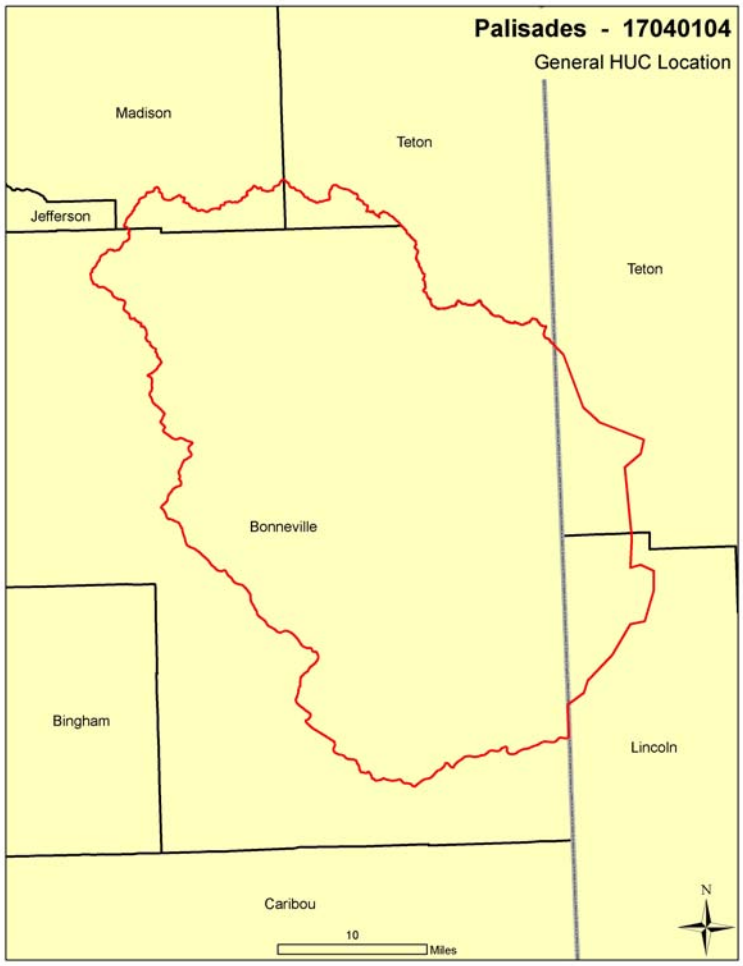
NRCS Natural Resources Conservation Service

Palisades - 17040104

Idaho 8 Digit Hydrologic Unit Profile March 2008



Introduction

The Palisades 8-Digit Hydrologic Unit Code (HUC) subbasin contains 593,000 acres. Eighty-seven percent of the subbasin is in Bonneville County, 2 percent is in Madison County and 2 percent is in Teton County, Idaho. Five percent is in Lincoln County and 4 percent is in Teton County, Wyoming.

Fifteen percent of the basin is privately owned, nearly 85 five percent is publicly owned, and less than 1 percent is tribally owned.

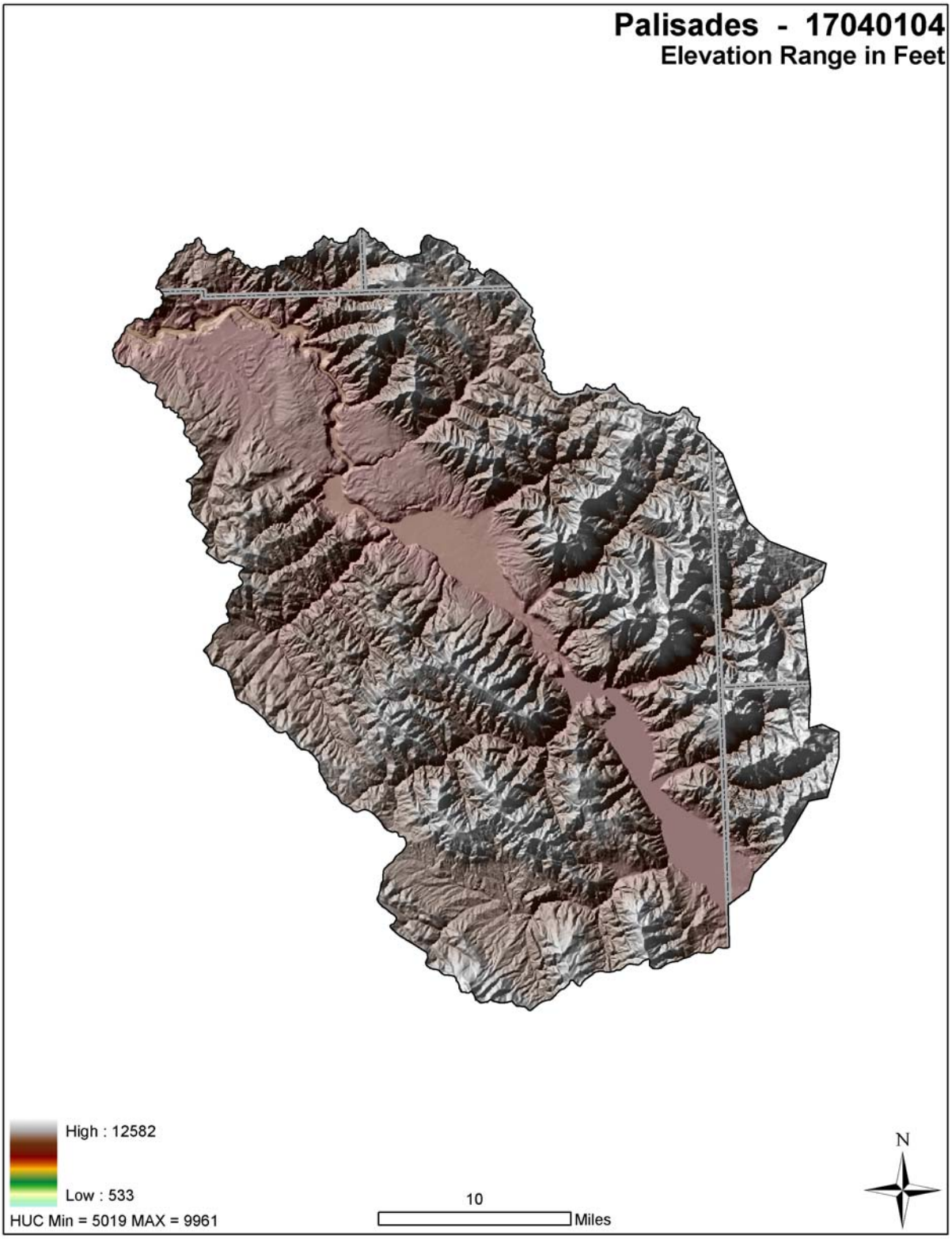
Forty-two percent of the basin is in shrub, rangeland, grass, pasture or hayland, 52 percent of the basin is in forest, water, wetlands, developed or barren, and 6 percent is cropland.

Elevations range from 9,960 feet in the eastern part of the HUC to 5,020 feet at the basin outlet on the west.

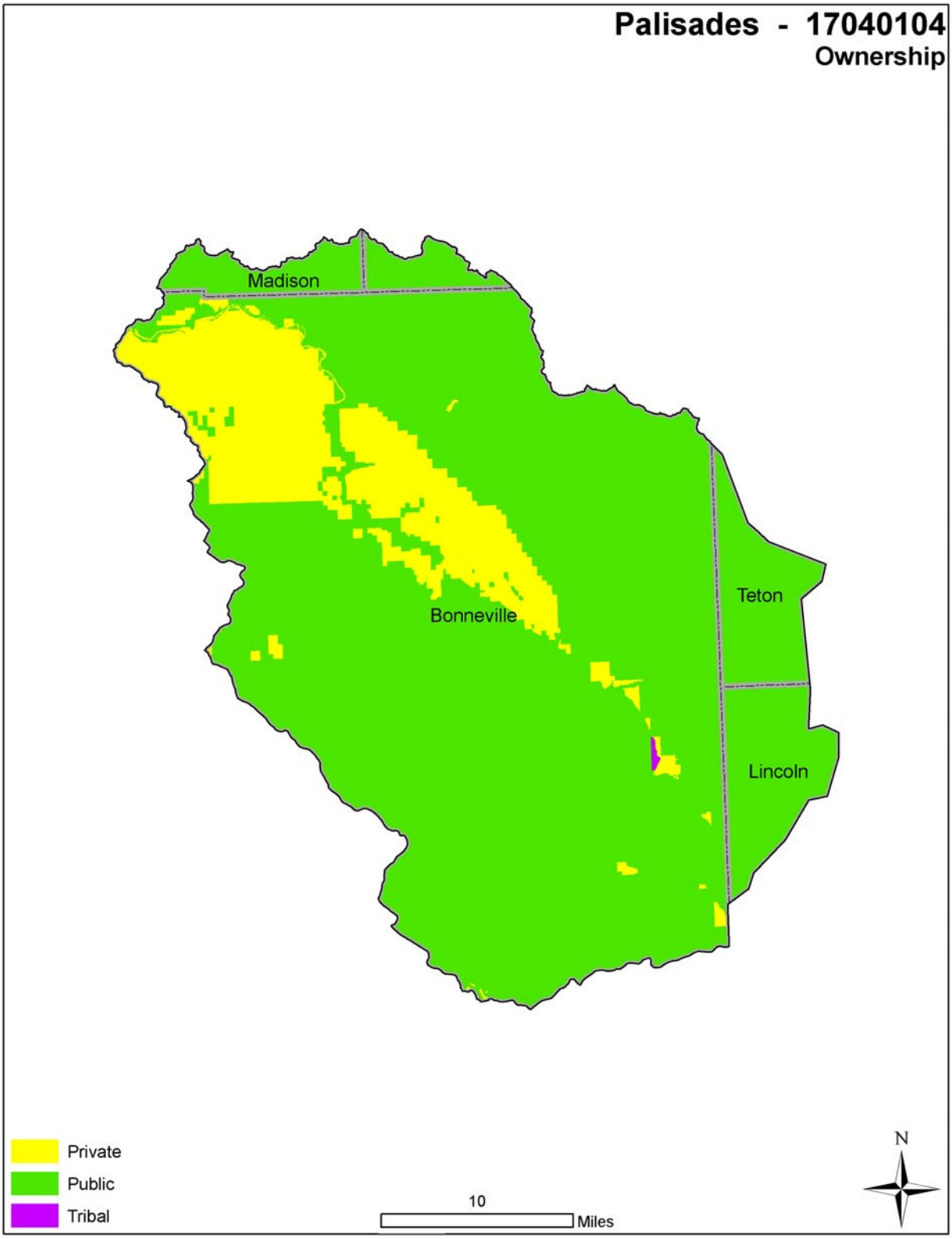
Conservation assistance is provided by 2 Conservation Districts in Wyoming, 1 Soil Conservation Districts and 2 Soil and Water Conservation Districts in Idaho, and 2 Resource Conservation and Development offices.

