Walla Walla – 17070102

8-Digit Hydrologic Unit Profile

SWCD	Acres
Umatilla	298,604
Wallowa	9,446
Union	181

Introduction

The Oregon portion of the Walla Walla 8-Digit Hydrologic Unit Code (HUC) subbasin consists of 308,100 acres, of which 97 percent is in Umatilla County. Eighty percent of the subbasin is privately owned. Operations more than 500 acres in size make up 14 percent of all the farms and ranches in this part of the subbasin. These farms and ranches are used primarily for dryland crops and as rangeland and forestland. Mid-size operations consist primarily of irrigated hay and pasture, and the smaller but much more numerous operations (65 percent of total), are used mainly for horse pastures, row crops, orchards, and vineyards.

Resource concerns include sheet and rill erosion, surface water contamination, inadequate irrigation water management, and poor habitat for fish and wildlife. Social concerns related to resource management include unreliable profitability and inadequate cost share programs.

Conservation assistance in Oregon is provided by one NRCS service center, two soil and water conservation districts, the Columbia Blue Mountain Resource Conservation and Development (RC&D) office, and the Mission satellite office, which serves the Umatilla Indian Reservation.

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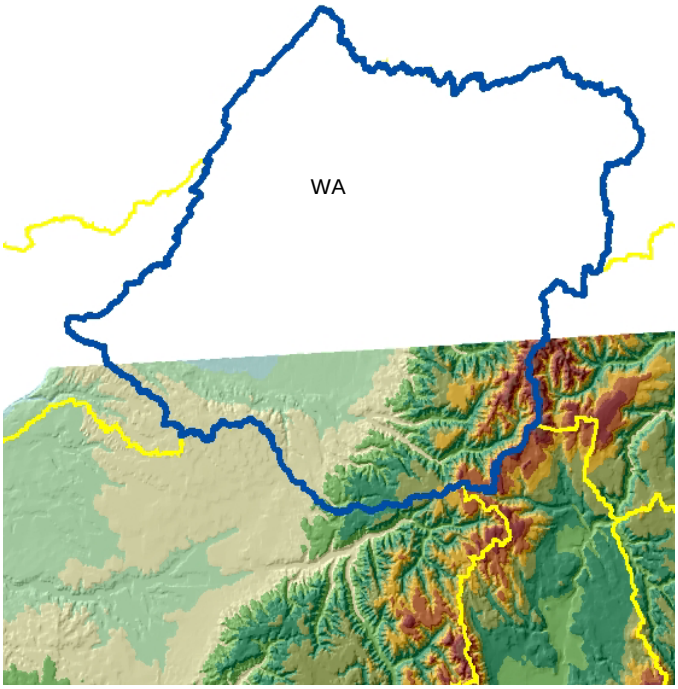

