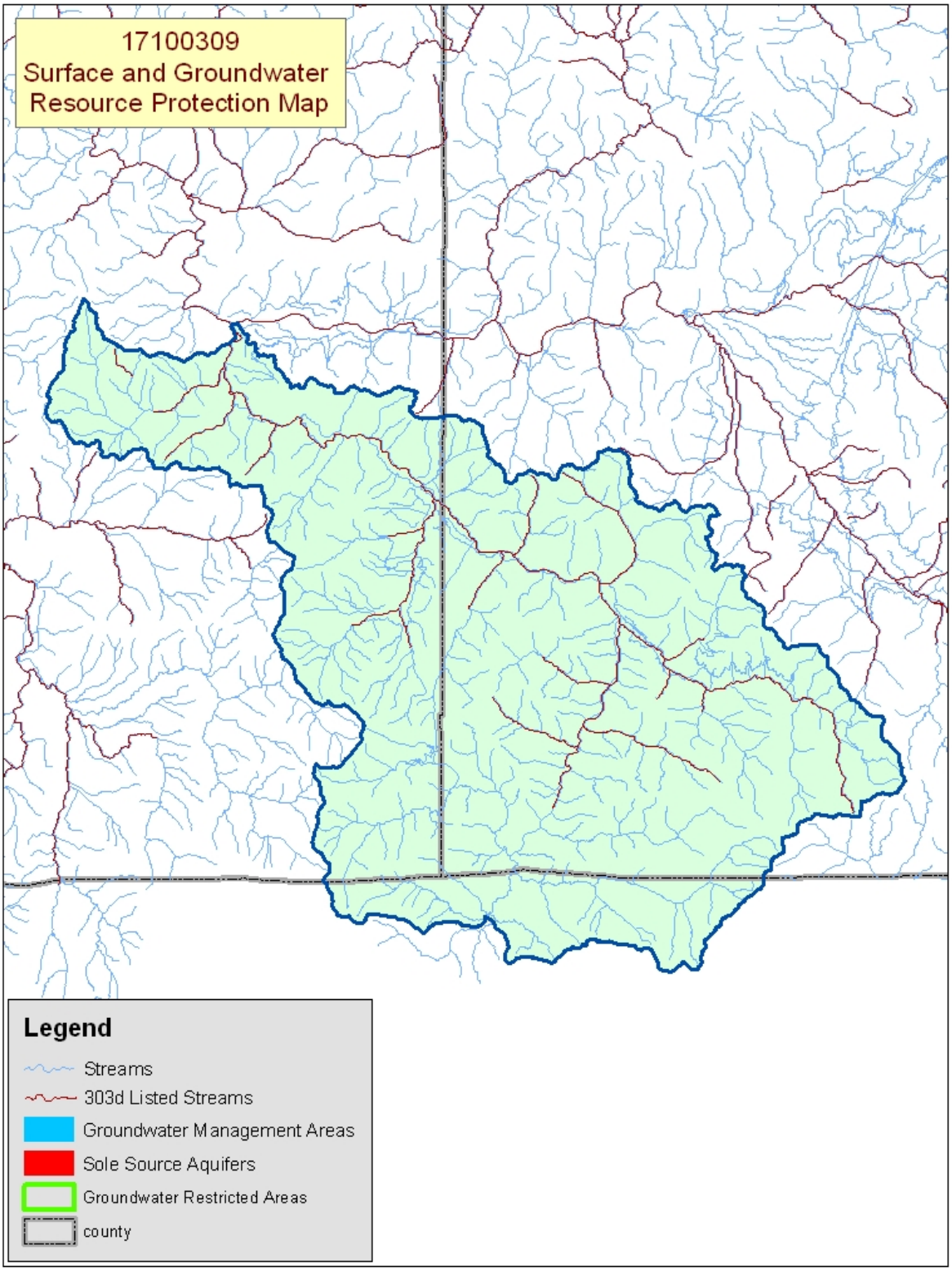
Tons of Soil Loss by Water Erosion: Due to the limited amount of non-Federal cropland and pastureland within this HUC, no reliable NRI soil loss estimates are available.



- Seventy-three percent of 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.
- Sedimentation coastal streams commonly stems from erosion associated with forest roads and streambanks.
- 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
Applegate Subbasin	Completed	Inland Rogue	Completed
OWEB Watershed Council[10]	Watershed Council Assessments[11]		NWPCC Subbasin Plans and Assessments[18]
Applegate River and Williams Creek Watershed Councils	Applegate River, Cheney Creek Water, Little Applegate River, and Slate Creek Watershed Assessments		None

(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)**	**Forest**
Soil Erosion	Concentrated Flow or Gully					X
	Streambank	X				X
Water Quantity	Water Management for Irrigated Land	X				
Water Quality, Surface	Low Dissolved Oxygen	X				X
	Temperature	X				X
	Aquatic Habitat Suitability	X				X
Plant Condition	Productivity, Health, and Vigor	X				X
Plant Management	Establishment, Growth, and Harvest	X				X
Animal Habitat, Domestic	Water - Quantity and Quality	X				X
	Management	X				X
Animal Habitat, Wildlife	Water - Quantity and Quality	X				
Human, Economics	Land Use Constraints/Restrictions	X				X
	High Labor Costs or Availability	X				X
	High Management Level Required	X				X
	Low or Unreliable Profitability	X				
Human, Political	High Degree of Controversy	X				X
	Lack of Technical Assistance					X

Grass / Pasture / Hay Lands

- Erosion (streambanks) and water quality (temperature) are concerns commonly because of a lack of riparian buffers.
- Insufficient forage and grazing management contributes to low-producing pastures.
- Invasive, noxious weeds can be a significant problem, especially on overgrazed pastures.
- The level of management needed for high-quality pastures commonly is not an objective of small operators.

