Upper John Day - 17070201

8-Digit Hydrologic Unit Profile

FINAL

AUGUST 2005

Introduction

The Upper John Day 8-Digit Hydrologic Unit Code (HUC) subbasin is slightly over 1.3 million acres, mostly in Grant and Wheeler Counties. The watershed is 49 percent privately owned and 51 percent publicly owned. Most of the watershed is forestland and rangeland. The main resource concerns include overstocked pine, juniper encroachment, invasive weeds, and the high cost and low profit of the current agricultural operations. Fee hunting on the private forestland and rangeland has become a significant source of income for area ranchers.

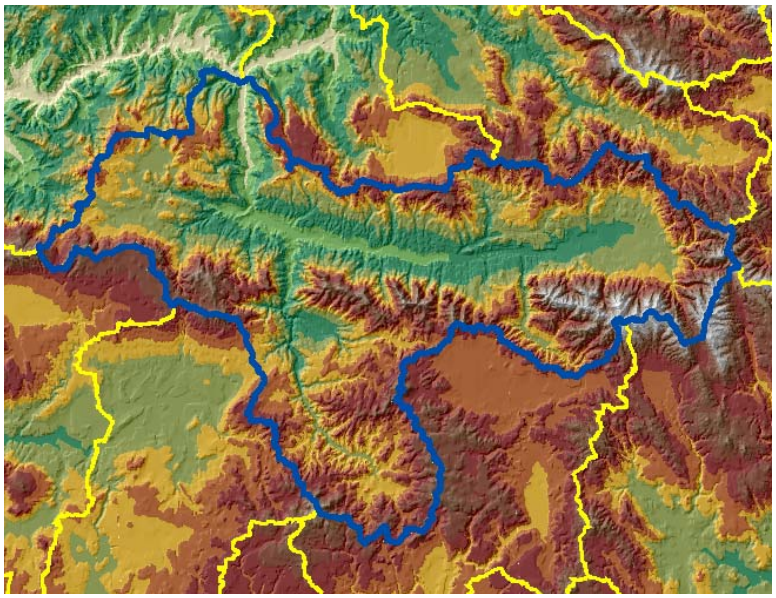
There are 259 farms and ranches in the Upper John Day subbasin, of which only about 50 are more than 1,000 acres in size and are viable agricultural operations. The other approximately 200 farms are either supported by outside non-agricultural income or are used primarily for recreation, fee hunting, retirement, or for the "quality of life" they provide.

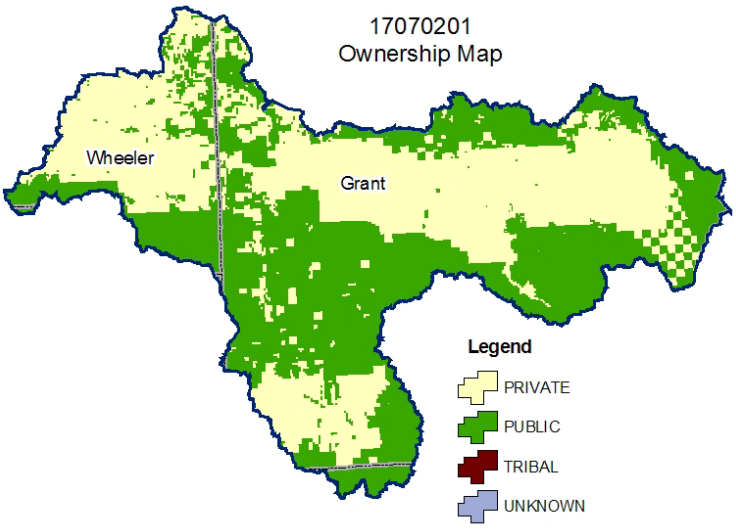
Conservation assistance in Oregon is provided by six soil and water conservation districts, one soil survey office, the Columbia Blue Mountain Resource Conservation and Development (RC&D) office, and the Mission satellite office, which serves the Umatilla Indian Reservation.

