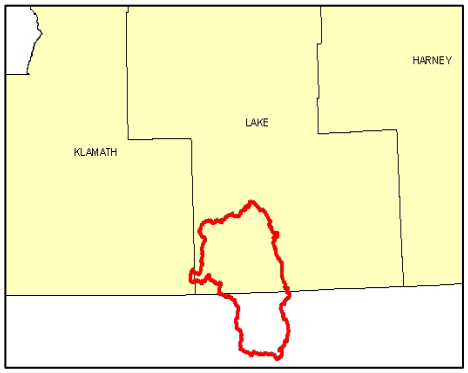
Goose Lake – 18020001

8-Digit Hydrologic Unit Profile

FINAL

FEBRUARY 2006



Introduction

The Oregon part of the Goose Lake 8-Digit Hydrologic Unit Code (HUC) subbasin is comprised of 460,000 acres, mostly in Lake County. Fifty-one percent of the subbasin is forestland, twenty percent is grassland, hayland, and pastureland, and sixteen percent is shrubland and rangeland. Resource concerns include poor forest management, which results in low profits; wind and streambank erosion; poor or limited irrigation water management in areas used for pasture and grain; and diminishing fish and wildlife habitat. Addressing these concerns is difficult due to land use constraints, such as high soil salinity; low profitability of agriculture; and unstable economic conditions throughout the subbasin.

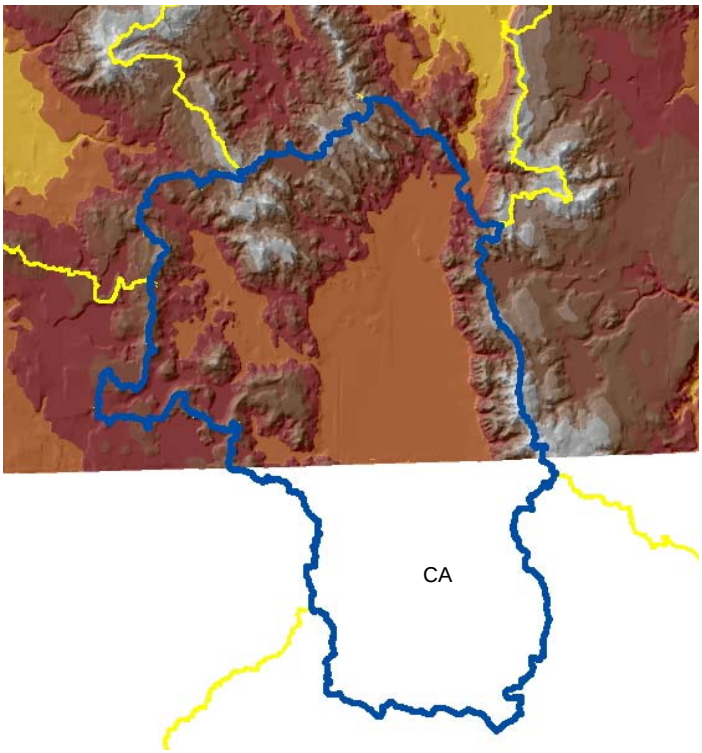
There are 163 farms and 204 operators in the subbasin. Many of the farms and ranches in the subbasin are only marginally profitable. Most farmers and ranchers are aware of local resource concerns and appreciate the effect conservation has on these concerns; however, conservation is not widely perceived to be economically feasible, timely technical assistance is not readily available, and the community is not an effective force behind resource management.

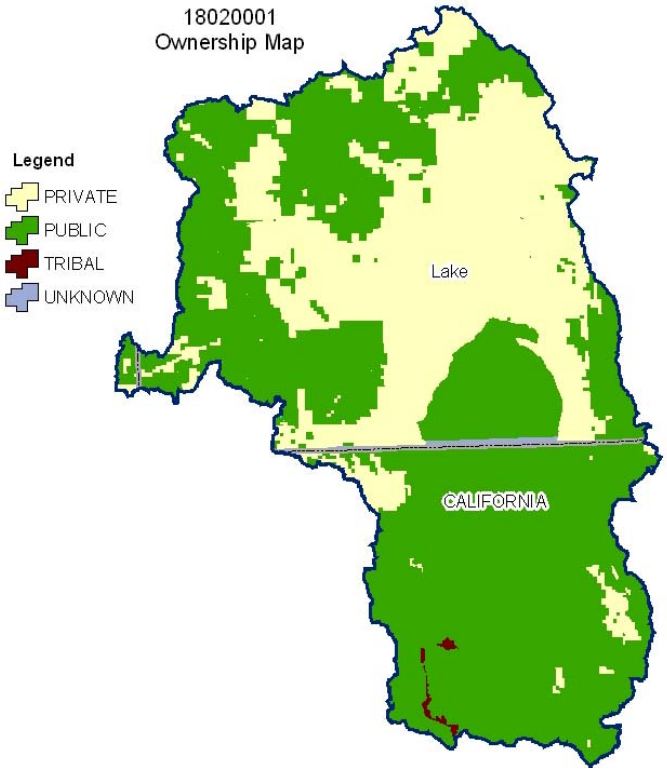
The NRCS Lakeview Service Center, Lakeview Soil and Water Conservation District, and Goose Lake Fishes Working Group provide conservation assistance in the subbasin.

