



Introduction

The Little Deschutes 8-Digit Hydrologic Unit Code (HUC) subbasin is comprised of 673,000 acres. Seventy percent of the subbasin is in Klamath County and twenty-six percent is in Deschutes County. Seventy percent of the subbasin is public land. There are numerous scattered rural homesites in the subbasin and only 25 farms, half of which are less than 50 acres in size. The majority of the private land is forest land under industrial ownership.

Eighty-five percent of the subbasin is forested. A few irrigated pastures and nonirrigated meadows are on some of the small ranches and homesites.

Conservation assistance is provided by three NRCS service centers, one soil survey office, one resource conservation and development (RC&D) office, and two satellite field offices (Warm Springs Indian Reservation and Hood River).

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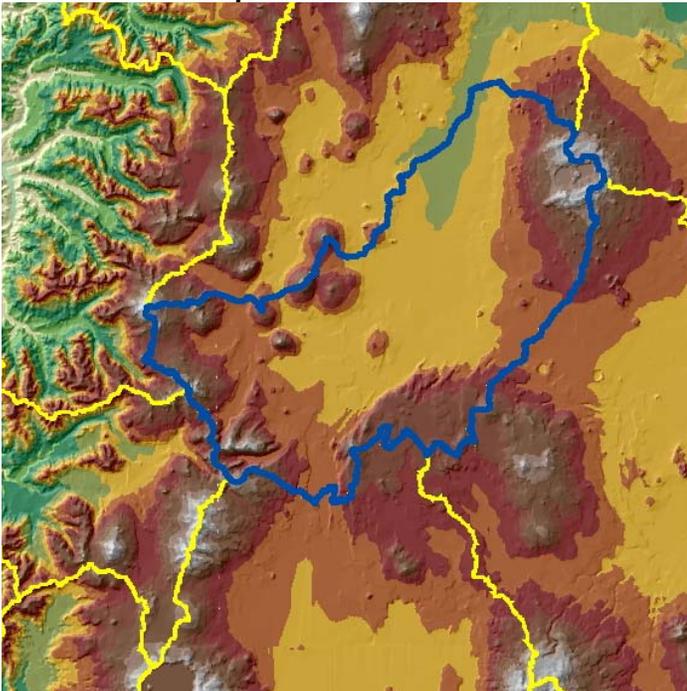
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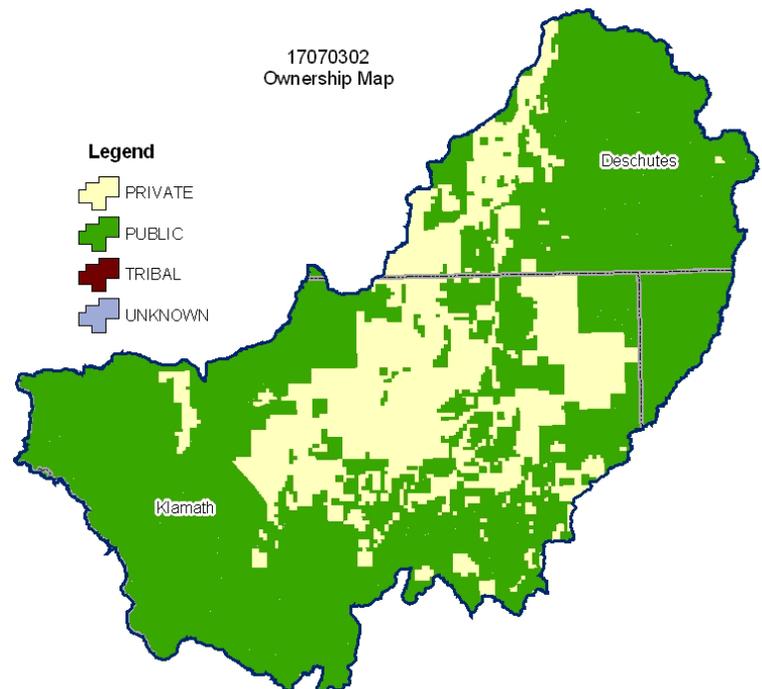
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Relief Map