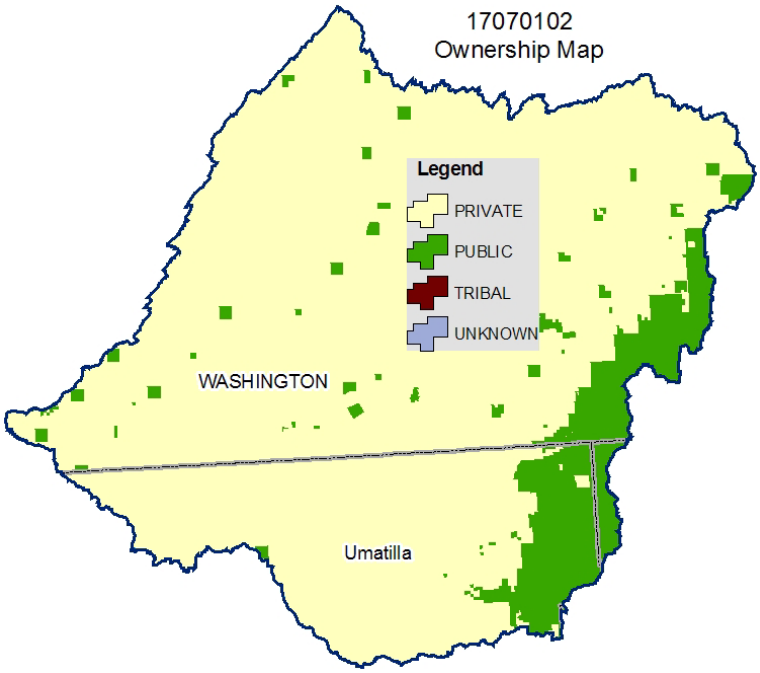

Produced by the Water Resources Planning Team Portland, OR

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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	44,000	14%	51,700	17%	0	0%	95,700	31%
Grain Crops	---	*	81,000	26%	0	0%	81,500	26%
Conservation Reserve Program Land [a]	---	*	17,100	6%	0	0%	17,100	6%
Grass/Pasture/Hay	5,800	2%	30,800	10%	0	0%	36,600	12%
Orchards/Vineyards	0	0%	3,300	1%	0	0%	3,300	1%
Row Crops	0	0%	7,600	2%	0	0%	7,600	2%
Shrub/Rangelands	9,400	3%	52,900	17%	0	0%	62,300	20%
Water/Wetlands/Developed/Barren	---	*	3,800	1%	0	0%	3,800	1%
Oregon HUC Totals [b]	**59,900**	**19%**	**248,200**	**81%**	**0**	**0%**	**308,100**	**100%**

**: Less than one 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:

- Both irrigated and dryland wheat are grown in the watershed.
- Row crops are grown in rotation with irrigated wheat. Row crops include corn, potatoes, and onions.
- Approximately 50 percent of the private forestland is under industrial forest ownership.

Irrigated Lands (1997 NRI[13] Estimates for Non-Federal Lands Only)	Type of Land	ACRES	% of Irrigated Lands	% of HUC
	Cultivated Cropland	25,100	85%	8%
	Uncultivated Cropland	4,600	15%	1%
	Pastureland	0	0%	0%
	Total Irrigated Lands	**29,700**	**100%**	**9%**

(Continued on the following pages)

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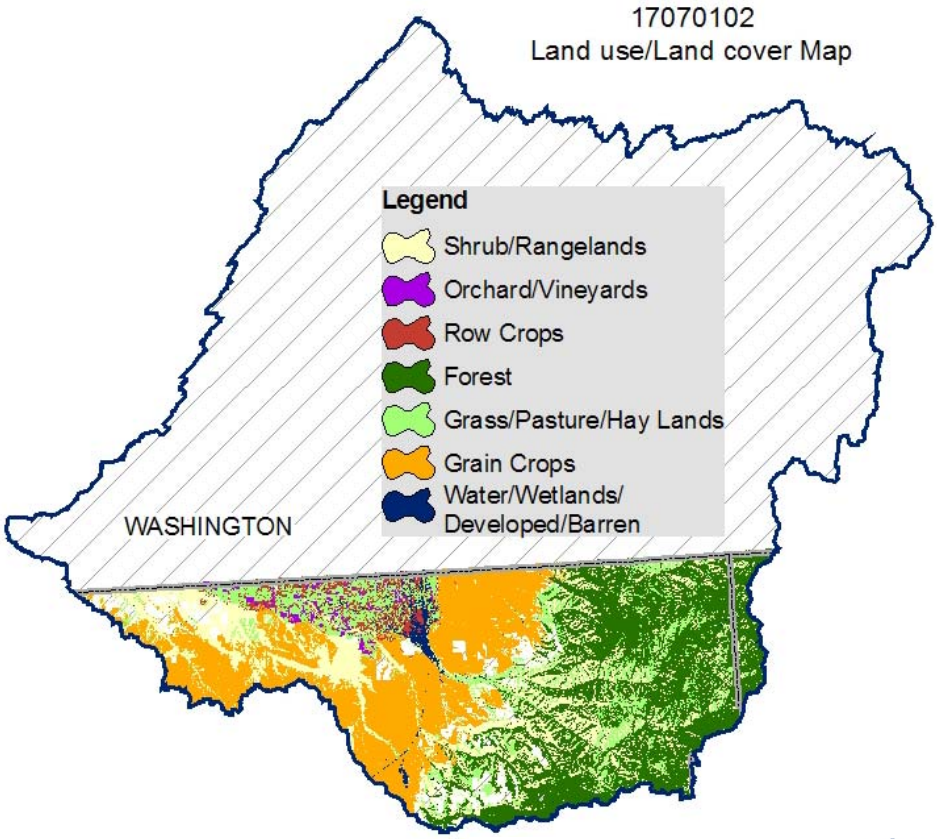

