# Umpqua – 17100303

*8-Digit Hydrologic Unit Profile*

***REVISED***

**MAY 2006**

## Introduction

The Umpqua 8-Digit Hydrologic Unit Code (HUC) subbasin is comprised of 962,000 acres, mostly in Douglas County. Eighty-six percent of the subbasin is forestland. The remaining land is mostly grassland, hayland, pastureland, and rangeland, and it typically is in small acreage operations.

The primary resource concern is the impact on fish and wildlife of concentrated flows from roads and landings on forestland. Poor management is a concern on many of the small acreage woodlots. A lack of riparian buffers on hayland and pastureland increases the risk of streambank erosion and diminishes water quality. Invasive weeds are a concern throughout much of the subbasin. High costs and a lack of adequate technical assistance limit conservation adoption among the farmers and ranchers in the North Umpqua subbasin.

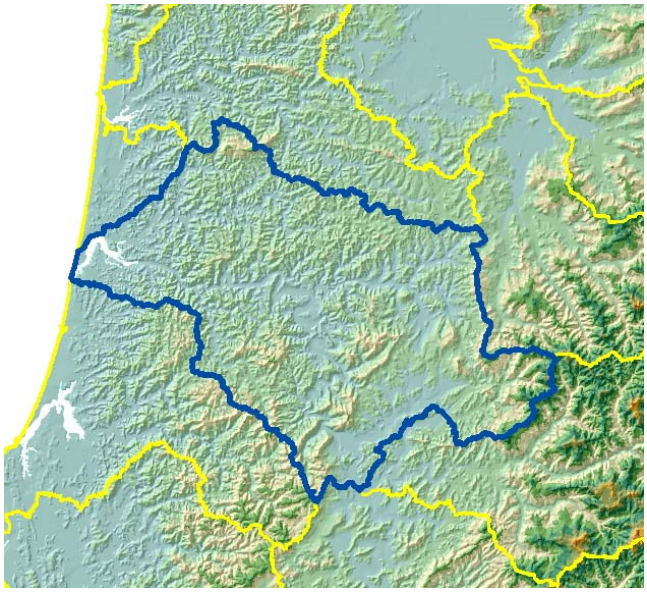
There are about 619 operations and 1,035 operators in the subbasin. Operators of the larger, well-established operations tend to adopt conservation if it fits into their current management system without too much effort or risk. Increased technical assistance and a concerted effort by the local conservation partnership is needed to increase the diffusion of conservation among the more numerous, small acreage landowners in the subbasin.

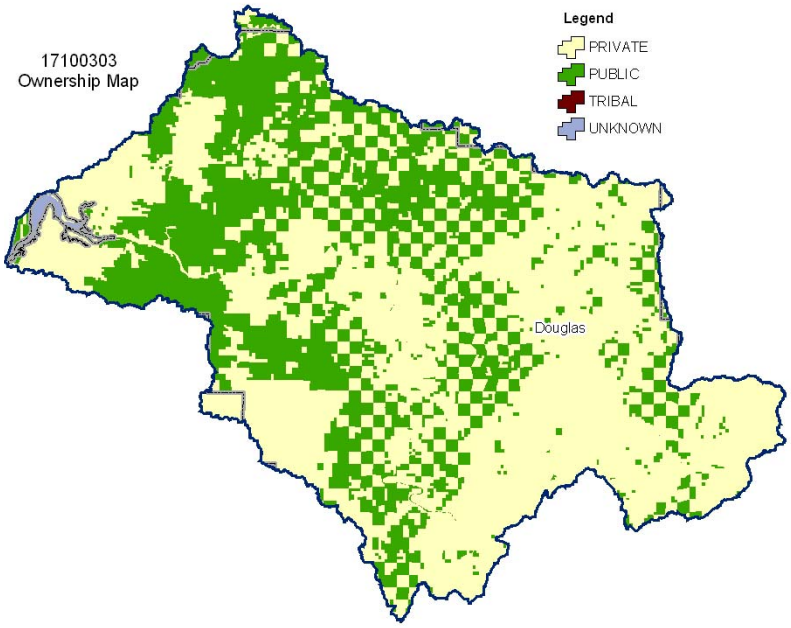
The Roseburg USDA Service Center, Douglas and Umpqua Soil and Water Conservation Districts, the Southwest Oregon Resource Conservation and Development Area, three watershed councils, and Coos Indian Tribe provide conservation assistance in the subbasin.