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Ownership Map



Physical Description

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Land Cover/Land Use (NLCD ²)	Ownership - (2003 Draft BLM Surface Map Set ¹)						Totals	% of HUC
	Public		Private		Tribal			
	Acres	%	Acres	%	*	%		
Forest	418,900	62%	142,900	22%	0	0%	561,800	84%
Grain Crops	*	---	*	---	0	0%	*	---
Conservation Reserve Program (CRP) Land ^a	*	---	*	---	0	0%	*	---
Grass/Pasture/Hay	32,900	5%	14,300	2%	0	0%	47,200	7%
Orchards/Vineyards/Berries	0	0%	0	0%	0	0%	0	0%
Row Crops	0	0%	*	---	0	0%	*	---
Shrub/Rangelands	23,000	3%	6,600	1%	0	0%	29,600	4%
Water/Wetlands/Developed/Barren	22,300	3%	11,500	2%	0	0%	33,800	5%
HUC Totals ^b	497,100	74%	175,400	26%	0	0%	672,500	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 sixty-five percent of the private forest is under industrial forest ownership.
- Over seventy percent of the land is publicly owned. Scattered rural homesites are privately owned.
- Only a few irrigated pastures and nonirrigated meadows are on small ranches and ranchettes.

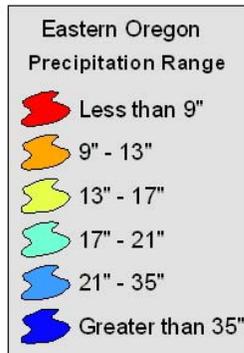
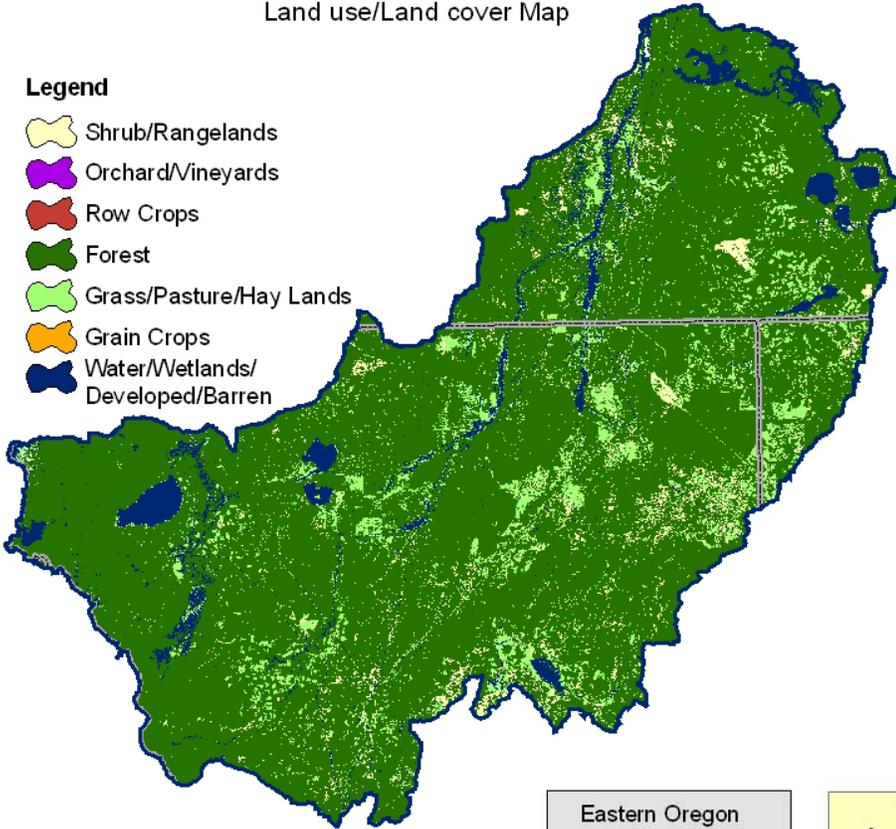
Irrigated Lands (1997 NRI ³ Estimates for Non-Federal Lands Only)	Type of Land	ACRES	% of Irrigated Lands	% of HUC
	Cultivated Cropland	0	0%	0%
	Uncultivated Cropland	0	0%	0%
	Pastureland	7,800	100%	1%
	Total Irrigated Lands	7,800	100%	1%

(Continued on following pages)

