Lower Grande Ronde - 17060106

8-Digit Hydrologic Unit Profile

FINAL

JANUARY 2005

Introduction

The Lower Grande Ronde 8-Digit Hydrologic Unit Code (HUC) watershed is comprised of 975,300 acres. Seventy-eight percent of the watershed is in northeastern Oregon, and the remainder is in southeastern Washington. The Oregon part of the watershed includes 189 farms, about half of which are 50 to 1,000 acres in size.

The Snake Basin has four NRCS service centers and seven soil and water conservation districts (SWCD).

The Oregon part of the watershed is about 50 percent private land and 50 percent public land. Of this, about 90 percent is forest land and rangeland and the remainder is used for pasture, grasses, and grain crops.

Profile Contents

Introduction

Physical Description

Land Use Map & Precipitation Map

Common Resource Area

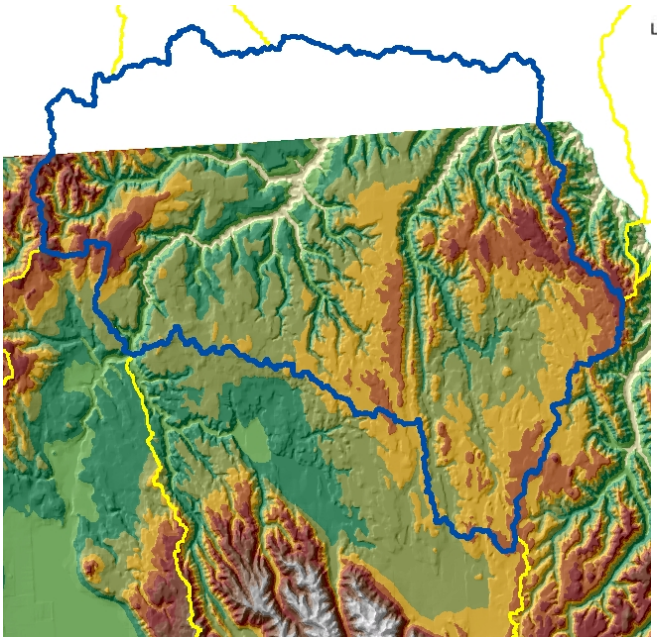
Resource Concerns

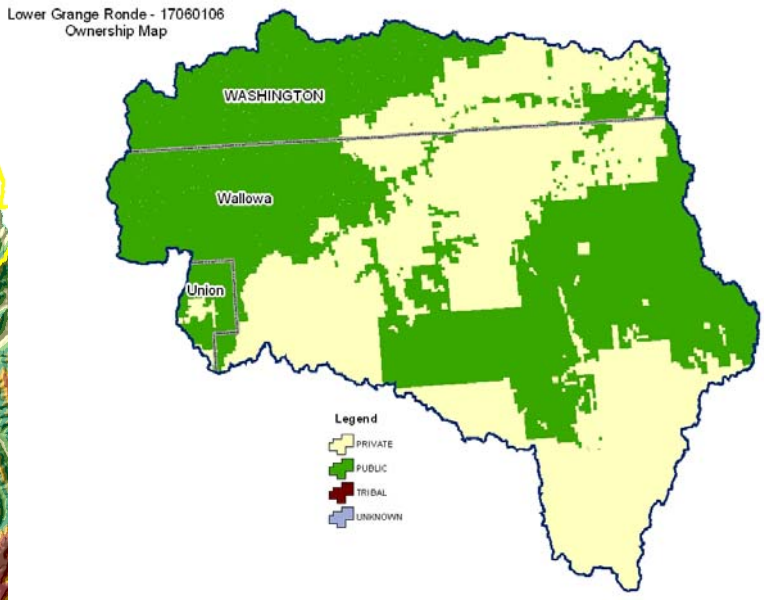
Census and Social Data

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 WITHIN THIS PROFILE ARE FOR OREGON ONLY

Land Cover/Land Use (NLCD[12])	Ownership - (2003 Draft BLM Surface Map Set[11])							
	Public		Private		Tribal		Totals [b]	%
	Acres	%	Acres	%	Acres	%		
Forest	237,000	31%	140,900	19%	0	%	377,900	50%
Grain Crops	*	---	22,900	3%	0	%	23,200	3%
Conservation Reserve Program Land [a]	0	%	4,600	1%	0	%	4,600	1%
Grass/Pasture/Hay	23,200	3%	34,000	4%	0	%	57,200	7%
Orchards/Vineyards	0	0%	0	0%	0	%	0	0%
Row Crops	0	0%	0	0%	0	%	0	0%
Shrub/Rangelands	125,800	17%	165,300	22%	0	%	291,100	38%
Water/Wetlands/Developed/Barren	*	---	*	---	0	%	*	---
Oregon HUC Totals [b]	**388,100**	**51%**	**368,300**	**49%**	**0**	**0%**	**756,400**	**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:

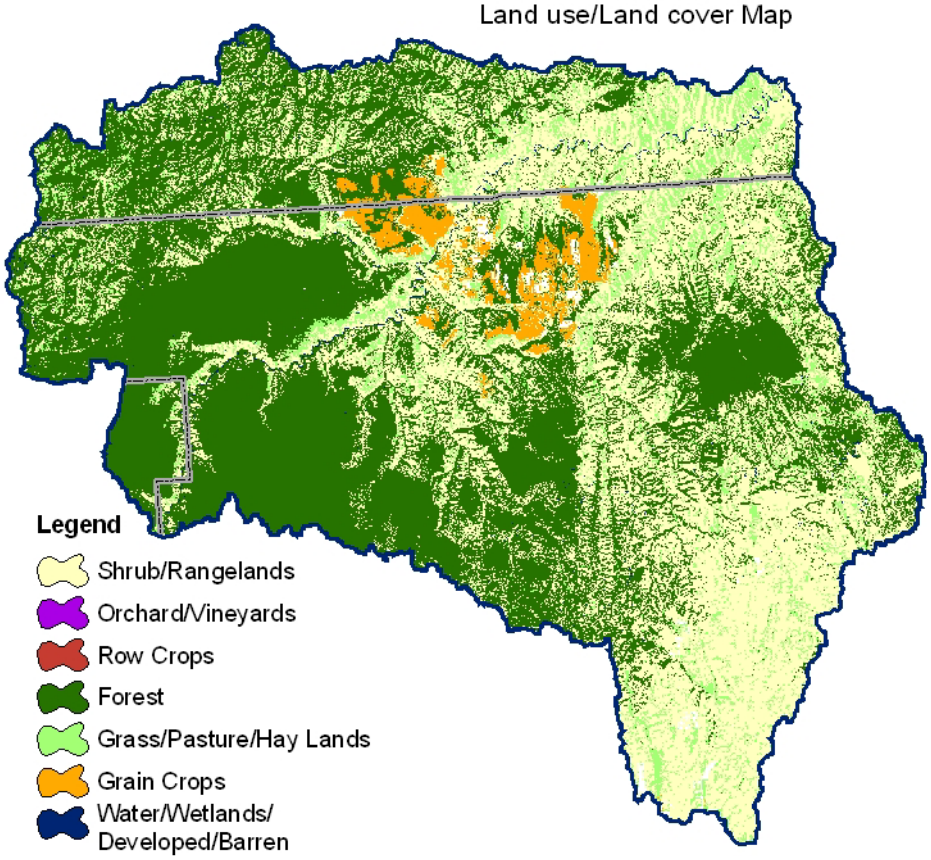
- Over 50 percent of the private forest land is industrially owned and managed.
- Pastureland and hayland occurs on cattle ranches and small farms.
- 218,900 acres of this hydrologic unit is within the State of Washington.