## Profile Contents


Introduction
Physical Description
Land Use Map & Precipitation Map
Common Resource Area
Resource Concerns
Census and Social Data
Progress/Status
Footnotes/Bibliography


### Relief Map






*Produced by the Water Resources Planning Team Portland, OR*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## Physical Description

Back to Contents

**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 | 337,400 | 35% | 491,300 | 51% | 0 | 0% | 829,100 | 86% |
| Grain Crops | * | --- | * | --- | 0 | 0% | * | --- |
| Conservation Reserve Program Land [a] | * | --- | * | --- | 0 | 0% | * | --- |
| Grass/Pasture/Hay | * | --- | 94,000 | 10% | 0 | 0% | 99,700 | 10% |
| Orchards/Vineyards | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| Row Crops | * | --- | * | --- | 0 | 0% | * | --- |
| Shrub/Rangelands | * | --- | 17,400 | 2% | 0 | 0% | 18,600 | 2% |
| Water/Wetlands/Developed/Barren | * | --- | 11,200 | 1% | 0 | 0% | 12,900 | 1% |
| **Oregon HUC Totals [b]** | **345,200** | **36%** | **615,300** | **64%** | **0** | **0%** | **961,700** | **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.*

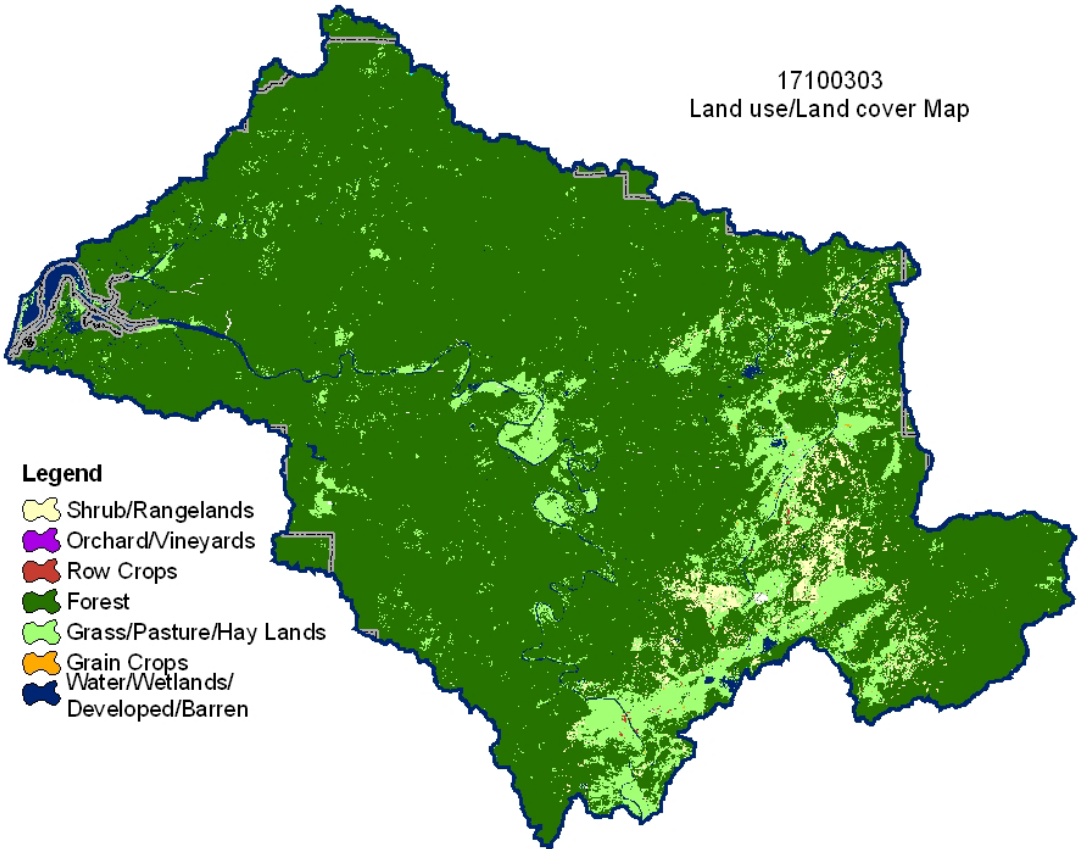
**Special Considerations for This 8-Digit HUC:**

