Pahsimeroi River Subbasin Assessment
And Total Maximum Daily Load
Implementation Plan for Agriculture
For the 2013 Addendum and Five-Year Review

Prepared for the Idaho Department of Environmental Quality

By

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The Idaho Soil and Water Conservation Commission in Cooperation
with the assistance of the Custer Soil and Water Conservation District 2020

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Abbreviations, Acronyms, and Symbols

§303(d) refers to section 303 subsection (d) of the Clean Water Act, or a list of impaired water bodies required by this section

§319 refers to Section 319 of the Clean Water Act established a grant program under which states, territories, and tribes may receive funds to support a wide variety of nonpoint source pollution management activities.

ºF degrees Fahrenheit

AFO animal feeding operation

AMA Agricultural Management Assistance

ACEP Agricultural Conservation Easement Program

AU assessment unit

BLM Bureau of Land Management

BMP best management practice

BURP Beneficial Use Reconnaissance Program

C Celsius

CFR Code of Federal Regulations

CAFO confined animal feeding operation

CTP Conservation Technical Assistance

CRP Conservation Reserve Program

CSP Conservation Security Program

CW cold water

CWA Clean Water Act

DEQ Department of Environmental Quality

E. coli *Escherichia coli*

EPA United States Environmental Protection Agency

EQIP Environmental Quality Incentive Program

GIS geographic information systems

GLCI Grazing Land Conservation Initiative

HIP Habitat Improvement Program

HUC hydrologic unit code

ICA Idaho Cattle Association

IDAPA Refers to citations of Idaho administrative rules

IR integrated report
ISDA Idaho State Department of Agriculture
MOU memorandum of understanding
NMP nutrient management plan
PCR primary contact recreation
PNV potential natural vegetation
PL public law
RCRDP Resource Conservation and Rangeland Development Program
RMS resource management system
RUSLE Revised Universal Soil Loss Equation
SGI Sage Grouse Initiative
SS salmonid spawning
SCR secondary contact recreation
SECI Streambank Erosion Condition Inventory
SISL Surface Irrigation Soil Loss
SVAP stream visual assessment protocol
SWCC Soil and Water Conservation Commission
SWCD Soil and Water Conservation District
TMDL total maximum daily load
TSS total suspended solids
TU treatment units
USFS United State Forest Service
WLFW Working Lands for Wildlife

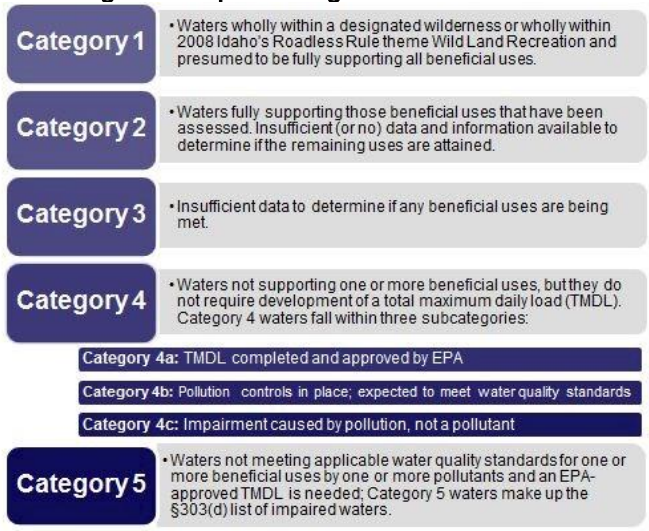
1.0 Introduction

1.1 purpose

Pahsimeroi River Subbasin Assessment and Total Maximum Daily Load Implementation Plan for Agriculture for the 2013 Addendum and Five-Year Review outlines an adaptive management approach for implementation of best management practices (BMPs) on agricultural lands to meet the requirements of Pahsimeroi River Subbasin Assessment and Total Maximum Daily Load 2013 Addendum and Five-Year Review (DEQ 2013). The plan will compliment and support past conservation accomplishments made by the Upper Salmon Basin Watershed Project (USBWP) and the Custer Soil and Water Conservation District (CSWCD), the USDA Natural Resource Conservation Service (NRCS) and others. Best Management Practices outlined will assist or compliment other subbasin efforts in restoring and maintaining state water quality beneficial uses.

1.2 goals and objectives

The goal of this plan is to provide a strategy for agriculture to assist and/or complement other watershed efforts in restoring and protecting beneficial uses for water quality impaired streams in the Pahsimeroi Subbasin (HUC 17060202). These water quality impaired assessment units are identified in the Idaho Department of Environmental Quality (DEQ) Pahsimeroi River Subbasin Assessment and Total Maximum Daily Load 2013 Addendum and Five-Year Review.



Source: DEQ website Jan 2020
http://www.deq.idaho.gov/water-quality/surface-water/monitoring-assessment/integrated-report/

The federal Clean Water Act requires states to conduct a biennial comprehensive analysis of state waters to determine if water bodies meet state water quality standards and thus support beneficial uses, or if additional pollution controls are needed. DEQ meets this requirement by preparing Idaho's Integrated Report. The report serves as a guide for developing and implementing water quality improvement plans (aka Total Maximum Daily Loads) to protect water quality and achieve federal and state water quality standards. DEQ categorizes state surface waters into 5 categories in their Integrated Report. (see Figure A) Impaired surface waters are evaluated and a TMDL prepared outlining pollutant limits and to serve as a guide to management decisions.

DEQ divides streams and rivers into Assessment Units (AU) based on Strahler stream order and GIS information of land use designations from the National Land Cover Database. AUs addressed in the Pahsimeroi TMDL are summarized in Table 1.

Table 1. Summary of assessment outcomes for assessment units listed in the Category 5, "Impaired Waters", of the Pahsimeroi River Subbasin Assessment and Total Maximum Daily Load: 2013 Addendum and Five-Year Review.