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

The United States Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326W, Whitten Building, 14th and Independence Avenue, SW, Washington DC 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

Physical Description

Back to Contents

ALL NUMBERS IN THIS PROFILE ARE FOR OREGON ONLY

Land Cover/Land Use (NLCD[1,2])	Ownership - (2003 Draft BLM Surface Map Set[1])							
	Public		Private		Tribal		Totals	%
	Acres	%	Acres	%	Acres	%		
Forest	523,300	38%	252,400	18%	0	0%	775,700	57%
Grain Crops	---	*	---	*	0	0%	---	*
Conservation Reserve Program Land [a]	0	0%	0	0%	0	0%	0	0%
Grass/Pasture/Hay	19,000	1%	65,000	5%	*	---	84,000	6%
Orchards/Vineyards	0	0%	0	0%	0	0%	0	0%
Row Crops	0	0%	---	*	0	0%	---	*
Shrub/Rangelands	151,900	11%	353,400	26%	*	---	505,300	37%
Water/Wetlands/Developed/Barren	---	*	---	*	0	0%	---	*
Oregon HUC Totals [b]	**696,000**	**51%**	**674,400**	**49%**	*****	**---**	**1,370,400**	**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.

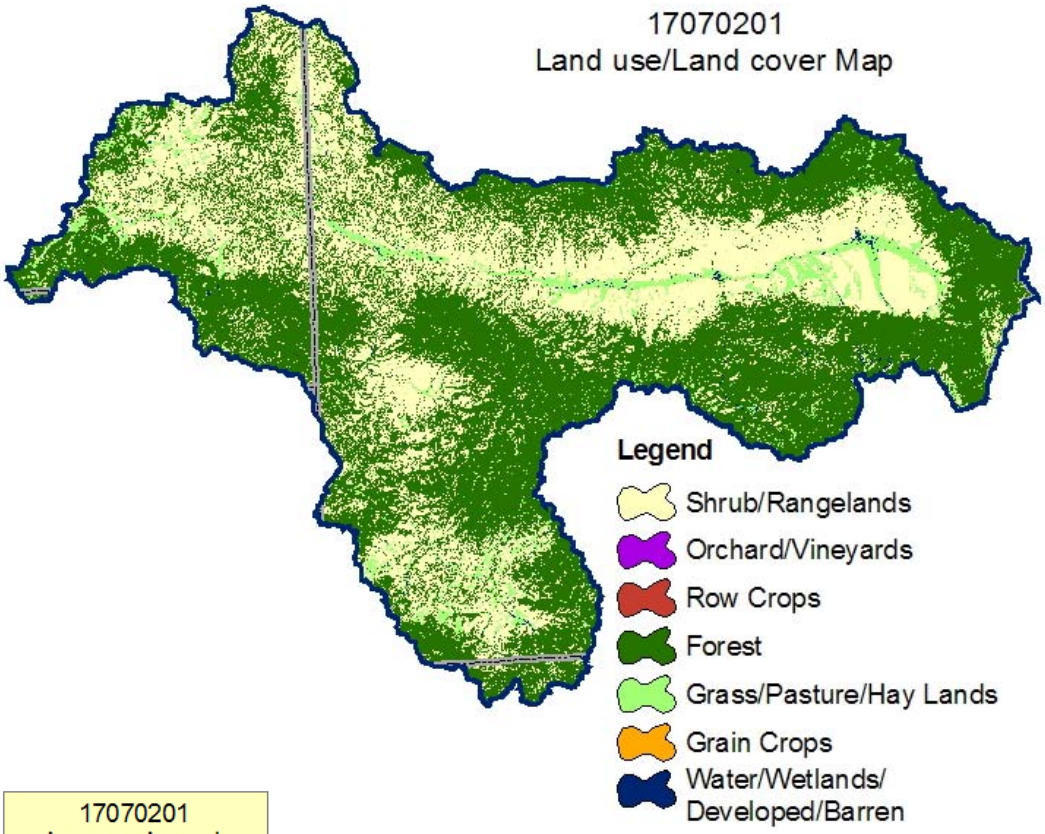
Special Considerations for this 8-Digit HUC:

