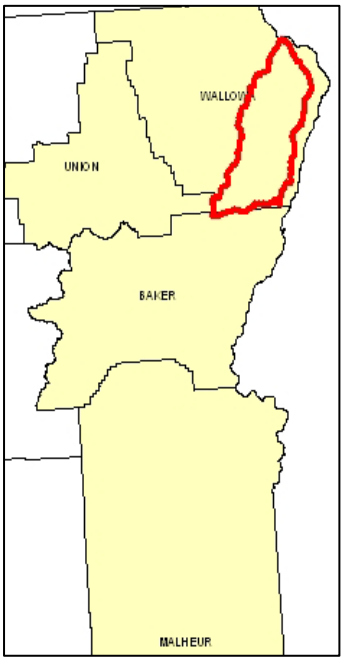
Imnaha River – 17060102

8-Digit Hydrologic Unit Profile

SWCD	Acres
Wallowa	540,667
Eagle Valley	3,837
Union	1,715
Keating	841



Introduction

The Imnaha River 8-Digit Hydrologic Unit Code (HUC) subbasin is comprised of 546,900 acres in Wallowa County. Forty-six percent of the subbasin is forestland, thirty-six percent is rangeland, and fifteen percent is hayland and pastureland. Nearly three-fourths of the subbasin is public land. There is one permitted Confined Animal Feeding Operation (CAFO) and 700 permitted animals in the subbasin. Major resource concerns include elevated stream temperatures, especially for bull trout; sediments; loss of riparian vegetation; invasive, noxious weeds; and loss of wildlife habitat. High costs, unreliable profits, and low community well-being limit the diffusion of conservation among ranchers in the Imnaha River subbasin.

There are only 80 operations and 134 ranchers in the subbasin. Most ranchers are aware of local resource concerns, have a positive stewardship attitude, and perceive conservation to be effective; however, they lack experience adopting conservation and perceive conservation to be costly and difficult to install. There is a need for additional technical and financial assistance and for greater community support for the diffusion of conservation in the Imnaha River subbasin.

The NRCS Enterprise Service Center, Wallowa Soil and Water Conservation District, and Grande Ronde Model Watershed Council provide much of the conservation assistance in the subbasin.

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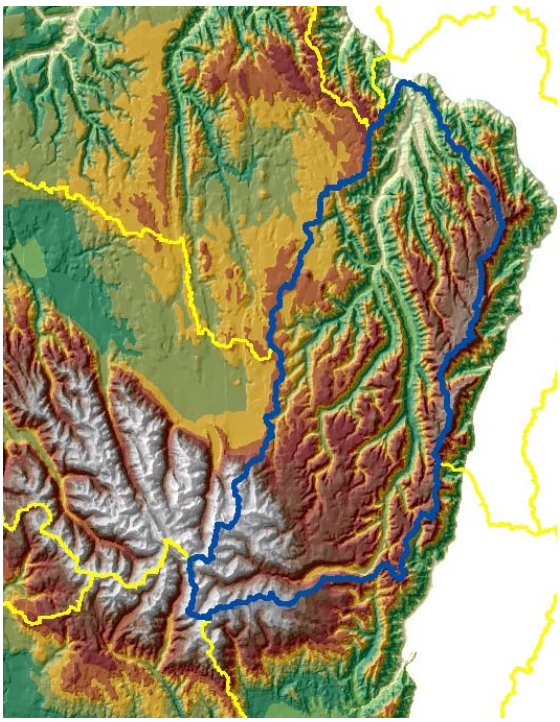