Assessment Units/ Water Body Segment	*Listed Pollutant(s) (in Category 5 unless otherwise noted)*	*New / Updated TMDL Completed*	*Recommended Changes to Idaho's Integrated Report*	*Justification*
ID17060202SL001_05 Pahsimeroi River – Paterson Creek to Mouth	Listed in Category 4a for sediment/siltation; Temperature	Updated	Remain listed in 4a for sediment and temperature	Temperature TMDL updated to Potential Natural Vegetation (PNV), excess of solar load from a lack of existing shade.
ID17060202SL002_02 Pahsimeroi River – Meadow Creek to Patterson Creek (tributaries)	Combined biota/habitat bioassessments; fecal coliform; sediment siltation; temperature.	Yes	Delist for combined biota/habitat bioassessments and fecal coliform; move to a 4a for E. coli, sediment, and temperature	E. coli TMDL based on geometric mean; sediment TMDL completed; based on streambank stability; and PNV temperature TMDLs completed, excess solar load from a lack of shade
ID17060202SL002_04 Pahsimeroi River – Meadow Creek to Patterson Creek	Particle distribution (embeddedness); listed in Category 4a for sediment	No	Delisted for embeddedness; retain in 4a for sediment	No source or pathway nutrients; PNV temperature TMDL completed; excess solar load from a lack of shade
ID17060202SL002_05 Pahsimeroi River – Meadow	Cause unknown (nutrients suspected); temperature; listed	Yes	Delist for cause unknown;	No source or pathway for nutrients; PNV temperature

Assessment Units/ Water Body Segment	*Listed Pollutant(s) (in Category 5 unless otherwise noted)*	*New / Updated TMDL Completed*	*Recommended Changes to Idaho's Integrated Report*	*Justification*
Creek to Patterson Creek	in Category 4a for sediment		move to 4a for sediment	TMDL completed; excess solar load from a lack of existing shade
ID17060202SL003_03 Lawson Creek – confluence of North and South Fork Lawson Creek to Mouth	Combined biota/habitat bioassessments	No	Delist for combined biota/habitat bioassessments; list in 4c	Low flow alteration are sole cause for impairment
ID17060202SL004_02 North Fork Lawson Creek – source to mouth	Combined biota/habitat bioassessments	Yes	Delist for combined biota/habitat bioassessments; list in 4a for sediment	Sediments determined to be impairment; sediment TMDL completed based on streambank stability
ID17060202SL005_02 South Fork Lawson Creek – source to mouth	Combined biota/habitat bioassessments	No	Retain in Category 5	Insufficient data to identify causal pollutant or stressor
ID17060202SL006_02 Meadow Creek – source to mouth	Combined biota/habitat bioassessments; fecal coliform; listed in Category 4c	No	Delist for combined biota/habitat bioassessments and fecal coliform	Listed in Category 4c for low flow alterations; when water present, E. coli below threshold
ID17060202SL007_04 Pahsimeroi River – Fuery Lane (T15S, R22E) to Meadow Creek	Cause unknown (nutrients suspected); listed in Category 4a for sediment and 4c	No	Delist cause unknown; retain in 4a for sediment and 4c	No source or pathway for nutrients; low flow alterations are primary cause for impairment; banks potentially erodible when water present
ID17060202SL008_04 Pahsimeroi River – Big Creek to	Listed Category 4a for sediment	No	Retain in 4a for sediment	From 2001 TMDL

Assessment Units/ Water Body Segment	*Listed Pollutant(s) (in Category 5 unless otherwise noted)*	*New / Updated TMDL Completed*	*Recommended Changes to Idaho's Integrated Report*	*Justification*
Fuery Lane (T15S, R22E)				
ID17060202SL009_02 Grouse Creek source to mouth	Combined biota/habitat bioassessments; fecal coliform; listed in Category 4c	No	Delist for combined biota/habitat bioassessments; retain in 4c	Low flow alteration are sole cause for impairment
ID17060202SL010_03 Pahsimeroi River – Goldburg Creek to Big Creek	Cause unknown (nutrients suspected); listed in Category 4a for sediment	No	Delist for cause unknown; retain in 4a for sediment	No source or pathway for nutrients
ID17060202SL010_04 Pahsimeroi River – Goldburg Creek to Big Creek	Cause unknown (nutrients suspected); listed in Category 4a for sediment and 4c	No	Delist for cause unknown; retain in 4a for sediment and 4c	No source or pathway for nutrients; has low flow alterations
ID17060202SL010_05 Pahsimeroi River – Goldburg Creek to Big Creek	Cause unknown (nutrients suspected); listed in Category 4a for sediment	No	Delist for cause unknown; retain in 4a for sediment	No source or pathway for nutrients
ID17060202SL011_04 Pahsimeroi River – Unnamed Tributary (T12N, R23E, Sec 22) to Goldburg Creek	Cause unknown (nutrients suspected); listed in Category 4a for sediment	No	Delist for cause unknown; list in 4c; retain in 4a for sediment	Low flow alteration are sole cause for impairment; banks potentially erodible when water present; no source or pathway for nutrients
ID17060202SL017_04 Pahsimeroi River – Burnt Creek to Unnamed Tributary (T12N, R23E, Sec 22)	Cause unknown (nutrients suspected); listed in Category 4a for sediment and 4c	No	Delist for cause unknown; retain in 4a for sediment and 4c	Low flow alteration are sole cause for impairment; banks potentially erodible when water present; no source or pathway for nutrients

Assessment Units/ Water Body Segment	*Listed Pollutant(s) (in Category 5 unless otherwise noted)*	*New / Updated TMDL Completed*	*Recommended Changes to Idaho's Integrated Report*	*Justification*
ID17060202SL018_04 Pahsimeroi River – Mahogany Creek to Burnt Creek	Sediment/siltation; temperature	Updated	Retain in 4a for sediment and temperature	From 2001 TMDL; temperature TMDL updated using PNV method
ID17060202SL020_03 Pahsimeroi River – Confluence of Rock Creek and East Fork of Pahsimeroi River to Mahogany Creek	No 2010 impaired listing	Yes	List in 4a for temperature	Identified as shade deficient while calculating adjacent AU temperature/heat loads using PNV method
ID17060202SL022_03 East Fork Pahsimeroi River – source to mouth	Sediment/siltation; temperature	Updated	Retain in 4a for sediment and temperature	From 2001 TMDL; temperature TMDL updated using PNV method
ID17060202SL023_03 Burnt Creek – Long Creek to Mouth	Combined biota/habitat bioassessments	No	Retain in Category 5	Not impaired for sediment or nutrients; has existing habitat; recommend examining for temperature and BURP monitoring
ID17060202SL026_02 Short Creek – source to mouth	Combined biota/habitat bioassessments	Yes	Delist for combined biota/habitat bioassessments; move to a 4a for sediment	Sediment determined to be impairment; sediment TMDL completed based on streambank stability
ID17060202SL029_02 Donkey Creek – source to mouth	Combined biota/habitat bioassessments	No	Delist	Listed in error, based upon non-applicable discharge and BURP score
ID17060202SL030_02 Goldburg Creek – source to Donkey Creek	Fecal coliform	No	Delist for fecal coliform	E. coli geometric mean below threshold; land

Assessment Units/ Water Body Segment	*Listed Pollutant(s) (in Category 5 unless otherwise noted)*	*New / Updated TMDL Completed*	*Recommended Changes to Idaho's Integrated Report*	*Justification*
				use changes include alternate water sources, changes in livestock use patterns, and increased fencing
ID17060202SL031_03 Big Creek – confluence of North and South Fork Big Creeks to mouth	Cause unknown (nutrients suspected); sediment / siltation; listed in 4c	No	Delist for cause unknown; retain in 4c	No source or pathway for nutrients or sediment; low flow alteration are the sole cause for impairment

This implementation plan will provide guidance to the Custer Soil and Water Conservation District and agricultural producers in the subbasin to identify BMPs necessary to meet the requirements of the TMDLs on 303(d) listed streams. The objective of this plan is to reduce the amount of pollutants entering these water bodies from agricultural-related practices. Agricultural pollutant reductions will be achieved by on-farm conservation planning with individual operators and application of BMPs in agricultural critical areas. This plan recommends BMPs needed to meet TMDL targets in the Pahsimeroi subbasin and suggests alternatives for reducing surface and groundwater quality problems from agricultural related activities.