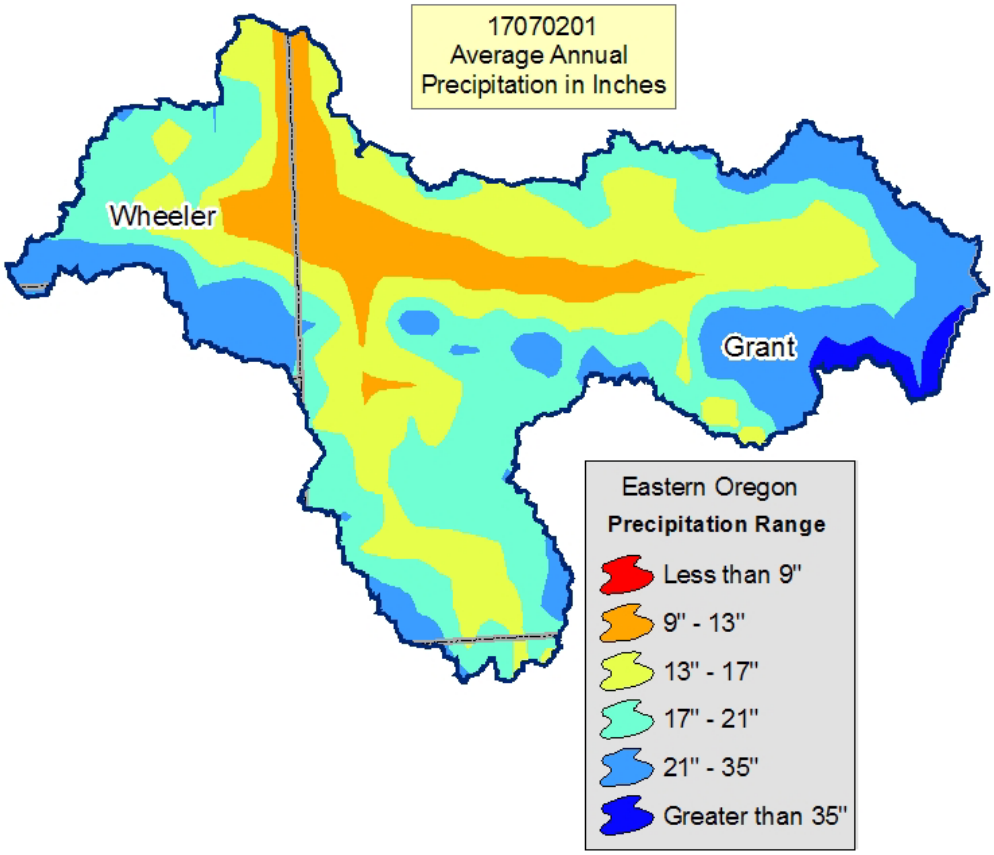
- Approximately 50 percent of the private forestland is under industrial forest ownership.
- Private non-industrial forestland is used for timber and grazing.
- Fee hunting on private forestland and rangeland has become a significant source of income for area ranchers.

Irrigated Lands (1997 NRI[3] Estimates for Non-Federal Lands Only)	Type of Land	ACRES	% of Irrigated Lands	% of HUC
	Cultivated Cropland	0	0%	0%
	Uncultivated Cropland	19,600	74%	1%
	Pastureland	7,000	26%	<1%
	Total Irrigated Lands	**26,600**	**100%**	**2%**

(Continued on the following pages)