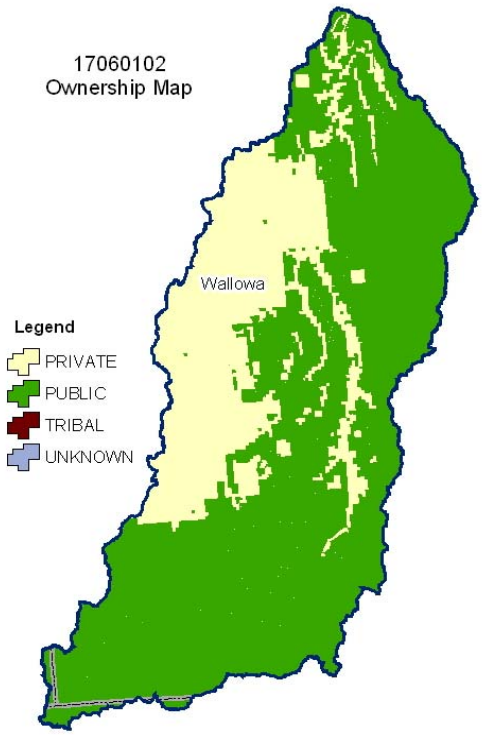

Produced by the Water Resources Planning Team Portland, OR

Physical Description

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ALL NUMBERS IN THIS PROFILE ARE FOR OREGON ONLY

Land Cover/Land Use (NLCD[12])	Ownership - (2003 Draft BLM Surface Map Set[11])							
	Public		Private		Tribal		Totals	%
	Acres	%	Acres	%	Acres	%		
Forest	227,900	42%	26,200	5%	0	0%	**254,100**	**46%**
Grain Crops	*	---	*	---	0	0%	*	---
Conservation Reserve Program Land [a]	0	0%	*	---	0	0%	*	---
Grass/Pasture/Hay	48,100	9%	33,100	6%	0	0%	**81,200**	**15%**
Orchards/Vineyards	0	0%	0	0%	0	0%	**0**	**0%**
Row Crops	*	---	*	---	0	0%	*	---
Shrub/Rangelands	97,300	18%	99,500	18%	0	0%	**196,800**	**36%**
Water/Wetlands/Developed/Barren	13,600	3%	*	---	0	0%	**14,200**	**3%**
Oregon HUC Totals [b]	**387,000**	**71%**	**159,800**	**29%**	**0**	**0%**	**546,800**	**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:

- Most privately owned forestland is non-industrial and is grazed by livestock.
- Some irrigated pastureland and hayland is on cattle ranches along the river.

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	0	0%	0%
	Pastureland	0	0%	0%
	Total Irrigated Lands	**0**	**0%**	**0%**

(Continued on the following pages)

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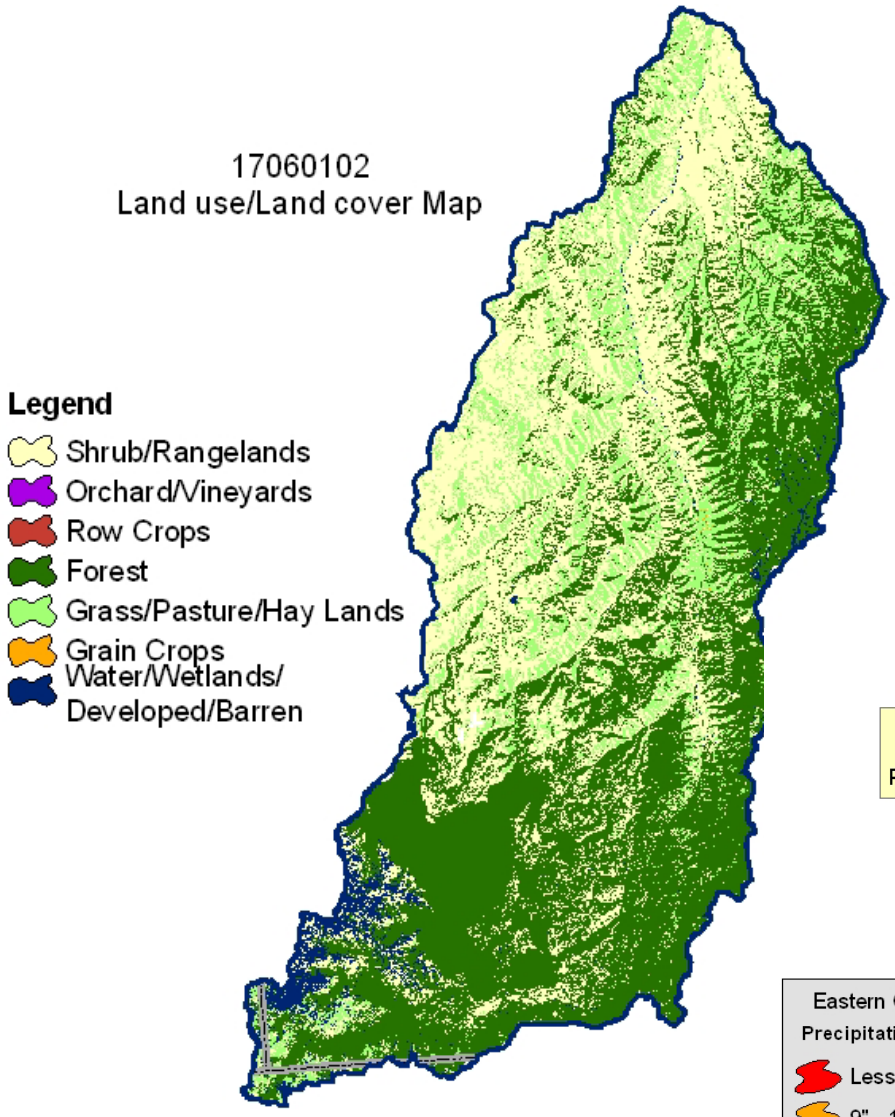
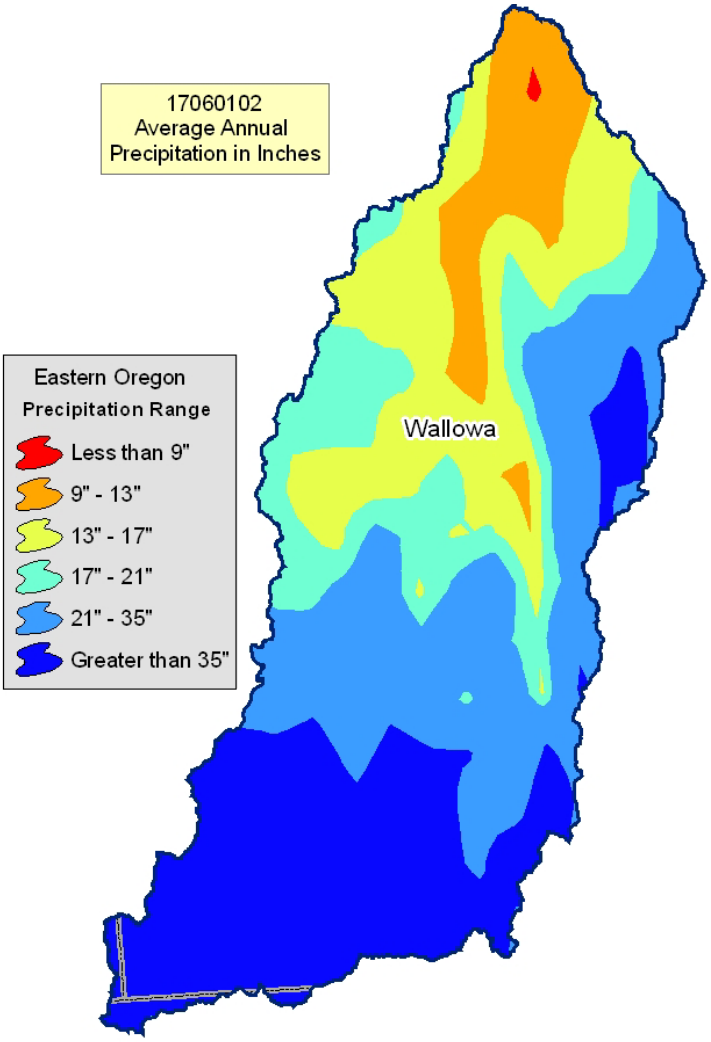
17060102
Land use/Land cover Map