This plan covers the waterbodies given a TMDL in the Pahsimeroi River Subbasin Assessment and Total Maximum Daily Load 2013 Addendum and Five-Year Review (the Addendum) on privately owned agricultural grounds within the Pahsimeroi Subbasin. DEQ has identified 8 assessment units in the Addendum to receive or have an existing TMDL updated. (see Table 2) Three of the eight assessment units are located partially or wholly within privately owned agricultural lands and will be addressed as the focus of this document. (see Table 3)

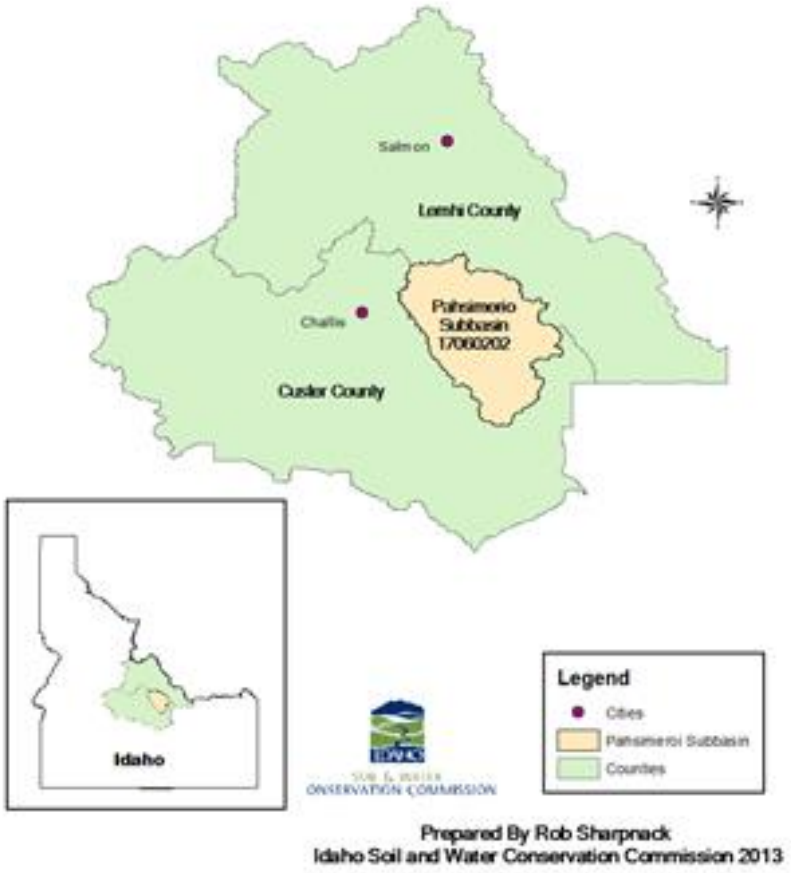
Table 2: Assessment Units for which TMDLs were developed or updated from previous TMDL.

Waterbody	Assessment Unit Number	Pollutant
Pahsimeroi River–Patterson Creek to mouth	ID17060202SL001_05	Temperature–updated
Pahsimeroi River–Meadow Creek to Patterson Creek (tributaries)	ID17060202SL002_02	Temperature, sediment, and bacteria (E. coli)
Pahsimeroi River–Sulphur Creek to Patterson Creek	ID17060202SL002_05	Temperature
North Fork Lawson Creek–Source to Mouth	ID17060202SL004_02	Sediment
Pahsimeroi River–Mahogany Creek to Burnt Creek	ID17060202SL018_04	Temperature–updated
Pahsimeroi River–Confluence of Rock Creek and East Fork Pahsimeroi River to Mahogany Creek	ID17060202SL020_03	Temperature
East Fork Pahsimeroi River–Source to Mouth	ID17060202SL022_03	Temperature–updated
Short Creek–Source to Mouth	ID17060202SL026_02	Sediment

Table 3: Assessment Units for which the waterbody is wholly or partially located on private lands.

Waterbody	Assessment Unit Number	Pollutant
Pahsimeroi River–Patterson Creek to mouth	ID17060202SL001_05	Temperature–updated
Pahsimeroi River–Meadow Creek to Patterson Creek (tributaries) aka Sulphur Creek	ID17060202SL002_02	Temperature, sediment, and bacteria (E. coli)
Pahsimeroi River–Sulphur Creek to Patterson Creek	ID17060202SL002_05	Temperature

Figure 1: Pahsimeroi Subbasin in Idaho



2.0 Background

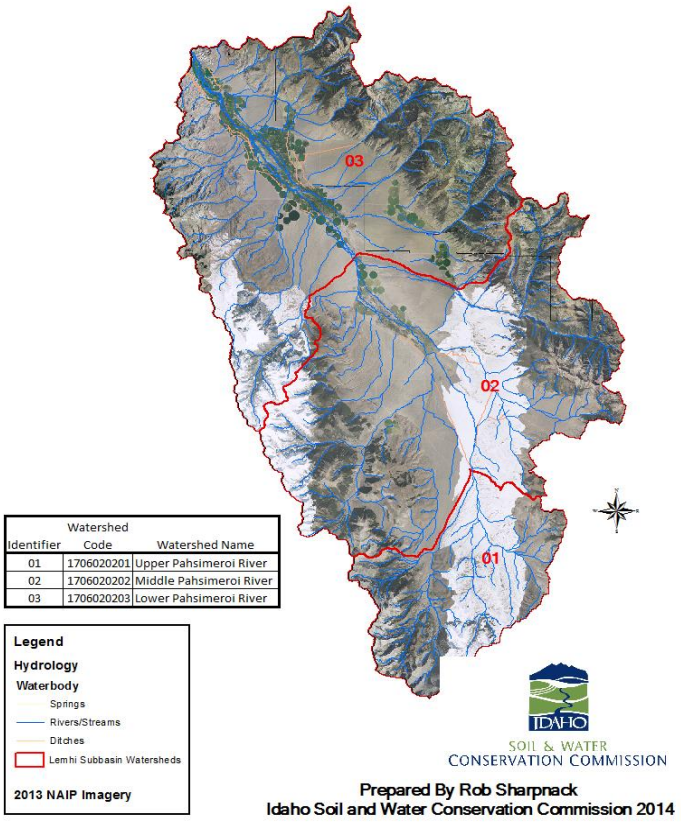
2.1 project setting

The Pahsimeroi Subbasin (17060202) is located in Custer and Lemhi Counties in east central Idaho (see Figure 1). The Pahsimeroi River flows northwest to the Salmon River near the town of Ellis, Idaho. The area of the subbasin is just over 531,000 acres (approximately 831 sq. miles). The subbasin is bordered on the northeast by the Lemhi Range, on the east by the Donkey Hills, and on the southwest by the Lost River Range.