Back to Contents

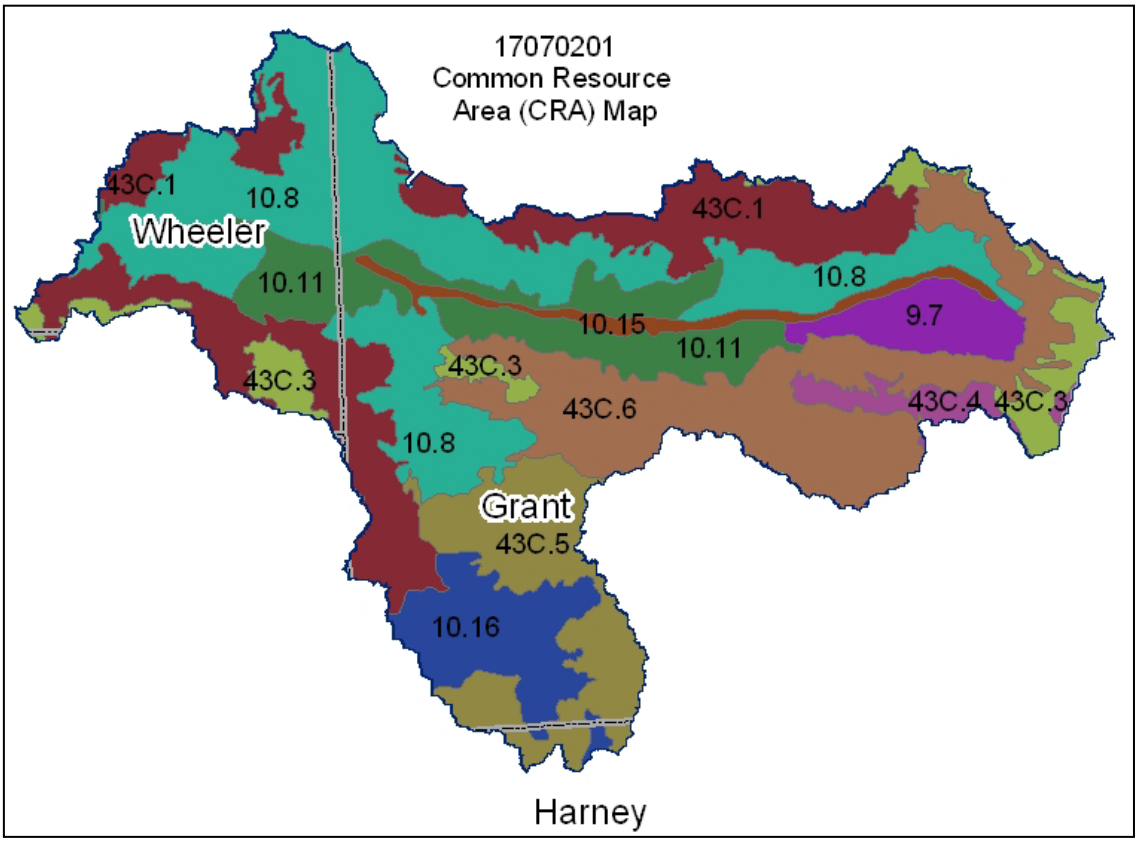




Common Resource Area Map

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



10.8 - Central Rocky and Blue Mountains Foothills - John Day-Clarno Moist Uplands: This unit is characterized by rangeland soils on hills or mountains associated with basalt. The dominant soils are those of the Waterbury, Gwin, and Rockley series. The temperature regime is mesic, and the moisture regime is xeric. Precipitation is about 12 to 18 inches. The vegetation is Wyoming big sagebrush with Idaho fescue and bluebunch wheatgrass (warm, moist climate).

10.11 - Central Rocky and Blue Mountains Foothills - John Day-Clarno Uplands: This unit is characterized by rangeland soils on hills or mountains associated with the John Day/Clarno Formation. The dominant soils are those of the Simas and Tub series. The temperature regime is mesic, and the moisture regime is aridic and xeric.

43C.1 - Blue and Seven Devils Mountains - John Day-Clarno Highlands: This unit is characterized by forested soils that are underlain by the John Day/Clarno Formation. The temperature regime is frigid, and the moisture regime is xeric. The vegetation is dominantly ponderosa pine and scattered Douglas-fir. The amount of volcanic ash on the soils is minimal. The soils are typically clayey textured with a strongly expressed argillic horizon.

43C.6 - Blue and Seven Devils Mountains – Melange: This unit is characterized by a melange of bedrock types, including limestone, mudstone, greenstone, and schist. The temperature regime is frigid and cryic, and the moisture regime is xeric and udic. The vegetation on the forestland is dominantly Douglas-fir, ponderosa pine, and lodgepole pine. Areas of shrubland and grassland also occur. The lithology affects the soils, vegetation, and the quantity and quality of surficial water. Grazing is common, but logging is limited by the difficulty of reforesting the droughty soils.

Physical Description – Continued

Back to Contents

		ACRES	ACRE-FEET
Irrigated Adjudicated Water Rights *(OWRD[4])*	Surface	55,337	237,023
	Well	1,562	6,692
	Total Irrigated Adjudicated Water Rights	56,900	243,715
Stream Flow Data	USGS 14040500 JOHN DAY RIVER AT PICTURE GORGE, NEAR DAYVILLE, OR	**Total Avg. Yield**	357,952
		May – Sept. Yield	115,885
		MILES	**PERCENT**
Stream Data[5] **Percent of total miles of streams in HUC*	Total Miles – Major (100K Hydro GIS Layer)	2,631	---
	303d/TMDL Listed Streams (DEQ)	476.8	18%
	Anadromous Fish Presence (StreamNet)	242.0	9%
	Bull Trout Presence (StreamNet)	80.6	3%
		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	37,816	58%
	Grain Crops	0	0%
	Grass/Pasture/Hay	5,695	9%
	Orchards/Vineyards	0	0%
	Row Crops	0	0%
	Shrub/Rangelands – Includes CRP Lands	20,591	32%
	Water/Wetlands/Developed/Barren	609	1%
	Total Acres of 100-Foot Stream Buffers	**64,713**	**100%**
Land Capability Class *(Croplands & Pasturelands Only)* *(1997 NRI[3] Estimates for Non-Federal Lands Only)*	**1** – slight limitations	5,700	14%
	2 – moderate limitations	6,000	15%
	3 – severe limitations	5,000	13%
	4 – very severe limitations	12,200	31%
	5 – no erosion hazard, but other limitations	1,700	4%
	6 – severe limitations; unsuitable for cultivation; limited to pasture, range, forest	5,900	15%
	7 – very severe limitations; unsuitable for cultivation; limited to grazing, forest, wildlife habitat	2,900	7%
	8 – miscellaneous areas; limited to recreation, wildlife habitat, water supply	0	0%
	Total Croplands & Pasturelands	**39,400**	**---**