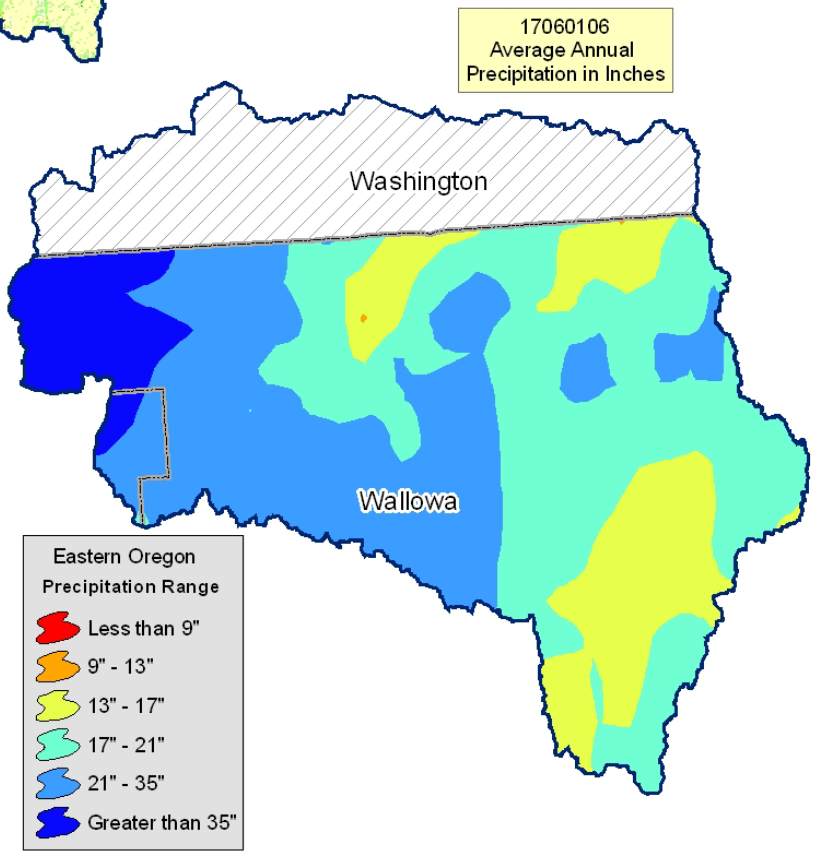
Irrigated Lands (1997 NRI[13] Estimates for Non-Federal Lands Only)	Type of Land	ACRES	% of Irrigated Lands	% of HUC
	Cultivated Cropland	0	--	--
	Uncultivated Cropland	0	--	--
	Pastureland	0	--	--
	Total Irrigated Lands	**0**	**--**	**--**

(Continued on the following pages)

Back to Contents

17060106
Land use/Land cover Map

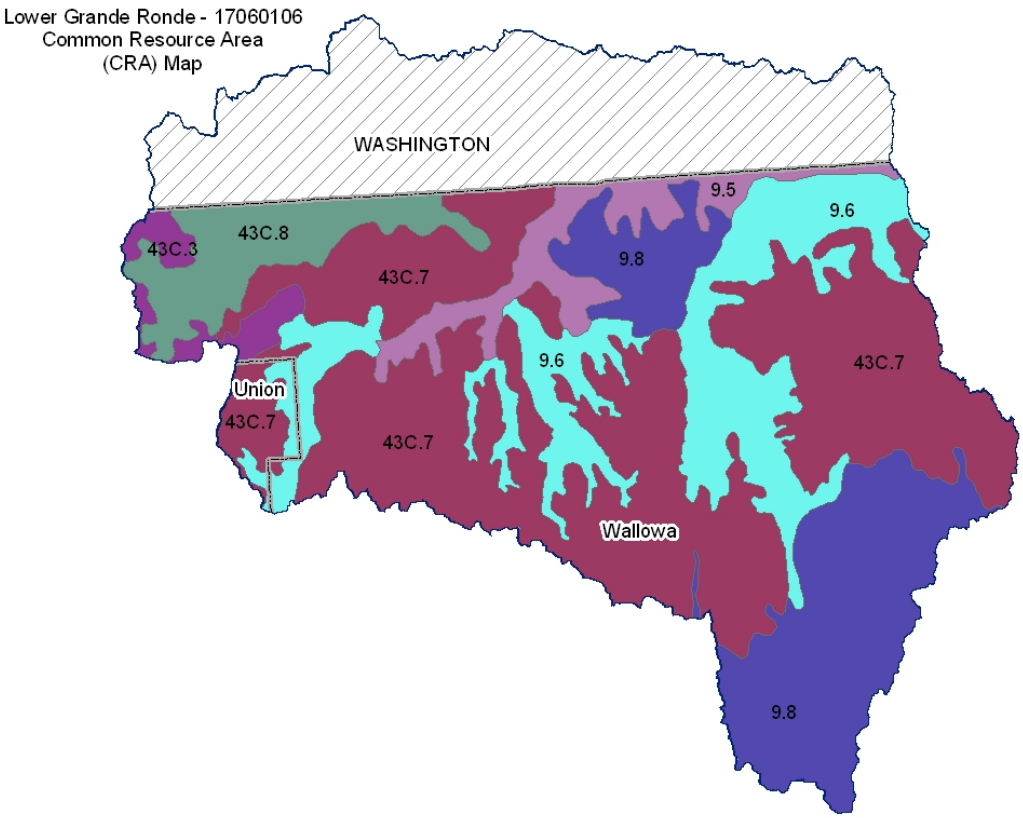




Common Resource Area Map

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



9.6 - Palouse and Nez Perce Prairies - Cool Canyons and Dissected Highlands: This unit is characterized by deeply dissected cool, moist canyonsides of the Snake River drainageway. The unit is at the higher elevations adjacent to unit 9.5 and to forest land above the unit. The soils typically are moderately deep and shallow to bedrock. The dominant soils are those of the Snell series. The temperature regime is frigid, and the moisture regime is xeric. The mean annual precipitation is about 14 to 25 inches. Most areas are used for livestock grazing. Idaho fescue is dominant.