Forestland (Private, Non-Industrial)

- The primary resource concern is the impact of erosion from concentrated flows, especially from forest roads and landings, on fish and wildlife.
- Overgrazing and noxious weeds limit productivity on grazed woodlands.
- Private woodlots commonly suffer from hygrading (harvesting the best trees) or poor stand management (overstocked stands).
- Overstocked forests and invasive weeds limit productivity and increase the risk of catastrophic fire.
- Conservation on private, non-industrial forestland is limited as a result of the following:
  - Short growth cycle (40 to 60 years) for harvestable timber.
  - Low economic profitability associated with livestock grazing.
  - High capital cost to establish and manage timber.
  - Lack of technical assistance to small woodlot owners.

General

- Development pressure, diverse community attitudes, and issues regarding local zoning and land use can discourage landowner investment in conservation activities.

FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES[12]	
THREATENED SPECIES	**CANDIDATE SPECIES**
Mammal-Canada lynx **Marine –** Steller (northern) sea lion **Birds –** Marbled murrelet, Bald eagle, Brown pelican, Northern spotted owl **Fish –** Coho salmon **Invertebrates –** Vernal pool fairy shrimp **Plants –** Gentner's fritillary, Large-flowered meadowfoam, Cook's lomatium, Mcdonald's rockcress	**Birds –** Streaked horned lark **Amphibians and Reptiles –** Oregon spotted frog **Invertebrates -** Mardon skipper butterfly **PROPOSED SPECIES** - None
ESSENTIAL FISH HABITAT[13] – Chinook, Coho	

Census and Social Data[/14]

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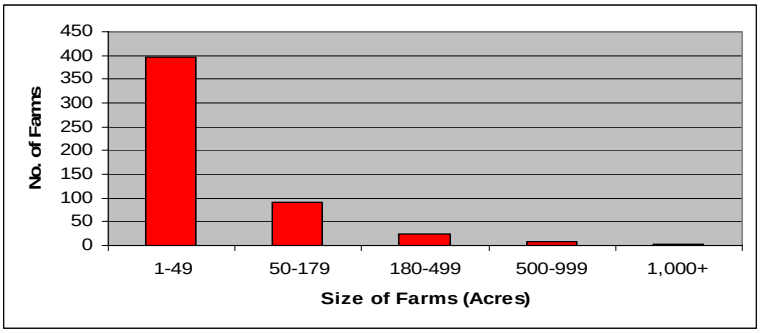


Number of Farms: 526

Number of Operators: 851

- Full-Time Operators: **294**
- Part-Time Operators: **557**

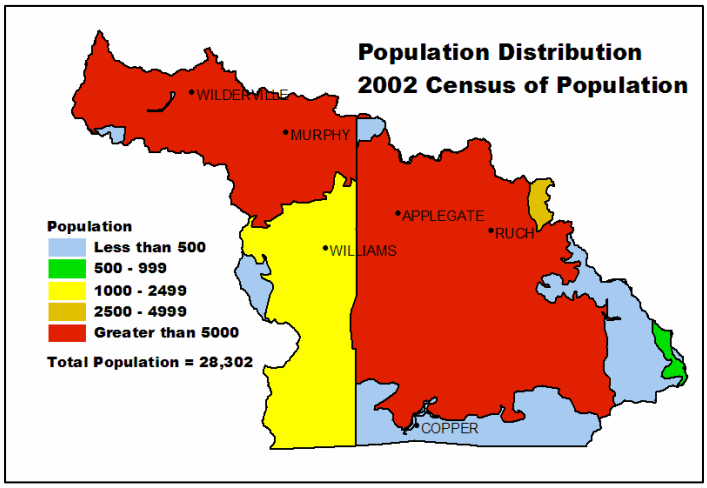
Estimated Level of Willingness and Ability to Participate in Conservation[/15]: MODERATE