17060102
Average Annual
Precipitation in Inches



Common Resource Area Map

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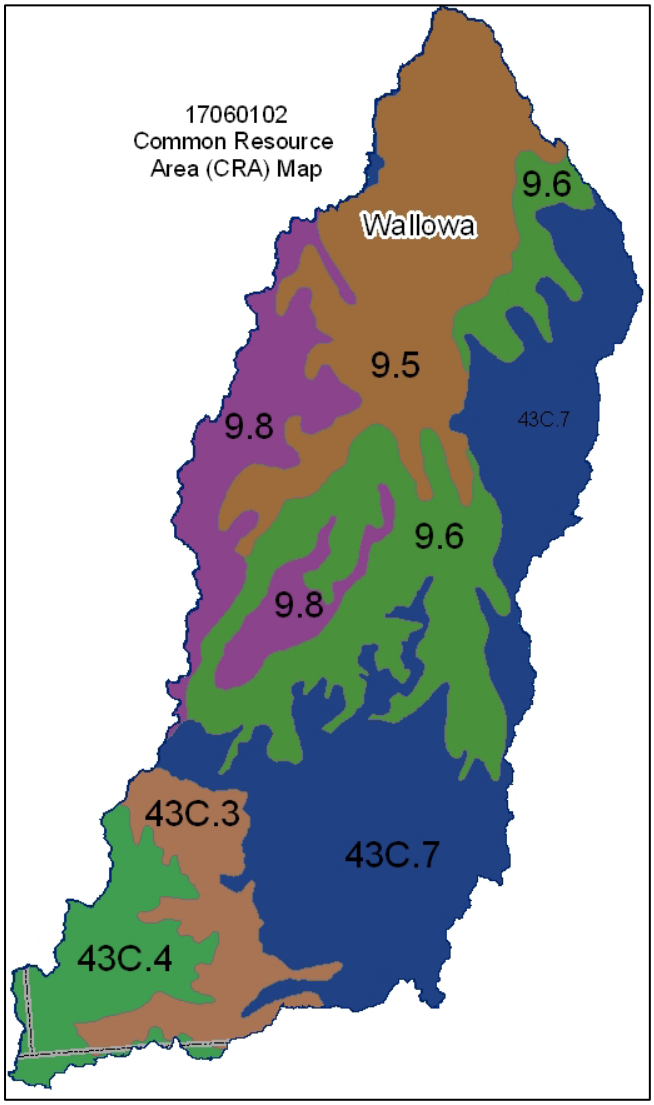
Only the major units are described below - for descriptions of all units within the HUC, go to: http://ice.or.nrcs.usda.gov/website/cra/viewer.htm



9.5 – Palouse and Nez Perce Prairies - Warm Canyons and Dissected Uplands: This unit is characterized by deep river canyons that divide the Blue Mountains from the Rocky Mountains. The Snake, Salmon, and Grande Ronde Rivers and their tributaries have cut the Columbia Plateau to a depth of 2,000 to 5,000 feet through metasedimentary and metavolcanic rock. Because of the depth of the canyon and exposed metamorphic rock, the soils on the canyon slopes are stony and retain little moisture. The dominant soils are those of the Dixiejett and Lickskillet series. The temperature regime is mesic, and the moisture regime is xeric and aridic. The mean annual precipitation is 12 to 16 inches. Bluebunch wheatgrass, Sandberg bluegrass, and spiny greenbush are adapted to the hot, dry conditions of this unit. Land use includes grazing and recreation on National forestland and in the Hells Canyon National Recreation Area.