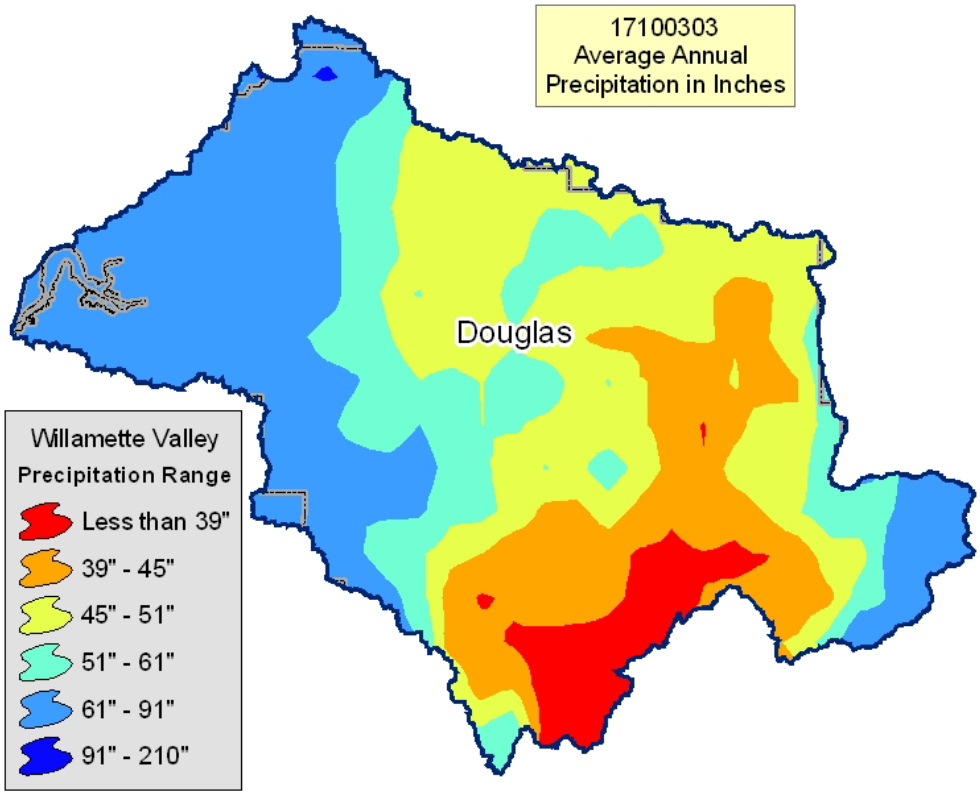
- Approximately 70 percent of the private forestland is under industrial forest ownership (OSU, Forestry Sciences Laboratory).
- Much of the rangeland is oak savannah and not actively managed as forage.
- Pasture occurs on farms and ranchettes.
- Approximately 400 acres of specialty crops are grown for fresh market (based on local interviews of staff).

| 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 | 2,400 | 46% | 0% |
| | Pastureland | 2,800 | 54% | 0% |
| | **Total Irrigated Lands** | **5,200** | **100%** | **<1%** |