Profile Contents

Relief Map


Palisades - 17040104
Elevation Range in Feet
High : 12582
Low : 533
HUC Min = 5019 MAX = 9961
10
Miles
N

General Ownership[/1]



Physical Description

Land Cover / Land Use (NLCD[12])	Ownership - (2003 Draft BLM Surface Map Set[1])							
	Public		Private		Tribal		Totals	% of HUC
	Acres	%	Acres	%		%		
Forest	265,000	45	9,300	2	100	Tr	**274,400**	**47**
Grain Crops	0	--	20,800	3	0	--	**20,800**	**3**
Conservation Reserve Program (CRP) Land[13]	0	--	(18,109)	(1)	0	--	**(18,109)**	**(3)**
Grass/Pasture/Hay Lands	75,500	13	25,500	5	0	--	**101,000**	**18**
Orchards/Vineyards/Berries	0	--	0	--	0	--	**0**	**--**
Row Crops	0	--	20,700	3	0	--	**20,700**	**3**
Shrub/Rangelands	134,200	22	10,700	2	0	--	**144,900**	**24**
Water/Wetlands/ Developed/Barren	28,800	5	2,200	<1	200	Tr	**31,200**	**5**
Idaho HUC Totals	**503,500**	**85**	**89,200**	**15**	**300**	**<1**	**593,000**	**100**

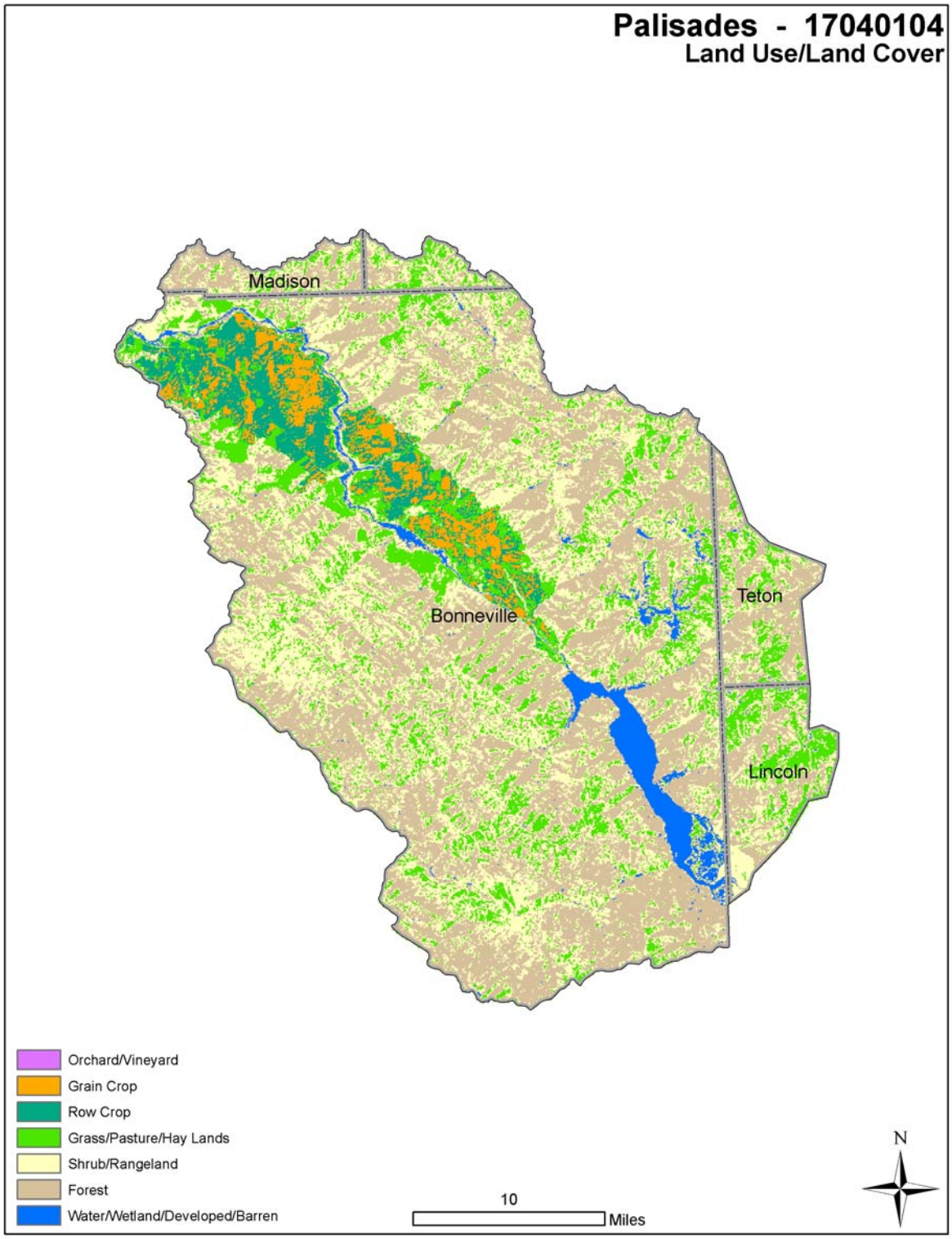
Irrigated Lands[14]	Type of Land	ACRES	% of Irrigated Lands	% of HUC
	Cultivated Cropland	1,400	30	0.3
	Non-Cultivated Cropland *	1,100	24	0.2
	Pastureland	2,100	46	0.4
	Total Irrigated Lands	**4,600**	**100**	**0.9**

***** Includes permanent hayland and horticultural cropland.

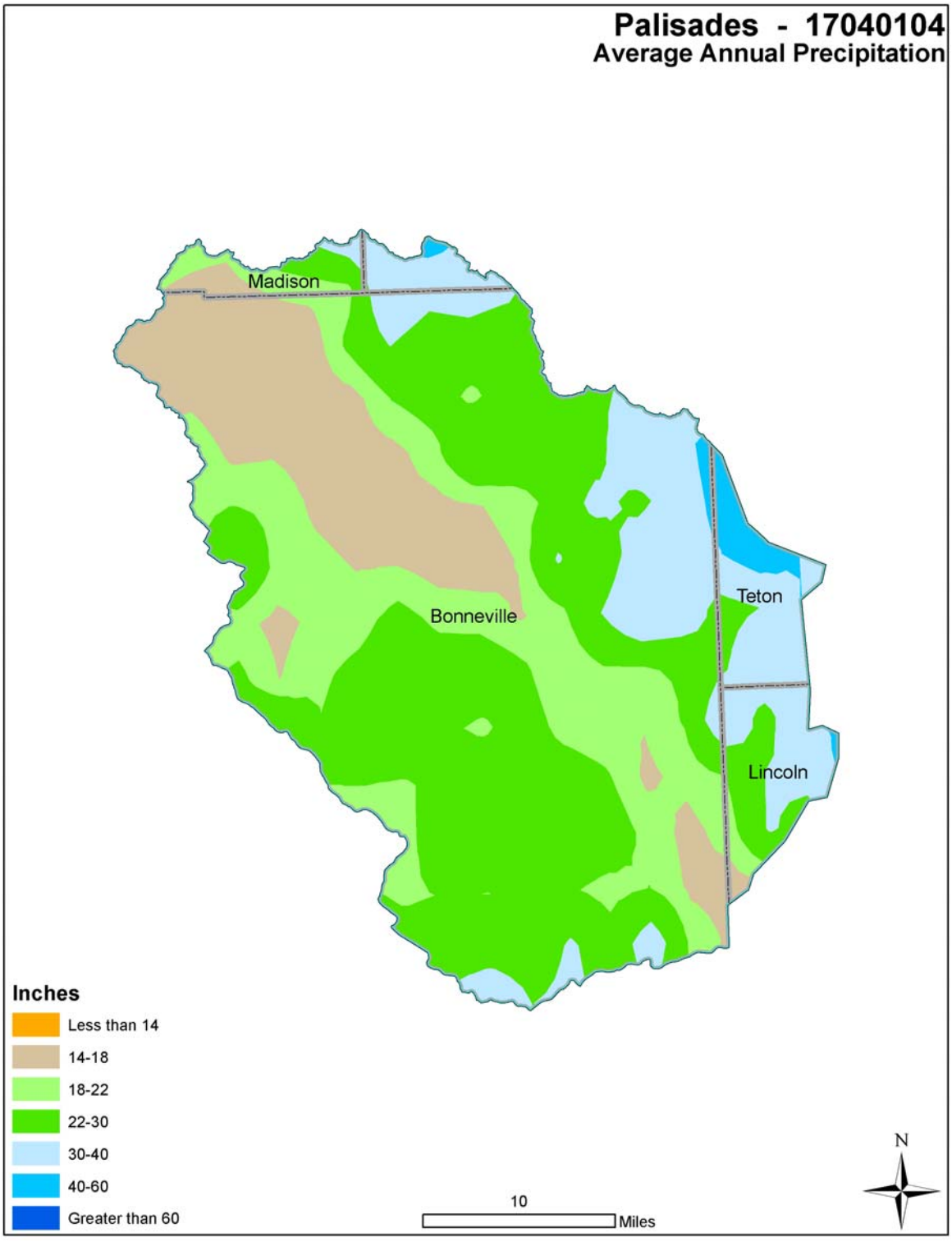
(CRP acres are also included in Cropland/Hayland so are not shown in the totals.)

Any differences between the acres in the above Table and the Future Conservation Needs Tables in the back of this document are due to the differences in Land Cover acres as opposed to Land Use acres. However the Total Private acres do balance between the Land Use and Land Cover acres.

Land Use / Land Cover[/2]

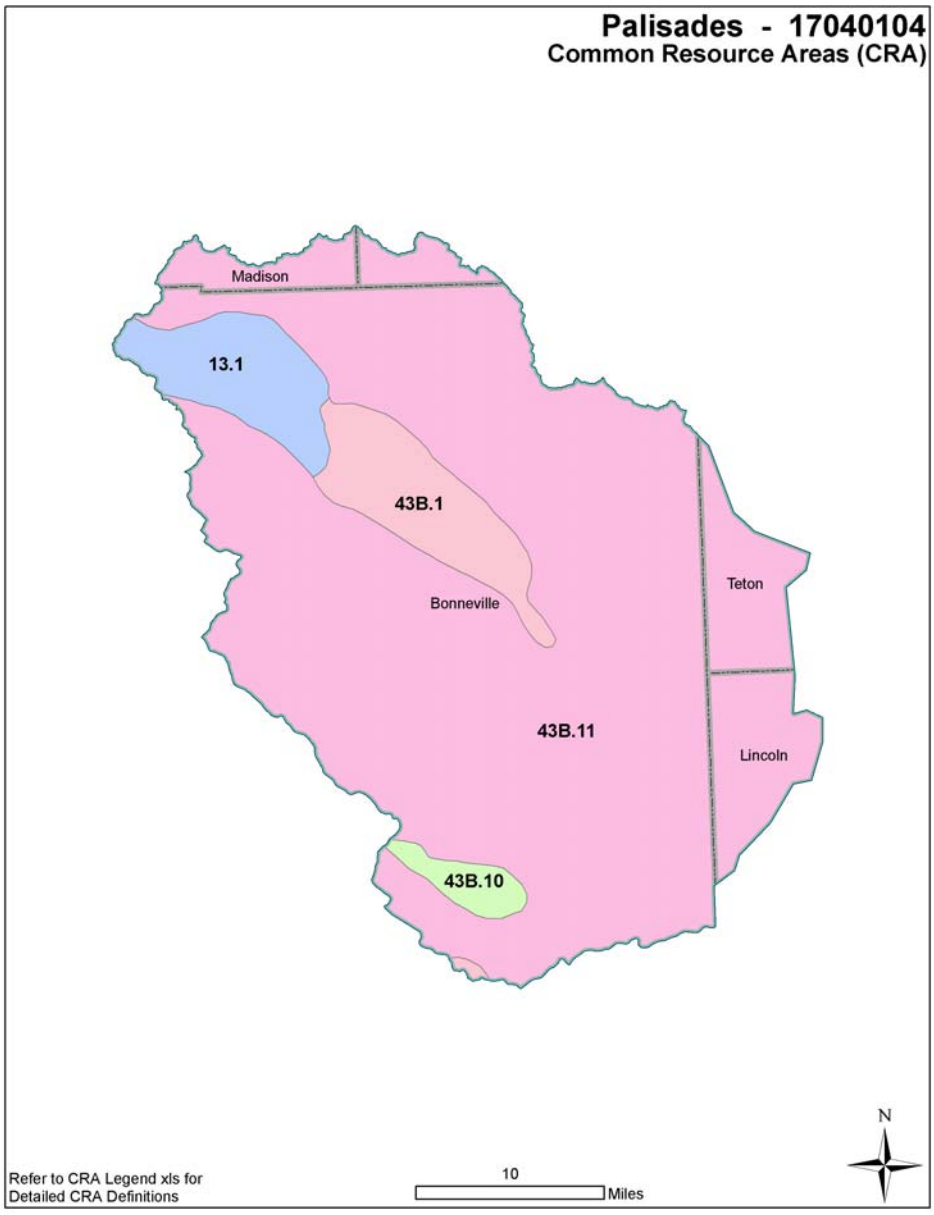


Average Annual Precipitation[/5]



Common Resource Area Map

The Common Resource Areas (CRA) delineated below for the Palisades HUC are described in the next section (for additional information, see http://www.id.nrcs.usda.gov/technical/soils/common_res_areas.html). A CRA is defined as a geographical area where resource concerns, problems, or treatment needs are similar. It is considered a subdivision of an existing Major Land Resource Area (MLRA) map delineation or polygon. Landscape conditions, soil, climate, human considerations, and other natural resource information are used to determine the geographic boundaries of a Common Resource Area (General Manual Title 450 Subpart C 401.21).



Common Resource Area Descriptions

The National Coordinated CRA Geographic Database provides:

- A consistent CRA geographic database;
- CRA geographic data compatible with other GIS data digitized from 1:250,000 scale maps, such as land use/land cover, political boundaries, Digital General Soil Map of the U.S. (updated STATSGO), and ecoregion boundaries;
- A consistent (correlated) geographic index for Conservation System Guides information and the eFOTG;
- A geographic linkage with the national MLRA framework.

13.1 Eastern Idaho Plateaus - Dissected Plateaus and Teton Basin: This unit is used for cropland and rangeland. Potatoes are an important cash crop. Sprinkler irrigated land supports potatoes, alfalfa, and pasture. Non-irrigated land supports small grains. Mollisols developed in thick loess deposits or alluvium and are subject to wind erosion. Potential natural vegetation is sagebrush steppe and is unlike the forests of the higher, more rugged mountains.