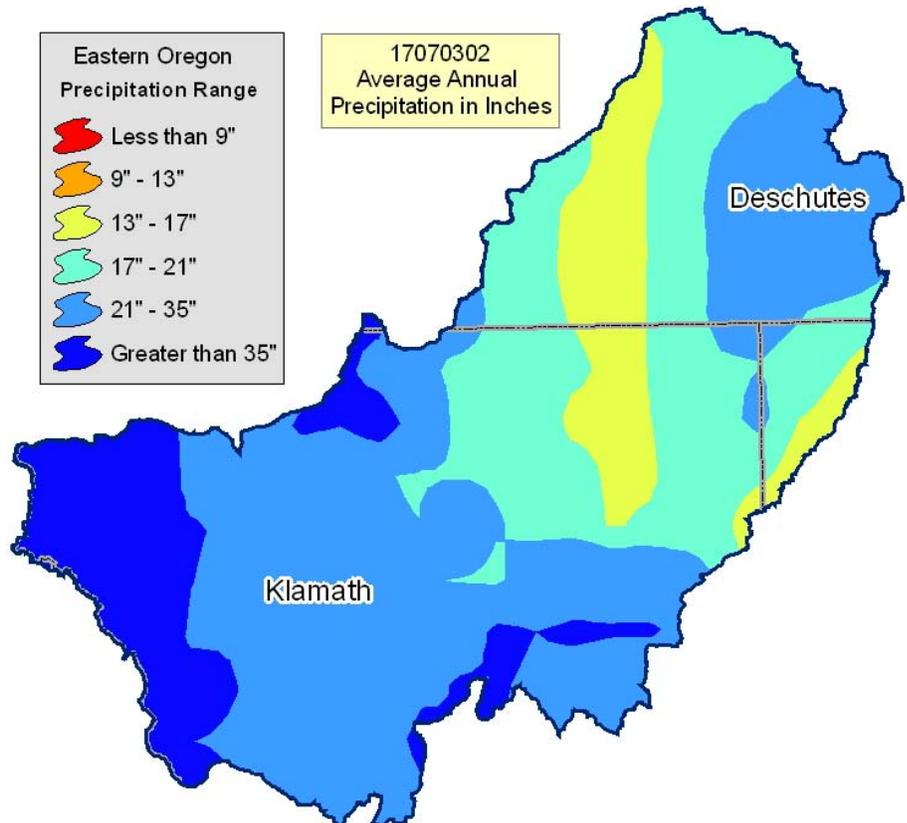
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Land use/Land cover Map

Legend

-  Shrub/Rangelands
-  Orchard/Vineyards
-  Row Crops
-  Forest
-  Grass/Pasture/Hay Lands
-  Grain Crops
-  Water/Wetlands/
Developed/Barren



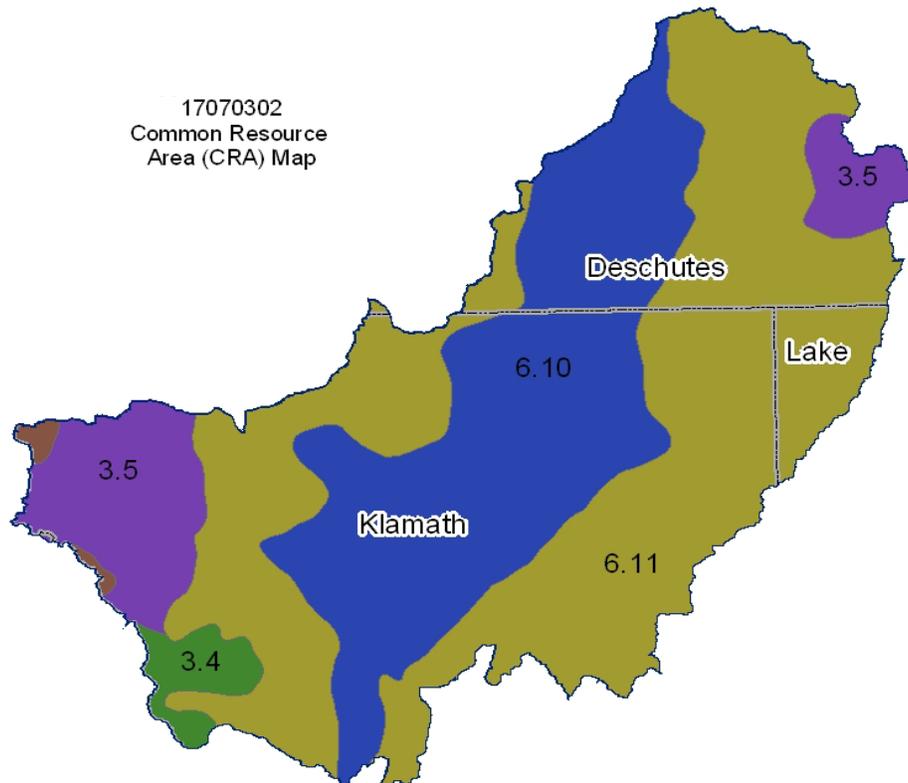
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Average Annual
Precipitation in Inches