***(Continued on the following pages)***

Back to Contents

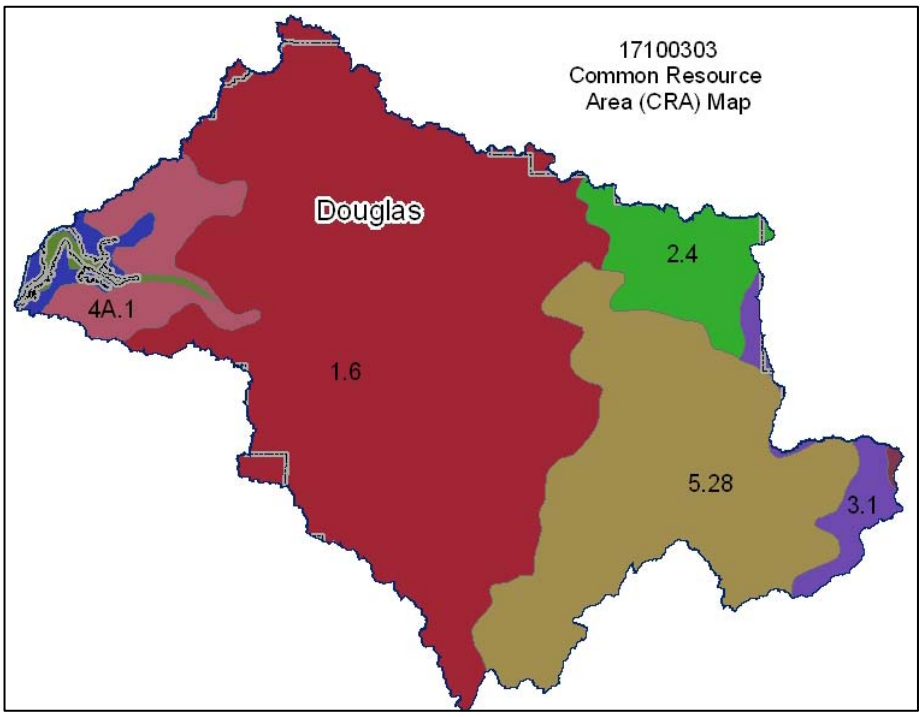


## Common Resource Area Map

Back to Contents

**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




**1.6 - Northern Pacific Coast Range, Foothills, and Valleys - Mid-Coastal Sedimentary:** This unit is comprised of mountains that have sedimentary bedrock and are outside of the "fogbelt." The temperature regime is mesic, and the moisture regime is udic. Sitka spruce is typically absent. The dominant vegetation is Douglas-fir and western hemlock. It includes narrow inland flood plains and terraces.

**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 rock, and they typically are red and clayey. The vegetation is Douglas-fir and Oregon white oak. The temperature regime is mesic, and the moisture regime is xeric. This unit does not support western hemlock, which is characteristic of the adjacent units in the Coast and Cascade MLRA's.

**4A.1 – Sitka Spruce Belt - Coastal Sedimentary Uplands:** This unit is comprised of mountains that have sedimentary rock and are in the "fogbelt." The temperature regime is isomesic, and the moisture regime is udic. Sitka spruce is present, and it separates this unit from unit 1.1.

**5.28 - Siskiyou-Trinity Area - Umpqua Interior Foothills:** This unit is comprised of a complex of flood plains, terraces, and foothills. The significant intermingling of foothill landforms in this unit makes it nearly impossible to separate out units 5.25 and 5.26; thus, unit 5.28 is a complex unit. The vegetation and climate is very similar to those of units 5.25 and 5.26.

## Physical Description – Continued

Back to Contents

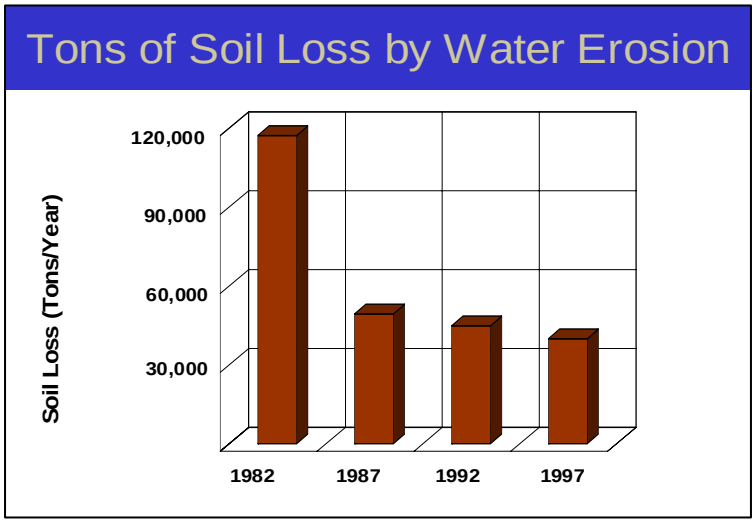
| | | ACRES | ACRE-FEET |
|---|---|---|---|
| **Irrigated Adjudicated Water Rights** *(OWRD[4])* | Surface | 14,728 | 36,821 |
| | Well | 142 | 356 |
| | Total Irrigated Adjudicated Water Rights | 14,871 | 37,177 |
| **Stream Flow Data** | USGS 14321000 UMPQUA RIVER, NEAR ELKTON, OR | **Total Avg. Yield** | 5,339,825 |
| | | **May – Sept. Yield** | 868,982 |
| | | **MILES** | **PERCENT** |
| **Stream Data[5]** **Percent of Total Miles of Streams in HUC* | Total Miles – Major (100K Hydro GIS Layer) | 1,609 | --- |
| | 303d/TMDL Listed Streams (DEQ) | 393 | 24% |
| | Anadromous Fish Presence (StreamNet) | 383 | 23% |
| | 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 | 34,276 | 82% |
| | Grain Crops | 32 | 0% |
| | Grass/Pasture/Hay | 4,740 | 11% |
| | Orchards/Vineyards | 0 | 0% |
| | Row Crops | 36 | 0% |
| | Shrub/Rangelands – Includes CRP Lands | 681 | 2% |
| | Water/Wetlands/Developed/Barren | 1,838 | 4% |
| | **Total Acres of 100-Foot Stream Buffers** | **41,725** | **---** |
| **Land Capability Class** *(Croplands & Pasturelands Only)* *(1997 NRI[3] Estimates for Non-Federal Lands Only)* | **1** – slight limitations | 500 | 1% |
| | **2** – moderate limitations | 30,000 | 38% |
| | **3** – severe limitations | 17,200 | 22% |
| | **4** – very severe limitations | 11,100 | 14% |
| | **5** – no erosion hazard, but other limitations | 0 | 0% |
| | **6** – severe limitations; unsuitable for cultivation; limited to pasture, range, forest | 19,300 | 25% |
| | **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** | **78,100** | **---** |