9.8 - Palouse and Nez Perce Prairies - Zumwalt Plateau: This unit is characterized by nearly level to gently sloping old terraces and basalt plateaus. The dominant soils are those of the Watama, Bridgecreek, Hankins, Zumwalt, Hurwal, and Ramo series. The soils typically are well drained and are moderately deep and deep. The temperature regime is frigid, and the moisture regime is xeric. The mean annual precipitation is about 15 to 25 inches.

43C.7 - Blue and Seven Devils Mountains - Low Elevation Blue Mountain Forests: This unit is a forested, uplifted basalt plateau. It is characterized by forested plateaus and highly dissected canyons that have frigid temperatures. Slopes are nearly level to rolling, except in the canyons where slopes are very steep. The moisture regime is xeric and udic. The vegetation is dominantly grand fir, Douglas-fir, and ponderosa pine. The soils in this unit typically have a mantle of ash as much as 20 to 30 inches thick.

43C.8 - Blue and Seven Devils Mountains - Blue and Seven Devils Mountains Dissected Uplands: This unit is characterized by deeply dissected, forested mountain slopes. The temperature regime is frigid, and the moisture regime is xeric. The vegetation is grand fir, Douglas-fir, and ponderosa pine. The soils on the north-facing slopes have a mantle of ash, but it has been eroded away on the south-facing slopes. Below an elevation of about 4,500 feet, the Douglas-fir forest changes abruptly to grassland of the Warm Canyons and Dissected Uplands (CRA 9.5).

Physical Description – Continued

Back to Contents

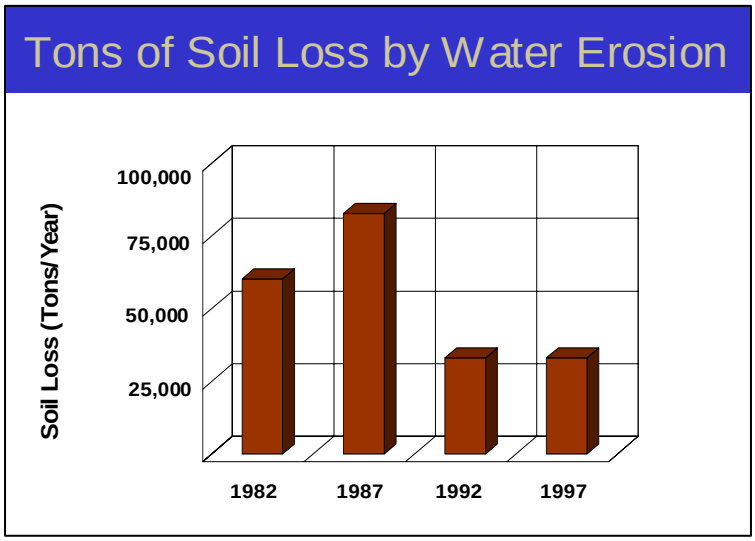
		ACRES	ACRE-FEET
Irrigated Adjudicated Water Rights *(OWRD[4])*	Surface	1,267	3,793
	Well	1,086	3,251
	Total Irrigated Adjudicated Water Rights	2,353	7,044
Stream Flow Data	USGS 14120000 HOOD RIVER AT TUCKER BRIDGE, NEAR HOOD RIVER, OR	**Total Avg. Yield**	2,215,077
		May – Sept. Yield	1,013,851
		MILES	**PERCENT**
Stream Data[5] **Percent of Total Miles of Streams in HUC*	Total Miles – Major (100K Hydro GIS Layer)	875	---
	303d/TMDL Listed Streams (DEQ)	231	26%
	Anadromous Fish Presence (StreamNet)	168	19%
	Bull Trout Presence (StreamNet)	144	16%
		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	12,373	58%
	Grain Crops	24	<1%
	Grass/Pasture/Hay	2,183	10%
	Orchards/Vineyards	0	---
	Row Crops	0	---
	Shrub/Rangelands – Includes CRP Lands	5,670	27%
	Water/Wetlands/Developed/Barren	961	5%
	Total Acres of 100-foot Stream Buffers	**21,211**	---
Land Capability Class *(Croplands & Pasturelands Only)* *(1997 NRI[3] Estimates for Non-Federal Lands Only)*	**1** – slight limitations	0	---
	2 – moderate limitations	0	---
	3 – severe limitations	22,600	81%
	4 – very severe limitations	900	3%
	5 – no erosion hazard, but other limitations	0	---
	6 – severe limitations; unsuitable for cultivation; limited to pasture, range, forest	0	---
	7 – very severe limitations; unsuitable for cultivation; limited to grazing, forest, wildlife habitat	4,300	15%
	8 – miscellaneous areas; limited to recreation, wildlife habitat, water supply	0	---
	Total Croplands & Pasturelands	**27,800**	**3%**