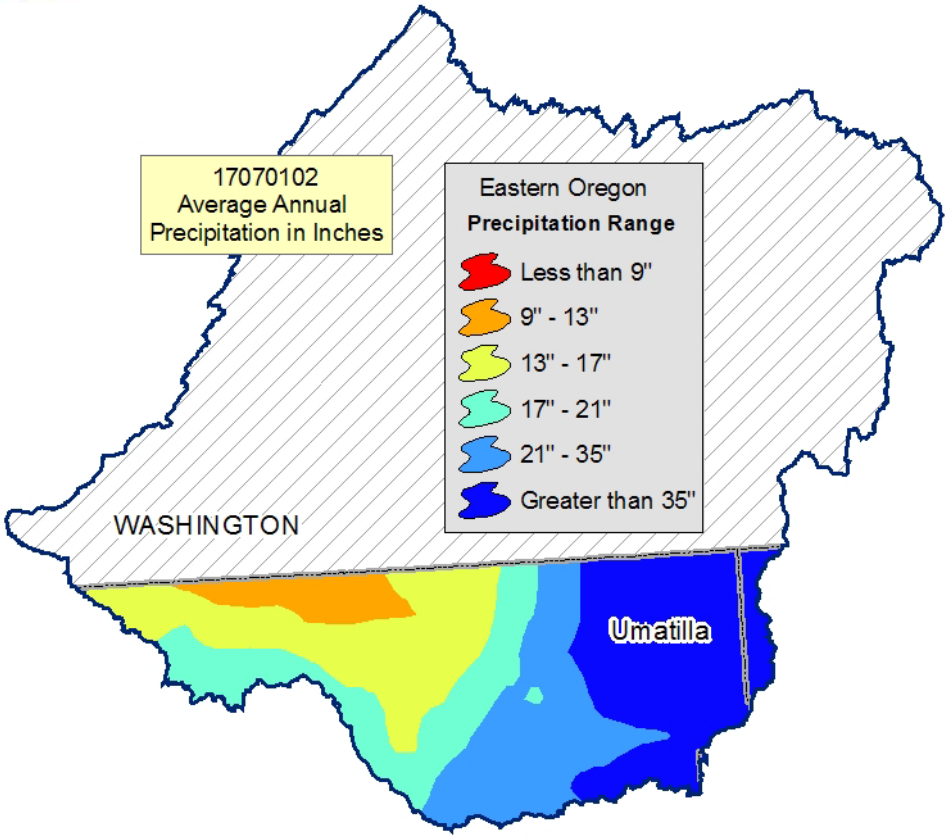

Common Resource Area Map

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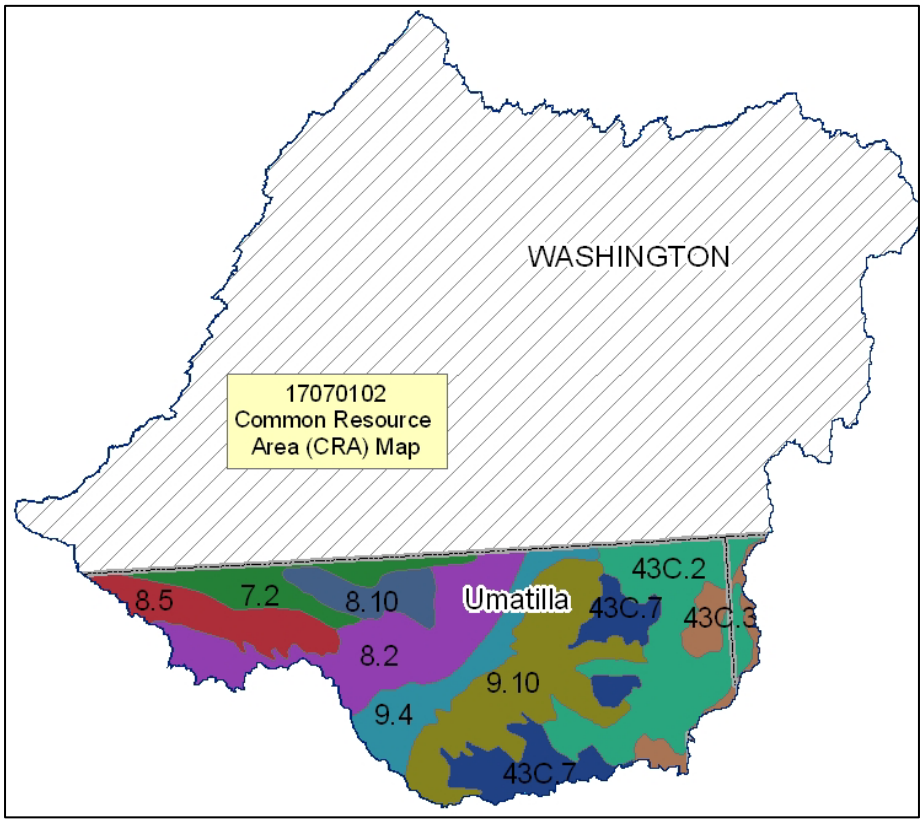
Only the major units are described below - for descriptions of all units within the HUC, go to: http://ice.or.nrcs.usda.gov/website/cra/viewer.htm



7.2 - Columbia Basin - Silty Missoula Flood Deposits: This unit is a transitional area between the Sandy Missoula Flood Deposits CRA and MLRA 8. The soils are dominantly silt loam and silt and include those of the Warden and Shano series. The temperature regime is mesic, and the moisture regime is aridic.