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

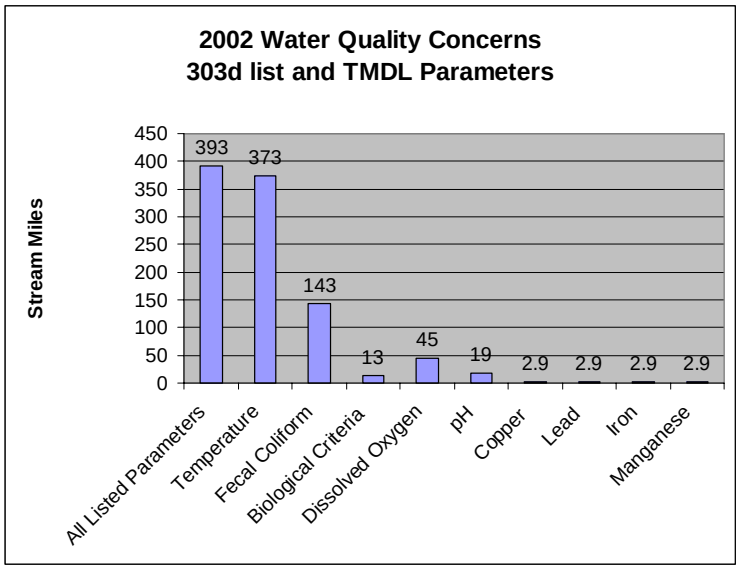
| Animal Type | Dairy | Feedlot | Poultry | Swine | Mink | Other |
|---|---|---|---|---|---|---|
| No. of Permitted Farms | 0 | 0 | 0 | 0 | 0 | 1 |
| No. of Permitted Animals | 0 | 0 | 0 | 0 | 0 | 20 |

## Resource Concerns

Back to Contents




- Sheet and rill erosion by water on the cropland and pastureland have been reduced by more than 77,000 tons of soil per year from 1982 to 1997.
- NRI estimates indicate that 10,000 acres of the subbasin agricultural lands still had water erosion rates above a sustainable level in 1997.
- Controlling erosion not only sustains the long-term productivity of the land, but it also affects the amount of soil, pesticides, fertilizer, and other substances that move into the Nation's waters.
- Through NRCS programs, many farmers and ranchers have applied conservation practices to reduce the effects of water erosion. Erosion rates on cropland and pastureland fell 46 percent, from 0.9 ton/acre/year to 0.5 ton/acre/year from 1982 to 1997.