Profile Contents

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

Relief Map





Produced by the Water Resources Planning Team Portland, OR

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (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 to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (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[12])	Ownership - (2003 Draft BLM Surface Map Set[11])							
	Public		Private		Tribal		Totals	%
	Acres	%	Acres	%	Acres	%		
Forest	157,200	34%	79,000	17%	0	0%	237,200	51%
Grain Crops	*	---	*	---	0	0%	*	---
Conservation Reserve Program Land [a]	0	0%	2,700	1%	0	0%	2,700	1%
Grass/Pasture/Hay	9,100	2%	*	---	0	0%	93,300	20%
Orchards/Vineyards	0	0%	0	0%	0	0%	0	0%
Row Crops	*	---	*	---	0	0%	*	---
Shrub/Rangelands	21,000	5%	53,500	12%	0	0%	74,900	16%
Water/Wetlands/Developed/Barren	36,400	8%	14,100	3%	0	0%	53,000	11%
Oregon HUC Totals [b]	**223,800**	**48%**	**235,300**	**51%**	**0**	**0%**	**463,400**	**100%**

**: Less than 1 percent of total acres. See below for special considerations.*
a: Estimate from Farm Service Agency records and includes CRP/CREP.
b: Totals are approximate due to rounding and small unknown acreages.

Special Considerations for This 8-Digit HUC:

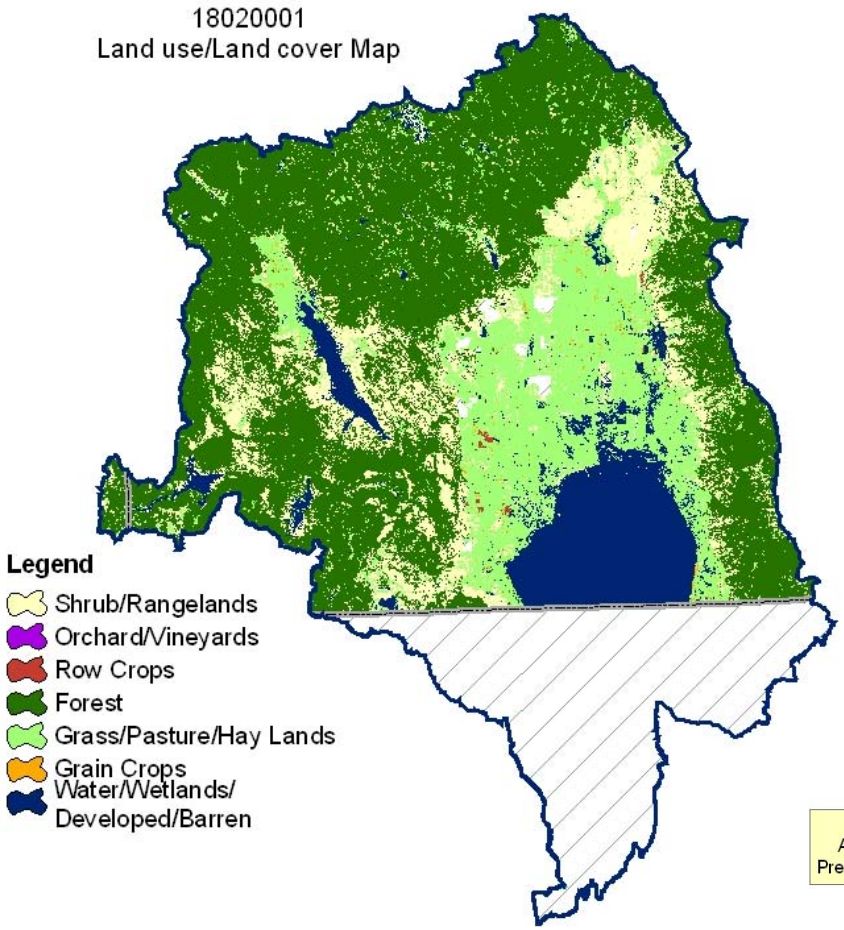
- A few acres of oats occasionally are grown for hay.
- Salinity generally is too high for the soils to support row crops.