2.2 subwatersheds

The Pahsimeroi Subbasin consists of three watersheds: The Upper Pahsimeroi River watershed 1706020201, The Middle Pahsimeroi River watershed 1706020202, and the Lower Pahsimeroi River watershed 1706020203. (see Figure 2) The Pahsimeroi River Valley consists of arid desert, with a flat broad valley surrounded by mountain peaks. Water percolates through broad, alluvial fans in the upper valley and enters the river through ground water and springs lower in the valley. The Pahsimeroi River flows down the center of this valley and is the focal point for farming and ranching activities in the valley.

Figure 2: Pahsimeroi River Subbasin Watersheds



2.3 land use

The Pahsimeroi subbasin primarily consists of rangeland on both US Forest Service and BLM managed lands making up 71% of the subbasin. Forested lands are the second largest land use at 18% of the total area. Irrigated agriculture occurs on private property on the valley floor while livestock grazing occurs throughout much of the rangeland areas on both private and public lands. The primary economic activity in the subbasin is agriculture, predominately cattle and hay. Some small grains are also produced in the valley. Irrigated farmland (both hay and grain) and pastureland make up only 10% of the valley low-lying areas.

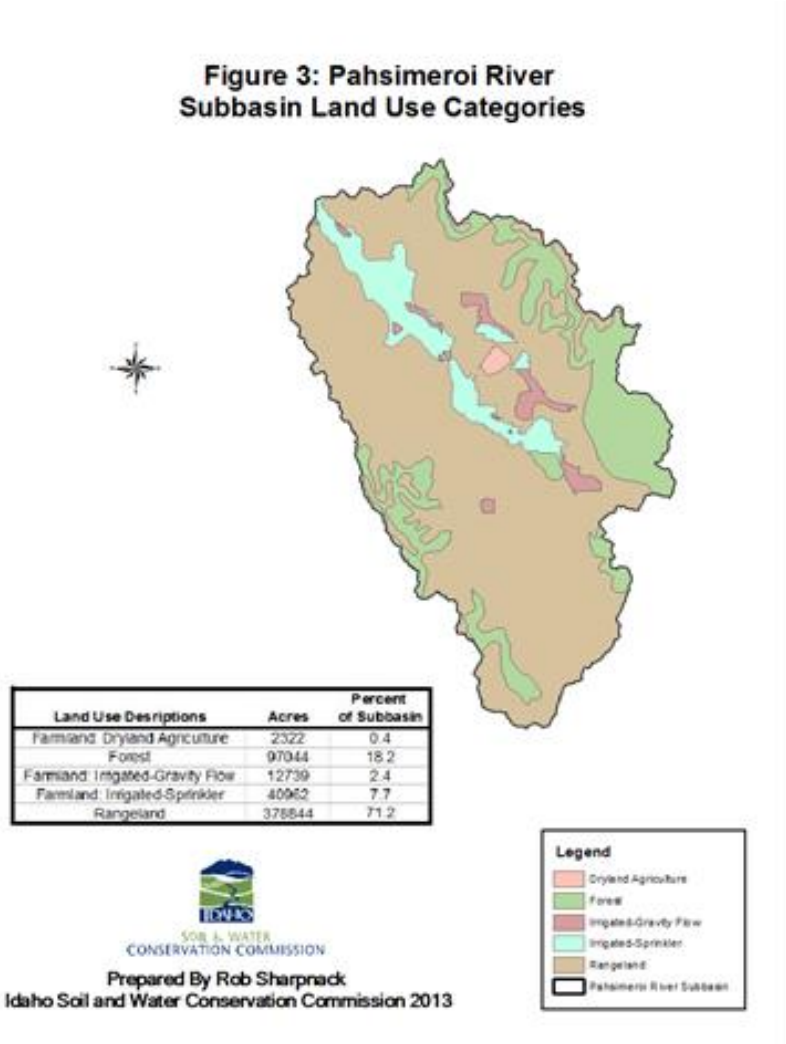


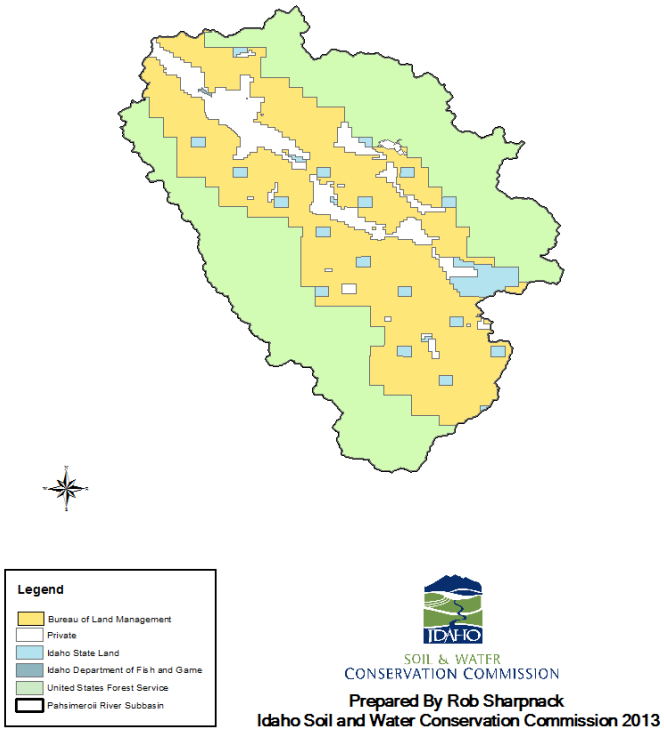
Table 4: Land use in the Pahsimeroi River subbasin.

Land Use Category	*Acres*	*% of Subbasin*
Farmland: Dryland Agriculture	2,322	0.4
Forest	97,044	18.2
Farmland: Irrigated - Gravity Flow	12,739	2.4
Farmland: Irrigated – Sprinkler	40,962	7.7
Rangeland	378,844	71.2
TOTAL:	531,911	100%

2.4 land management

Only 8.6% of this subbasin are privately owned lands. The majority of the subbasin consists of federally owned and controlled lands. Federal land management in the subbasin is controlled by the United State Department of Interior - Bureau of Land Management (BLM) and the United States Forest Service (USFS). Dispersed throughout BLM lands are sections of Idaho Department of Lands, including one large area in the Goldberg Creek Drainage. The upper elevations of this subbasin on both sides of the valley is USFS Salmon-Challis National Forest.