8.2 - Columbia Plateau - Loess Islands: This unit is a remnant of the once unbroken mantle of wind-deposited loess that covered the entire Columbia Plateau. The unit is surrounded by eroded Pleistocene flood channels. The mean annual precipitation is 9 to 15 inches, increasing from west to east. The temperature regime is mesic, and the moisture regime is aridic and xeric. The big sagebrush-bluebunch wheatgrass plant association is dominant. Threetip sagebrush and Idaho fescue grow in a band around the northern perimeter of the CRA. The loess islands have been transformed into wheatfields. Because of the low annual precipitation, crop rotations generally include a fallow period.

9.10 – Palouse and Nez Perce Prairies - Umatilla Dissected Uplands: This unit is characterized by shallow and moderately deep soils on gently sloping to steeply sloping hills and mountains adjacent to forestland. The dominant soils are those of the Gwin, Gwinly, Gurdane, and Waha series. The temperature regime is mesic, and the moisture regime is xeric. Precipitation is about 16 to 25 inches. Most areas are used for livestock grazing.

43C.2 - Blue and Seven Devils Mountains - Maritime-Influenced Zone: The Maritime-Influenced Zone CRA is the part of the Blue Mountains that directly intercepts marine weather systems moving east through the break in the Cascades at the Columbia River Gorge. Rain or snow events occur throughout the year except in summer. Loess soils that have a moderately high water holding capacity are at lower elevations near the Columbia Plateau. Moisture is sufficient to support forests at the lower elevations. The xeric forests consist of ponderosa pine and Douglas fir with a dense and diverse shrub layer.

Physical Description – Continued

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		ACRES	ACRE-FEET
Irrigated Adjudicated Water Rights *(OWRD[4])*	Surface	26,349	87,650
	Well	28,209	93,836
	Total Irrigated Adjudicated Water Rights	54,558	181,485
Stream Flow Data	USGS 14018500 WALLA WALLA RIVER, NEAR TOUCHET, WA	**Total Avg. Yield**	414,370
		May – Sept. Yield	65,659
		MILES	**PERCENT**
Stream Data[5] **Percent of Total Miles of Streams in HUC*	Total Miles – Major (100K Hydro GIS Layer)	205	---
	303d/TMDL Listed Streams (DEQ)	96.7	47%
	Anadromous Fish Presence (StreamNet)	60.6	30%
	Bull Trout Presence (StreamNet)	113.4	55%
		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	4,830	34%
	Grain Crops	2,910	21%
	Grass/Pasture/Hay	1,543	11%
	Orchards/Vineyards	169	1%
	Row Crops	640	5%
	Shrub/Rangelands – Includes CRP Lands	3,684	26%
	Water/Wetlands/Developed/Barren	419	2%
	Total Acres of 100-Foot Stream Buffers	**14,195**	**100%**
Land Capability Class *(Croplands & Pasturelands Only)* *(1997 NRI[3] Estimates for Non-Federal Lands Only)*	**1** – slight limitations	1,200	1%
	2 – moderate limitations	49,700	44%
	3 – severe limitations	22,800	20%
	4 – very severe limitations	30,300	27%
	5 – no erosion hazard, but other limitations	0	0%
	6 – severe limitations; unsuitable for cultivation; limited to pasture, range, forest	9,700	9%
	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 and Pasturelands	**113,700**	**---**

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

Animal Type	Dairy	Feedlot	Poultry	Swine	Mink	Other
No. of Permitted Farms	3	0	0	0	0	0
No. of Permitted Animals	9,615	0	0	0	0	0