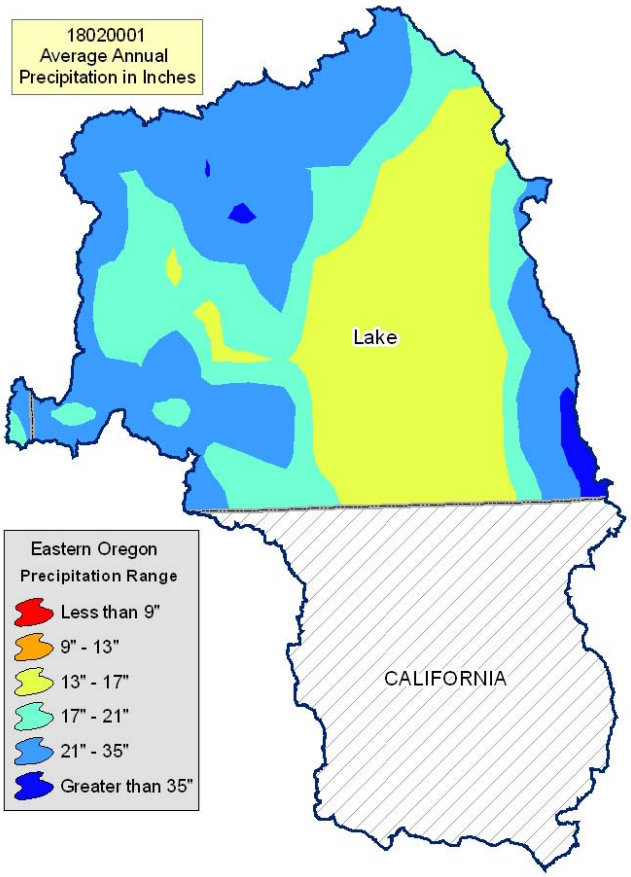
Irrigated Lands (1997 NRI[13] Estimates for Non-Federal Lands Only)	Type of Land	ACRES	% of Irrigated Lands	% of HUC
	Cultivated Cropland	0	0%	0%
	Uncultivated Cropland	27,000	38%	6%
	Pastureland	44,300	62%	9%
	Total Irrigated Lands	**71,300**	**100%**	**15%**

(Continued on the following pages)

Back to Contents

18020001
Land use/Land cover Map

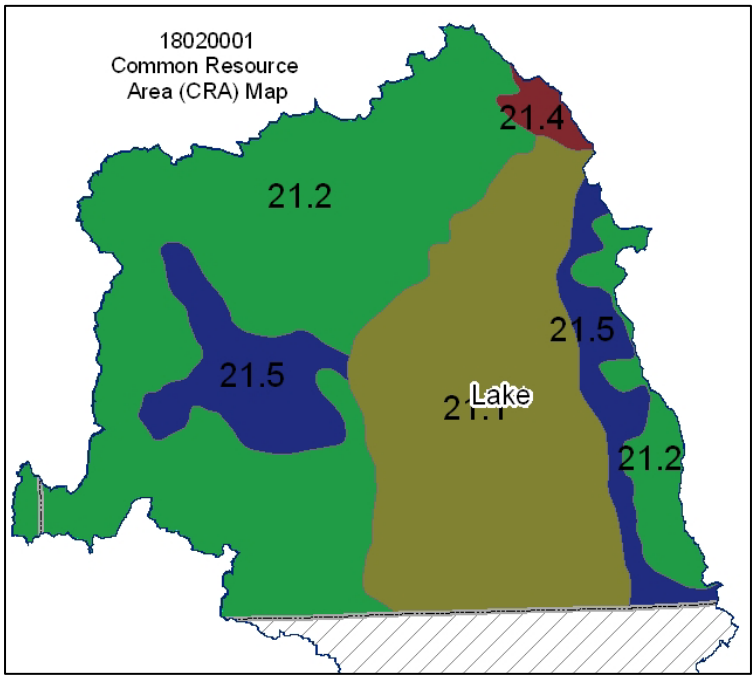




Common Resource Area Map

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



21.1 – Klamath and Shasta Valleys and Basins - Klamath-Goose Lake Warm Wet Basins: This unit is characterized by flood plains and terraces in the warm basins. The temperature regime is mesic, and the moisture regime is xeric. This unit includes Goose Lake Basin and Klamath Basin. Most areas are cropped, and supplemental irrigation may be needed. The dominant soils are those of the Goose Lake, Lakeview, Malin, Tulana, Drews, Deter, and Fordney series.