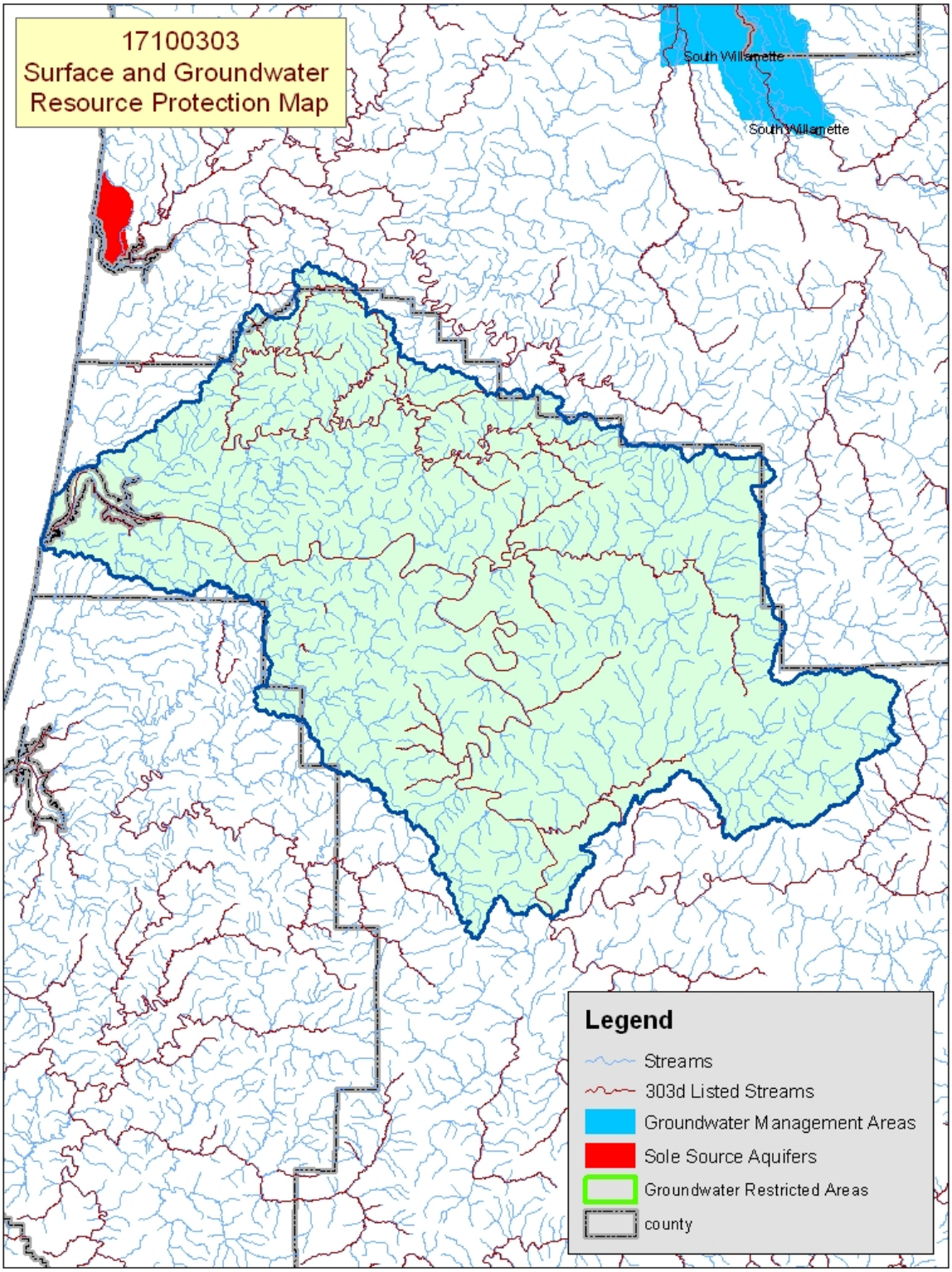



- Ninety-five percent of all of the listed stream miles exceed State water quality standards for temperature. Elevated stream temperatures may be due to inadequate riparian shade, stream channel widening, and other anthropogenic or natural causes.
- Fecal coliform can be indicative of livestock wastes, but it also is associated with improperly operating onsite sewage disposal systems.
- 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 |
| Calapooya Creek | Deauthorized - 1984 | None | None |
| ODEQ TMDL's[8] | | ODA Agricultural Water Quality Management Plans[9] | |
| Name | Status | Name | Status |
| Umpqua Basin | Data Collection | Umpqua | Completed |

| OWEB Watershed Council[10] | Watershed Council Assessments[11] | NWPCC Subbasin Plans & Assessments[18] |
|---|---|---|
| Umpqua Basin Watershed Council,<br>Elk Creek Watershed Council,<br>Smith River Watershed Council | Calapooya Creek Watershed Assessment and Action Plan | None |

*(Continued on page 8)*




**Map Footnote** [17]

## Resource Concerns - Continued

Back to Contents

| 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 Erosion | Streambank | X | | | | | X |
| | Soil Mass Movement | | | | | | X |
| Water Quality, Surface | Suspended Sediments and Turbidity | | | | | | X |
| | Temperature | X | | | | | X |
| | Aquatic Habitat Suitability | X | | | | | X |
| Plant Suitability | Site & Intended Use Suitability/Invasive Weeds | 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 | | | | | |
| | Management | X | | | | | |
| Animal Habitat, Wildlife | Food, Cover, and/or Shelter | X | | | | | |
| | Water - Quantity and Quality | X | | | | | |
| Human, Economics | High Capital/Financial Costs | X | | | | | X |
| | Low or Unreliable Profitability | X | | | | | |
| Human, Political | Lack of Technical Assistance | X | | | | | X |

**Grass / Pasture / Hay**

- Erosion (streambanks) and water quality (temperature) are concerns commonly because of a lack of riparian buffers.
- Lack of desirable forage and lack of proper grazing management contribute 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 acreage operators.