Resource Concerns

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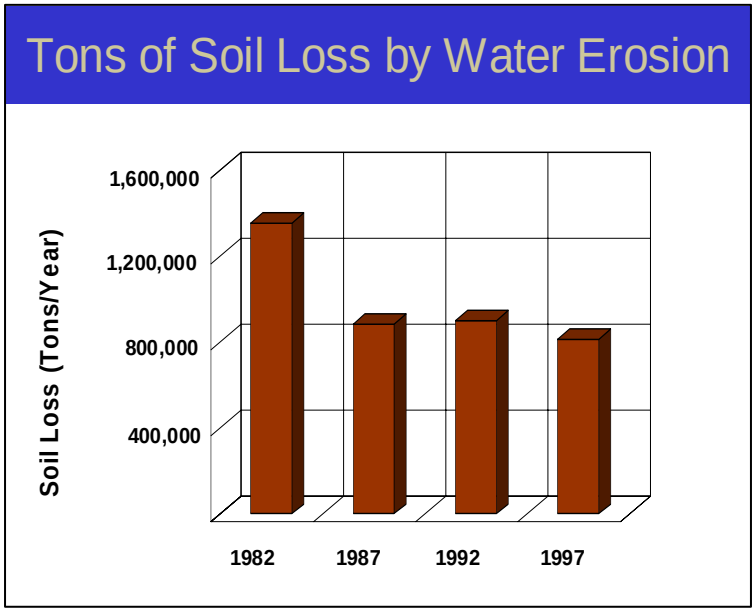
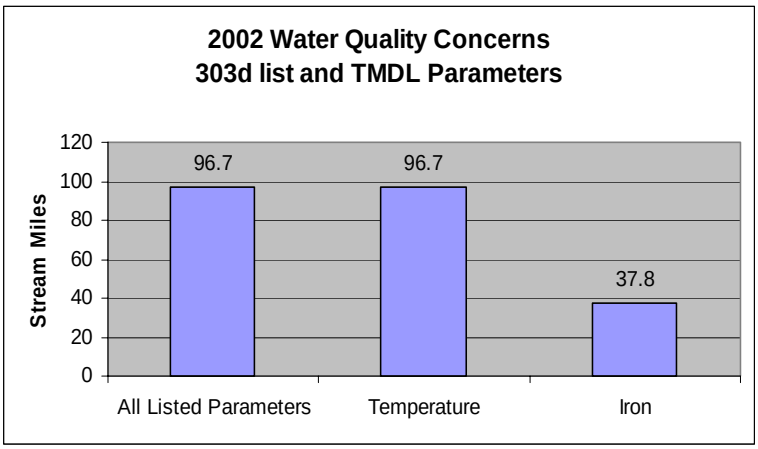


- Sheet and rill erosion by water on the subbasin croplands and pasturelands have been reduced by nearly 540,000 tons of soil per year from 1982 to 1997.
- NRI estimates indicate that 67,100 acres of the subbasin agricultural lands still had water erosion rates above a sustainable level in 1997.
- Controlling 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 erosion by water. As a result, erosion rates on cultivated cropland fell 37 percent, from 12.0 tons per acre per year to 7.6 tons per acre per year from 1982 to 1997.