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 drainage. This unit is at the higher elevations, but it is adjacent to unit 9.5 and forestland above the unit. The soils typically are moderately deep and shallow to bedrock. The dominant soil that of the Snell series. The temperature regime is frigid, and the moisture regime is xeric. Precipitation is about 14 to 25 inches. Most areas are used for livestock grazing. The dominant vegetation is Idaho fescue.

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 to deep. The temperature regime is frigid, and the moisture regime is xeric. Precipitation is about 15 to 25 inches.

43C.3 – Blue and Seven Devils Mountains - High Elevation Blue and Seven Devils Mountains Forests: This unit is characterized by forested plateaus that have a cryic temperature regime. These areas characteristically have deep snowpack and a very short growing season. The moisture regime is udic. The dominant vegetation is subalpine fir, Engelmann spruce, and larch. Streams follow fault lines, have steep gradients, and have eroded, deep canyons. Land uses include grazing, logging, recreation, and wildlife habitat.

43C.4 – Blue and Seven Devils Mountains - Subalpine Zone: This unit is characterized by subalpine vegetation and is associated with areas of rock outcrop in the Eagle Cap Wilderness Area. The temperature regime is cryic, and the moisture regime is udic. The vegetation is dominantly subalpine fir, Engelmann spruce, larch, and lodgepole pine.

43C.7 - Blue and Seven Devils Mountains - Low Elevation Blue Mountains Forests: This unit is a forested, uplifted basalt plateau. It is characterized by forested plateaus and highly dissected canyons that have frigid temperatures. Slopes dominantly are nearly level to rolling but are very steep in the canyons. The moisture regime is xeric or 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.

Physical Description – Continued

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		ACRES	ACRE-FEET
Irrigated Adjudicated Water Rights *(OWRD[4])*	Surface	2,258	5,580
	Well	102	253
	Total Irrigated Adjudicated Water Rights	2,360	5,833
Stream Flow Data	USGS 13292000 IMNAHA RIVER AT IMNAHA, OR	**Total Avg. Yield**	370,647
		May – Sept. Yield	229,029
		MILES	**PERCENT**
Stream Data[5] **Percent of Total Miles of Streams in HUC*	Total Miles – Major (100K Hydro GIS Layer)	577	---
	303d/TMDL Listed Streams (DEQ)	207	36%
	Anadromous Fish Presence (StreamNet)	108	19%
	Bull Trout Presence (StreamNet)	186	32%
		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	14,891	61%
	Grain Crops	11	0%
	Grass/Pasture/Hay	1,991	8%
	Orchards/Vineyards	0	0%
	Row Crops	3	0%
	Shrub/Rangelands – Includes CRP Lands	7,046	29%
	Water/Wetlands/Developed/Barren	397	2%
	Total Acres of 100-foot Stream Buffers	**24,337**	**---**
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	0	0%
	6 – severe limitations; unsuitable for cultivation; limited to pasture, range, forest	0	0%
	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	**0**	**0%**

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

Animal Type	Dairy	Feedlot	Poultry	Swine	Mink	Other
No. of Permitted Farms	0	1	0	0	0	0
No. of Permitted Animals	0	700	0	0	0	0

Resource Concerns

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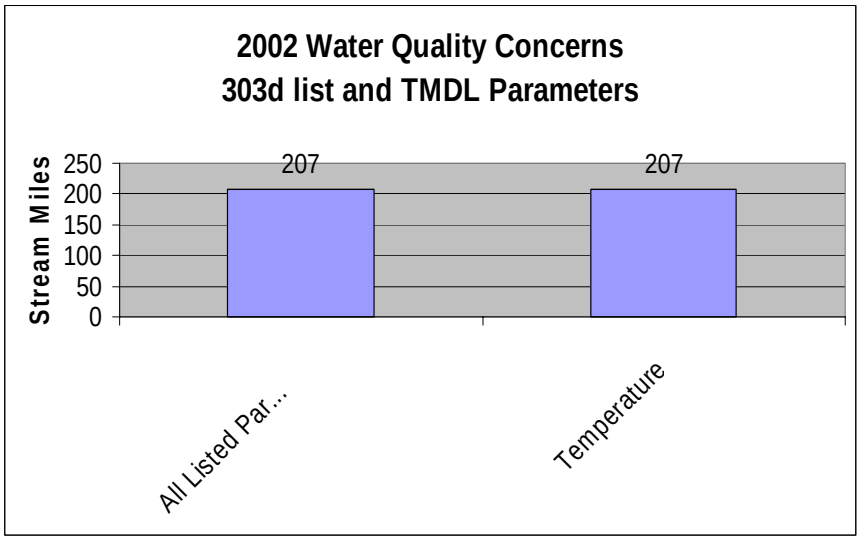
Tons of Soil Loss by Water Erosion: Due to the limited amount of non-Federal cropland and pastureland within this HUC, no reliable NRI soil loss estimates are available.