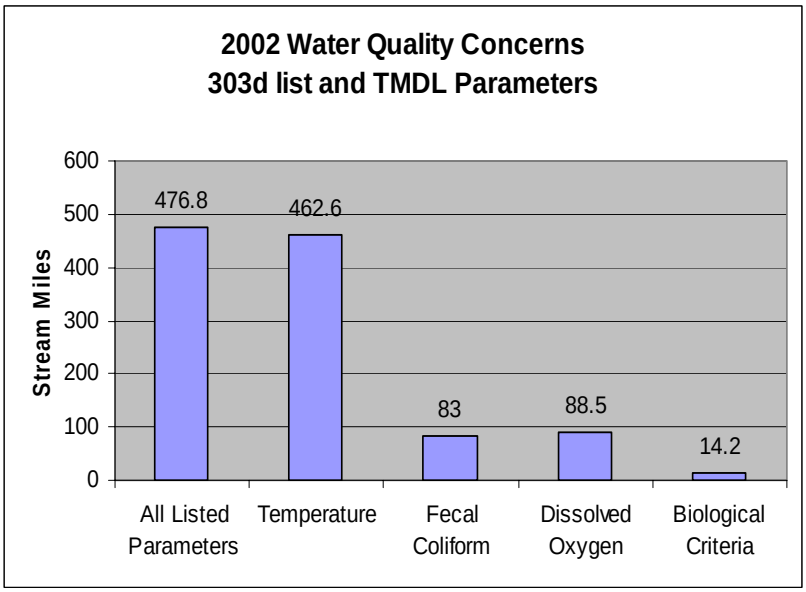
Confined Animal Feeding Operations – Oregon CAFO Permit – 12/2004

Animal Type	Dairy	Feedlot	Poultry	Swine	Mink	Other
No. of Permitted Farms	0	2	0	0	0	0
No. of Permitted Animals	0	3,000	0	0	0	0