21.2 – Klamath and Shasta Valleys and Basins - Fremont Pine-Fir Forest: This unit is characterized by forested mountains and plateaus in the eastern portion of the MLRA. The temperature regime is dominantly frigid but is cryic in the higher areas, and the moisture regime is xeric. The dominant soils are those of the Rogger, Mound, Chocktoot, and Hallihan series. The vegetation is dominantly ponderosa pine and white fir with lodgepole pine in the higher areas.

21.4 – Klamath and Shasta Valleys and Basins - Warm Klamath Juniper Woodland: This unit is characterized by rangeland on hills and mountains. The temperature regime is mesic, and the moisture regime in xeric. Soils of the Lorella series are dominant. The vegetation is dominantly bluebunch wheatgrass and Wyoming big sagebrush with significant amounts of western juniper. Precipitation is about 10 to 16 inches.

21.5 – Klamath and Shasta Valleys and Basins - Cool Klamath Juniper Woodland: This unit is characterized by rangeland on hills and mountains. The temperature regime is frigid, and the moisture regime is xeric. The dominant soils are those of the Booth, Bullump, and Merlin series. The vegetation is dominantly mountain big sagebrush, low sagebrush, and Idaho fescue. Precipitation is about 14 to 18 inches.

Physical Description – Continued

Back to Contents

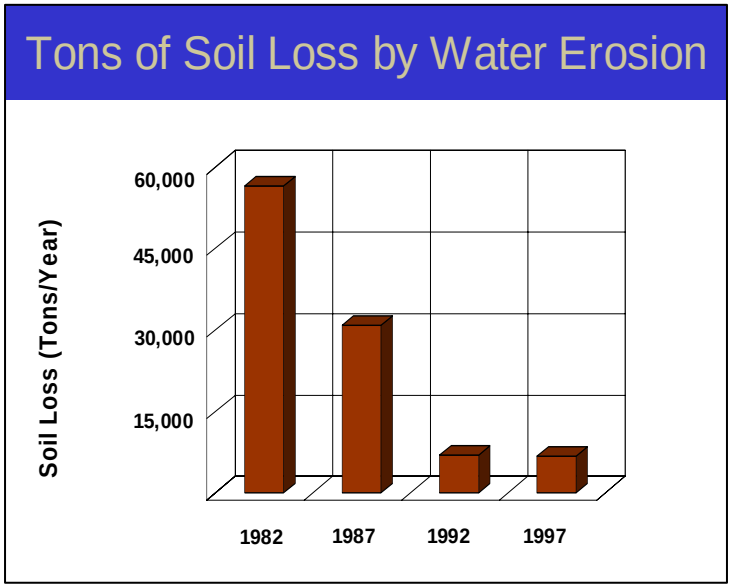
		ACRES	ACRE-FEET
Irrigated Adjudicated Water Rights *(OWRD[4])*	Surface	38,033	97,137
	Well	24,418	72,353
	Total Irrigated Adjudicated Water Rights	62,451	169,489
Stream Flow Data	USGS 11339500 DREWS CREEK, NEAR LAKEVIEW, OR	**Total Avg. Yield**	39,714
		May – Sept. Yield	16,985
		MILES	**PERCENT**
Stream Data[5] **Percent of Total Miles of Streams in HUC*	Total Miles – Major (100K Hydro GIS Layer)	671	---
	303d/TMDL Listed Streams (DEQ)	134	20%
	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	9,645	35%
	Grain Crops	270	1%
	Grass/Pasture/Hay	8,941	33%
	Orchards/Vineyards	0	0%
	Row Crops	40	0%
	Shrub/Rangelands – Includes CRP Lands	4,091	15%
	Water/Wetlands/Developed/Barren	4,225	16%
	Total Acres of 100-foot Stream Buffers	**27,212**	**---**
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	41,900	49%
	4 – very severe limitations	5,100	6%
	5 – no erosion hazard, but other limitations	16,000	19%
	6 – severe limitations; unsuitable for cultivation; limited to pasture, range, forest	18,000	21%
	7 – very severe limitations; unsuitable for cultivation; limited to grazing, forest, wildlife habitat	4,600	5%
	8 – miscellaneous areas; limited to recreation, wildlife habitat, water supply	0	0%
	Total Croplands and Pasturelands	**85,600**	**---**