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://lce.or.nrcs.usda.gov/website/cra/viewer.htm>



3.4 - Olympic and Cascade Mountains - Cascade Subalpine-Alpine: This unit consists of high, glaciated, volcanic peaks that rise above subalpine meadows. It is characterized by barren rock outcroppings, lava flows, and volcanic peaks. Elevation is 5,600 to 12,000 feet. Active glaciation occurs on the highest volcanoes and decreases from north to south. The winters are very cold, and the growing season is extremely short. Flora and fauna adapted to the high elevations include herbaceous and shrubby subalpine meadow vegetation and scattered patches of mountain hemlock, subalpine fir, and whitebark pine.

3.5 - Olympic and Cascade Mountains - Northern Cascade Crest Montane Forest: This unit consists of an undulating plateau punctuated by volcanic buttes and cones that reach a maximum elevation of about 6,500 feet. It is extensively forested with mountain hemlock and Pacific silver fir. The temperature regime is cryic, and the moisture regime is udic. Although this unit has the same moisture and temperature regimes as unit 3.3, this unit is noticeably more moist. The break between units 3.3 and 3.5 is transitional.

6.10 - Cascade Mountains, Eastern Slope - Cold Wet Pumice Plateau Basins: This unit is characterized by cold wet basins. The soils are dominantly ash and pumice from Mt. Mazama. This unit has extensive wetlands in Klamath and Sycan Marshes and groundwater quality issues in Lapine Basin. The temperature regime is cryic, and the soil moisture regime is aquic.

6.11 - Cascade Mountains, Eastern Slope - Pumice Plateau Forest: This unit occurs on the southern extreme of the MLRA and is characterized by nearly level to undulating pumice-mantled plateaus that support dominantly lodgepole pine and ponderosa pine. The soils consist of deep deposits of ash and pumice from Mt. Mazama. Cold temperatures and frost limit the production of ponderosa pine. The temperature regime is cryic, and the moisture regime is xeric.

Physical Description – Continued

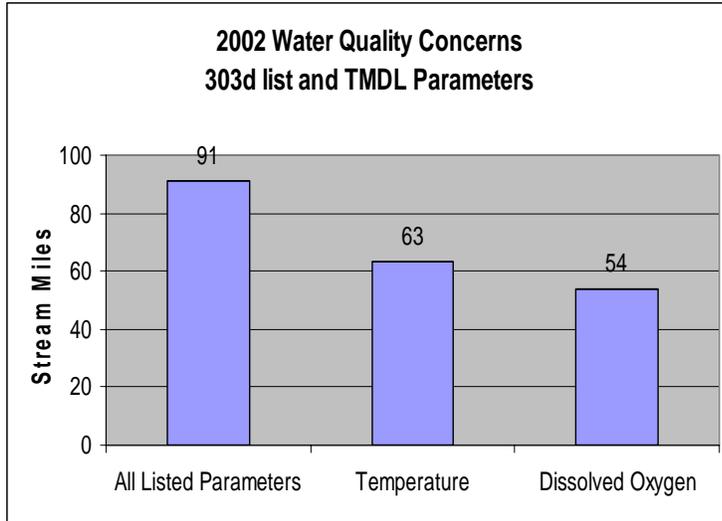
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		ACRES	ACRE-FEET			
Irrigated Adjudicated Water Rights (OWRD ⁴)	Surface	2,009	6,182			
	Well	4,317	12,953			
	Total Irrigated Adjudicated Water Rights	6,326	19,135			
Stream Flow Data	USGS 14063000 LITTLE DESCHUTES RIVER, NEAR LA PINE, OREG.	Total Avg. Yield	145,124			
		May – Sept. Yield	75,005			
		MILES	PERCENT			
Stream Data ⁵ <i>*Percent of Total Miles of Streams in HUC</i>	Total Miles – Major (100K Hydro GIS Layer)	259	---			
	303d/TMDL Listed Streams (DEQ)	91	7%			
	Anadromous Fish Presence (StreamNet)	0	0%			
	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	9,583	68%			
	Grain Crops	3	0%			
	Grass/Pasture/Hay	1,169	8%			
	Orchards/Vineyards	0	0%			
	Row Crops	0	0%			
	Shrub/Rangelands – Includes CRP Lands	667	4%			
	Water/Wetlands/Developed/Barren	2,647	19%			
	Total Acres of 100-foot Stream Buffers	14,068	---			
Land Capability Class (Croplands & Pasturelands Only) (1997 NRI ³ Estimates for Non-Federal Lands Only)	1 – slight limitations	0	0%			
	2 – moderate limitations	0	0%			
	3 – severe limitations	0	0%			
	4 – very severe limitations	0	0%			
	5 – no erosion hazard, but other limitations	2,300	18%			
	6 – severe limitations; unsuitable for cultivation; limited to pasture, range, forest	10,200	82%			
	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	12,500	---			
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	0
No. of Permitted Animals	0	0	0	0	0	0