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

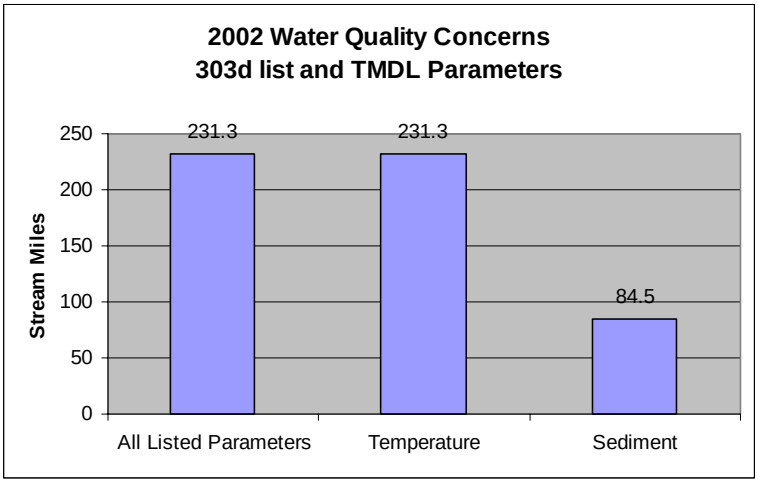
Animal Type	Dairy	Feedlot (Cattle)	Poultry	Swine	Mink	Other
No. of Permitted Farms	0	0	0	0	0	0
No. of Permitted Animals	0	0	0	0	0	0

Resource Concerns

Back to Contents



- Sheet and rill erosion by water in the subbasin croplands and pasturelands has been reduced by more than 27,000 tons of soil per year from 1982 to 1997.
- NRI estimates indicate that 8,400 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 36 percent, from 2.9 tons/acre/year to 1.9 tons/acre/year, from 1982 to 1997.



- All listed stream miles exceed state water quality standards for stream temperatures. Elevated stream temperatures may be due to inadequate riparian shade, stream channel widening, warm irrigation return flows, and other anthropogenic or natural causes.
- Stream reaches listed for sediment are affected by erosion on croplands and streambanks.
- Conservation practices that can be used to address these water quality issues include erosion control, 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
Grande Ronde River Basin	Data Collection	Wallowa	Completed

OWEB Watershed Councils[10]	Watershed Council Assessments[11]	NWPCC Subbasin Plans & Assessments[18]
Grande Ronde Model Watershed	None	Lower Grande Ronde