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

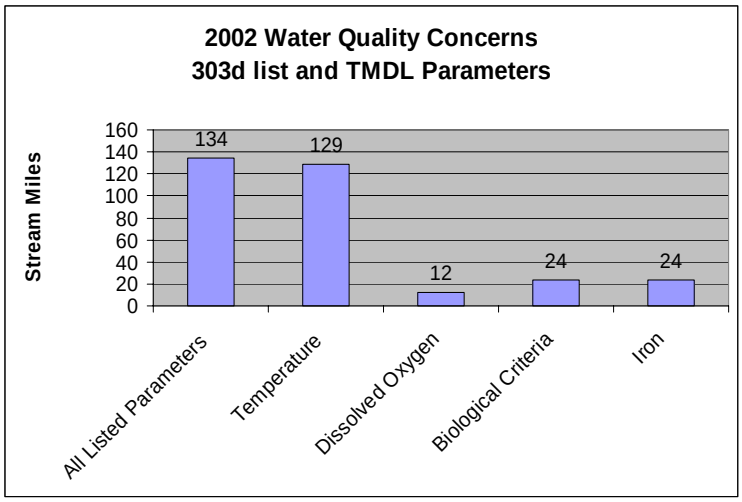
Animal Type	Dairy	Feedlot	Poultry	Swine	Mink	Other
No. of Permitted Farms	0	0	0	0	0	0
No. of Permitted Animals	0	0	0	0	0	0

Resource Concerns

Back to Contents



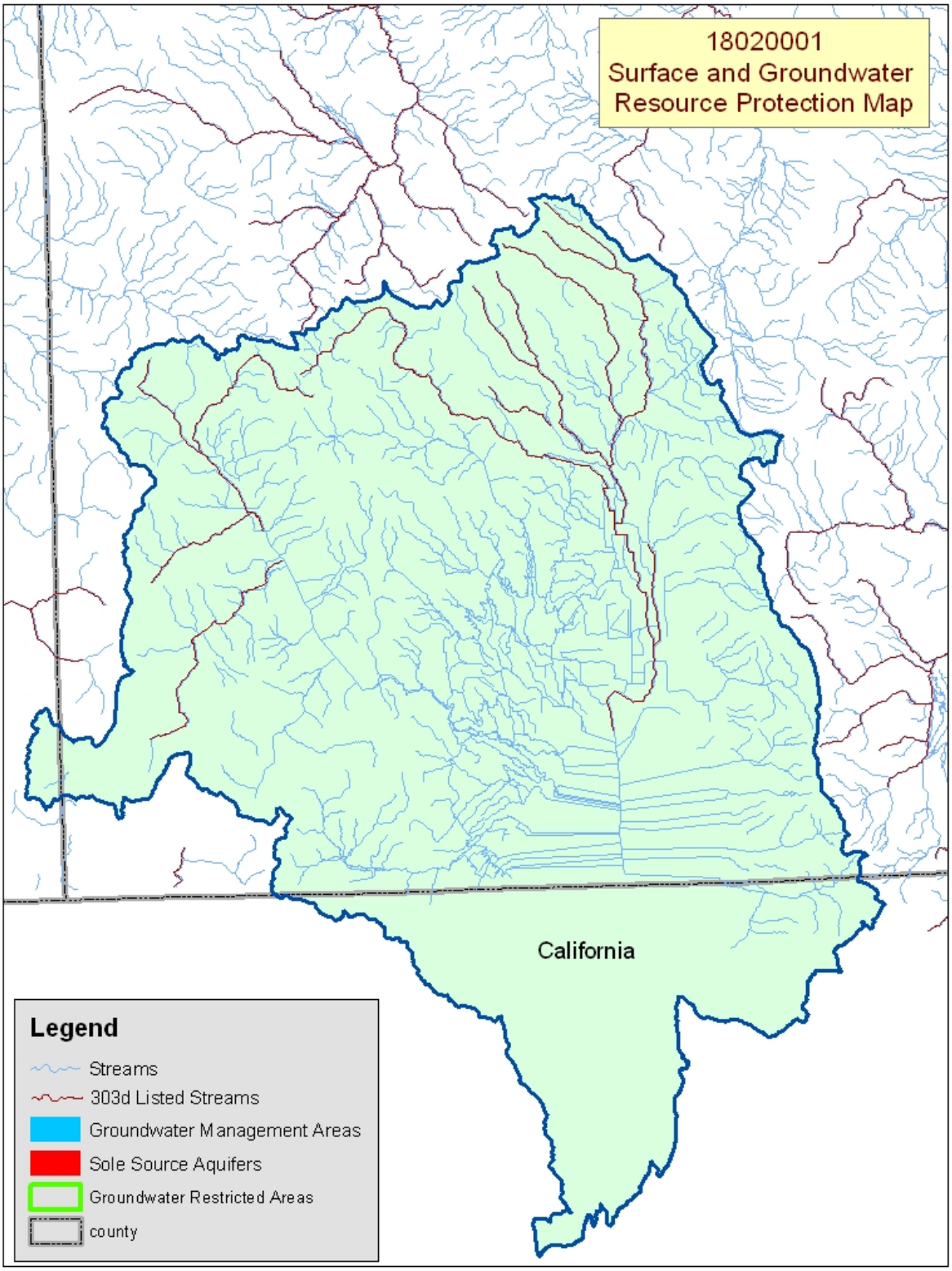
- Sheet and rill erosion by water on the cropland and pastureland have been reduced nearly 50,000 tons of soil per year from 1982 to 1997.
- NRI estimates indicate that no agricultural lands in the subbasin still had water erosion rates above a sustainable level in 1997.
- Controlling erosion not only 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 the cropland and pastureland fell 80 percent, from 0.5 to 0.1 ton/acre/year, from 1982 to 1997.