Figure 4: Pahsimeroi River Subbasin Land Management



2.5 conservation accomplishments

The USDA Natural Resource Conservation Service (NRCS) is one of the primary agencies involved with developing and implementing BMPs in the Pahsimeroi subbasin on privately owned lands. The NRCS has been very active in the subbasin installing conservation measures to help man and the environment. Appendix A has summary tables of best management practices installed between 2004 and 2016 in this subbasin. Accomplishments are organized by watershed.

Conservation projects are not specifically identified by individual involvement in this document in order to protect the landowners right of privacy under Farm Bill Section 1619.

Table 5: Completed agricultural BMPs in the Pahsimeroi subbasin by watershed by the CSWCD and partners 2008 - 2018.

Year / Watershed	BMP	Amount	Units	Partners
2008				
1706020203	Irrigation diversion consolidations: Patterson Creek/Pahsimeroi (P7.5 and PBSC 3); Water Conservation and Fish Passage Enhancement			BPA, PCSRF, CSWCD
2009				
1706020203	Riparian Fencing	4.5	miles	BPA, PCSRF
1706020203	Irrigation Diversion Improvements (P9); Off-site stock water improvements	18	miles	BPA, PCSRF, NRCS, CSWCD
1704020203	ID Feedlot and grant improvements			WQPA/ISWCC
2010				
1706020203	Removed and Rehab Feedlot: property purchased and feedlot removed and revegetated	23	acres	IDFG, TNC, CSWCD
1706020203	Water Conservation Project: irrigate new seedlings			
1706020203	Passage barrier culverts were removed and replaced with bottomless arch culverts on Muddy Springs	2	Barriers	USBR, CSWCD
1706020203	Riparian Fencing	8000	Feet	NRCS, CSWCD
2011				
1706020203	Installed bridges on Hooper Lane over the Pahsimeroi, Patterson/Big Springs Creek, Little Spring Creek and Mulvaney.	4	Bridges	BPA, USBR, CSWCD
2012				
1706020203	Sulphur Creek Bridge and culvert removal: fish passage	1	Bridge	CC, USBR, CSWCD
1706020203	PBSC #1 Water Conservation: 5 cfs flow	5	cfs	

Year / Watershed	BMP	Amount	Units	Partners
	enhancement Patterson / Big Springs			
1706020203	PBSC #9 Water Conservation and Diversion Removal: 7 cfs flow enhancement Patterson/Big Springs Creek and passage barrier removal	7	cfs	BPA, CSWCD, NRCS, PCSRF
1706020203	Riparian Fencing on Sulphur Creek: Increase flow and spawning habitat by approx. 8 miles	2	Miles	BPA, CSWCD, IDF&G, PCSRF
2013				
1706020203	Sulphur Creek Pipeline: Gravity Pipeline, Stock Water, Barrier Removal, Fish Screen	1	each	BPA,CSWCD, NRCS, IDF&G
2014				
1706020203	Sulphur Creek Bridge: Farm Culvert removed and bridge installed	1	each	BPA, USBR, CSWCD
1706020203	P-13 Water Conservation Project: Installation of new POD and Fish Screen; 12 cfs savings (combined from Sulphur Creek/PBSC/Pahsimeroi)	1	each	BPA, NRCS, IDF&G, CSWCD
2015				
1706020203	P-16 diversion: Improve Irrigation Diversion passage barrier; gravity pipeline, stock water, riparian fencing, conserve 15 cfs	1 1	each mile	BPA, NRCS, IDF&G, CSWCD
1706020203	P-13 diversion removal: Reconnect historic channel to Pahsimeroi River; remove diversion, close long leaky ditch, consolidate three ditches into one in-stream pump station	2	miles	BPA, NRCS, IDF&G, CSWCD, USBR
2016				
1706020203	Furey Lane Reconnect:	2	Barriers removed	BPA, NRCS, IDF&G, CSWCD

Year / Watershed	BMP	Amount	Units	Partners
	Reconnect upper reach of Pahsimeroi River; Gravity Pipeline/Fish Screen- Passage barrier			
1706020202	2 Bridges installed: Goldburg Creek, Spring Creek near McCoy Lane; fish passage improvement	2	Bridges	CC, BPA, USBR, CSWCD
1706020203	Feedlot Operation: Removed CAFO / Riparian Protection; Fencing and Stock water	0.5	Mile	BPA, USBR, CSWCD
2017				
1706020203	Bridge Installed: Bridge replaces instream vehicle crossing in Pahsimeroi	1 0.5	bridge miles	BPA, CSWCD
2018				
1706020203	Mulvaney Ditch: Installed water control structure; water savings	5	cfs	BPA, USBR, CSWCD
Notes: Custer Soil and Water Conservations District (CSWCD), Bonneville Power Authority (BPA), Pacific Coast Salmon Recovery Fund (PCSRF), USDA Natural Resource Conservation Service (NRCS), Idaho Department of Fish and Game (IDF&G), The Nature Conservancy (TNC), United States Bureau of Reclamation (USBR), Custer County (CC)				

Picture: Project on Sulphur Creek 2019

Source: Courtesy of the Custer SWCD

In the fall 2016 the Custer SWCD and partners were able install fencing on both sides of Sulphur Creek with a 50-foot setback from the stream. In 2019 Beaverdam surrogates were installed by IDF&G, and a conservation easement is now in place on the site.

3.0 water quality problems

3.1 beneficial use status

Idaho water quality standards require that beneficial uses of all water bodies will be protected. Beneficial uses can include existing uses, designated uses, and presumed existing uses. Designated uses are uses officially recognized by the state. In cases where designated uses have not been established by the state for a given water body, DEQ has established the presumed existing uses of supporting cold water aquatic life and either primary or secondary contact recreation. Beneficial uses for water bodies on the 303(d) list in the Pahsimeroi Subbasin (ID17060202) are listed below in Table 6.

Table 6: Beneficial Uses for the Category 5 listed stream segments in the Pahsimeroi River Subbasin Assessment and Total Maximum Daily Load 2013 Addendum and Five-Year Review.