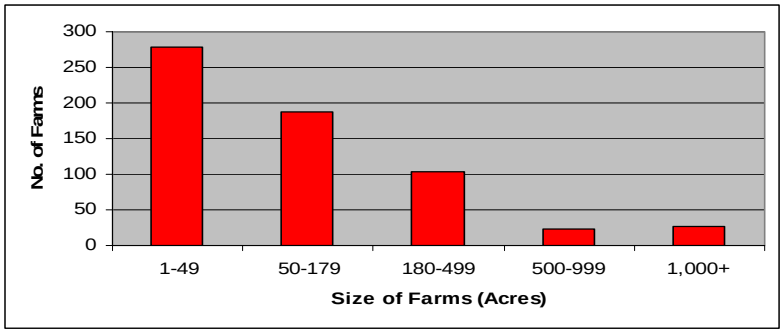
**Forest Land (private, non-industrial)**

- The primary resource concern is the impact on fish and wildlife of erosion from concentrated flows on roads and landings.
- Private woodlots commonly suffer from hygrading (harvesting the best trees) and poor stand management (overstocked stands).
- Overstocked forests and invasive weeds limit the productivity and increase the risk of catastrophic fire.
- Conservation on private, non-industrial forestland is limited as a result of:
  - High capital cost to establish and manage timber.
  - Lack of technical assistance to small acreage woodlot owners.

| FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES[12] | |
|---|---|
| **Threatened Species** | **Candidate Species** |
| **Mammal-**Canada lynx<br>**Marine –** Stellar (northern) sea lion<br>**Birds –** Marbled murrelet, Western snowy plover, Bald eagle, Brown pelican, Short-tailed albatross, Northern spotted owl<br>**Fish –** Coho salmon, Steelhead, Chinook salmon<br>**Plants –** Kincaid's lupine, Rough popcorn flower | **Fish** – Steelhead<br>**Birds –** Streaked horned lark<br>**Amphibians and Reptiles –** Oregon spotted frog<br><br>**PROPOSED SPECIES** None |
| **ESSENTIAL FISH HABITAT[13] –** Chinook, Coho | |

## Census and Social Data[14]

Back to Contents




**Number of Farms: 619**

**Number of Operators: 1,035**

- Full-Time Operators: **347**
- Part-Time Operators: **688**

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

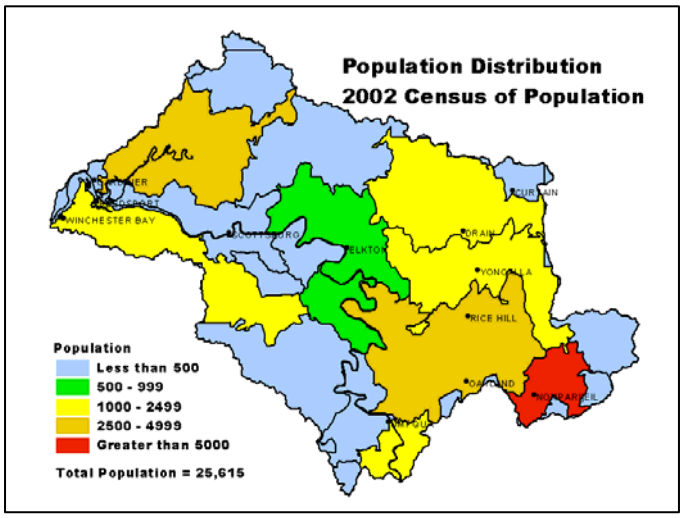
**Moderate among operators of well-established large operations**

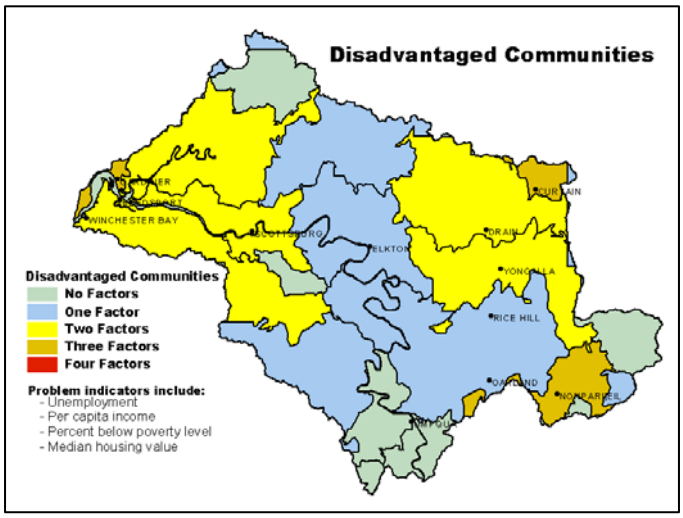
Many of these operators are aware of local resource issues and have a positive stewardship attitude; however, only some see their operation as related to local resource problems and have farm plans that include conservation. Marketing conservation could substantially increase its diffusion among these operators. Many adopt conservation measures to improve profitability and wildlife habitat.