- Most of the listed stream miles exceed State water quality standards for temperature. Elevated stream temperatures may be due to inadequate riparian shade, stream channel widening, and other anthropogenic or natural causes.
- Conservation practices that can be used to address these water quality issues include irrigation water management, nutrient management, grazing management, and use of riparian buffers.

Watershed Projects, Plans, Studies, and Assessments			
NRCS Watershed Projects[6]		NRCS Watershed Plans, Studies, and Assessments[7]	
Name	Status	Name	Status
Deadman-Bullard	Active-1993	None	None
ODEQ TMDL's[8]		ODA Agricultural Water Quality Management Plans[9]	
Name	Status	Name	Status
None	None	Goose & Summer Lakes	Completed
OWEB Watershed Council[10]	Watershed Council Assessments[11]	NWPCC Subbasin Plans and Assessments[18]	
Goose Lake Watershed Council	None	None	

(Continued on page 8)



Map Footnote [17]

Resource Concerns - Continued

Back to Contents

Resource Concerns / Issues by Land Use							
SWAPA +H Concerns	**Specific Resource Concern / Issue**	**Grass\Pasture**	**Grain Crops**	**Row Crops**	**Hay**	**Shrub / Range**	**Forest**
Soil Erosion	Wind				X		
	Streambank	X				X	X
Soil Condition	Soil Compaction	X					
Water Quantity	Water Management for Irrigated Land	X			X		
Water Quality, Surface	Temperature	X				X	X
Air Quality	Airborne Sediment Causing Safety/Health Problems				X		
Plant Suitability	Site and Intended Use Suitability					X	X
Plant Condition	Productivity, Health, and Vigor	X			X		
Animal Habitat, Domestic	Water - Quantity and Quality					X	
Animal Habitat, Wildlife	Water - Quantity and Quality					X	
Human, Economics	Land Use Constraints/Restrictions	X			X	X	
	High Risk and Uncertainty				X		
	Low or Unreliable Profitability	X			X	X	X
Human, Political	Inadequate Availability of Cost Share Programs	X			X	X	X

Grass / Pasture & Hay

- Most ranches have areas of irrigated hay and pasture.
- Generally, a higher level of irrigation water management is used on hayland than on pastureland.
- Wind erosion can be a resource concern on sandy soils where the forage stand has not been properly managed for cover or to maximize production.
- Low economic return limits adoption of appropriate conservation practices.

Shrub / Rangeland

- Some areas of rangeland are dominantly annual grasses and shrubs because of past grazing practices.
- Loss of riparian vegetation contributes to stream warming.
- Low profit limits conservation adoption.