Water Body	*Boundaries*	*Assessment Unit ID#*	*Beneficial Uses*
Pahsimeroi River	Meadow Creek to Paterson Creek (Tributaries)	ID17060202SL002_02	CW, SS, PCR, DWS
Pahsimeroi River	Meadow Creek to Paterson Creek	ID17060202SL002_04	CW, SS, PCR, DWS
		ID17060202SL002_05	

Water Body	*Boundaries*	*Assessment Unit ID#*	*Beneficial Uses*
Lawson Creek	Confluence of North and South Fork Lawson Creek to Mouth	ID17060202SL003_03	CW, SCR
North Fork Lawson Creek	Source to Mouth	ID17060202SL004_02	CW, SCR
South Fork Lawson Creek	Source to Mouth	ID17060202SL005_02	CW, SCR
Meadow Creek	Source to Mouth	ID17060202SL006_02	CW, SCR
Pahsimeroi River	Fuery Lane Road (T15S, R22E) to Meadow Creek	ID17060202SL007_04	CW, SS, PCR, DWS
Grouse Creek	Source to Mouth	ID17060202SL009_02	CW, SCR
Pahsimeroi River	Goldberg Creek to Big Creek	ID17060202SL010_03	CW, SS, PCR, DWS
		ID17060202SL010_04	
		ID17060202SL010_05	
Pahsimeroi River	Unnamed tributary (T12N, R23E, Sec. 22) to Goldberg Creek	ID17060202SL011_04	CW, SS, PCR, DWS
Pahsimeroi River	Burnt Creek to unnamed tributary (T12N, R23E, Sec. 22)	ID17060202SL017_04	CW, SS, PCR, DWS
Burnt Creek	Long Creek to Mouth	ID17060202SL023_03	CW, SCR
Short Creek	Source to Mouth	ID17060202SL026_02	CW, SCR
Donkey Creek	Source to Mouth	ID17060202SL026_02	CW, SCR
Goldberg Creek	Source to Donkey Creek	ID17060202SL030_02	CW, SCR
Big Creek	Confluence of North and South Fork Big Creeks to Mouth	ID17060202SL031_03	CW, SCR
Beneficial Uses Key: CWAL = cold water aquatic life; SS = salmonid spawning; PCR = primary contact recreation; SCR = secondary contact recreation; SRW = special resource water			

“Pahsimeroi River Subbasin is semiarid with porous and permeable alluvial fans below canyon mouths. The primary land use is grazing, with indication of cattle use in the area. Additionally, this region is the territory of a large elk herd, as indicated by scat and carcasses and visually confirmed by DEQ employees in the Trail Creek drainage. The E. coli allocations will account for the heavy grazing pressure by wildlife, as these streams are perennial and subsequently serve as a watering area for all nearby wildlife.” IDEQ 2013

Table 7: AUs with developed TMDLs for private lands: identified pollutants and required reductions.

Water Body	TMDL Pollutants	Load Allocation	Required Reduction to meet TMDL	Agricultural Concerns
Pahsimeroi River – Meadow Creek to Patterson Creek (tributaries) ID17060101SL002_02	Bacteria (E. coli)	126 (colonies per 100 milliliter sample)	27%	Grazing and Wildlife
Pahsimeroi River – Meadow Creek to Patterson Creek (tributaries) Sulphur Creek ID17060101SL002_02	Sediment	165 Tons/Year	73% for AU	Streambank erosion
Pahsimeroi River–Patterson Creek to mouth (ID17060202SL001_05)	Temperature	980,000 (kWh/day)	18% (Avg. Lack of Shade -16%)	
Pahsimeroi River–Meadow Creek to Patterson Creek (Sulphur Creek) (ID17060202SL002_02)	Temperature	160,000 (kWh/day)	21% (Avg. Lack of Shade -15%)	
Pahsimeroi River–Sulphur Creek to Patterson Creek (ID17060202SL002_05)	Temperature	160,000 (kWh/day)	15% (Avg. Lack of Shade -21%)	

Table 8: Assessment Unit id17060202SL002_02 Sulphur Creek Private Land Shade Evaluation and Targets.

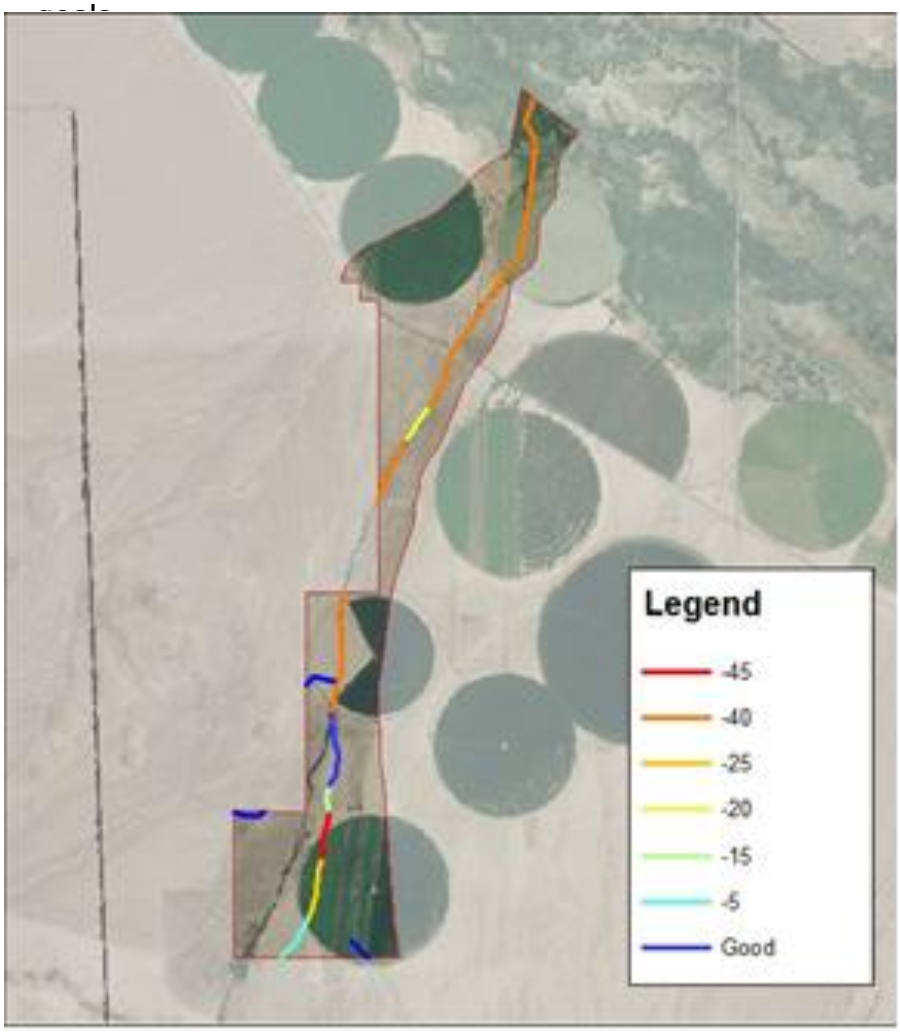
Existing % Shade	Target / Goal (%)	Adjustment (%)	Segment Length (m)	Segment Length (mi)
99	0	None Needed	653	0.4
70	45	None Needed	181	0.1
50	45	None Needed	248	0.2
40	45	-5	274	0.2
30	45	-15	145	0.1
20	40	-20	216	0.1
20	45	-25	342	0.2
0	40	-40	2897	1.8
0	45	-45	258	0.2
		Total	5,216	3.2

of Sulphur Creek flows for 3.2 miles through private lands. This AU has received an updated TMDL for temperature in the Pahsimeroi River TMDL and Five-Year Review.