Resource Concerns

Back to Contents

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

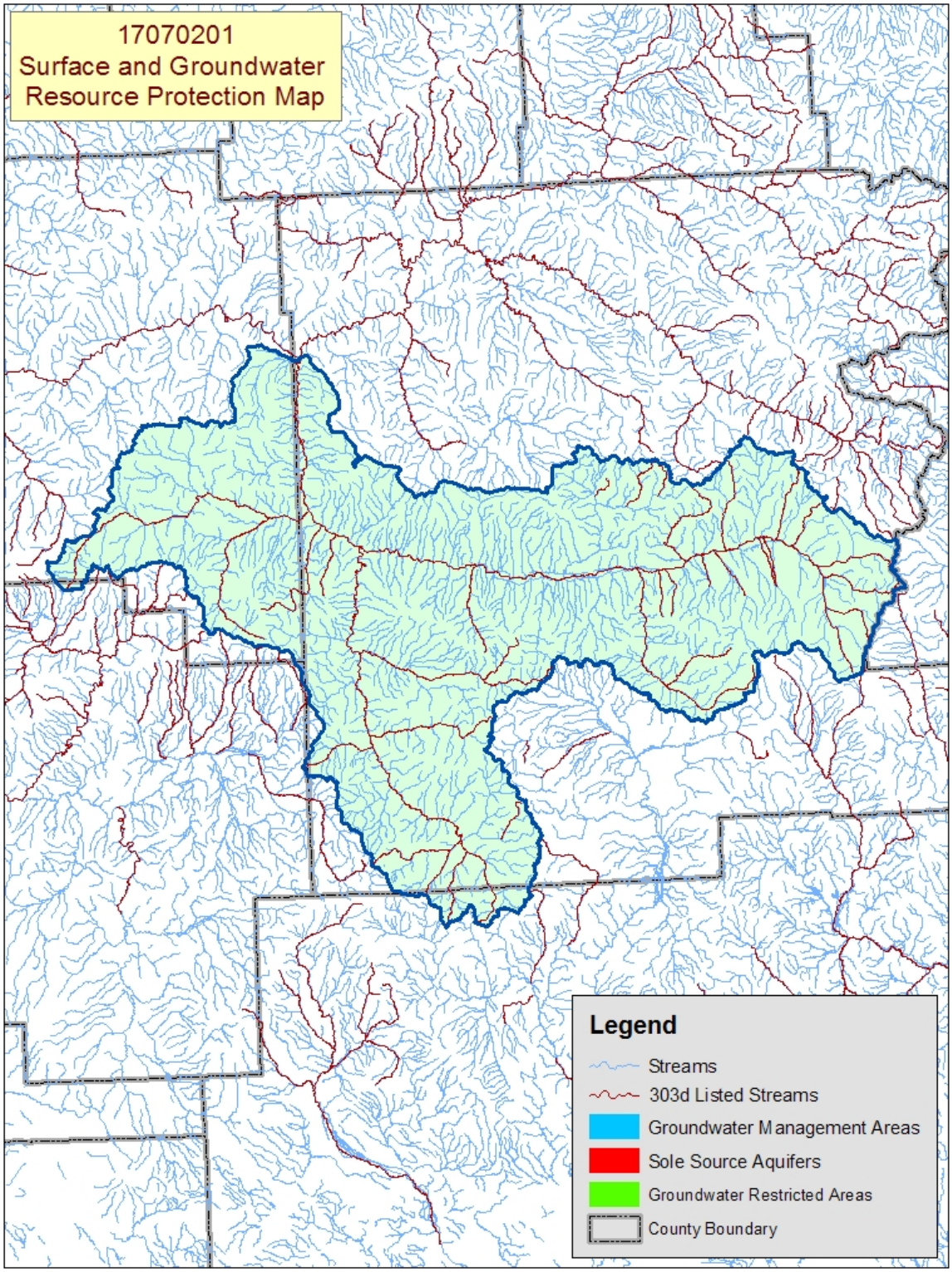


- Ninety-seven percent of the 303d listed stream miles have temperatures that exceed the State water quality standards. Elevated stream temperatures may be due to inadequate riparian shade, stream channel widening, warm irrigation return flows, and other anthropogenic or natural causes.
- Fecal coliform may originate from livestock, onsite septic systems, or wildlife.
- Conservation practices that can be used to address these water quality issues include grazing management, nutrient 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		Upper John Day	Completed

OWEB Watershed Council[10]	Watershed Council Assessments[11]	NWPCC Subbasin Plans and Assessments[18]
Bridge Creek, North Fork John Day, and South Fork John Day Watershed Councils	None	John Day Subbasin Plan

(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	Sheet and Rill					X	
	Concentrated Flow or Gully					X	
	Streambank	X					
	Irrigation Induced	X					
Soil Condition	Soil Compaction/Infiltration	X					
Water Quantity	Water Management for Irrigated Land	X					
	Water Management for Nonirrigated Land					X	
Water Quality, Surface	Nutrients and Organics	X					
	Suspended Sediments and Turbidity	X					
	Temperature	X					
	Aquatic Habitat Suitability	X					
Plant Suitability	Site and Intended Use Suitability	X				X	X
Plant Condition	Productivity, Health, and Vigor	X				X	X
Plant Management	Establishment, Growth, and Harvest	X				X	X
Animal Habitat, Domestic	Water Quantity and Quality					X	X
	Management	X				X	X
Animal Habitat, Wildlife	Food/Cover/Shelter/Fish Passage	X				X	X
Human, Economics	High Labor Cost or Availability	X				X	X
	Low or Unreliable Profitability	X				X	X
Human, Political	Inadequate Availability of Cost Share Programs	X				X	X

Grass / Pasture / Hay

- Streambank and irrigation-induced erosion are associated with pastures, which are usually adjacent to streams.
- Management of nutrients and livestock waste can be an issue on grazing lands.
- Pastures adjacent to streams commonly lack adequate riparian vegetation to shade and buffer streams.
- Removal of fish passage barriers and screening diversions has been and continues to be a major conservation effort.
- Improving both the on-farm irrigation water management and the delivery efficiency of irrigation systems are concerns for conserving water.