Resource Concerns

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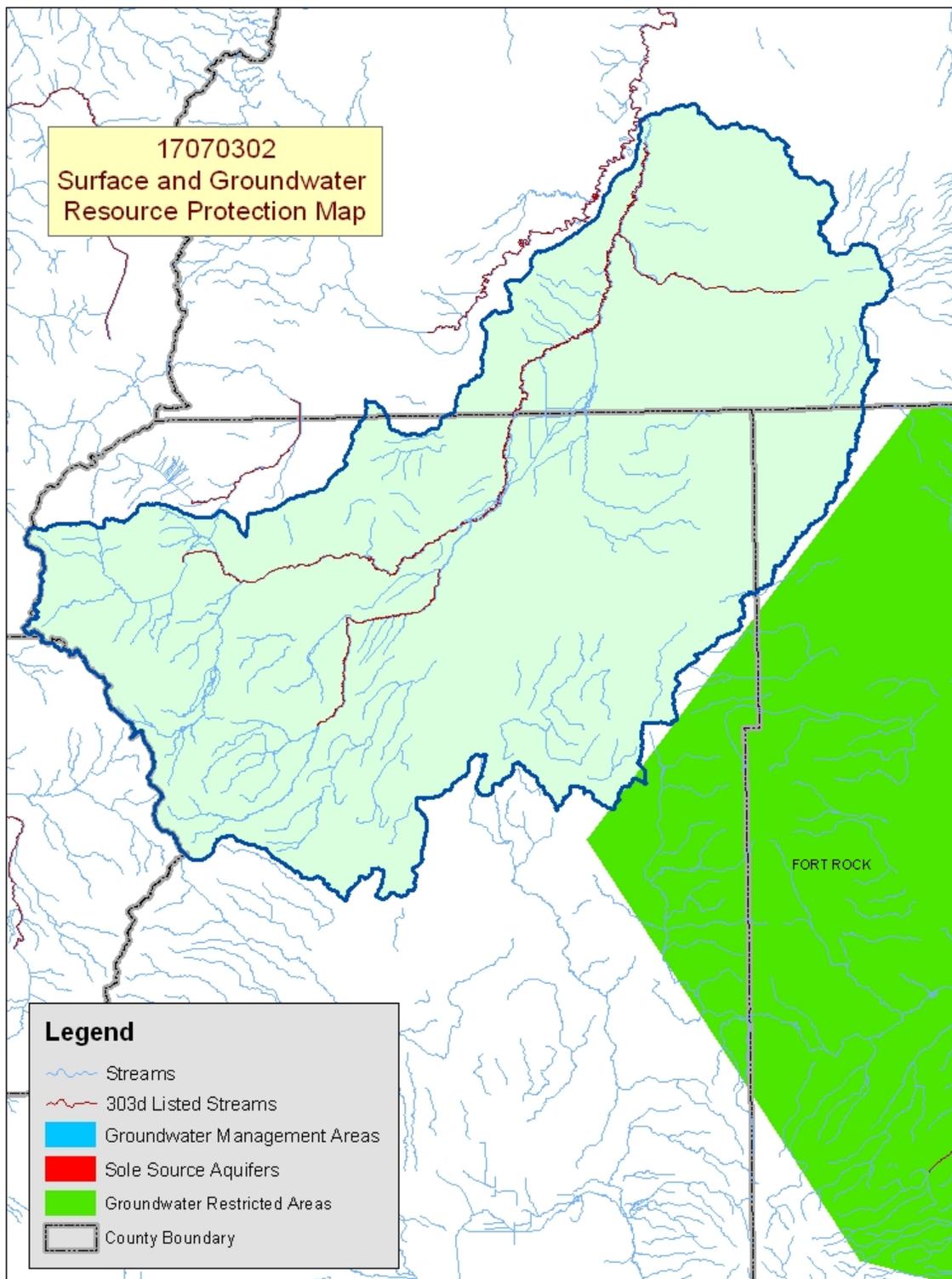
Tons of Soil Loss by Water Erosion: Due to the limited amount of non-Federal cropland and pastureland within this HUC, no reliable NRI soil loss estimates are available.