Table 8 shows the results of DEQ's temperature assessment on AU SL002_02.

Figure 6 has the results of DEQ's assessment mapped over the intersection of private lands and the subwatershed for SL002_02. The Legend of Figure 6 shows the % adjustment from Table 8 to meet the shade target for this assessment unit.

Figure 6: AU SL002_02 temperature



(Note: One section of the AU unit does not lie within this subwatershed. Approximately 140 meters of this assessment unit lies in a different subwatershed. This other piece of the AU that is on private land meets the recommended shade target set by DEQ and therefore will not be addressed as part of this plan.)

The intersecting area of private land and sub-watershed for this AU is approximately 606.6 acres. This area should be the priority area for conservation efforts for addressing the temperature issue on AU SL002_02.

Assessment Unit ID ID17060202SL001_05 of the Pahsimeroi River flows for 9.0 miles through private lands. This AU has received an updated TMDL for temperature in the Pahsimeroi River TMDL and Five-Year Review.

Table 9: Assessment Unit ID17060202SL001_05 Pahsimeroi River Private Land Shade Evaluation and Targets.

Existing % Shade	Target / Goal (%)	Adjustment (%)	Segment Length (m)	Segment Length (mi)
20	22	-2	503	0.3
10	18	-8	122	0.1
10	22	-12	3,319	2.1
0	18	-18	3,901	2.4
0	22	-22	6,816	4.2
		Total	14,661	9.0

Figure 7: AU SL001_05 temperature

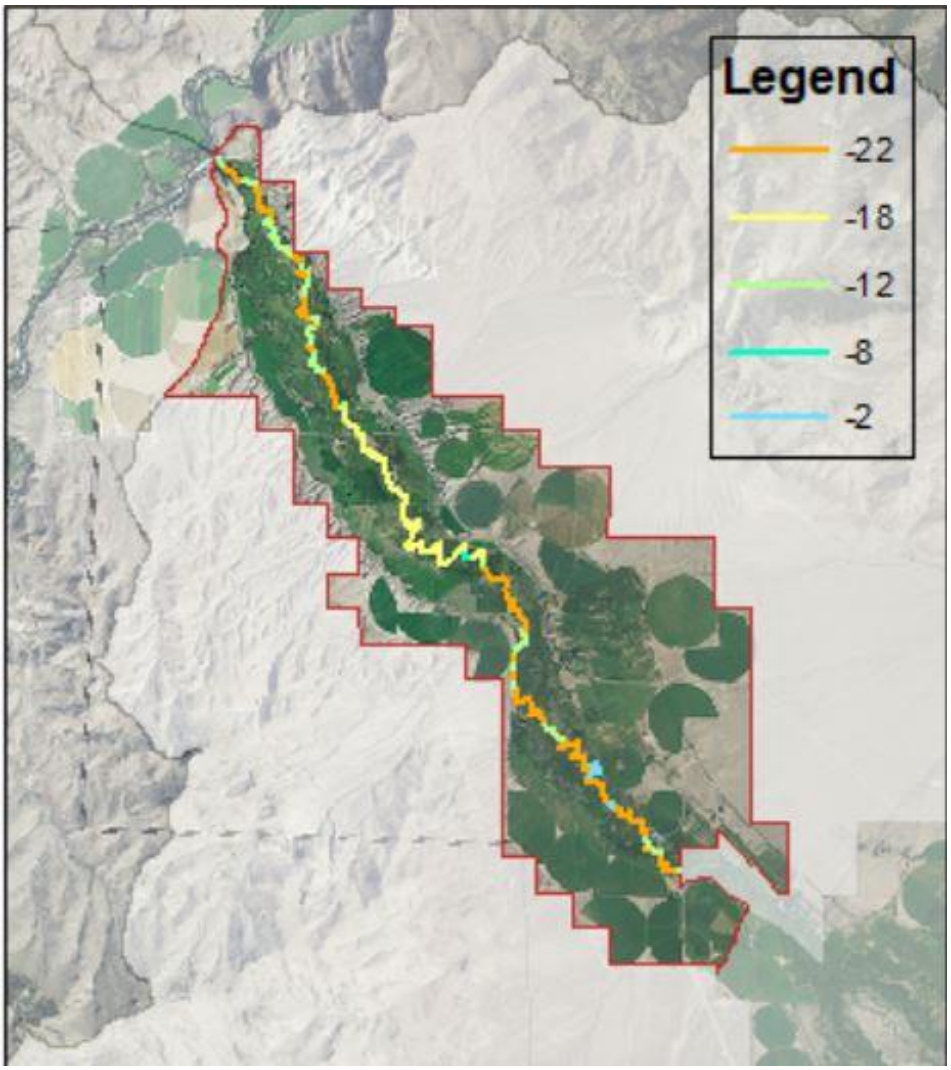


Table 9 shows the results of DEQ's temperature assessment on AU SL001_05.

Figure 7 has the results of DEQ's assessment mapped over the intersection of private lands and the subwatershed for SL001_05. The Legend of Figure 7 shows the % adjustment from Table 9 to meet the shade target for this assessment unit.

The intersecting area of private land and sub-watershed for AU L001_05 is approximately 5,847.3 acres. This area should be the priority area for conservation efforts for addressing the temperature issue on AU SL001_05.

Assessment Unit ID ID17060202SL002_05 of the Pahsimeroi River flows for 9.4 miles through private lands. This AU has received an updated TMDL for temperature in the Pahsimeroi River TMDL and Five-Year Review.