- All 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, 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
None	None	None	None
ODEQ TMDL's[8]		ODA Agricultural Water Quality Management Plans[9]	
Name	Status	Name	Status
None	None	Wallowa	Completed
OWEB Watershed Council[10]	Watershed Council Assessments[11]	NWPCC Subbasin Plans and Assessments[18]	
Grande Ronde Model Watershed	None	Imnaha River	

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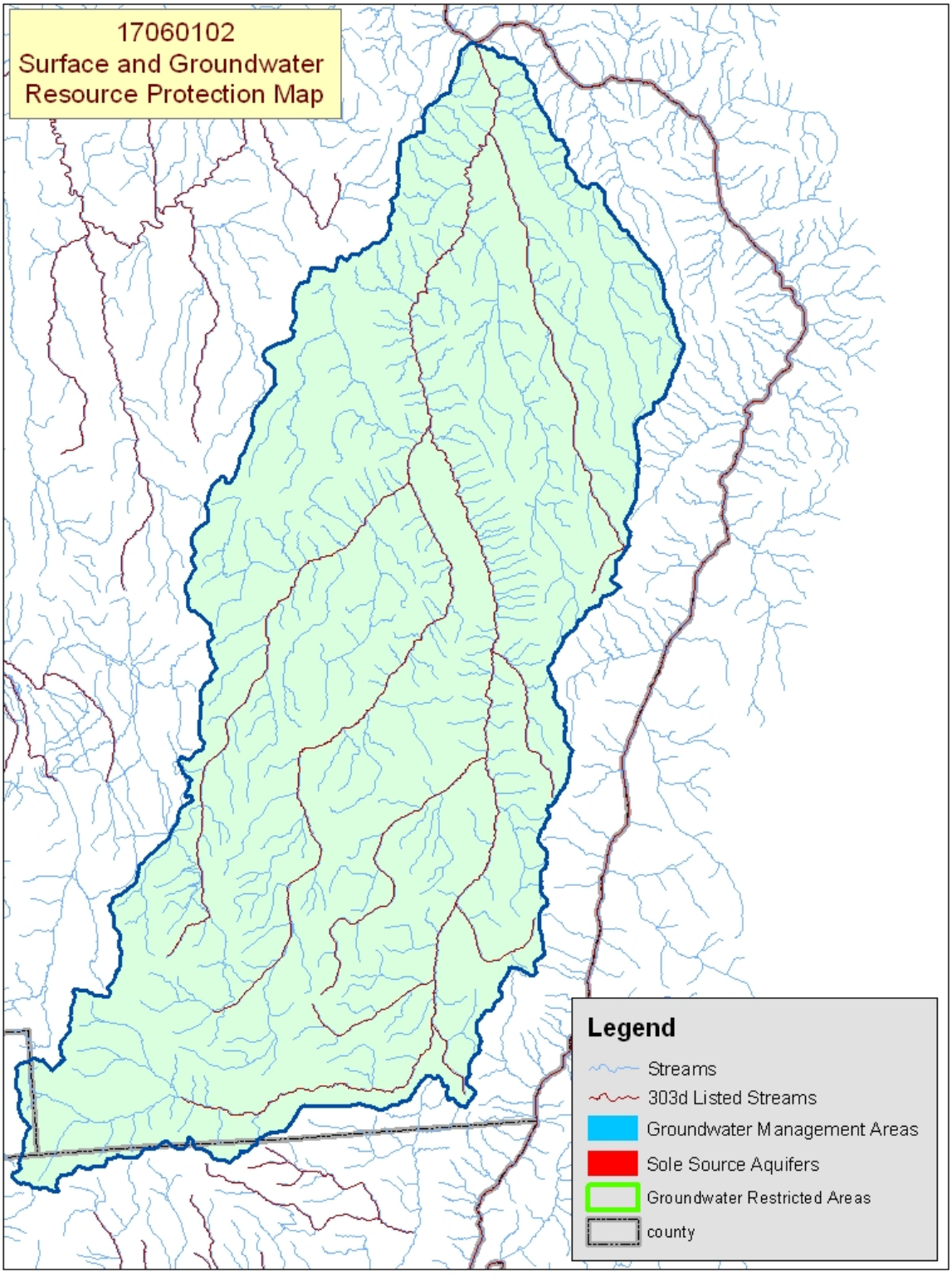

Map Footnote [17]

Resource Concerns - Continued

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Resource Concerns / Issues by Land Use							
SWAPA +H Concerns	**Specific Resource Concern / Issue**	**Grass \ Pasture \ Hay**	**Grain Crops**	**Row Crops**	**Perennial Crops (Orch / Vine / Berries)**	**Shrub / Range**	**Forest**
Water Quantity	Water Management for Irrigated Land	X					
Water Quality, Surface	Nutrients and Organics					X	
Plant Suitability	Site and Intended Use Suitability					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	
Animal Habitat, Wildlife	Water - Quantity and Quality					X	
Human, Economics	High Capital/Financial Costs	X				X	X
	Low or Unreliable Profitability	X				X	X
Human, Social	Low Community Well-Being	X				X	X

Grass / Pasture / Hay

- Better irrigation water management is practiced in areas used for alfalfa and grass hay than in areas of pasture.
- In some areas of pasture, a lack of proper grazing management has lead to its poor condition.
- Areas of pasture commonly are adjacent to streams, which can contribute to streambank erosion, sedimentation, and elevated temperatures as a result of loss of riparian vegetation.