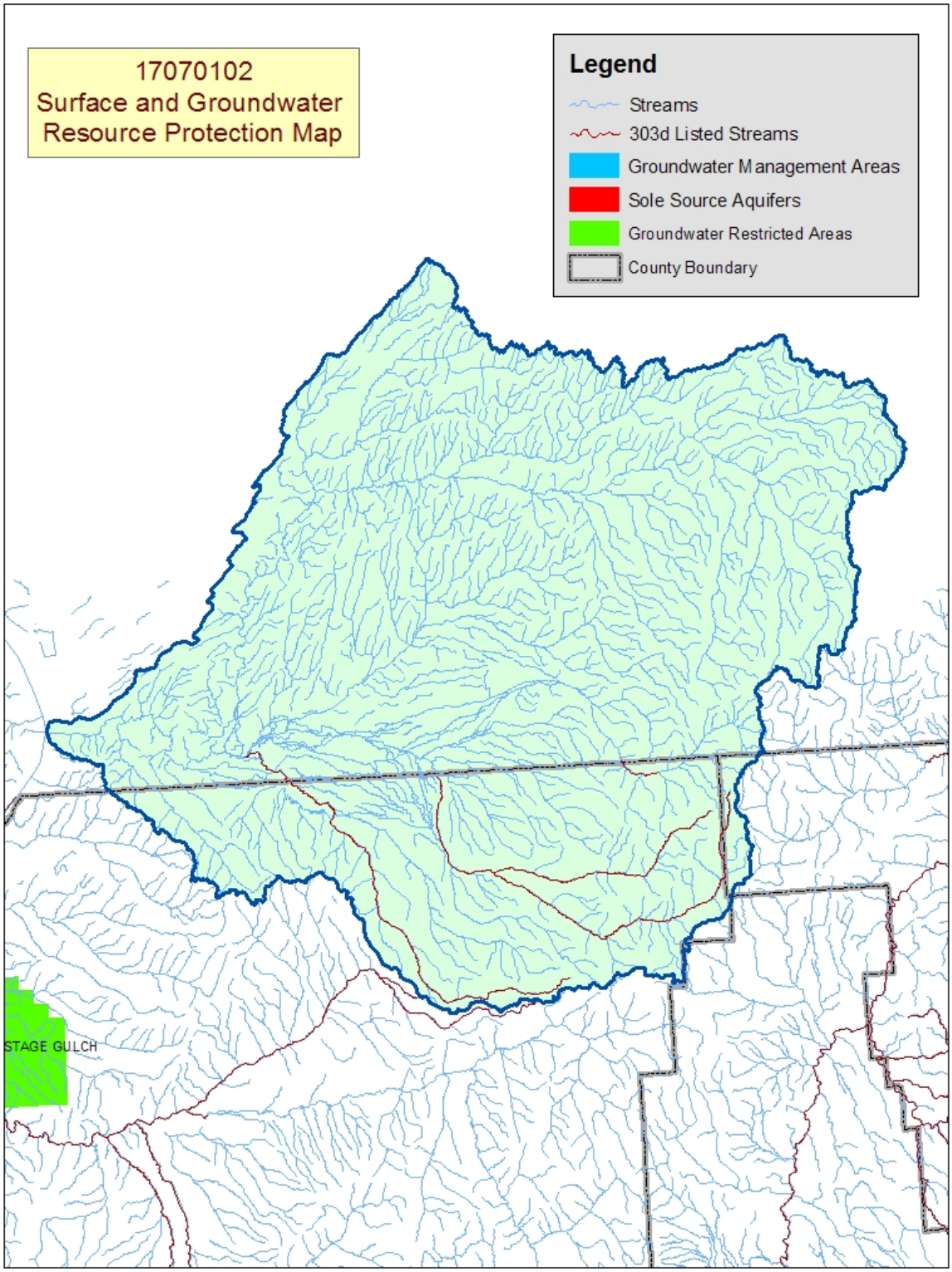


- All of the 303d listed stream miles exceed State water quality standards for temperature. Elevated stream temperatures may be due to inadequate riparian shade, stream channel widening, warm irrigation return flows, and other anthropogenic or natural causes.
- Conservation practices that can be used to address these water quality issues include grazing management, irrigation water 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	
ODEQ TMDL's[8]		ODA Agricultural Water Quality Management Plans[9]	
Name	Status	Name	Status
None		Walla Walla	Completed

OWEB Watershed Council[10]	Watershed Council Assessments[11]	NWPCC Subbasin Plans and Assessments[18]
Walla Walla Watershed Council	None	Walla Walla 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 Erosion	Sheet and Rill		X				
Soil Condition	Tilth, Crusting, Infiltration, and Organic Matter		X	X			
	Soil Compaction				X		
Water Quantity	Water Management For Irrigated Land	X	X				
Water Quality, Surface	Pesticides			X	X		
	Nutrients and Organics	X		X	X		
	Temperature		X				
Air Condition	Air Temperature, Humidity, or Movement				X		
Plant Suitability	Site and Intended Use Suitability					X	
Plant Condition	Productivity, Health, and Vigor					X	X
Plant Management	Establishment, Growth, and Harvest					X	X
Animal Habitat, Domestic	Management	X				X	
Human Economics	Low or Unreliable Profitability	X					X
	Inadequate Availability of Cost Share Programs	X	X	X	X	X	X
General	Small Farms and Ranchettes	X					
	Tribal Ceded Lands	X	X	X	X	X	X

Grass / Pasture / Hay

- Irrigation water management in areas of pasture commonly receives less attention than in areas of other crops.

Grain Crops

- Sheet and rill erosion remains a resource concern.
- Some fields are cropped to the edge of streams, leaving little riparian vegetation for shade and habitat.
- Growers producing irrigated wheat commonly use older irrigation systems that are in need of repair or replacement.

Row and Perennial Crops

- Both row and perennial crops generally are well managed; however, one or two criteria for quality, such as nutrient or pest management, commonly are not met.
- Chemical drift from pesticide application on orchards commonly remains a concern.

Rangeland

- Invasive weeds (yellow star-thistle, knapweed, etc.) reduce the value of grazing land.
- Grazing management commonly is a concern in areas of rangeland.

Forest

- Much of the private forestlands are managed by private industrial owners who generally comply with State forest practices.
- Private non-industrial forestlands commonly are associated with small woodlots or rural homesites, which are not actively managed for timber production.
- Private woodlots commonly suffer from hygrading (harvesting the best trees) or poor stand management (overstocking).