43B.1 Central Rocky Mountains--High Mountains: This area is in western and southwestern Montana, eastern and northeastern Idaho, and northwestern Wyoming. Rugged mountains are the dominant feature of this area. Nearly all of this area is federally owned and administered. High mountains with steep slopes and sharp crests are cut by narrow valleys, most of which have steep gradients. Average annual precipitation is mainly 400 to 1525 mm, increasing with elevation. The average annual temperature ranges from 2 to 7 degrees C. Average frost free period is 30 to 60 days. Frost occurs every month of the year on high mountains. Most soils are skeletal and are medium to moderately coarse textured. This area supports coniferous forests. It also includes areas above treeline that have tundra and alpine grasslands. There are also lower mountain passes that are drier and have shrubs and grasses used for grazing.

43B.10 Central Rocky Mountains – Cold Valleys: The Cold Valleys contain bottomlands, terraces, marshlands, alluvial fans, and foothills that are nested below the Partly Forested Mountains. Mean annual frost-free season is brief, 40 to 90 days, and shorter than in the Sagebrush Steppe Valleys. Potential natural vegetation is mostly sagebrush steppe. Wet bottomlands support sedges, rushes, and willows. Pastureland, rangeland, and small grain, alfalfa, and potato farming occur. Fields, streams, and marshes are important habitat for both nesting and migratory birds.

43B.11 Central Rocky Mountains--Partly Forested Mountains: The steep, dry Partly Forested Mountains vary in elevation from about 6,000 to over 9,000 feet. Mean annual precipitation is 500 to 750 mm. Mean annual air temperature is 2 to 7˚C. Average frost-free period is 30 to 60 days. Frost occurs every month of the year on high mountains. Soils have a cryic temperature regime and are rocky and shallow. They support open-canopied forests, shrublands, and grasslands; Douglas-fir, lodgepole pine, and aspen are most common on north-facing slopes and gently sloping uplands while mountain big sagebrush and mountain brush dominate south-facing slopes. Its vegetation is distinct from surrounding ecoregions. It is used as summer range and for timber production.

Streamflow Summary[7]

The Palisades hydrologic unit spans the Idaho-Wyoming border. Its primary hydrologic feature is the Snake River which is regulated by Palisades Dam creating Palisades Reservoir in the upstream portion of the unit. The Snake River enters the unit near Alpine, WY at the inlet of Palisades Reservoir and exits near Heise, in eastern Idaho, about 48 miles downstream. Upstream of this HUC the Snake River drains an area of 4,780 square miles including water flowing west from the Continental Divide in Yellowstone National Park. The main tributaries of the Snake River upstream of Palisades Reservoir include the Salt River, Greys River, Hoback River, Gros Ventre River and the headwater tributaries of the Snake River including Spread Creek, Buffalo Fork, Pacific Creek, Lewis River and Heart River. Palisades reservoir was created by Palisades dam, which is an earthen embankment that was completed in 1957. The total storage capacity of Palisades Reservoir is 1.2 million acre-feet. The dam and reservoir are operated by the U.S. Bureau of Reclamation to provide supplemental water supply to about 650,000 acres of irrigated land in the Minidoka and Michaud Flats Projects where the principal crops include grain, alfalfa, pasture, dry beans, potatoes, sugar beets, other vegetables, and seeds. A 176,000 kilowatt power plant at the dam furnishes energy needed to serve irrigation pumping units, as well as, municipalities, rural cooperatives, and other power users. Palisades Reservoir provides recreation opportunities such as fishing and boating and has facilities such as boat ramps, picnic areas and campgrounds. The project also provides substantial flood control benefits and is used in conjunction with Jackson Lake, located upstream, to control the Snake River near Heise to no more than 20,000 cubic feet per second.

There are four active, long term USGS gaging stations that characterize the majority of flow in and out of the hydrologic unit. Inflow to the reservoir is measured by summing flows from three stations: Snake River above reservoir near Alpine, WY (Station 13022500); Greys River above reservoir near Alpine, WY (Station 13023000); and Salt River above reservoir near Etna, WY (Station 13027500). The average monthly streamflow amount for each of these sites as well as the summed total of the three stations is shown in Figure 1. The average annual inflow to Palisades Reservoir equates to 4.3 million acre-feet. The majority of the inflow (64%) occurs between February and May as would be expected in these snowmelt driven stream systems. Outflow from the Palisades hydrologic unit is measured at Snake River near Heise, ID (Station 13037500). Figure 2 shows the average monthly flow past the Heise gage, which equals nearly 5.1 million acre-feet on an annual basis. History shows that in an average year Palisades Reservoir fills by June (Figure 3) and is at a minimum in September or October when irrigation demand eases and inflow begins to outpace outflow. By spring, water is generally drafted from Palisades and routed downstream to American Falls Reservoir to create flood control capacity in Palisades in preparation for snowmelt and also to prepare for early irrigation demand. The hydrology of this basin is complicated since natural flows are regulated by the Bureau of Reclamation as part of the Upper Snake Reservoir System which includes Jackson Lake, Palisades and American Falls Reservoir as well as six smaller reservoirs. The water that passes through the Palisades hydrologic unit has many upstream and downstream users with a wide variety of interests including irrigation, hydropower, aqua-culture, recreation, fish and wildlife concerns, and municipalities. Management must balance these competing demands while satisfying the legal framework that governs the water.

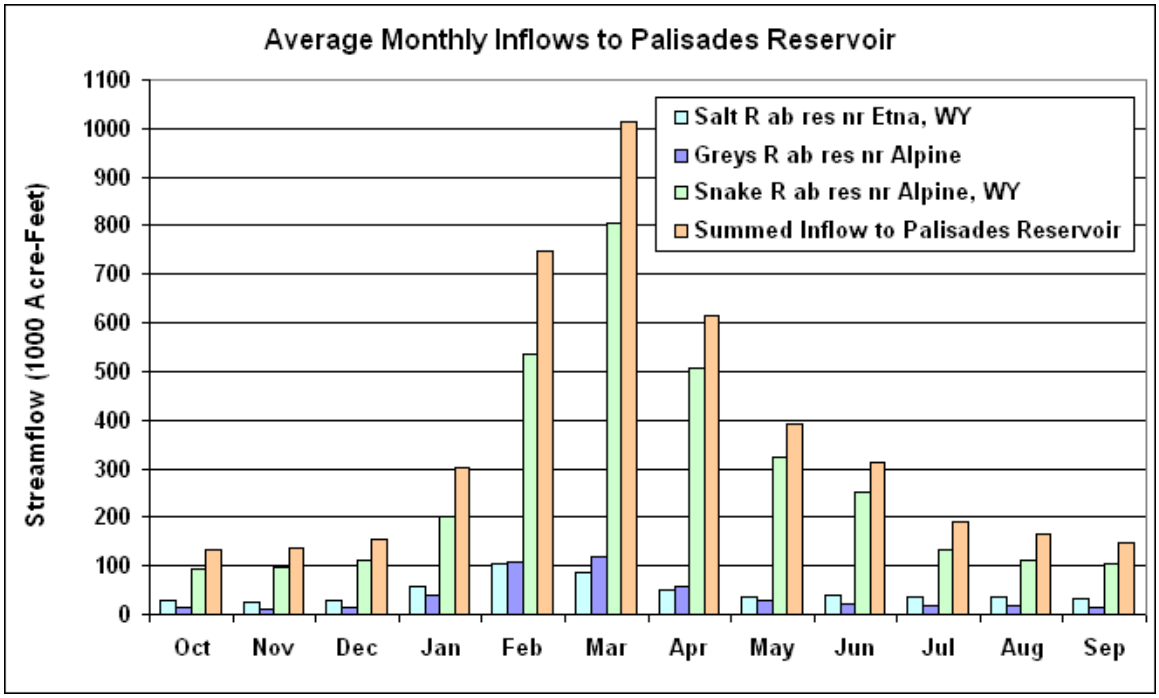


Figure 1: Average Monthly Inflows to Palisades Reservoir

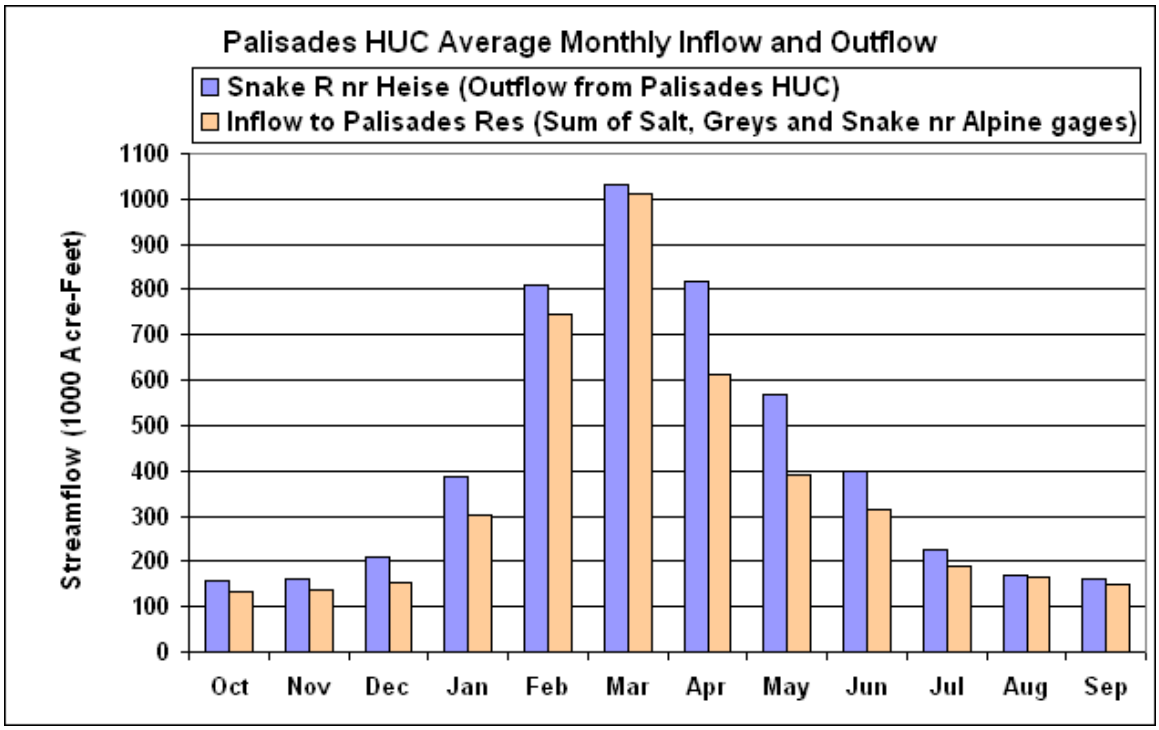


Figure 2: Average Monthly Inflow Compared to Outflow for Palisades HUC 17040104

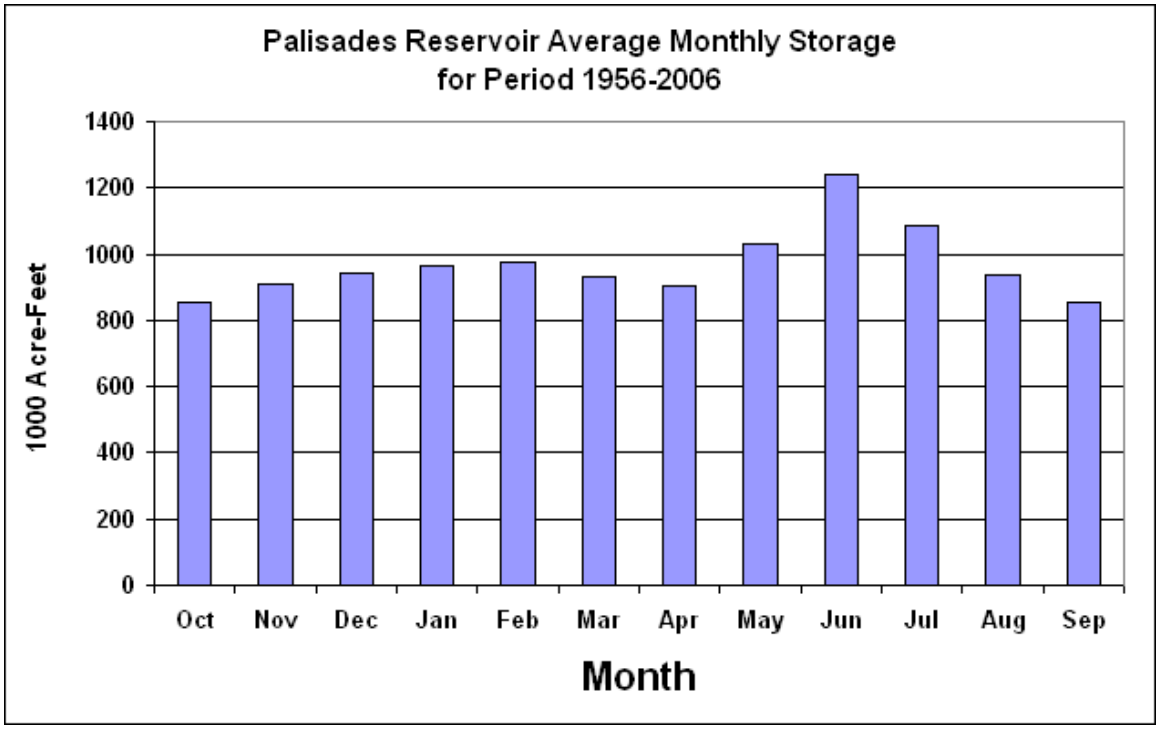


Figure 3: Average Monthly Storage for Palisade Reservoir 1958-2006

Palisades Snow and Climate Measuring Stations

The Palisades Hydrologic Unit has seven automated or manually measured high elevation snow and climatic measuring stations in close proximity to its perimeter. Pine Creek Pass SNOTEL is an automated station on the unit's northeast boundary; it reports hourly climatic data including snow water equivalent, precipitation, air temperature and snow depth. The other six stations are manually measured snow courses that consist of permanently marked sample points where snow depth and snow water equivalent are manually measured once per month in the winter; these snow courses are Packsaddle Spring, State Line, Teton Pass W.S., Greys Boundary, Lava Creek, and Fall Creek. All seven stations are part of the USDA NRCS Snow Survey Data Network operated and maintained by the NRCS.