Shrub / Rangeland

- Rangeland can become infested with noxious weeds, annual grasses, and shrubs due to inadequate forage and grazing management.
- Loss of riparian vegetation contributes to the warming and nutrient-loading of streams.
- Low profit and high capital cost commonly hinder the adoption of conservation practices.

Forestland

- Much of the private forestland is managed by private industrial owners who generally comply with State forest practice act requirements.
- Private, non-industrial forestland commonly 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 that have low value for commercial wood products, livestock grazing, and wildlife habitat.
- High cost, unreliable markets, and inadequate incentive programs limit forest management activities on private, non-industrial forestland.

FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES[12]	
THREATENED SPECIES	**CANDIDATE SPECIES**
Mammals-Canada lynx **Birds –** Bald eagle **Fish –** Bull trout, Steelhead, Chinook salmon **Plants –** McFarlane's four o'clock, Spalding's catchfly	**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]

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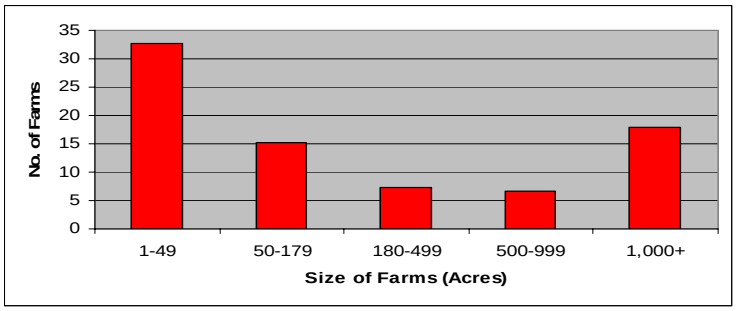


Number of Farms: 80

Number of Operators: 134

- Full-Time Operators: **48**
- Part-Time Operators: **86**

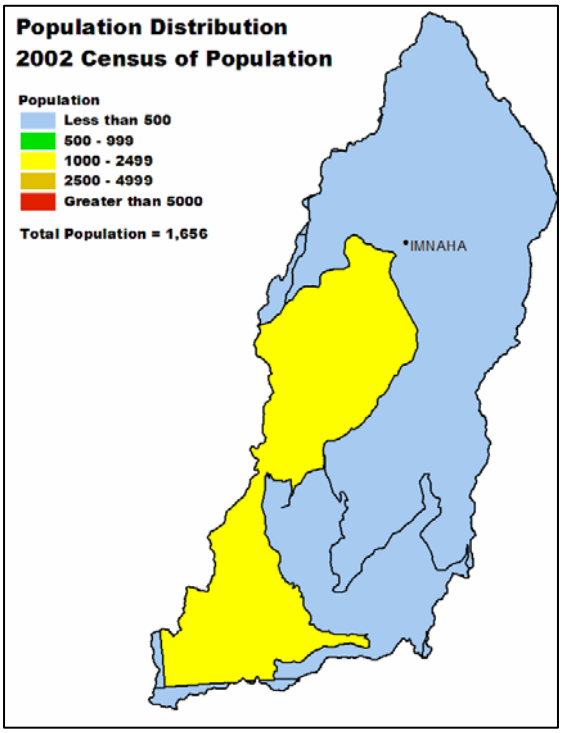
Estimated Level of Willingness and Ability to Participate in Conservation[/15]: Moderate

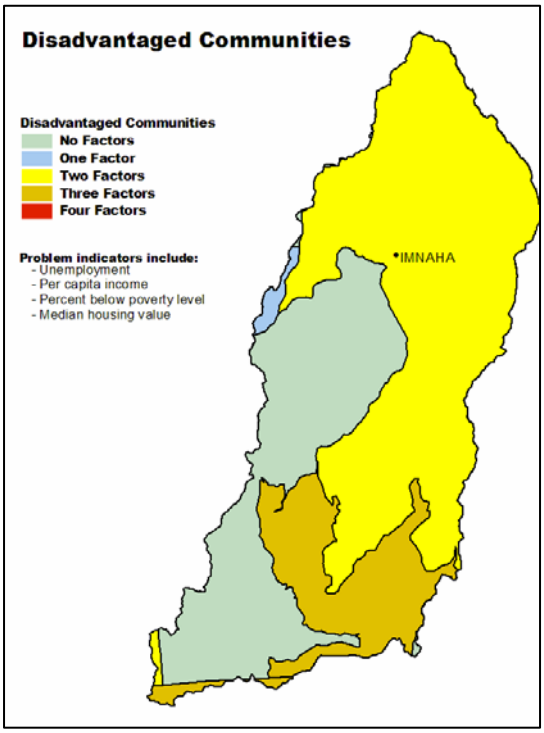
Most operators in the Imnaha River subbasin are full-time ranchers, are aware of local resource concerns, have a positive stewardship attitude, and perceive conservation to have a positive effect; however, most lack a conservation plan, have little experience adopting conservation, and perceive conservation to be costly and difficult to install. Ranchers in the subbasin also express concerns about maintaining the management autonomy of their operation.