General

- Tribal interest in management of their ceded area is perceived by some as a deterrent to conservation on private lands.

FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES[12]	
THREATENED SPECIES	**CANDIDATE SPECIES**
Mammals - Canada lynx **Birds –**Bald eagle **Fish –** Steelhead, Bull trout **Plants –** Spalding's campion	**Mammals -** Washington ground squirrel **Birds –** Yellow-billed cuckoo **Amphibians and Reptiles –**Columbia spotted frog **Plants -** Northern wormwood
	PROPOSED SPECIES None
ESSENTIAL FISH HABITAT[13] - Chinook	

Census and Social Data[14]

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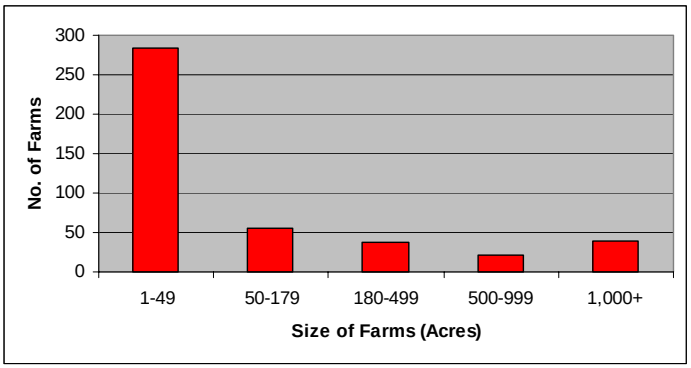


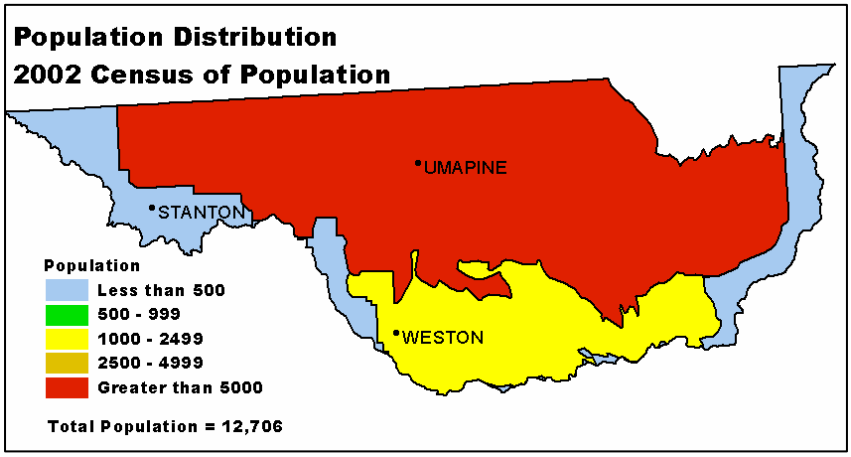
Number of Farms: 440

Number of Operators: 727

- Full-Time Operators: **235**
- Part-Time Operators: **492**

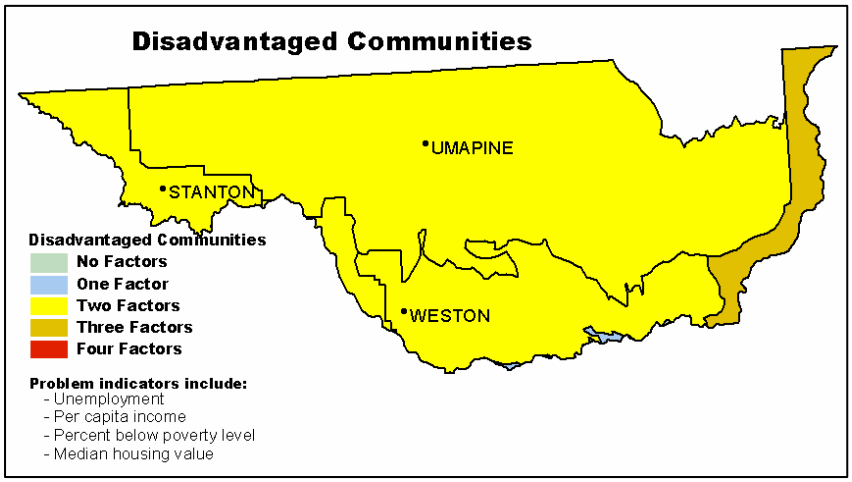
Estimated Level of Willingness and Ability to Participate in Conservation[15]: Moderate

The greatest obstacles to the adoption of conservation practices among operators of dryland farms and ranches more than 500 acres in size in the Walla Walla Subbasin include the perceptions that there is little or no value to their operation and that there are inadequate cost share programs. The producers on smaller acreage farms have these same perceptions, but many of these landowners also lack the management experience, ability, and time to successfully adopt conservation systems.