- ❖ Sixty-nine percent of all listed stream miles have temperatures exceeding 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.
- ❖ Dissolved oxygen may be indicative of high nutrient loading from phosphorus.
- ❖ Conservation practices that can be used to address these water quality issues include nutrient management, 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		Upper Deschutes	Completed
OWEB Watershed Councils ¹⁰		Watershed Council Assessments ¹¹	NWPCC Subbasin Plans & Assessments ¹⁸
Upper Deschutes Watershed Council	None		Deschutes Subbasin Plan

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Map Footnote [417](#)

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
Water Quantity	Water Management For Irrigated Land	X					
Plant Condition	Productivity, Health, and Vigor	X				X	X
Human, Economics	Land Use Constraints/Restrictions					X	X
	Low or Unreliable Profitability	X				X	X
Human, Political	Lack of Technical Assistance	X				X	

Grass/Pasture/Hay

- Water management is the primary concern in areas of irrigated pasture on small farms and ranches.
- Low profitability and unavailability of technical assistance for small farms and ranchettes hinder conservation efforts.

Rangeland and Forest Land

- Overstocked lodgepole pine/ponderosa pine on forest land and invasive weeds on rangeland reduce the productivity for timber, grazing, and wildlife habitat.
- Much of the area is under pressure for development of ranchettes and vacation and recreational property.

FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES ¹²	
THREATENED SPECIES	CANDIDATE SPECIES
Mammals - Canada lynx Birds - Bald eagle, Northern spotted owl Fish - Bull trout	Birds – Yellow-billed cuckoo Amphibians and Reptiles – Oregon spotted frog
	PROPOSED SPECIES – None
ESSENTIAL FISH HABITAT ¹³ – None	

Census and Social Data ^{/14}

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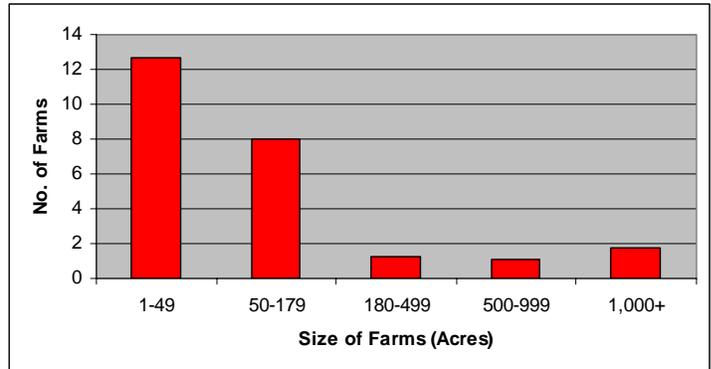
Number of Farms: **25**

Number of Operators: **40**

- Full-Time Operators: **12**
- Part-Time Operators: **28**

Estimated Level of Willingness and Ability to Participate in Conservation: ^{/15}