One-on-one technical and financial assistance might increase the adoption of conservation among local ranchers and the number of persuasive farmer-to-farmer discussions about natural resource management.

Evaluation of Social Capital[/16]: Low

Social capital and the ability of the community to solve problems and support conservation is estimated to be low throughout most of the Imnaha River subbasin. The small population and remoteness of the subbasin make it difficult for communities to be effective and bring about change. Residents in some communities are active in church, civic, and community projects, and most residents support one another. Many ranchers, however, have a pessimistic outlook for the future of profitable ranching in the subbasin.





Progress/Status

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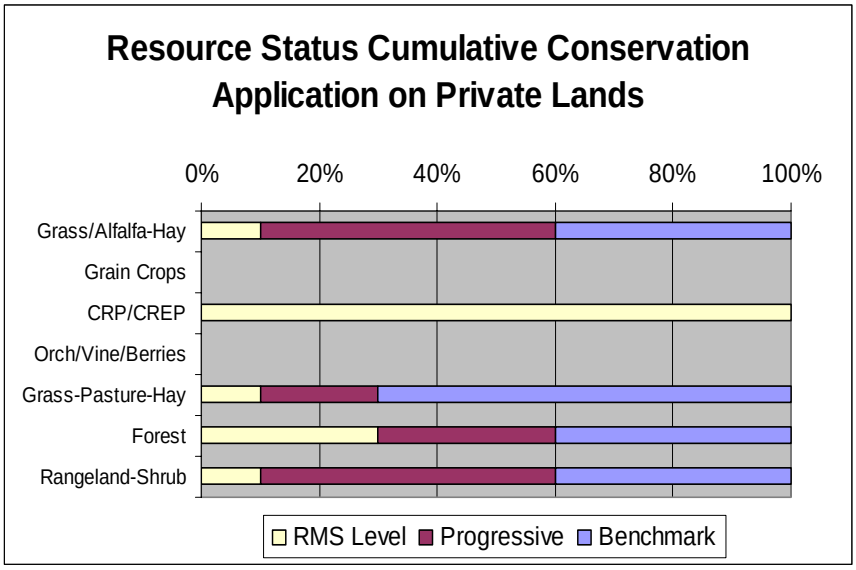
PRMS Data	FY99	FY00	FY01	FY02	FY03	Avg/Year	Total
Total Conservation Systems Planned (Acres)	0	0	0	1,840	42	376	1,882
Total Conservation Systems Applied (Acres)	0	0	0	29	40	14	69
Conservation Treatment (Acres)							
Waste Management	0	0	0	0	0	0	0
Buffers	0	0	0	29	42	14	71
Erosion Control	0	0	0	0	0	0	0
Irrigation Water Management	0	0	0	0	0	0	0
Nutrient Management	0	0	0	0	0	0	0
Pest Management	0	0	0	0	0	0	0
Prescribed Grazing	0	0	0	1,840	0	368	1,840
Trees and Shrubs	0	0	0	29	0	6	29
Conservation Tillage	0	0	0	0	0	0	0
Wildlife Habitat	0	0	0	29	42	14	71
Wetlands	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 grazing lands.
  - Wildlife habitat management.
- Hayfields generally are managed at a higher level than pastures.
- Prescribed grazing is practiced on a majority of the grazing lands. Problems remain with noxious weeds and water management for livestock and wildlife.
- Most private, industrial timber owners are doing good conservation work and are satisfying State forest practices act requirements.
- Private, non-industrial forests that are not managed for timber commonly are not meeting State forest practices act requirements.

Lands Removed from Production through Farm Bill Programs

- Conservation Reserve Program (CRP): **214 acres**
- Wetland Restoration Program (WRP): **None**
- Conservation Reserve Enhancement Program (CREP): **81 acres**

Footnotes/Bibliography

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1. Ownership Layer – Source: The 1:24,000 scale public ownership layer is the land ownership/management for public entities, including Federal, Tribal, State, and local entities. This is a seamless, statewide Oregon Public Ownership vector layer composed of fee ownership of lands by Federal, State, Tribal, county, and city agencies. The layer is comprised of the best available data compiled at 1:24,000 scale or larger, and the line work matches GCDB boundary locations and ORMAP standards where possible. The layer is available from the State of Oregon GIS Service Center: http://www.gis.state.or.us/data/alphalist.html. For current ownership status, consult official records at appropriate Federal, State, and county offices. Ownership classes grouped to calculate Federal ownership vs. non-Federal ownership by the Water Resources Planning Team.