Irrigated Adjudicated Water Rights[6])		**CFS**	
	Surface Water	874	
	Groundwater	46	
	Total Irrigated Adjudicated Water Rights	920	
Stream Flow Data[7]	Snake River near Heise, ID (USGS Station 13037500, period 1910-present)		**ACRE-FEET**
		Average Annual	5,097,397
		April - July Average	2,007,600
		Percent of Average Annual	39%
Stream Data **Percent of Total Miles of streams in HUC*		**MILES**	**PERCENT**
	Total Stream Miles[8]	2,088	
	Water quality impaired streams[9,10]	495	24%
	Anadromous Fish Presence (Streamnet)[11]	0	--
	Bull Trout Presence (Streamnet)[11]	0	--
Land Cover / Use[2] based on a 100 ft. stretch on both sides of all streams in the 100K Hydro Layer		**ACRES**	**PERCENT**
	Forest	29	34
	Grain Crops	3	4
	Grass/Pasture/Hay Lands	18	22
	Row Crops	3	4
	Shrub/Rangelands – Includes CRP Lands	23	28
	Water/Wetlands/Developed/Barren	7	8
	Total Acres of 100 ft stream buffers	**83**	100
Land Capability Class[4]	**I** – slight limitations	0	--
	II – moderate limitations	0	--
	III – severe limitations	38,500	50
	IV – very severe limitations	19,800	26
	V – no erosion hazard, but other limitations	600	1
	VI – severe limitations, unsuited for cultivation, limited to pasture, range, forest	17,800	23
	VII – very severe limitations, unsuited for cultivation, limited to grazing, forest, wildlife	0	--
	VIII – misc areas have limitations, limited to recreation, wildlife, and water supply	0	--
	Total Crop & Pasture Lands	**76,700**	100

Confined Animal Feeding Operations – Dairies/Feedlots[12,13, 26]						
	Number	**<200**	**200-500**	**500-750**	**750-1000**	**>1000**
Dairy	2	2	0	0	0	0
	Number	**<300**	**300-999**	**1,000-4,999**	**5,000-9,000**	**>10,000**
Feedlots	1	0	1	0	0	0

Resource Settings

Sprinkler Irrigated Cropland
Conventionally tilled cropland on soils ranging from sands to loams. Precipitation ranges from 8-16 inches and growing season ranges from 90-125 days. Predominant soils are silt loams, loams and sands with slopes of 0-8%. Elevations range from 4,000 to 5,500 feet. Portions of fields containing fine sandy loams or sands require higher levels of management on those areas. Crops include small grains, alfalfa, potatoes and sugar beets. Common rotations are greater than 50% high residue crops: annual spring grain, winter wheat/potato, spring wheat/winter wheat/potato/beets and combinations with alfalfa. Typical tillage includes plow, heavy offset disc or deep ripping with residue management. Rotations containing less than 66% high residue crops can lead to wind erosion problems. Wind erosion is typically a problem from March to June, creating air quality and visibility hazards in some portions of the subbasin. Rotations with potatoes may have sheet and rill and ephemeral gully erosion problems in the spring following the potatoes. Sprinkler-irrigation induced erosion may also be a concern, especially on steeper slopes. Nutrient and pest management may be less than desirable. Irrigation water management and maintenance of sprinkler systems may be less than desirable. Wildlife includes Columbia sharp-tail grouse and Yellowstone cutthroat trout, antelope, small game and upland game birds and small mammals. Wildlife habitat is often inadequate with limited permanent cover. Conservation crop rotation and sprinkler irrigation system are generally existing practices.

Surface Irrigated Cropland
Conventionally tilled, often intensively cultivated border irrigated cropland on 0-1% slopes. Precipitation is 12 inches or less and growing season ranges from 110-115 days. Soils are typically sandy loams, silt loams, and loams, and may have been extensively land-leveled in the past. Typical rotations small grains and alfalfa, although annual grain is also common. Nutrient, pest, and/or irrigation water management may be less than desirable. Cropland is surface irrigated with water typically distributed through a system of ditches and tailwater contained on-farm. Wind erosion is not a resource concern due to the long term rotations and the short unsheltered distances associated with the irrigation ditch systems and windbreaks. Wildlife includes antelope, small game and nongame birds and small mammals. Wildlife habitat impacted by increasing rural residential development. Noxious weeds can be a concern in parts of the region. Some areas are characterized by high groundwater vulnerability. Impacted surface and/or ground water quality is common.

Non-Irrigated Cropland
Primarily winter wheat/fallow (precipitation 10-14 inches), winter wheat/spring barley/fallow (precipitation 12-16 inches) or annual spring barley (precipitation 16-22 inches) on silt loams with slopes 0-16%. Growing season ranges from 80-120 days and elevation ranges from 4,000-6,500. Dry cropland is often characterized by significant ephemeral gully and concentrated flow erosion as well as sheet and rill erosion. Conventional tillage results in less than 10% residue after planting. Application of nutrients and pesticides typically does not meet Idaho NRCS standards. Conservation crop rotation is generally an existing practice. Wildlife includes deer, elk, moose, small game and nongame birds.

Hayland
Conventionally tilled, surface and sprinkler irrigated hayland on 0-7% slopes. Precipitation is 20 inches or less per year with a growing season ranging from 80 to 160 days. Irrigation water is normally plentiful. Small grains and alfalfa are grown in rotation, with alfalfa typically maintained for 4-6 years. Grazing of crop aftermath may occur. Nutrient, pest or irrigation water management may be less than desirable. Threatened and endangered species, cultural resources, and artificial and natural wetlands may be present. 303d listed water bodies and groundwater sensitive areas may be present.

Pasture
Irrigated pastureland is in high elevation mountain valleys. Annual precipitation 16-30 inches, and the growing season is 50-100 days. Elevations range from 4,000 to 6,500 feet. Soils vary from silty loams to gravelly sands, with slopes from 1 to 5%. Irrigation water is diverted from streams and distributed by earthen ditches. In the fields, water is controlled and directed by ditch tarps on contour ditches, and the tailwater returns to the perennial streams. Stream temperatures may be elevated. Fields may have been leveled, smoothed or shaped to allow for irrigation. Plants are a mixture of introduced and native perennial forage species. Conventional tillage is used when rotating pasture and grain. The average rotation is ten years of pasture and two years of small grain. Commercial fertilizers are occasionally used, but soil testing is rarely done. Animal waste deposited on the fields is harrowed on an irregular basis. Adjacent riparian areas are important for wildlife. Fencing and irrigation field ditches are generally existing practices.

Non-Irrigated (dryland) pasture managed for forage production and grazing by livestock. Annual precipitation is 20 inches or less. Soils are variable in texture on slopes of 0 to 2 percent. Typical forage species may be introduced, including wheat grasses, fescues, brome, orchardgrass, sanfoin, clovers, alfalfa, etc. Forages are often older established stands with low vigor. Management varies but typically includes continuous season-long grazing. Forage production is below optimum. Nutrients are occasionally applied. Grazing management practices are limited. Invasive weeds typically are a concern, with limited or no pest management practices in use. Livestock water is generally inadequate or poorly managed, and often includes free access to streams associated with pasture units. These lands are typically used by wildlife, including deer, elk, various birds, and small mammals. Historical resources may be found, including old homesites and equipment.

Riparian pastures are non-irrigated on 0-2% slopes. Annual precipitation is greater than 20 inches with very dry summers. Growing season is 120-185 days. Soils are deep with variable textures and wetland inclusions. Typically these pastures are adjacent to perennial or intermittent streams. Water quality is a concern when nutrients or pesticides are applied. Stream water temperatures may be elevated. Vegetation ranges from native grass/sedge/rush complexes to

improved forage species such as timothy, smooth bromegrass, creeping meadow foxtail, orchard grass and clover. Perennial broadleaf weeds may invade easily. Livestock utilization is from late spring through fall and big game species are present in winter and early spring. Declining species are typically present. Fencing is generally an existing practice.

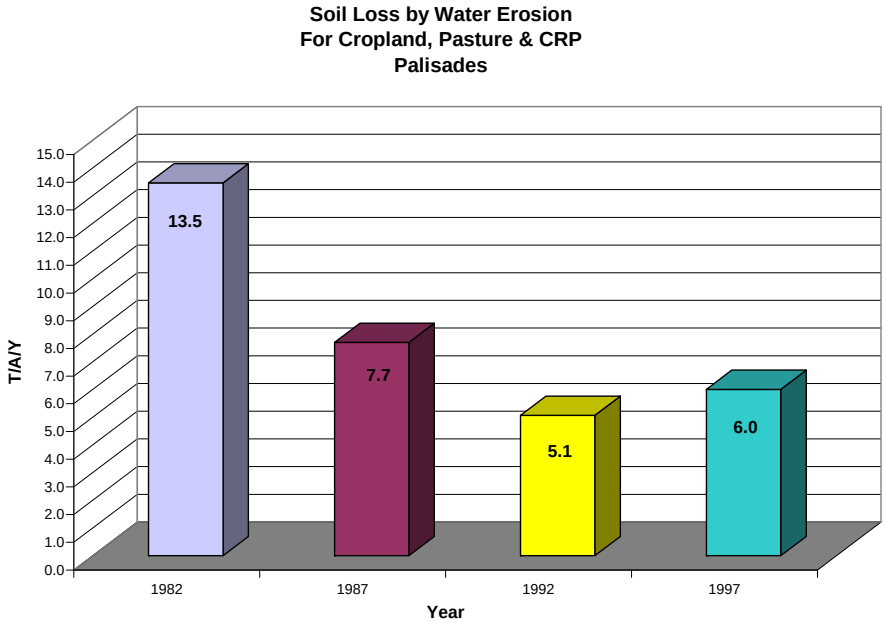
Rangeland
Mid elevation desert to high elevation, steep rangeland. Mid-elevation rangeland has precipitation ranging from 12-16 inches most of which falls in winter and early spring outside the growing season. This range consists of sagebrush, perennial bunchgrasses and forbs with variable soils on nearly level flats to benches and rolling hills. Frequent fires have eliminated some areas of sagebrush, with annual invaders dominant. Carrying capacity can be limited by available water. High elevation range has precipitation greater than 16 inches most of which falls as snow in winter and early spring outside the growing season, on steep slopes and high mountain valleys. Land is utilized by antelope, deer, elk and livestock in winter and early spring. Areas are important sage grouse habitat. Wildlife habitat for shrub-steppe wildlife species (e.g., sage grouse, sharp-tailed grouse, brewer's and sage sparrows) has been in decline due to wildfires, invasion of noxious and invasive plants, overgrazing, and habitat fragmentation.

Riparian grazing units typically exhibit impacts to riparian vegetation and a loss of woody species. Riparian vegetation consists of grasses, sedges, rushes and a variety of woody species. Soils vary from gravelly to loamy. Elevation and precipitation vary widely throughout the area. Noxious weeds may invade the site. These areas are important habitat for a variety of fish and wildlife. Access to riparian areas on all rangeland types is not typically managed, and temperature, nutrients, and sediment may be an associated water quality concern.