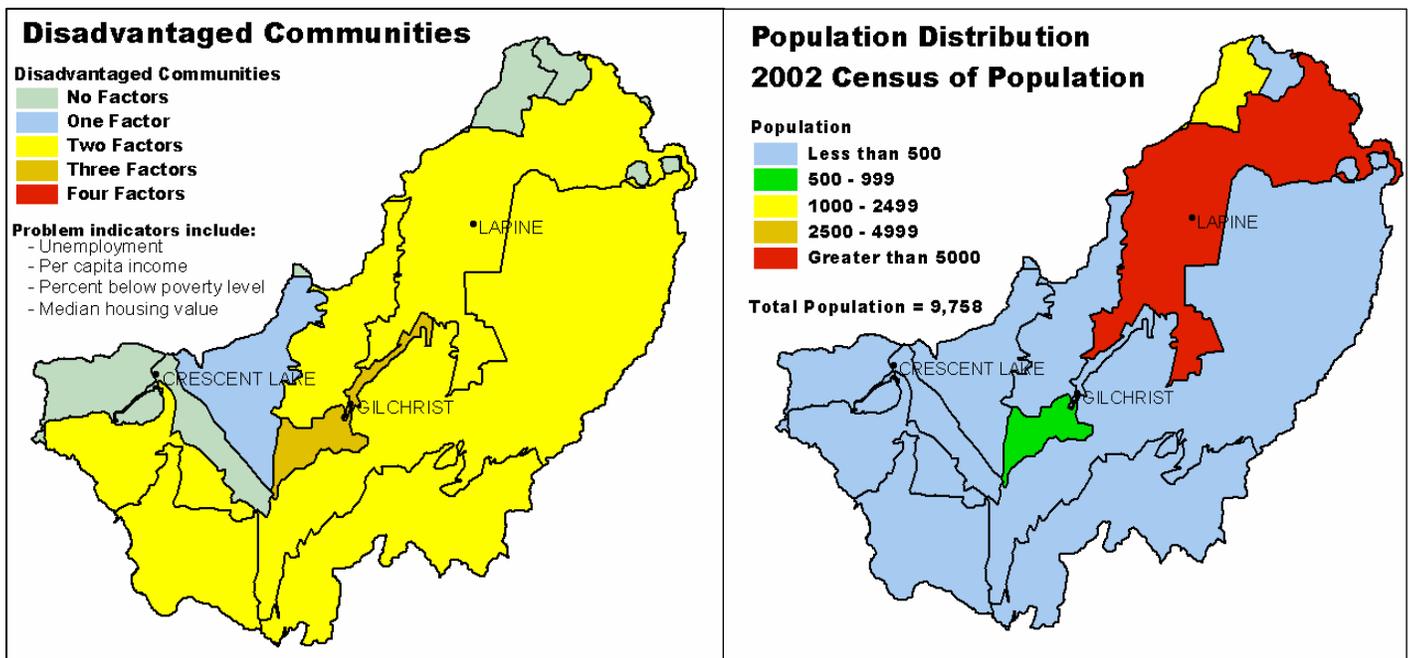
- Agricultural Producers: **MODERATE**
- Forest land Owners: **LOW**



There are few landowners/operators in the Little Deschutes subbasin. For this reason, it is difficult to generalize about their conservation behavior. Interviews with local conservationists, however, provided evidence that the biggest obstacle to individual willingness to adopt conservation practices and systems is a lack of awareness of resource concerns. This may be overcome by informing and educating the landowners and improving the marketing of natural resources management and conservation practices and systems.

Evaluation of Social Capital: ^{/16} **LOW**

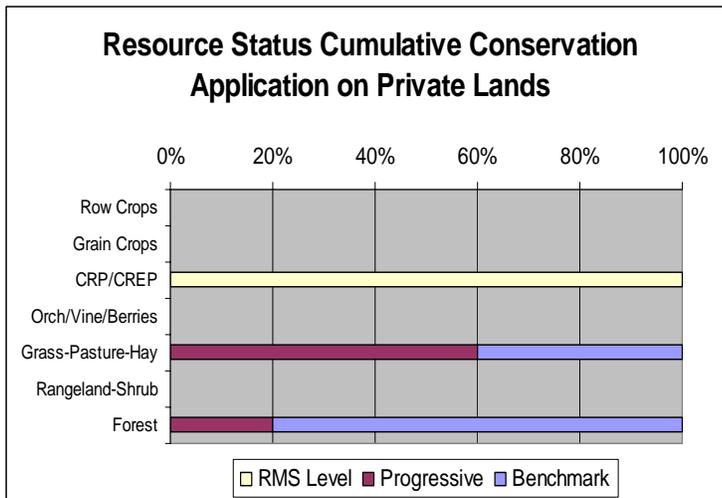
The Little Deschutes subbasin is very rural with low population. Attempts to develop a community through organizations, groups, and meetings have been met with minimal interest and very low participation. In recent history, the people in the subbasin have not had a common cause to bring them together. Opportunities to develop social capital will likely require outside assistance or an influx of new landowners with the ability and willingness to work with their neighbors in the community to solve some local problems.