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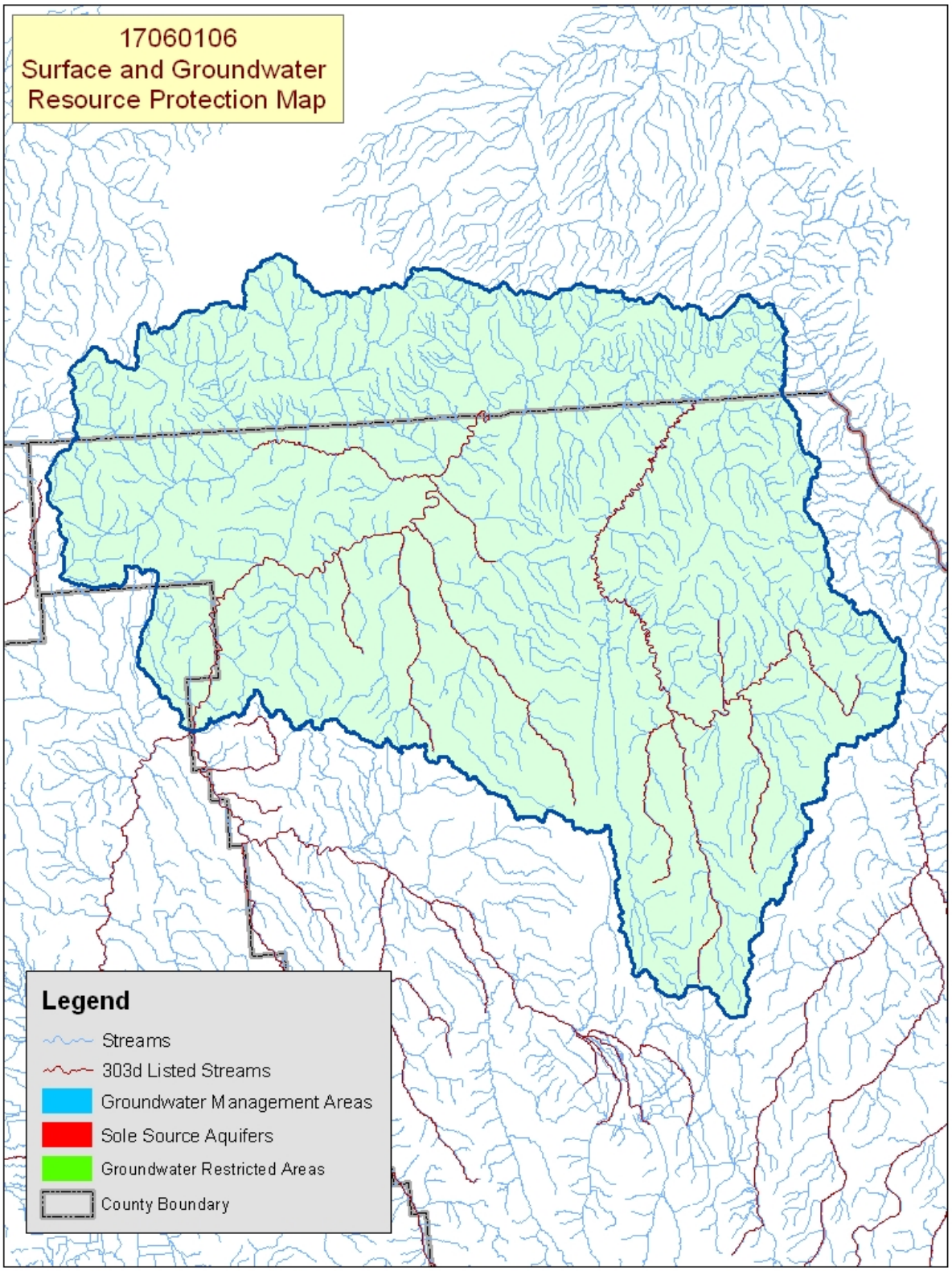


Map Footnote [17]

Resource Concerns - Continued

Back to Contents

Resource Concerns / Issues by Land Use							
SWAPA +H Concerns	**Specific Resource Concern / Issue**	**Pasture \ Hay**	**Grain Crops**	**Row Crops**	**Orchards / Vnyrd**	**Shrub / Range**	**Forest**
Soil Erosion	Sheet and Rill		X				
Soil Condition	Tilth, Crusting, Infiltration, Organic Matter		X				
Water Quality, Surface	Pathogens						
	Nutrients and Organics	X				X	
	Temperature					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
	Water – Quality and Quantity	X				X	
Animal Habitat, Wildlife	Water - Quantity and Quality		X				
	Food, Cover, and/or Shelter					X	
Human, Economics	High Risk and Uncertainty					X	X
	Low or Unreliable Profitability	X	X				
Human, Political	Inadequate Availability of Cost Share Programs	X	X			X	X

Grass / Pasture / Hay

- Typical resource concerns involve the management of nutrients and the productivity of forage.
- In some areas, a lack of proper grazing management has lead to poor condition of pasture.
- Low profit and lack of funding hinder further adoption of conservation practices.

Grain Crops

- Sheet and rill erosion and poor soil condition due to lack of adequate residue are common resource problems.
- Low profit and lack of funding hinder further adoption of conservation practices.

Shrub / Rangelands

- Rangelands can become infested with noxious weeds, annual grasses, and shrubs due to inadequate forage and grazing management.
- Loss of riparian vegetation contributes to warming and nutrient-loading of streams.
- Lack of funding commonly limits adoption of conservation practices.