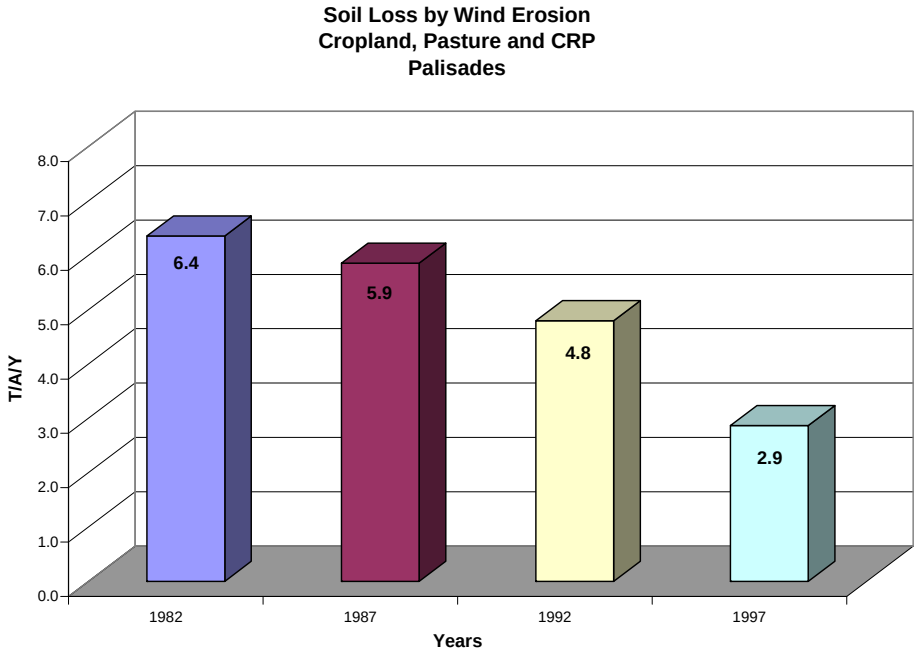
Forest
The riparian forest consists of mixed conifers and deciduous trees. The associated understory is comprised of grasses and brush species with inclusions of wetter areas. Soils are silt loams and clay loams that are shallow to deep, and can have low to high rock fragment content. They range from somewhat poorly to well drained. Average annual precipitation ranges from 18 - 35 inches. The forest landscape is characterized by level to nearly level landforms, typically adjacent to wetlands or water bodies. Watershed activities have altered the hydrology within the system, increasing peak discharge. These sites generally provide habitat for a variety of wildlife species. Overgrazing of livestock occurs in these riparian forested areas. Sites are commonly managed for wood production. Stands are dominated by shade tolerant species and have areas of overstocked sapling to pole-size trees. The wildfire hazard is elevated. Stream degradation from on-site as well as from upstream impacts reduces the aquatic health of associated streams. Important wildlife species include elk, deer, moose, bear, raptors and songbirds.

These forests include the moist Douglas fir, Grand fir, and wetter habitat types. Elevation is greater than 4,000 feet on a variety of soil types. Slopes are less than 35%. Annual precipitation is greater than 25 inches, most of which falls in the winter and spring. Summers are warm and relatively dry. The forest understory is dominated by forbs and scattered grass species, with associated brush species such as snowberry, willow, and alder. Overstocking of the forest species increases the risk on insect infestation and disease. Livestock grazing occurs during the mid-summer and early fall period, and overgrazing is common. Livestock tend to concentrate along the road corridors and riparian areas. The historic fire regime had moderate recurrence, with medium to high intensity burns. In the absence of fire, ladder fuels increase in the understory. Road systems, harvest activities, and the risk of catastrophic wildfires degrade soils and cause sedimentation to local streams. Noxious weeds invade along road corridors. Important wildlife species include elk, deer, moose, bear, mountain lion, raptors, and songbirds.

Resource Concerns



Water erosion steadily decreased in the sub basin from a high of about 13.5 tons per acre per year in 1987 to a low of about 6 tons per acres per year in 1997. The enrollment of about 37,000 acres of cropland into CRP acreage between 1987 and 1997 probably accounts most of the reduction of water erosion in this sub basin.



Wind erosion has steady declined in the Palisades sub basin since 1982. Rates have been reduced by about 3.5 tons per acres per year in that 15 year period. Approximately 37,000 acres of cropland have been enrolled in CRP since 1982. This has significantly reduced the wind erosion hazard in the watershed.

Resource Concerns – Continued

Impacted Water Bodies[9,10] (ID17040104)	Stream Miles	Sediment, Siltation or TSS	Nutrients	Bacteria	Temperature	Dissolved Oxygen	Flow / Habitat Alteration[1]	Other or Unknown
Antelope Creek (SK002_02,03)	76.5	x					x[2]	
Bear Creek (SK013_02,03)	61.5	x						x[3]
Bear Creek (SK011_02)	35.6							x
Camp Creek (SK006_02)	72.7	x			x[3]			
Fall Creek (SK006_04)	7.2	x			x			
Fall Creek (SK006_03)	5.0	x[3]			x[3]			
Indian Creek (SK024_03,04)	5.4							x
Little Elk Creek (SK026_02)	10							x[3]
Rainey Creek (SK028_04)	12.5			x				
Snake River (SK001_02)	48.3	x						
Snake River (SK008_02)	77.8	x						
Snake River (SK001_06)	27.9						x	
Snake River (SK003_06)	32.7						x	
Snake River (SK008_06)	22.1						x	
TOTAL STREAM MILES:	**495.2**							

[1] Flow and habitat alteration are not considered pollutants by the Idaho Department of Environmental Quality, and are not addressed by the TMDL.
[2] Assessment documented concerns, and recommends listing for the specified pollutant on the next Integrated Report.
[3] Assessment recommends delisting on the next Integrated Report.
Shading indicates TMDL in place.

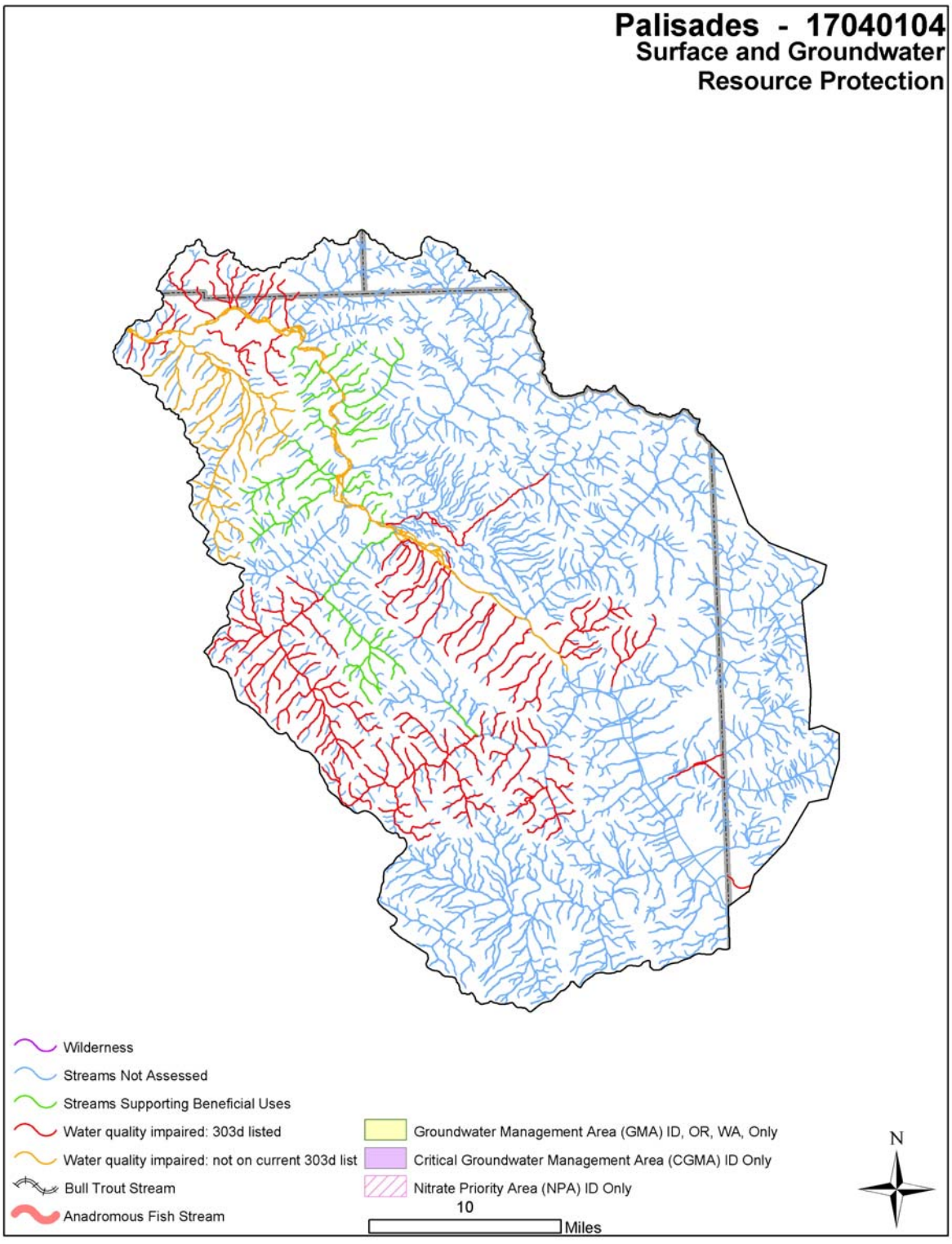
The watershed contains approximately 400 miles of state-protected rivers (Natural River or Recreational River designation). Impaired water quality in Palisades subbasin is mainly caused by deposition of excess fine sediment. Elevated sediment levels are generated by recreational land uses, roadways, motorized vehicle trails, and livestock grazing in riparian areas. Irrigated cropland located in Swan and Conant Valleys, and non-irrigated cropland on highly erodible soils in the Antelope sub-watershed, also contribute to water quality impacts. Additionally, stream temperature reductions are necessary to achieve salmonid spawning criteria in Fall Creek. Targets of 80% streambank stability and 28% depth fines substrate sediment load have been established through the TMDL process.

Conservation practices that can be used to address these water quality issues include erosion control, grazing management, irrigation water management, nutrient and pest management, residue management, conservation cover, streambank enhancement/restoration, and riparian buffers.

Watershed Projects, Plans, Studies, and Assessments*	
Federal:	***State:***
NRCS Watershed Plans/Studies/Assessments[14,15]	**IDEQ TMDLs**[16]
Antelope-Pine Creek SAWQP Plan (1989)	Palisades Assessment and TMDL (2001) Fall Creek Watershed Assessment and TMDL (2004)
	IDEQ 319 Projects/[17]
	None
NWPCC Subbasin Plans and Assessments[18]	**SCC Plans/Projects**[19]
Upper Snake Subbasin Assessment (2004)	Palisades TMDL Agricultural Implementation Plan (2002)
Upper Snake Management Plan (2004)	
	ISDA Regional Water Quality Projects[20]
	Eastern Snake River Plain Aquifer Regional Groundwater Study (on-going)
	IDWR Comprehensive Basin Plans[21]
	South Fork Snake River Basin Plan (1996)

* Listing includes past efforts in the watershed, and on-going studies and assessments.