Forestland

- Lack of thinning and forest management can result in stagnate stands that have low value for commercial wood products, livestock grazing, or wildlife habitat.
- Low profit, unreliable markets, and inadequate incentive programs limit forest management activities on private, non-industrial forestland.

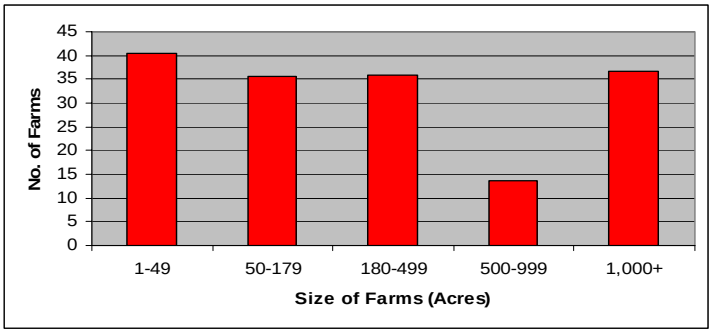
General

- The high salinity and content of minerals in the soils limit or restrict many uses.

FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES[12]	
THREATENED SPECIES	**CANDIDATE SPECIES**
Mammals - Canada lynx **Birds –** Bald eagle **Fish –** Shortnose sucker, Lost River sucker, Warner sucker, Bull trout, Hutton Springs tui chub, Foskett speckled dace	**Birds –** Yellow-billed cuckoo **Amphibians and Reptiles –** Columbia spotted frog, Oregon Spotted frog **PROPOSED SPECIES** None
ESSENTIAL FISH HABITAT[13] - None	

Census and Social Data[/14]

Back to Contents



Number of Farms: 163

Number of Operators: 204

- Full-Time Operators: **112**
- Part-Time Operators: **153**

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

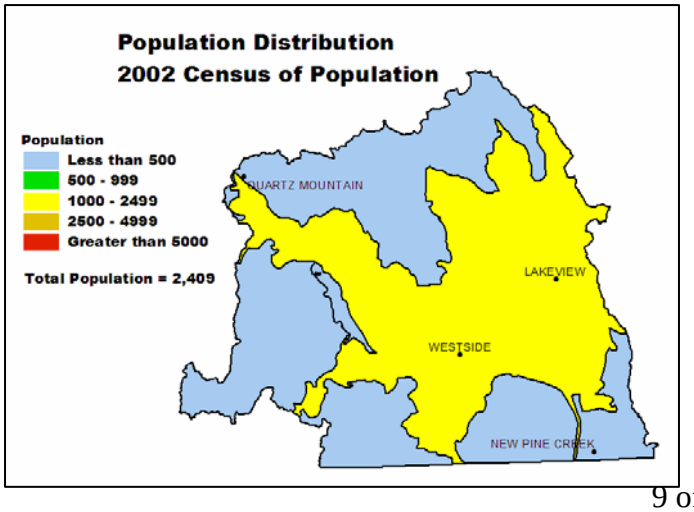
Farmers and ranchers in the Goose Lake subbasin reportedly are aware of local resource concerns and the importance of their resource management system in addressing these concerns. Most operators are well educated, maintain a positive stewardship attitude, and have already adopted some conservation practices. The operators, however, perceive conservation to be only moderately agriculturally and economically feasible. Agriculture in the subbasin reportedly is only moderately profitable; therefore, it is unlikely the operators will adopt agricultural innovations, including conservation. Timely technical assistance is not readily available throughout most of the subbasin.

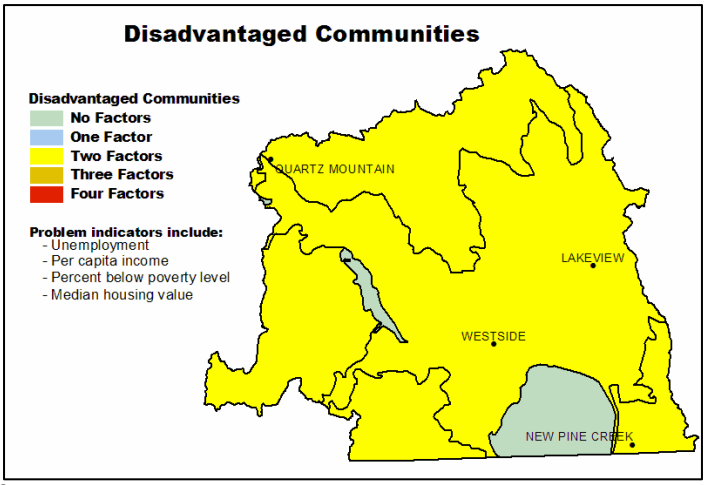
Conservation marketing targeted at meeting the particular needs of the Goose Lake operators and alleviating their concerns could increase the adoption of conservation practices. Also, offering expedient technical and financial assistance could help accelerate the diffusion of conservation throughout the subbasin.