Progress/Status

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PRMS Data	FY99	FY00	FY01	FY02	FY03	Avg/Year	Total
Total Conservation Systems Planned (Acres)	0	0	0	400	0	80	400
Total Conservation Systems Applied (Acres)	0	0	0	400	0	80	400
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	0	0	0	0	0	0
Irrigation Water Management (Acres)	0	0	0	0	0	0	0
Nutrient Management (Acres)	0	0	0	0	0	0	0
Pest Management (Acres)	0	0	0	0	0	0	0
Prescribed Grazing (Acres)	0	0	0	400	0	80	400
Trees & Shrubs (Acres)	0	0	0	0	0	0	0
Conservation Tillage (Acres)	0	0	0	0	0	0	0
Wildlife Habitat (Acres)	0	0	0	400	210	122	610
Wetlands (Acres)	0	0	0	0	0	0	0



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

- ❖ Progress has been limited over the last five years due to limited outreach and availability of programs.
- ❖ Forested areas developed as homesites and recreational properties commonly are not actively managed for timber or wildlife.
- ❖ Private, non-industrial forest land that is not managed commonly creates fire safety issues.
- ❖ Few commercial agricultural operations and the distance from USDA service centers limit local interest in conservation programs and assistance.

Lands Removed from Production through Farm Bill Programs

- ❖ Conservation Reserve Program (CRP): **108 acres**
- ❖ Wetland Restoration Program (WRP): **None**
- ❖ Conservation Reserve Enhancement Program (CREP): **None**

Footnotes/Bibliography

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1. Ownership Layer – Source: The 1:24,000 scale public ownership layer is the land ownership/management for public entities, including Federal, Tribal, State, and local entities. This is a seamless, statewide Oregon Public Ownership vector layer composed of fee ownership of lands by Federal, State, Tribal, county, and city agencies. The layer is comprised of the best available data compiled at 1:24,000 scale or larger, and the line work matches GCDB boundary locations and ORMAP standards where possible. The layer is available from the State of Oregon GIS Service Center: <http://www.gis.state.or.us/data/alphalist.html>. For current ownership status, consult official records at appropriate Federal, State, and county offices. Ownership classes grouped to calculate Federal ownership vs. non-Federal ownership by the Water Resources Planning Team.
2. National Land Cover Dataset (NLCD) - Originator: U.S. Geological Survey (USGS); Publication date: 19990631; Title: Oregon Land Cover Data Set, Edition: 1; Geospatial data presentation form: Raster digital data; Publisher: U.S. Geological Survey, Sioux Falls, SD, USA; Online linkage: <http://edcwww.cr.usgs.gov/programs/lccp/nationallandcover.html>; Abstract: These data can be used in a geographic information system (GIS) for any number of purposes, such as assessing wildlife habitat, water quality, pesticide runoff, land use change, etc. The State data sets are provided with a 300-meter buffer beyond the State border to facilitate combining the State files into larger regions.
3. ESTIMATES FROM THE 1997 NRI DATABASE (REVISED DECEMBER 2000) REPLACE ALL PREVIOUS REPORTS AND ESTIMATES. Comparisons made using data published for the 1982, 1987, or 1992 NRI may produce erroneous results. This is because of changes in statistical estimation protocols and because all data collected prior to 1997 were simultaneously reviewed (edited) as 1997 NRI data were collected. All definitions are available in the glossary. In addition, this December 2000 revision of the 1997 NRI data updates information released in December 1999 and corrects a computer error discovered in March 2000. For more information: <http://www.nrcs.usda.gov/technical/NRI/>
4. Irrigated Adjudicated Water Rights – Water Rights Information System (WRIS), Oregon Water Resources Department, <http://www.wrd.state.or.us/maps/wrlexport.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>.