Surface and Groundwater Resource Protection[1,22,23,24]



Resource Concerns – Continued

Resource Concerns/Issued by Land Use								
SWAPA*	**Specific Resource Concerns/Issues**	**Pasture**	**Hayland**	**Non-Irrigated Crops**	**Surface Irrigated Crops**	**Sprinkler Irrigated Crops**	**Rangeland**	**Forest**
Soil Erosion	Sheet and rill			X		X		
	Ephemeral or classic gully			X		X		
	Irrigation-induced				X	X		
	Wind					X		
	Streambank	X					X	X
	Road							X
Water Quantity	Inefficient use on irrigated lands	X	X		X	X		
	Inefficient use on non-irrigated lands			X				
Water Quality, Surface	Suspended sediment	X	X	X	X	X	X	X
	Nutrients and organics	X	X	X	X	X	X	X
	Pesticides		X	X	X	X		
	Pathogens	X					X	
	Temperature	X					X	X
Water Quality, Ground	Nutrients and organics		X	X	X	X		
	Pesticides		X	X	X	X		
Soil Condition	Organic matter depletion			X		X		
	Compaction	X		X		X		X
Plant Condition	Productivity, health and vigor	X	X	X			X	X
	Pests			X				X
	Noxious and invasive plants	X			X		X	X
	Establishment and growth	X					X	
	Management			X				X
	Plants not adapted or suited	X						X
	Wildfire hazard							X
Domestic Animals	Inadequate feed or water	X					X	X
	Stress and mortality							
Fish and Wildlife	Inadequate cover/shelter	X				X	X	X
	Declining species/species of concern	X					X	
	Habitat fragmentation						X	
Air Quality	Windborne dust					X		

*** SWAPA: - Soil, Water, Air, Plants and Animals**

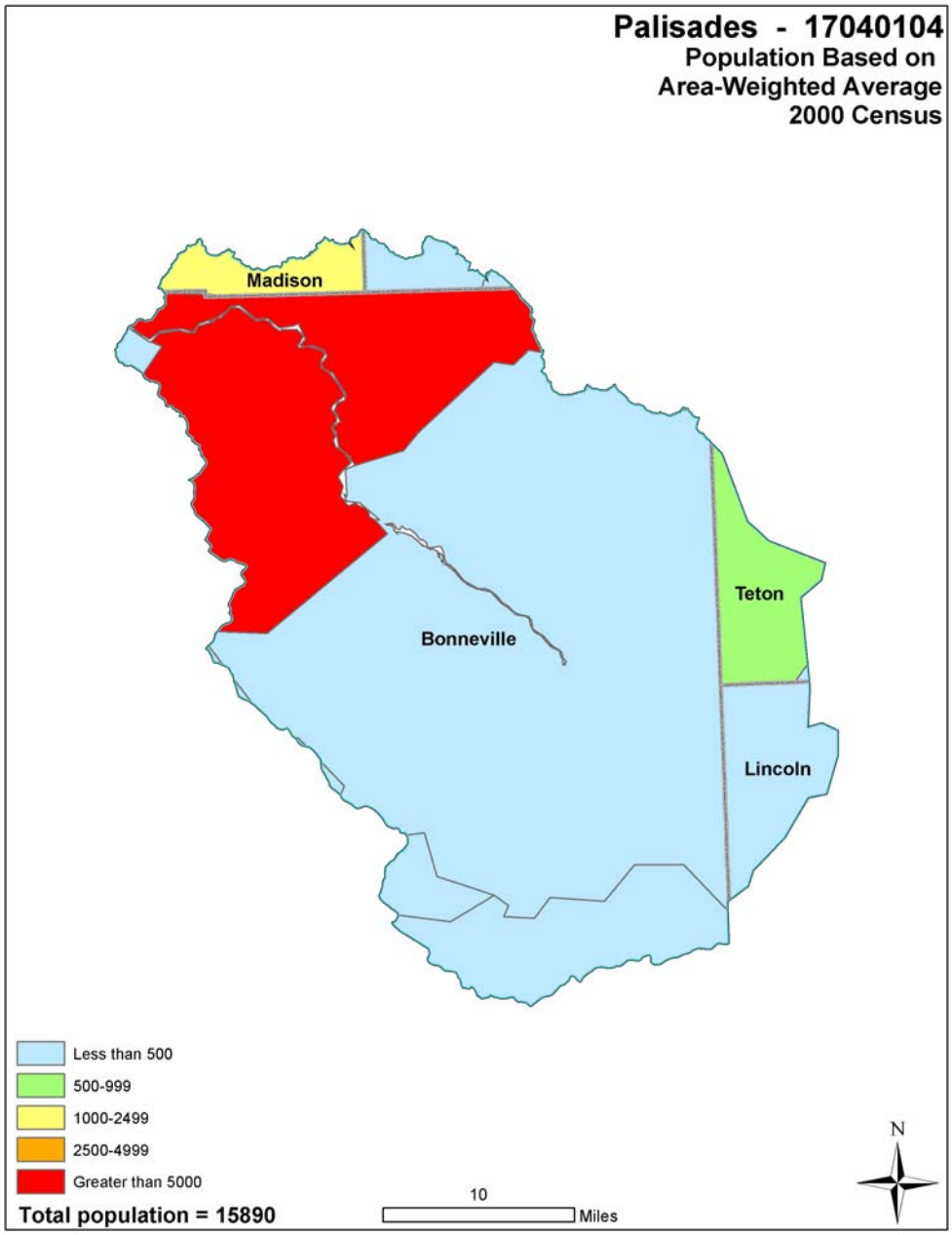
Human considerations: Implementation of conservation practices and enhancement has the potential for change in management and cost of production. Installation of practices will have an upfront cost and require maintenance. In the short run increased management may be required as new techniques are learned. Land may be taken out of production for installation of practices or conversion to other uses, such as wildlife habitat. Long term benefits should result from increased soil health, benefits to water quality and wildlife habitat.

FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES[25]	
Threatened and Endangered Species	**Candidate Species**
Mammals – Lynx **Birds –** None **Fish –** None **Invertebrates –** None **Plants – Ute Ladies Tresses**	**Plants** – None **PROPOSED SPECIES** - None
ESSENTIAL FISH HABITAT – None	**CRITICAL FISH HABITAT –** None

Census and Social Data[126]

Population: 15,890

Number of Farms: 178



Census and Social Data - continued

The Census of Agriculture is authorized under PL 105-113 and uses the definition of a farm as any place from which $1,000 or more of agricultural products are produced or sold, or normally would have been sold, during the census year.

Census and Social data shown below are based on county-wide statistics and records and may not accurately reflect the actual watershed-specific portion of the counties.

Fifty-one percent of farm operators are farmers by occupation. The remaining operators have off-farm jobs as their primary occupation. The majority of operators are male; women make up 9.0 percent of the total. Ninety-eight percent of all operators are white. Non-white operators are of Hispanic, American Indian and Asian background.

Farm size ranges from less than 10 acres to more than 1,000 acres with an average of 500 acres. Agricultural land in the watershed is a mix of cropland, range, pasture and hay land. Land users in the watershed utilize EQIP, CRP, Continuous CRP and other programs to implement conservation plans.

For the period of 1997 through 2002, the number of farms in the watershed has increased by 1.7 percent. Farm size is down 2.0 percent. The market value of production is up, rising 20.8 percent. Government payments to farmers have increased by 81.3 percent. Farm sales range from less than $1,000 to more than $500,000 per year. Eighty-four percent of farms reported sales of less than $50,000 per year.

	Number of farms	Average size farm	Market Value of Production (Average Farm)	Government Payments (Average Farm)
1997	175	510	$102,400	$10,700
2002	178	500	$123,700	$19,400
Change	1.7%	-2.0%	20.8%	81.3%

Economic Profile:

	Watershed	Idaho	United States
Population	15,890	1,466,000	299,398,000
Per Capita Personal Income (2005)	$29,600	$28,500	$34,500
Median Home Value (2000)	$93,500	$106,600	$119,600
Percent Unemployment (2006)	2.8%	3.4%	4.6%
Percent Below Poverty Level (2004)	11.4%	11.5%	12.7%

Progress / Status

The following table include conservation activities that have been cost-shared under federal and state funded programs and applied and reported in agency databases or reporting systems. Individual conservation efforts applied without cost-share assistance are not reflected. The Future Needs Tables included at the end of this report are based on the conservation activities shown here as well as estimates of percentage of each land use that already meets Resource Quality Criteria as defined in the USDA NRCS electronic Field Office Technical Guide.

PRS Data

Conservation Treatment Acres	FY04	FY05	FY06	FY07	FY08	Avg/Yr	Total
Conservation Cover (327) acres	859	99	0	979	231	434	2,168
Deep Tillage (324) acres	0	835	0	0	0	167	835
Fence (382) ft	0	13,751	2,928	2,647	0	3,865	19,326
Forage Harvest Management (511) acres	0	0	0	0	181	36	181
Irrigation System, sprinkler (442) acres	0	183	0	0	0	37	183
Irrigation Water Conveyance,Pipeline, High Pressure, Underground Plastic (430DD) ft	0	1,984	0	0	0	397	1,984
Nutrient Management (590) acres	0	0	0	135	0	27	135
Pature Planting (512) acres	0	0	0	40	0	8	40
Pest Management (595) acres	1,002	90	0	529	436	411	2,057
Pipeline (516) ft	1,279	0	821	375	0	495	2,475
Prescribed Grazing (528 & 528A) acres	0	0	0	258	1,913	434	2,171
Residue Management-Direct Seed (777) acres	0	878	0	0	0	176	878
Residue Management, Seasonal (344) acres	0	986	0	0	0	197	986
Restoration and Management of Declining Habitats (643) acres	0	0	0	5	0	1	5
Spring Development (574) number	10	0	4	2	0	3	16
Stream Crossing (578) number	0	0	0	2	0	1	2
Structure for Water Control (587) number	0	4	0	4	0	2	8
Upland Wildlife Habitat Management (645) acres	1,002	163	0	948	144	451	2,257
Use Exclusion (472) acres	1,038	90	0	946	378	490	2,452
Water and Sediment Control Basin (638) number	0	97	0	3	0	20	100
Water Well (642) number	0	0	0	2	0	1	2
Watering Facility (614) number	10	0	4	2	0	3	16
Wetland Enhancement (659) acres	0	0	0	20	0	4	20
Wetland Restoration (657) acres	0	0	58	5	0	13	63
Wetland Wildlife Management (644) acres	0	0	0	33	0	7	33

Progress in the last three years has been focused on:
~ riparian management
~ grazing management
~ soil erosion
~ soil quality
~ nutrient management
~ pest management

Resource concerns that require ongoing attention:
~ grazing management
~ soil erosion
~ wildlife habitat
~ water quality & water quantity
~ irrigation water management
~ nutrient management
~ pest management

Lands Removed from Production through Farm Bill Programs

- Conservation Reserve Program (CRP): **18,109 acres**
- Wetland Reserve Program (WRP): **0 acres**

Footnotes/Bibliography

1. Ownership Layer – Source: This spatial data contains surface management land status (sometimes known as "ownership") and Public Land Survey System (PLSS) information for Idaho. The Bureau of Land Management (BLM) in Idaho creates and maintains these spatial data layers. The primary source of the spatial features is the BLM Geographic Coordinate Database (GCDB), which contains official survey records and corresponding geodetic control information maintained by the BLM Cadastral program. In areas where GCDB records are unavailable, the spatial features are taken from a variety of sources including the BLM Idaho Resource Base Data collection, US Geological Survey Digital Line Graphs (DLGs), and US Forest Service Cartographic Feature Files (CFFs), among others. The source of the attribute information is the BLM Master Title Plats (MTPs) and careful cooperation with other government agencies that own or manage land parcels. The layer is available from the Inside Idaho (Interactive Numeric & Spatial Information Data Engine): http://inside.uidaho.edu For current ownership status, consult official records at appropriate federal, state or county offices. Ownership classes grouped to calculate Public Ownership vs. Private Ownership.
2. National Land Cover Dataset (NLCD): NLCD 92 (National Land Cover Data 1992) is a 21-category land cover classification scheme that has been applied consistently over the conterminous U.S. It is based primarily on the unsupervised classification of Landsat TM (Thematic Mapper) 1992 imagery. Ancillary data sources included topography, census, agricultural statistics, soil characteristics, other land cover maps, and wetlands data. The NLCD 92 classification is provided as raster data with a spatial resolution of 30 meters. The layer is available from: http://edcwww.cr.usgs.gov/products/landcover/nlcd.html Description: 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. Farm Services Agency, USDA, 2005. CRP acres from GIS (CLU) database.
4. 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 due to 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/
5. PRISM Climate Mapping Project. Annual precipitation data. See http://www.ocs.orst.edu/prism_new.html for further information.
6. Irrigated Adjudicated Water Rights – Idaho Department of Water Resources http://www.idwr.idaho.gov/water/srba/mainpage/
7. USGS Idaho Streamflows, gaging station data (http://waterdata.usgs.gov/id/nwis/sw/) and estimates for ungaged streams based on statistical data (http://water.usgs.gov/osw/streamstats/idaho.html).
8. National Hydrography Dataset (NHD). Developed by the US Geological Survey in cooperation with U.S. Environmental Protection Agency and other state and local partners (http://nhd.usgs.gov).
9. IDEQ. 2002 Integrated Report (approved December 2005). http://www.deq.idaho.gov/water/data_reports/surface_water/monitoring/integrated_report.cfm.
10. IDEQ. 2004. Falls Creek Watershed Assessment and TMDL. http://www.deq.idaho.gov/water/data_reports/surface_water/tmdls/fall_creek/fall_creek.cfm. IDEQ. 2001. Palisades Subbasin Assessment and TMDL. http://www.deq.state.id.us/water/data_reports/surface_water/tmdls/palisades/palisades.cfm

11. 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/

12. (Dairy) Idaho Department of Water Resources: http://www.idwr.idaho.gov/gisdata/gis_data.htm

13. (Feedlot) Idaho State Department of Agriculture: http://www.agri.state.id.us/ FOIA request.