Evaluation of Social Capital[/16]: Low

Social capital and involvement of the community in promoting conservation among agricultural landowners in the Goose Lake subbasin reportedly is low. Effective local leadership and community participation is not consistent. Possibly because of the geographic remoteness of the subbasin, communication among neighbors within the community and with sources of information outside the region is weak. Nevertheless, when an issue arises that the people of Goose Lake deem important, volunteers step forward.

Community development assistance and conservation marketing could help the community gain an appreciation for conservation and possibly become a significant force behind the diffusion of conservation among the farmers and ranchers in Goose Lake subbasin.

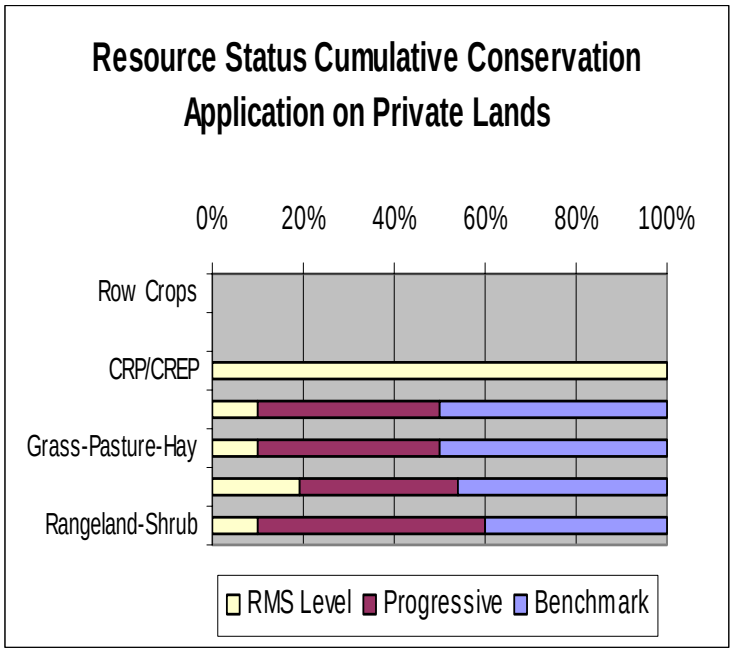




Progress / Status

Back to Contents

PRMS Data	FY99	FY00	FY01	FY02	FY03	Avg / Year	Total
Total Conservation Systems Planned (Acres)	843	14,823	0	1,013	2,442	3,824	19,121
Total Conservation Systems Applied (Acres)	0	889	4	3,542	0	887	4,435
Conservation Treatment (Acres)							
Waste Management	0	0	0	0	0	0	0
Buffers	0	2	4	0	0	1	6
Erosion Control	843	421	0	0	0	253	1,264
Irrigation Water Management	0	566	94	727	0	277	1,387
Nutrient Management	0	392	0	0	470	172	862
Pest Management	0	0	0	0	380	76	380
Prescribed Grazing	9	1,298	0	3,429	0	947	4,736
Trees and Shrubs	0	2	3	0	0	1	5
Conservation Tillage	0	0	0	0	0	0	0
Wildlife Habitat	4	3,103	4	4,003	875	1,598	7,989
Wetlands	0	1	0	0	443	89	444



- Progress over the last 5 years has been focused on:
  - Prescribed grazing, erosion control, and pest and nutrient management on irrigated pasture.
  - Wildlife habitat improvement.
- A high level of conservation management is being applied in most areas of irrigated alfalfa and pasture.
- Commonly the rangeland is not intensively farmed because of a lack of adequate water and grazing management. A majority of the ranches are operated by absentee landowners or lessees.
- Most private, industrial forestland meets State forest practice act requirements.
- High cost and unreliable markets limit forest management activities on private, non-industrial forestland.

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

Lands Removed from Production through Farm Bill Programs

- Conservation Reserve Program (CRP): **2,671 acres**
- Wetland Restoration Program (WRP): **887 acres**
- Conservation Reserve Enhancement Program (CREP): **None**

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.