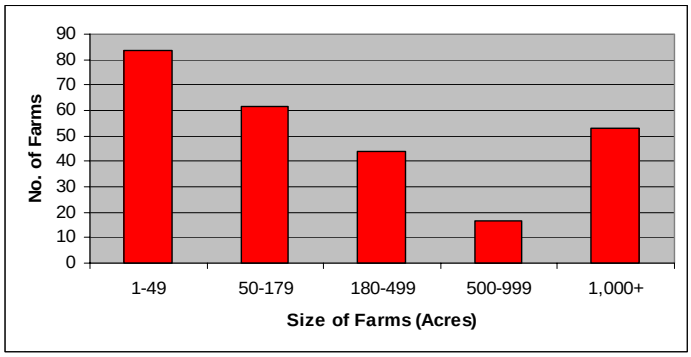
Rangeland and Forestland

- Much of the private forestland is managed by private industrial owners who generally comply with State forest practices.
- Some private non-industrial forestland is 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 (overstocked stands).
- Overstocked lodgepole pine/ponderosa pine on forestland and invasive weeds (medusahead and cheatgrass) on rangeland limit the productivity for timber, grazing, and wildlife habitat.
- Reducing fuel is a concern for decreasing the risk of fire on forestland.
- Juniper is encroaching onto both rangeland and ponderosa pine sites.
- Low economic profitability and a perceived high cost of conservation discourage conservation activities.

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

Census and Social Data[/14]

Back to Contents



Number of Farms: 259

Number of Operators: 424

- Full-Time Operators: **160**
- Part-Time Operators: **264**

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

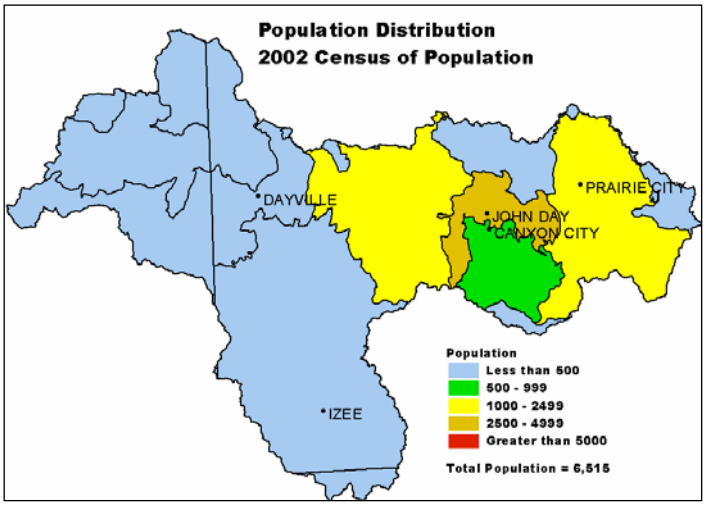
The operators of the large, viable agricultural operations in the watershed tend to understand and appreciate the benefits of conservation and have a history of adopting conservation practices. They tend to have the ability and stewardship attitude amenable to conservation and natural resource management.

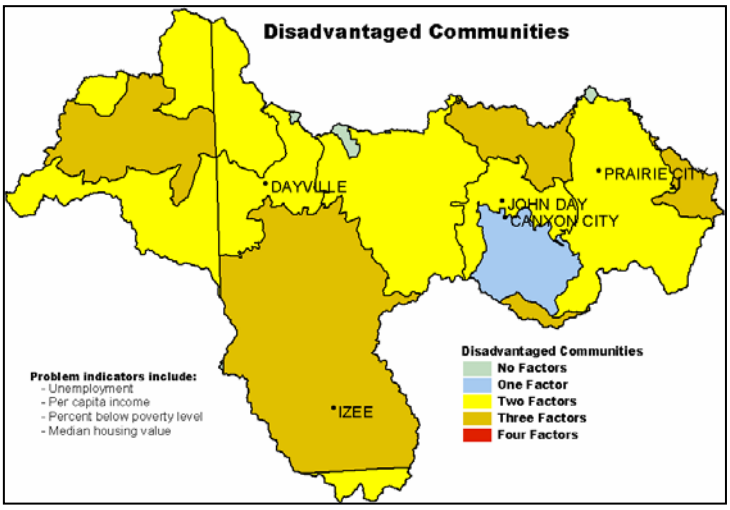
Operators of the smaller acreage farms (<1,000 acres) and absentee landowners tend to lack awareness of local resource concerns, lack resources to adopt conservation practices, and require significantly more time to inform, persuade, and assist with natural resource management. Absentee landowners also tend to lack the ties to the community, which normally is requisite to widespread conservation diffusion in a watershed.