14. Natural Resource Conservation Service, Watershed Projects Planned and Authorized, http://www.nrcs.usda.gov/programs/watershed

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

16. Idaho Department of Environmental Quality (IDEQ), Surface Water Quality: Subbasin Assessments, TMDLs, and Implementation Plans. http://www.deq.state.id.us/water/data_reports/surface_water/tmdls/sba_tmdl_master_list.cfm

17. Idaho Department of Environmental Quality, Watershed protection: Nonpoint source management (319 grant), Reports and program resources. http://www.deq.idaho.gov/water/data_reports/surface_water/nps/reports.cfm

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/

19. Idaho Soil Conservation Commission (SCC), TMDL watershed implementation plans: agricultural component, http://www.scc.state.id.us/waq.htm, and Water Quality Program, http://www.scc.state.id.us/Docs/WQPA%20FACT%20SHEET.doc

20. Idaho State Department of Agriculture (ISDA). Groundwater water quality regional projects. http://www.agri.state.id.us/Categories/Environment/water/gwReports.php

21. Idaho Department of Water Resources (IDWR). State Comprehensive Water Plans. http://www.idwr.idaho.gov/waterboard/planning/Comp_Basin_Plans.htm

22. IDEQ. 2002 Integrated Report (approved December 2005). http://www.deq.idaho.gov/water/data_reports/surface_water/monitoring/integrated_report.cfm.

23. Groundwater Management Areas and Critical Groundwater Management Areas designated by the Idaho Department of Water Resources. http://www.idwr.idaho.gov/hydrologic/projects/gwma/

24. Nitrate Priority Areas. IDEQ has developed a list of degraded ground water areas. This list focuses on nitrate and ranks the top 25 nitrate-degraded areas (referred to as "nitrate priority areas") in the state based on the severity of the degradation, the population affected, and the trend; the rank of "1" indicates the most severely impacted area in the state. http://www.deq.state.id.us/water/prog_issues/ground_water/nitrate.cfm#ranking

25. NRCS Field Office Technical Guide, Section II, Threatened and Endangered List and the Idaho Conservation Data Center, Idaho Department of Fish and Game http://fishandgame.idaho.gov/cms/tech/CDC/

26. 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. Census, 2000 by zip code and adjusted by percent of zip code in the HUC. http://www.agcensus.usda.gov/Publications/2002/Census_by_State/Idaho/index.asp

Conservation Activities and Future Conservation Needs

The following Future Conditions Tables are estimates of the future needs of conservation practices in the watershed. The Tables are based on the already applied conservation activities as well as estimates of percentage of each land use that already meets Resource Quality Criteria as defined in the USDA NRCS electronic Field Office Technical Guide.

Estimates of future needs in the watershed are based on the following factors:

1. Estimates of total additional conservation needs to reach “Resource Management System” level of treatment based on benchmark conditions in the watershed

2. Local knowledge of the area, past and ongoing project activities and professional judgment

3. Practices previously installed which have exceeded their expected life (life span), are no longer accomplishing the conservation objective, and may need to be replaced or upgraded.

Conservation Activities for Dry Cropland / Hayland

Current Conditions	Total acres	Riparian Potential
Total Non-Irrigated Cropland	33,800	1,510
Typical Management Unit/Ownership	160	
Current Farm Bill participation	5%	

Future Conditions		Acres
Non-Irrigated Cropland Acres		32,290
Total Conversion to Riparian Pasture RMS		1,510
Total Acres		33,800

Conservation Activities for Dry Cropland / Hayland - Continued

Projected Future Level of Treatment for Non-Irrigated Cropland/Hayland:

	Quantity		Costs		Effects				Implementation			
Practices	Unit	Quantity	Additional Investment Cost	Annual O&M and Mngt. Cost	Water Conservation	Water Storage	Habitat	WQ	EQIP	WHIP	CREP	Other
Non-Irrigated Cropland/Hayland	Ac.				+3	+1	+2	+3				
Conservation Cover (327)	Ac.	2,580	$ -	$ -					X		X	X
Contour Farming (330)	Ac.	9,690	72,700	24,200					X			X
Deep Tillage (324)	Ac.	3,230	145,400	48,500					X			X
Forage Harvest Management (511)	Ac.	4,840	-	-					X			X
Nutrient Management (590)	Ac.	30,680	460,200	153,400					X			X
Pasture & Hayland Planting (512)	Ac.	2,580	412,800	4,100					X		X	X
Pest Management (595)	Ac.	30,680	736,300	245,400					X			X
Prescribed Grazing (528)	Ac.	6,460	96,900	32,300					X		X	X
Residue and Tillage Management Mulch Till (345)	Ac.	6,460	290,700	96,900					X			X
Residue and Tillage Management No Till / Strip Till / Direct Seed (329)	Ac.	24,220	2,179,800	726,600					X			X
Terrace (600)	Ft.	53,280	149,200	1,500					X			X
Upland Wildlife Habitat Management (645)	Ac.	6,460	193,800	64,600					X	X	X	X
Use Exclusion (472)	Ac.	650	22,800	700					X	X	X	X
Water and Sediment Control Basin (638)	No.	80	84,000	2,500					X			X

Conservation Activities for Dry Cropland / Hayland - Continued

Projected Additional Treatment Needs for Non-Irrigated Cropland/Hayland (Continued):												
	Quantity		Costs		Effects				Implementation			
Practices	Unit	Quantity	Additional Investment Cost	Annual O&M and Mngt. Cost	Water Conservation	Water Storage	Habitat	WQ	EQIP	WHIP	CREP	Other
Riparian Non-Irrigated Cropland/Hayland	Ac.				+1	+1	+3	+3				
Channel Stabilization (584)	Ft.	3,290	82,300	4,100					X			
Fence (382)	Ft.	24,920	54,100	1,100					X	X	X	X
Nutrient Management (590)	Ac.	1,430	21,500	7,200					X			X
Pest Management (595)	Ac.	1,430	34,300	11,400					X			X
Pipeline (516)	Ft.	2,000	5,900	-					X			X
Prescribed Grazing (528)	Ac.	300	4,500	1,500					X			X
Pumping Plant (533)	No.	5	14,400	100					X	X	X	X
Riparian Forest Buffer (391)	Ac.	230	345,000	3,500					X			X
Riparian Herbaceous Cover (390)	Ac.	50	15,000	200					X	X	X	X
Streambank & Shoreline Prot (580)	Ft.	6,590	313,000	15,700					X			X
Tree/Shrub Establishment (612)	Ac.	150	70,500	700					X	X		X
Upland Wildlife Management (645)	Ac.	150	4,500	1,500					X	X		X
Use Exclusion (472)	Ac.	760	25,800	800					X	X	X	X
Watering Facility (614)	No.	5	4,400	-					X		X	X
Wetland Wildlife Management (644)	Ac.	80	2,400	800					X	X	X	X
Total RMS Additional Costs			$ 5,842,200	$1,425,100								

Conservation Activities for Dry Cropland / Hayland - Continued

Potential RMS Effects Summary for Non-Irrigated Cropland		
Cost Items and Programs	Costs	O&M Costs
Non Farm Bill Programs	$ 292,100	$ 71,300
Potential Farm Bill Programs	$ 5,550,100	$1,353,800
Operator O&M and Management Cost		$1,425,100
Annual Management Incentives (3 yrs - Incentive Payments)	$ 4,243,000	
Operator Investment	$ 945,700	
Federal Costshare	$ 653,500	
Total RMS Additional Costs	$ 5,842,200	$1,425,100
Estimated Level of Participation		65%
Total Acres in RMS System		22,560
Anticipated Cost at Estimated Level of Participation	$	3,797,400
Participating landowners will be in compliance with TMDLs		
Improves habitat for ESA endangered & threatened species		

Conservation Activities for Irrigated Cropland / Hayland

Current Conditions		acres
Total Irrigated Cropland/Hayland		8,800
Typical Management Unit/Ownership		40
Surface Irrigated Cropland/Hayland		1,760
Sprinkler Irrigated Cropland/Hayland		7,040
Current Farm Bill participation		5%

Future Conditions		Total Acres
Surface Irrigated Cropland/Hayland		370
Sprinkler Irrigated Cropland/Hayland		7,110
Urban conversion		1,320
Total Irrigated Cropland/Hayland Acres		8,800

Conservation Activities for Irrigated Cropland / Hayland - Continued

Projected Additional Treatment Needs for Irrigated Cropland/Hayland:												
Irrigated Cropland/Hayland	Quantity		Costs		Effects				Implementation			
Practices	Unit	Quantity	Additional Investment Cost	Annual O&M and Mngt. Cost	Water Conservation	Water Storage	Habitat	WQ	EQIP	WHIP	CREP	Other
Surface Irrigation	Ac.				+1	+1	+3	+1				
Forage Harvest Management (511)	Ac.	18	$ -	$ -					X			X
Irrigation Land Leveling (464)	Ac.	20	4,400	100					X			X
Irrigation System, Sprinkler (442)	Ac.	70	38,500	800					X			X
Irrigation System, Surface (443)	Ac.	40	6,000	200					X			X
Irrigation Water Mgmt (449) Low Level	Ac.	350	5,300	1,800					X			X
Nutrient Management (590)	Ac.	350	5,300	1,800					X	X		X
Pasture and Hayland Planting (512)	Ac.	8	1,300	-					X	X		X
Pest Management (595)	Ac.	350	8,400	2,800					X			X
Residue Management Mulch Till (345)	Ac.	350	15,800	5,300					X			X
Upland Wildlife Habitat Management (645)	Ac.	90	2,700	900					X	X	X	X

Conservation Activities for Irrigated Cropland / Hayland - Continued

Projected Additional Treatment Needs for Irrigated Cropland/Hayland (Continued):

Irrigated Cropland/Hayland	Quantity		Costs		Effects				Implementation			
Practices	Unit	Quantity	Additional Investment Cost	Annual O&M and Mngt. Cost	Water Conservation	Water Storage	Habitat	WQ	EQIP	WHIP	CREP	Other
Sprinkler Irrigation	Ac.				+3	+2	+2	+3				
Conservation Crop Rotation (328)	Ac.	920	$ -	$ -					X			X
Contour Farming (330)	Ac.	1,780	13,400	4,500					X			X
Deep Tillage (324)	Ac.	920	41,400	13,800					X			X
Forage Harvest Management (511)	Ac.	350	-	-					X			X
Irrigation Water Mgmt (449) Low Level	Ac.	6,750	101,300	33,800					X			X
Nutrient Management (590)	Ac.	6,750	101,300	33,800					X			X
Pasture and Hayland Planting (512))	Ac.	180	28,800	300					X	X		X
Pest Management (595)	Ac.	6,750	162,000	54,000					X			X
Prescribed Grazing (528)	Ac.	1,420	21,300	7,100					X			X
Residue Mngt, Mulch Till (345)	Ac.	6,750	303,800	101,300					X			X
Surface Roughening (609)	Ac.	1,640	36,900	12,300					X			X
Upland Wildlife Habitat Management (645)	Ac.	5,690	170,700	56,900					X	X		X
Use Exclusion (472)	Ac.	140	4,800	100					X			X
			$ 1,073,400	$ 331,600								

Conservation Activities for Irrigated Cropland / Hayland - Continued

Potential RMS Effects Summary for Irrigated Cropland/Hayland		
Cost Items and Programs	Costs	O&M Costs
Non Farm Bill Programs	$ 53,700	$ 16,600
Potential Farm Bill Programs	$ 1,019,700	$ 315,000
Operator O&M and Management Cost		$ 331,600
Annual Management Incentives (3 yrs - Incentive Payments)	$ 989,600	
Operator Investment	$ 68,800	
Federal Costshare	$ 15,000	
Total RMS Additional Costs	$ 1,073,400	$ 331,600
Estimated Level of Participation		65%
Total Acres in RMS System		5,900
Anticipated Cost at Estimated Level of Participation	$	697,700
Total Acre Feet of Water Saved Annually		4,750
Increases infiltration and storage of water in soil profile		
Participating landowners will be in compliance with TMDLs		
Improves habitat for ESA endangered & threatened species		
Reduces impact to ground and surface water quality		

Conservation Activities for Irrigated Pasture

Current Conditions	Total Acres	Riparian/ Wetland Potential
Surface Irrigated Pasture	1,365	72
Sprinkler Irrigated Pasture	735	38
Total Irrigated Pasture	2,100	110
Typical Management Unit/Ownership	20	
Current Farm Bill participation	5%	

Future Conditions		Total Acres
Surface Irrigated Pasture		670
Sprinkler Irrigated Pasture		1,020
Total Conversion to Riparian Pasture RMS		95
Conversion to Urban uses		315
Total Acres		2,100