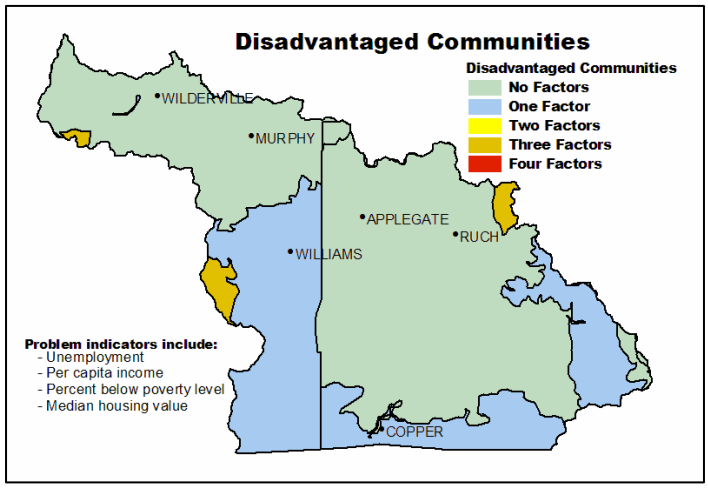
The operators of large family farms are aware of local resource concerns and have a positive stewardship attitude. They tend to perceive conservation as expensive to implement and maintain, and they do not expect to receive financial assistance. For the most part, they are able to adopt conservation but many are unwilling to do so. Development pressure and fear of regulatory actions are concerns among these farmers. Conservation marketing and increased, timely technical assistance may increase conservation adoption.

Part-time, hobby, and retiree landowners tend to have a positive stewardship attitude and are well educated. They are relatively aware of local resource concerns and the relevance of their operation to these concerns; however, they have little experience with resource management and require a great deal of technical assistance in order to adopt conservation systems, especially owners of non-industrial forestland and small woodlots. Considerable technical assistance is needed to increase conservation adoption and improve the management skills of these landowners.

Evaluation of Social Capital[/16]:

Social capital and the ability of the communities to solve problems are reported to be relatively low. The communities do tend to complete projects they start, but they rarely undertake community projects. There is fair participation in environmental and agricultural organizations; however, effective leadership is reported to be inconsistent. Community development assistance could be used to engage the community in natural resource issues, increase social capital, and help the communities become a force behind increasing conservation in the subbasin.





Progress / Status

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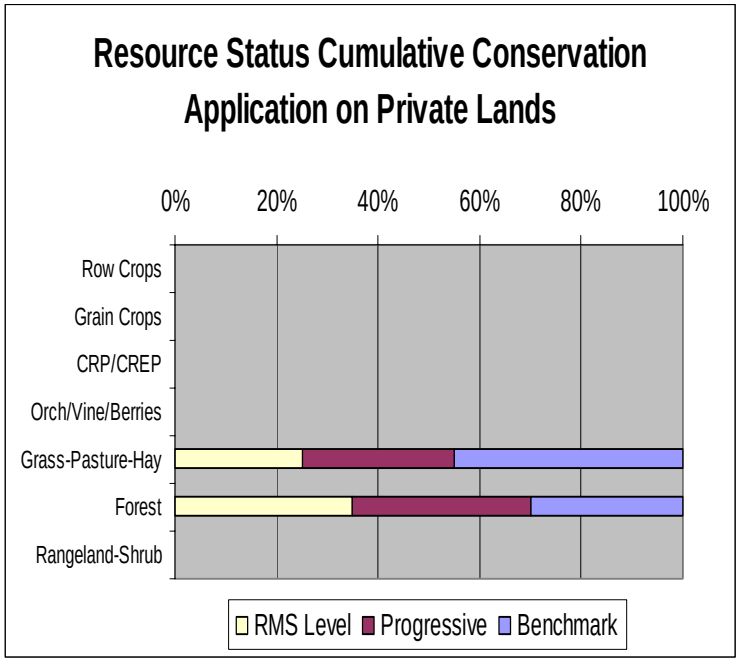
PRMS Data	FY99	FY00	FY01	FY02	FY03	Avg / Year	Total
Total Conservation Systems Planned (Acres)	410	586	156	183	592	385	1,927
Total Conservation Systems Applied (Acres)	0	452	41	10	69	114	572
Conservation Treatment (Acres)							
Waste Management	0	1	0	0	0	0	1
Buffers	0	10	17	0	0	5	27
Erosion Control	0	2	0	0	0	0	2
Irrigation Water Management	50	0	0	0	141	38	191
Nutrient Management	50	9	0	6	0	13	65
Pest Management	0	110	0	0	0	22	110
Prescribed Grazing	0	0	0	0	141	28	141
Trees & Shrubs	1	8	0	10	0	4	19
Conservation Tillage	0	0	0	0	0	0	0
Wildlife Habitat	4	626	0	0	0	126	630
Wetlands	0	0	0	0	0	0	0



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

- Progress over the last 5 years has been focused on:
  - Irrigation water management.
  - Nutrient and pest management on cropland.
  - Wildlife habitat management in riparian areas and on uplands.
- Farmers of row crops (e.g. corn, beans, and cole crops) commonly apply good erosion control measures.
- Invasive weeds and a lack of proper forage and grazing management is an ongoing concern.
- Private, industrial forestland owners typically do not work with NRCS or SWCDs; however, their land usually complies with State forest practice act requirements.
- Much of the forestland is associated with small merchantable timber and oak savannahs and is managed for forage and timber production.

Lands Removed from Production through Farm Bill Programs

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

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 larger, 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.