Evaluation of Social Capital[/16] LOW TO MODERATE

Social capital in the Upper John Day watershed and its ability to successfully address local resource concerns is low to moderate. The community's strengths are its history of completing projects it starts, using government assistance to leverage local resources, and voting.

Social capital might improve if local leaders were able to increase participation (including minorities) in community issues and decisions. Particularly, increasing the participation of all local landowners (full-time, part-time, and absentee) in farm and ranch organizations would likely help the community to successfully address local resource concerns.

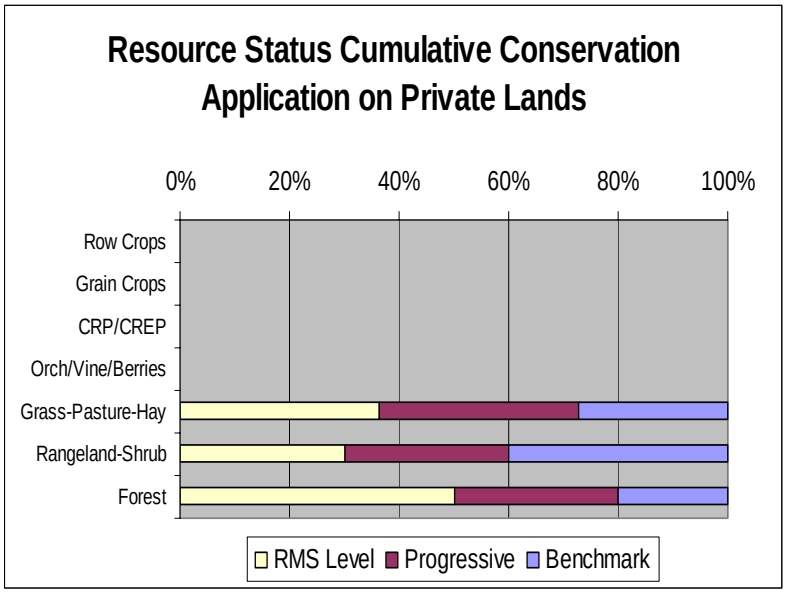




Progress / Status

Back to Contents

PRMS Data	FY99	FY00	FY01	FY02	FY03	Avg / Year	Total
Total Conservation Systems Planned (Acres)	21,822	34,434	2,061	14,426	6,632	15,875	79,375
Total Conservation Systems Applied (Acres)	7,724	13,008	28,350	14,937	8,364	14,477	72,383
Conservation Treatment							
Waste Management (number)	0	0	0	0	0	0	0
Buffers (acres)	0	20	32	0	0	10	52
Erosion Control (acres)	0	3,992	0	0	0	798	3,992
Irrigation Water Management (acres)	461	372	180	19	183	243	1,215
Nutrient Management (acres)	0	386	0	0	0	77	386
Pest Management (acres)	0	0	0	0	0	0	0
Prescribed Grazing (acres)	21,274	12,034	34,739	8,299	23,091	19,887	99,437
Trees & Shrubs (acres)	0	20	0	50	0	14	70
Conservation Tillage (acres)	0	0	0	0	0	0	0
Wildlife Habitat (acres)	2,966	2,613	8,274	11,573	7,108	6,507	32,534
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 5 years has been focused on:
  - Prescribed grazing on rangeland and pastureland.
  - Wildlife habitat improvements.
  - Streambank and irrigation-induced erosion on pastureland and hayland.
- Many pasture units are used as winter feeding areas, which makes it difficult to properly rest and manage the units for forage production and to minimize adverse affects from runoff.
- Most rangeland is well managed, although invasive weeds, such as medusahead, and juniper encroachment have led to low productivity and soil erosion in some areas.
- Forestland is generally profitable and provides wildlife habitat. State forest practice act requirements are implemented on most private forestland. The remaining issues are juniper encroachment, lack of fencing and watering facilities to manage livestock, and competition between livestock and wildlife for food and water.

Lands Removed from Production through Farm Bill Programs

- Conservation Reserve Program (CRP): **None**
- Wetland Restoration Program (WRP): **None**
- Conservation Reserve Enhancement Program (CREP): **3 acres**

Footnotes/Bibliography

Back to Contents

All data is provided "as is." There are no warranties, express or implied, including the warranty of fitness for a particular purpose, accompanying this document. Use for general planning purposes only.

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

All data is provided "as is." There are no warranties, express or implied, including the warranty of fitness for a particular purpose, accompanying this document. Use for general planning purposes only.

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.