Conservation Activities for Irrigated Pasture - Continued

Project Additional Treatment Needs for Irrigated Pasture:												
	Quantity		Costs		Effects				Implementation			
Practices	Unit	Quantity	Additional Investment Cost	Annual O&M and Mngt. Cost	Water Conservation	Water Storage	Habitat	WQ	EQIP	WHIP	CREP	Other
Surface Irrigation	Ac.				+/-	+/-	+1	+1				
Fence (382)	Ft.	11,060	$ 24,000	$ 500					X			X
Heavy Use Area Protection (561)	Ac.	1	14,500	700					X			X
Irrigation Field Ditch (388)	Ft.	520	1,600	-					X			X
Irrigation System Surface (443)	Ac.	150	22,500	700					X	X	X	X
Irrigation System Sprinkler (442)	Ac.	270	148,500	3,000								
Irrigation Water Conveyance (443EE)	Ft.	690	3,700	-					X			X
Irrigation Water Management (449)	Ac.	640	9,600	3,200					X			X
Nutrient Management (590)	Ac.	640	9,600	3,200					X			X
Pasture & Hayland Planting (512)	Ac.	200	32,000	300					X	X		X
Pest Management (595)	Ac.	640	15,400	5,100					X			X
Prescribed Grazing (528)	Ac.	640	9,600	3,200					X			X
Structure for Water Control (587)	No.	13	16,500	200					X			X
Upland Wildlife Management (645)	Ac.	30	900	300								
Use Exclusion (472)	Ac.	10	300	-								
Watering Facility (614)	No.	7	6,100	100					X	X		X

Conservation Activities for Irrigated Pasture - Continued

Projected Additional Treatment Needs for Irrigated Pasture (Continued):

	Quantity		Costs		Effects				Implementation			
Practices	Unit	Quantity	Additional Investment Cost	Annual O&M and Mngt. Cost	Water Conservation	Water Storage	Habitat	WQ	EQIP	WHIP	CREP	Other
Sprinkler Irrigated	Ac.				+3	+3	+2	+3				
Fence (382)	Ft.	16,830	$ 36,500	$ 700					X			X
Irrigation System Sprinkler (442)	No.	80	44,000	900					X			X
Irrigation Water Conveyance (430DD)	Ft.	210	1,400	-					X			X
Irrigation Water Management (449)	Ac.	970	14,600	4,900					X			X
Nutrient Management (590)	Ac.	970	14,600	4,900					X			X
Pasture & Hayland Planting (512)	Ac.	260	41,600	400					X	X		X
Pest Management (595)	Ac.	970	23,300	7,800					X			X
Pipeline (516)	Ft.	3,370	9,900	-					X			X
Prescribed Grazing (528)	Ac.	970	14,600	4,900					X			X
Pumping Plant (533)	No.	2	25,000	300					X			X
Spring Development (574)	No.	1	2,400	-					X			X
Structure For Water Control (587)	No.	1	1,300	-					X			X
Upland Wildlife Management (645)	Ac.	50	1,500	500					X	X		X
Use Exclusion (472)	Ac.	10	300	-								
Water Well ((642)	No.	3	20,300	200					X			X
Watering Facility (614)	No.	4	3,500	-					X			X

Conservation Activities for Irrigated Pasture – Continued

Projected Additional Treatment Needs for Irrigated Pasture (Continued):												
	Quantity		Costs		Effects				Implementation			
Practices	Unit	Quantity	Additional Investment Cost	Annual O&M and Mngt. Cost	Water Conservation	Water Storage	Habitat	WQ	EQIP	WHIP	CREP	Other
Riparian Pastures	Ac.				+1	+1	+3	+3				
Conservation Cover (327)	Ac.	10	$ 1,300	$ -					X			X
Fence (382)	Ft.	1,570	3,400	100					X	X	X	X
Pest Management (595)	Ac.	90	2,200	700					X			X
Pipeline (516)	Ft.	400	1,200	-					X			X
Prescribed Grazing (528)	Ac.	90	1,400	500					X			X
Pumping Plant (533)	No.	1	12,500	100					X			X
Riparian Forest Buffer (391)	Ac.	20	30,000	300					X			X
Riparian Herbaceous Cover (390)	Ac.	3	900	-					X	X	X	X
Streambank & Shoreline Prot (580)	Ft.	460	21,900	1,100					X			X
Upland Wildlife Management (645)	Ac.	10	300	100					X	X		X
Use Exclusion (472)	Ac.	50	1,700	100					X	X	X	X
Watering Facility (614)	No.	1	900	-					X		X	X
Total RMS Additional Costs			$ 646,000	$ 49,000								

Conservation Activities for Irrigated Pasture – Continued

RMS Cost Summary for Irrigated Pasture:

Cost Items and Programs	Costs	O&M Costs
Non Farm Bill Programs (5 percent of total)	$ 32,300	$ 2,500
Potential Farm Bill Programs 95 percent of total	$ 613,700	$ 46,500
Operator O&M and Management Cost		$ 49,000
Annual Management Incentives (3 yrs - Incentive Payments)	$ 119,200	
Operator Investment	$ 230,100	
Federal Costshare	$ 296,700	
Total RMS Additional Costs	$ 646,000	
Estimated Level of Participation		65%
Total Acres in RMS System		1,400
Anticipated Cost at Estimated Level of Participation	$	419,900
Total Acre Feet of Water Saved Annually		1,900
Total Annual Forage Production Benefits (animal unit months)		4,300
Improves ground water and surface water quality by minimizing off-site transport		
Improves riparian habitat for ESA endangered & threatened species		

Conservation Activities for Rangeland, Dry Pasture and Forestland

Current Conditions		Riparian/Wetland/Potential	Total Acres
Private Range, N-I Pasture & Forest		1,985	42,300
Typical Range Management Unit			450
Current Farm Bill participation			5%

Future Conditions	Rangeland/Pasture	Riparian	Total Acres
	41,315	1,985	42,300

Projected Additional Treatment Needs for Rangeland, Non-Irrigated Pasture and Forestland:

	Quantity		Costs		Effects				Implementation				
Practices	Unit	Quantity	Investment Cost	Annual O&M and Mngt. Cost	Water Conservation	Water Storage	Habitat	WQ	EQIP	WHIP	WRP	CREP	Other
Rangeland, Non-Irr Pasture, Forest	Ac.				+3	+2	+3	+3					
Brush Management (314)	Ac.	2,020	$ 101,000	$ 1,000					X				X
Fence (382)	Ft.	41,570	90,200	1,800					X				X
Pasture and Hayland Planting (512)	Ac.	2,020	323,200	3,200					X				X
Pest Management (595)	Ac.	38,300	919,200	306,400					X				X
Pipeline (516)	Ft.	41,570	121,800	600					X				X
Prescribed Grazing (528)	Ac.	38,300	229,800	76,600					X				X
Pumping Plant (533)	No.	9	25,900	300					X				X
Spring Development (574)	No.	4	9,600	-					X	X			X
Upland Wildlife Management (645)	Ac.	15,320	459,600	153,200					X	X			X
Use Exclusion (472)	Ac.	3,230	109,800	3,300					X	X			X
Watering Facility (614)	No.	20	17,400	200					X	X			X

Conservation Activities for Rangeland, Dry Pasture and Forestland - Continued

Projected Additional Treatment Needs for Rangeland, Non-Irrigated Pasture and Forestland:													
	Quantity		Costs		Effects				Implementation				
Practices	Unit	Quantity	Investment Cost	Annual O&M and Mngt. Cost	Water Conservation	Water Storage	Habitat	WQ	EQIP	WHIP	WRP	CREP	Other
Range, N-I Pasture & Forest Riparian	Ac.				+3	+2	+3	+3					
Fence (382)	Ft.	32,750	$ 71,100	$ 1,400					X	X	X		X
Heavy Use Area Protection (561)	Ac.	3	87,000	4,400					X				X
Pest Management (595)	Ac.	1,890	45,400	15,100					X				X
Pipeline (516)	Ft.	4,090	12,000	100					X				X
Prescribed Grazing (528)	Ac.	1,890	11,300	3,800					X				X
Pumping Plant (533)	No.	2	5,800	100					X				X
Riparian Forest Buffer (391)	Ac.	60	90,000	900					X				X
Riparian Herbaceous Cover (390)	Ac.	20	6,000	100					X	X	X		X
Streambank & Shoreline Prot (580)	Ft.	5,850	277,900	13,900					X	X			X
Upland Wildlife Management (645)	Ac.	690	20,700	6,900					X	X			X
Use Exclusion (472)	Ac.	200	6,800	200					X	X	X		X
Watering Facility (614)	No.	3	2,600	-									
Total RMS Additional Costs			$3,044,100	$ 593,500									

Conservation Activities for Rangeland, Dry Pasture and Forestland - Continued

RMS Cost Summary for Range, Non-Irrigated Pasture & Forestland:

Cost Items and Programs	Costs	O&M Costs
Non Farm Bill Programs (5 percent of total)	$ 152,200	$ 29,700
Potential Farm Bill Programs 95 percent of total	$2,891,900	$ 563,800
Operator O&M and Management Cost		$ 593,500
Annual Management Incentives (3 yrs - Incentive Payments)	$1,686,000	
Operator Investment	$ 634,600	
Federal Costshare	$ 723,500	
Total RMS Additional Costs	$3,044,100	
Estimated Level of Participation		50%
Total Acres in RMS System		22,200
Anticipated Cost at Estimated Level of Participation	$	1,522,100
Total Annual Forage Production Benefits (acre unit months)		3,000
Improves infiltration and storage of water in soil profile		
Improves upland wildlife habitat for deer, elk, antelope and other species		
Improves water quality by reducing erosion and sediment delivery to streams		

Conservation Activities for Headquarters

Confined Animal Feed Operations (CAFO - 700 Head Dairies or 1,000 Head Feeder Cattle) and Animal Feed Operations (AFO 200-700 Head of Dairy or 300 to 1,000 Head Feeder Cattle) are variable in complexity depending on size, number of cows and location of the waste storage facility. Note that an AFO can be designated as a CAFO regardless of number of animals if it is found to be a significant polluter.

Kinds and amounts of component practices required for proper operation of a Waste Management Facility (313) are site specific, but typically include the following: Anaerobic Digester (366), Composting Facility (317), Access Road (560), Corral Dust Management (785), Dikes (356), Diversions (362), Fence (382), Heavy Use Area Protection (561), Irrigation Water Conveyance (430EE) (430DD), Pipeline (516), Pond (378), Pond Sealing or Lining (521), Pumping Plant (533), Roof Runoff Structure (558), Separator, Structure for Water Control (587), Underground Outlet (620), Waste Treatment Lagoon (359), Watering Facility (614), Well Decommissioning (355), Windbreak/Shelterbelt Establishment (380), Dry Stack Areas and Ramps. Management practices commonly used include. Critical Area Planting (342), Filter Strip (393), Manure Transfer (634), Nutrient Management (590), Pest Management (595) and Waste Utilization (633).

Current Conditions		Total
CAFOs		-
AFOs		3
Current Farm Bill participation		-
Total CAFOs and AFOs		3

Conservation Activities for Headquarters – Continued

Numbers of Dairies and Feedlots needing treatment were estimated based on input from Idaho Department of Agriculture and the local NRCS Field Offices.

Projected Additional Treatment Needs for Headquarters													
	Quantity		Costs		Effects				Implementation				
Practices	Unit	Quantity	Additional Investment Cost	Annual O&M and Mngt. Cost	Water Conservation	Water Storage	Habitat	WQ	EQIP	WHIP	WRP	CREP	Other
Dairy	No.				+3	+2	+3	+3					
Structural/Management Practices													
Waste Storage Facility (313) AFO	No.	2	90,000	1,800									
Feed Lot	No.				+3	+1	+3	+3					
Structural/Management Practices													
Waste Storage Facility (313) AFO	No.	1	45,000	900					X				X
Total RMS Additional Costs			135,000	2,700									

Conservation Activities for Headquarters – Continued

RMS Cost Summary for Headquarters

Cost Items and Programs	Costs	O&M Costs
Non Farm Bill Programs	$ 6,800	$ 100
Potential Farm Bill Programs	$ 128,200	$ 2,600
Operator O&M and Management Cost		$ 2,700
Annual Management Incentives (3 yrs - Incentive Payments)	$ 13,500	
Operator Investment	$ 64,200	
Federal Costshare	$ 57,300	
Total RMS Additional Costs	$ 135,000	
Estimated Level of Participation		65%
Total CAFO/AFO in RMS System		2.0
Anticipated Cost at Estimated Level of Participation		
Reduces impact to ground and surface water quality		
Participation reflects Local, State and Federal regulations		