2. National Land Cover Dataset (NLCD) - Originator: U.S. Geological Survey (USGS); Publication date: 19990631; Title: Oregon Land Cover Data Set, Edition: 1; Geospatial data presentation form: Raster digital data; Publisher: U.S. Geological Survey, Sioux Falls, SD, USA; Online linkage: http://edcwww.cr.usgs.gov/programs/lccp/nationallandcover.html; Abstract: These data can be used in a geographic information system (GIS) for any number of purposes, such as assessing wildlife habitat, water quality, pesticide runoff, land use change, etc. The State data sets are provided with a 300-meter buffer beyond the State border to facilitate combining the State files into larger regions.

3. ESTIMATES FROM THE 1997 NRI DATABASE (REVISED DECEMBER 2000) REPLACE ALL PREVIOUS REPORTS AND ESTIMATES. Comparisons made using data published for the 1982, 1987, or 1992 NRI may produce erroneous results. This is because of changes in statistical estimation protocols and because all data collected prior to 1997 were simultaneously reviewed (edited) as 1997 NRI data were collected. All definitions are available in the glossary. In addition, this December 2000 revision of the 1997 NRI data updates information released in December 1999 and corrects a computer error discovered in March 2000. For more information: http://www.nrcs.usda.gov/technical/NRI/

4. Irrigated Adjudicated Water Rights – Water Rights Information System (WRIS), Oregon Water Resources Department, http://www.wrd.state.or.us/maps/wrexport.shtml

5. StreamNet is a cooperative venture of the Pacific Northwest's fish and wildlife agencies and tribes and is administered by the Pacific States Marine Fisheries Commission. StreamNet provided data and data services in support of the region's fish and wildlife program and other efforts to manage and restore the region's aquatic resources. Official StreamNet website: http://www.streamnet.org/

6. Natural Resources Conservation Service, Watershed Projects Planned and Authorized, http://www.nrcs.usda.gov/programs/watershed/Purpose.

7. Natural Resources Conservation Service, Watershed Plans, Studies, and Assessments completed, http://www.nrcs.usda.gov/programs/watershed/Surveys_Plng.html#Watershed%20Surveys%20and%20Plan

8. Oregon Department of Environmental Quality Total Maximum Daily Loads, http://www.deq.state.or.us/wq/TMDLs/TMDLs.htm

9. Oregon Department of Agriculture, Agricultural Water Quality Management Plans, http://www.oregon.gov/ODA/NRD/water_agplans.shtml

Footnotes/Bibliography Continued

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10. Oregon Watershed Enhancement Board, http://oregon.gov/OWEB/WSHEDS/index.shtml

11. Watershed Assessments completed by local watershed councils following the Oregon Watershed Assessment Manual, http://oregon.gov/OWEB/docs/pubs/ws_assess_manual.shtml.

12. NRCS Field Office Technical Guide, Section II, Threatened and Endangered List.

13. Magnuson-Stevens Fishery Conservation and Management Act, Public Law 94-265. As amended through October 11, 1996.

14. Data were taken from the 2002 Agricultural Census and adjusted by percent of HUC in the county or by percent of zip code area in the HUC, depending on the level of data available. Data were also taken from the U.S. Population Census, 2000.

15. Conservation participation was estimated using NRCS Social Sciences Technical Note 1801, Guide for Estimating Participation in Conservation, 2004. Four categories of indicators were evaluated: Personal characteristics, farm structural characteristics, perceptions of conservation, and community context. Estimates are based on information received from local conservationists in the watershed.

16. Social capital is an indicator of the community's ability and willingness to work together to solve problems. A high amount of social capital helps a community to be physically healthy, socially progressive, and economically vigorous. A low amount of social capital typically results in community conflict, lack of trust and respect, and unsuccessful attempts to solve problems. The evaluation is based on NRCS Technical Report Release 4.1, March, 2002: Adding Up Social Capital: An Investment in Communities. Local conservationists provided information to measure social capital. Scores range from 0 to 76.

17. Surface and Groundwater Resource Protection Map
    a. 2002 303d Listed Streams designated by Oregon Department of Environmental Quality and approved by the Environmental Protection Agency, Section 303d Clean Water Act, http://www.deq.state.or.us/wq/303dlist/303dpage.htm
    b. Groundwater Management Areas designated by the Oregon Department of Environmental Quality, Oregon Revised Statutes – Ground Water ORS 468B.150 to ORS 468B.190, http://www.deq.state.or.us/wq/groundwa/wqgw.htm
    c. Groundwater Restricted Areas designated by Oregon Water Resources Commission, Oregon Department of Water Resources, http://egov.oregon.gov/OWRD/PUBS/aquabook_protections.shtml
    d. The Sole Source Aquifer (SSA) Protection Program is authorized by Section 1424(e) of the Safe Drinking Water Act of 1974 (Public Law 93-523, 42 U.S.C. 300 et. seq), http://www.epa.gov/safewater/ssanp.html

18. Subbasin assessments and plans are developed by local groups (SWCDs, watershed councils, tribes, and others) as part of the Northwest Power and Conservation Council's fish and wildlife program in the Columbia River Basin. This program is funded and implemented by the Bonneville Power Administration. http://www.nwcouncil.org/fw/subbasinplanning/Default.htm.