**Moderate to Low among operators of small operations**

Many of these operators have a positive stewardship attitude and hold conservation in a favorable light. They tend to be well educated and aware of local resource issues; however, many are new to agriculture and have little resource management experience. This limits their ability to adopt conservation practices. Generally, these landowners are willing to adopt conservation practices but they need guidance. Technical assistance committed to meeting the needs of small acreage landowners could significantly increase the diffusion of conservation in the subbasin.

**Evaluation of Social Capital[16]:** The strengths of the communities in the subbasin are that they tend to complete projects and have the ability to solve problems. Participation in many community organizations tends to be low, and effective leadership is inconsistent. New landowners in the area are likely to be well educated and moderately affluent. Conservation systems will become more widely diffused throughout the subbasin if information, technical assistance, and conservation systems become more germane to the needs of the small acreage landowner.

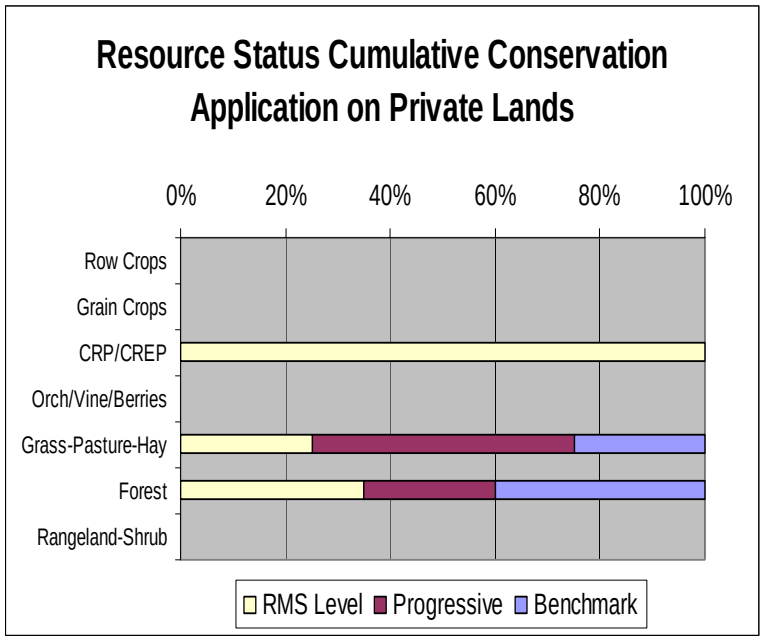


## Progress / Status

Back to Contents

| PRMS Data | FY99 | FY00 | FY01 | FY02 | FY03 | Avg / Year | Total |
|---|---|---|---|---|---|---|---|
| Total Conservation Systems Planned (Acres) | 2,316 | 1,205 | 771 | 328 | 1,140 | 1,152 | 5,760 |
| Total Conservation Systems Applied (Acres) | 46 | 31 | 63 | 475 | 1,984 | 520 | 2,599 |
| **Conservation Treatment (Acres)** | | | | | | | 2,316 |
| Waste Management | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Buffers | 103 | 143 | 35 | 119 | 182 | 116 | 582 |
| Erosion Control | 0 | 0 | 122 | 0 | 0 | 24 | 122 |
| Irrigation Water Management | 0 | 0 | 0 | 50 | 0 | 10 | 50 |
| Nutrient Management | 0 | 0 | 0 | 0 | 596 | 119 | 596 |
| Pest Management | 11 | 0 | 29 | 0 | 15 | 11 | 55 |
| Prescribed Grazing | 0 | 0 | 120 | 160 | 1,761 | 408 | 2,041 |
| Trees & Shrubs | 106 | 28 | 81 | 208 | 199 | 124 | 622 |
| Conservation Tillage | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Wildlife Habitat | 0 | 695 | 0 | 38 | 521 | 251 | 1,254 |
| 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:
  - Prescribed grazing on pasture and woodland.
  - Wildlife habitat management.
- Invasive weeds and the lack of proper forage and grazing management are ongoing concerns.
- Private industrial forestland owners typically do not work with NRCS and SWCDs; however, their lands usually comply with State forest practices act requirements.
- Much of the private, non-industrial forestland in the watershed is used for long-term timber production. The rest is used as rural homesites and recreational property.

## Lands Removed from Production through Farm Bill Programs

- Conservation Reserve Program (CRP): **695 acres**
- Wetland Restoration Program (WRP): **None**
- Conservation Reserve Enhancement Program (CREP): **4 acres**

## Footnotes/Bibliography

Back to Contents

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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

Back to Contents

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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.