Forest Land

- Much of the private forest land is managed by private industrial owners, who generally comply with State forest practice requirements.
- Commonly private non-industrial forest land is associated with small woodlots or rural homesites that are not actively managed for timber production.
- Lack of thinning and forest management can result in stagnate stands with low commercial value for wood products, livestock grazing, or wildlife habitat.
- High cost, unreliable markets, and inadequate incentive programs limit forest management activities on private, non-industrial forest land.

FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES[12]	
THREATENED SPECIES	**CANDIDATE SPECIES**
Marine – None **Birds -** Bald eagle **Mammals –** Canada lynx **Invertebrates –** None **Fish -** Steelhead (Snake River Basin), Chinook salmon, Bull trout (Columbia River population) **Plants –** McFarlane's four o'clock, Spalding's catchfly, Howell's spectacular thelypody	**Fish** - None **Birds –** Yellow-billed cuckoo **Amphibians and Reptiles –** Columbia spotted frog **Plants** – Slender moonwort **PROPOSED SPECIES** None
ESSENTIAL FISH HABITAT[13] **-** Chinook	

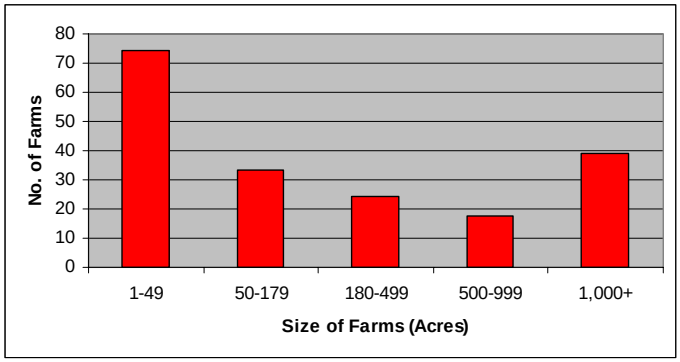
Census and Social Data[14]

Back to Contents

Number of Farms: 189

Number of Operators: 315

- Full-Time Operators: 113
- Part-Time Operators: 202

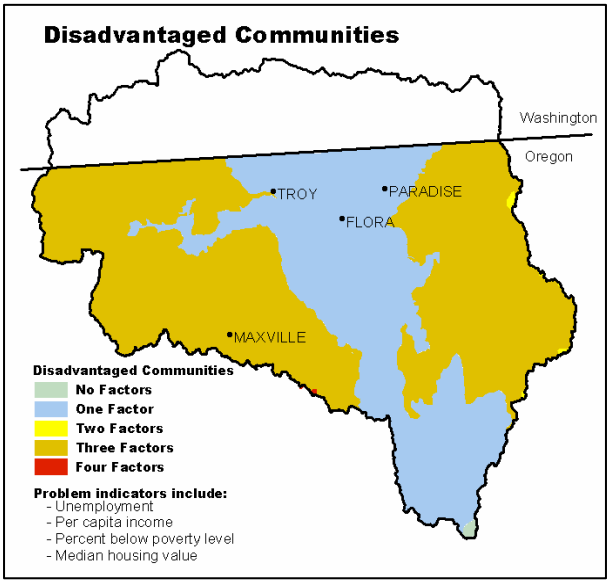


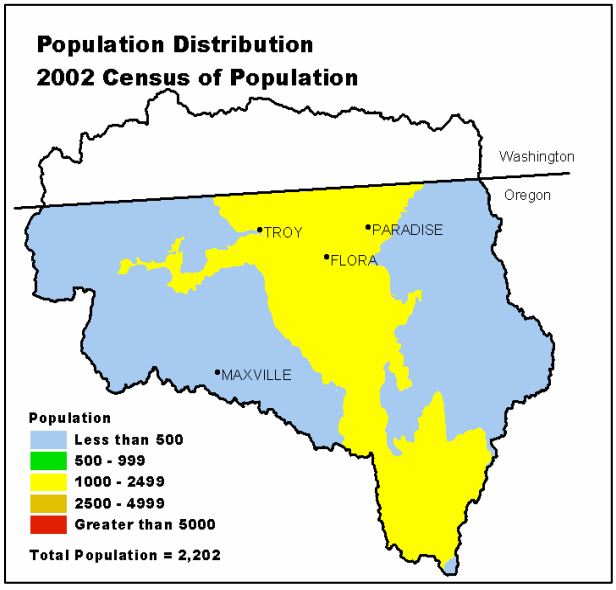
Estimated Level of Willingness and Ability to Participate in Conservation[15]:

Moderate to High

Evaluation of Social Capital[16]:

Low to Moderate – *ranges from 49 to 52 of a possible 76*





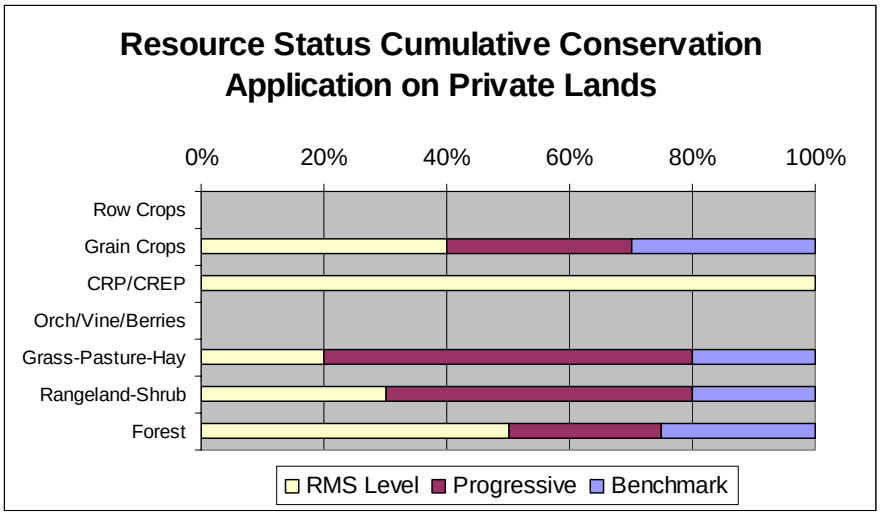
Overall, individual conservation participation among Oregon farmers and ranchers in the Lower Grande Ronde watershed is average to slightly above average. Increasing adoption of conservation practices by individuals may be possible by tailoring technical assistance to meet the specific needs of the ranchers and farmers and by identifying additional incentives. Incentives related to family, stewardship, and the future of ranching in the watershed may be valuable enticements to encourage adoption of conservation practices if monetary incentives alone are not successful.

The agricultural community is supportive of conservation and has good leadership and widespread participation in most community activities. Expanding local conservation information and education programs throughout the watershed would be helpful. Adoption of conservation practices and systems by individuals may be accelerated by improving the awareness of natural resources problems and concerns within the community as a whole.

Progress / Status

Back to Contents

PRMS Data	FY99	FY00	FY01	FY02	FY03	Avg / Year	Total
Total Conservation Systems Planned (Acres)	526	360	2,359	988	5,169	1,880	9,402
Total Conservation Systems Applied (Acres)	29,293	470	1,611	7,122	4,616	8,622	43,112
Conservation Treatment							
Waste Management (Number)	0	0	0	0	0	0	0
Riparian Forest Buffers (Acres)	0	0	83	108	588	156	779
Erosion Control (Acres)	103	0	1,416	465	600	517	2,584
Irrigation Water Management (Acres)	0	70	0	0	0	14	70
Nutrient Management (Acres)	0	0	0	0	0	0	0
Pest Management (Acres)	0	0	0	0	72	14	72
Prescribed Grazing (Acres)	1,438	680	0	5,536	722	1,675	8,376
Trees and Shrubs (Acres)	25	0	52	60	26	33	163
Conservation Tillage (Acres)	0	360	0	350	35	149	745
Wildlife Habitat (Acres)	819	3	804	155	1,065	569	2,846
Wetlands (Acres)	0	0	0	0	0	0	0



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

Progress over the last five years has been focused on:

- ~ Erosion control on grain.
- ~ Prescribed grazing on grazing lands.
- ~ Wildlife habitat management in riparian areas (CREP) and on uplands (CRP).

- ❖ Resource concerns have been or are being addressed on 70 percent of the grain crops.
- ❖ Hay producers dominantly are operating at a RMS level.
- ❖ Most private industrial timber owners are doing good conservation work and are satisfying state forest practice requirements.
- ❖ Private non-industrial forests that are not managed for timber commonly are not meeting state forest practice requirements.

Lands Removed from Production through Farm Bill Programs

- ❖ Conservation Reserve Program (CRP): **4,186 acres**
- ❖ Wetland Restoration Program (WRP): **none**
- ❖ Conservation Reserve Enhancement Program (CREP): **503 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.