Evaluation of Social Capital[16] Moderate

The agricultural community in the Oregon part of the Walla Walla Subbasin is reasonably active in conservation, especially the large-acreage operators. The community as a whole is less inclined to be involved in resource issues, possibly because it has considers other social issues, such as health, education, and housing, more pressing. For conservation to become more widespread, the agricultural community needs to provide technical and financial assistance to small-acreage farmers and ranchers.



Progress / Status

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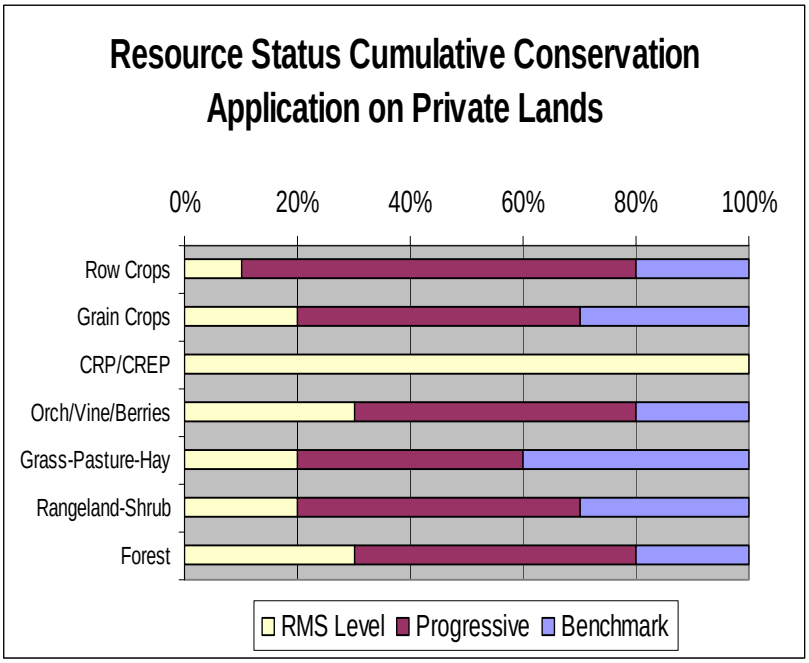
PRMS Data	FY99	FY00	FY01	FY02	FY03	Avg / Year	Total
Total Conservation Systems Planned (Acres)	3	1,295	9,030	5,678	6,679	4,537	22,685
Total Conservation Systems Applied (Acres)	0	1,159	3,999	2,204	5,974	2,667	13,336
Conservation Treatment							
Waste Management (number)	0	0	0	0	0	0	0
Buffers (acres)	0	0	0	0	0	0	0
Erosion Control (acres)	0	1,955	3,747	6,858	5,416	3,595	17,976
Irrigation Water Management (acres)	0	0	0	0	0	0	0
Nutrient Management (acres)	0	0	931	571	964	493	2,466
Pest Management (acres)	0	1,469	1,451	732	1,098	950	4,750
Prescribed Grazing (acres)	0	0	0	0	495	99	495
Trees & Shrubs (acres)	0	40	103	55	114	62	312
Conservation Tillage (acres)	0	1,000	1,306	215	2,597	1,024	5,118
Wildlife Habitat (acres)	3	3,210	731	1,890	5,847	2,336	11,681
Wetlands (acres)	0	0	0	0	0	0	0



- Progress over the last 5 years has been focused on:
  - Erosion control, management of nutrients and pests, and conservation tillage in areas of grain and row crops.
  - Wildlife habitat improvement.
- Many operators are using older irrigation systems that need to be rehabilitated or replaced to achieve good irrigation water management.
- Chemical drift from pesticide application in orchards remains a concern.
- Small operators commonly lack the knowledge to properly manage pasturelands.
- Plant productivity is low due to invasive weeds, such as medusahead, that are difficult and costly to control.
- Most private industrial timber owners are doing good conservation work and are satisfying State forest practice requirements.
- Some private non-industrial forests that are not managed for timber do not meet State forest practice requirements.

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

Lands Removed from Production through Farm Bill Programs

- Conservation Reserve Program (CRP): **17,076 acres**
- Wetland Restoration Program (WRP): **None**
- Conservation Reserve Enhancement Program (CREP): **43 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 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.