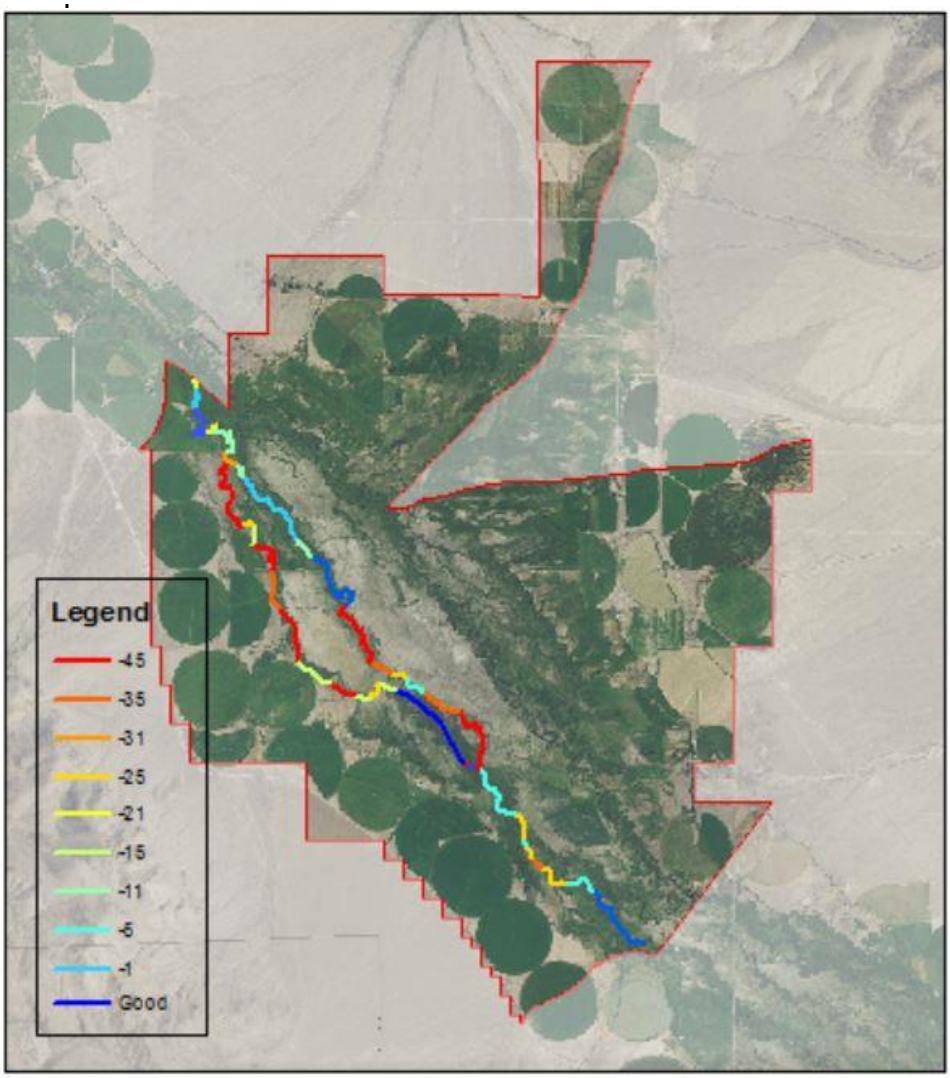
Table 10: Assessment Unit ID17060202SL002_05 Pahsimeroi River Private Land Shade Evaluation and Targets.

Existing % Shade	Target / Goal (%)	Adjustment (%)	Segment Length (m)	Segment Length (mi)
70	45	None Needed	1,073	0.7
40	31	None Needed	507	0.3
40	35	None Needed	892	0.6
50	45	None Needed	1,037	0.6
30	31	-1	1,185	0.7
30	35	-5	1,225	0.8
40	45	-5	231	0.1
20	31	-11	924	0.6
30	45	-15	992	0.6
10	31	-21	224	0.1
10	35	-25	805	0.5
20	45	-25	569	0.4
0	31	-31	231	0.1
0	35	-35	159	0.1
10	45	-35	1,132	0.7
0	45	-45	4,096	2.5
		Total	15,282	9.4

Table 10 shows the results of DEQ's temperature assessment on AU SL002_05. Figure 8 has the results of DEQ's assessment mapped over the intersection of private lands and the subwatershed for SL002_05. The Legend of Figure 8 shows the % adjustment from Table 10 to meet the shade target for this assessment unit.

The intersecting area of private land and sub-watershed for AU L002_05 is approximately 8,404.9 acres. This area should be the priority area for conservation efforts for addressing the temperature issue on AU SL002_05.

Figure 8: AU SL002_05 temperature



3.2 water quality monitoring

Idaho Department of Environmental Quality (DEQ) is responsible for assuring that the state's surface, ground, and drinking water resources meet state water quality standards[1]. Part of their duties to meet this responsibility is to monitor and assess the levels of pollutants in surface waters such as rivers and streams and report on surface water quality. DEQ uses water quality standards to know if it is adequately protecting Idaho's water. A water quality standard defines the goals that have been set for a water body by designating the uses for the water, sets criteria necessary to protect those uses, and prevents degradation of water quality[4]. Beneficial uses are the desired uses that water bodies should support[4]. Beneficial uses include water supply (domestic, agricultural, and industrial); recreation (such as swimming, boating, and fishing); and aquatic life. Each beneficial use has a unique set of water quality requirements or

criteria that must be met for the use to be supported. Most water bodies have multiple beneficial uses. A water body is considered impaired when it does not meet the water quality criteria needed to support one or more of its beneficial uses[4].

DEQ uses a combination of biological monitoring and habitat assessment to determine the quality of Idaho's waters. This combined monitoring approach is done by the DEQ's Beneficial Use Reconnaissance Program (BURP). Each summer, BURP technicians go out and collects information on multiple sites on a region wide basis. BURP data is evaluated against Idaho's water quality standards to determine if the water body is meeting standards and supporting beneficial uses[5].

When water bodies don't meet water quality standards, DEQ develops total maximum daily loads, or TMDLs, to improve water quality. A TMDL establishes the maximum amount of a pollutant that a water body can receive and still meet water quality standards[4].

A combination of BURP data and water quality study data collected as part of a subbasin assessment are used to develop the TMDL. Other data collected by or in cooperation with other entities can also be used for TMDL development, if it meets DEQ's data collection quality control protocols.

3.3 threatened and endangered species

Table 11. Threatened and Endangered species in the Pahsimeroi River Subbasin, Which Includes Parts of Lemhi and Custer Counties.

Species	Status	Habitat Affected by Water Quality or Distribution
Yellow Billed Cuckoo (Coccyzus americanus)	Threatened species	No
Canada Lynx (Lynx canadensis)	Threatened species	No
Bull Trout (Salvelinus confluentus)	Threatened species / Designated Critical Habitat	Yes
Spring, Summer, Fall Chinook Salmon (Oncorhynchus tshawtscha)	Threatened species	Yes
Steelhead (Oncorhynchus mykiss)	Threatened species	Yes

There are four known threatened or endangered species in the Pahsimeroi River subbasin. They include Bull Trout (Salvelinus confluentus), Steelhead (Oncorhyncus mykiss), Chinook Salmon (Oncorhyncus tshawytscha), and the Canada Lynx (Lynx canadensis). Listed or threatened species may be affected by many factors. For the fish some of which are loss of spawning habitat due to excessive fine sediment. This fine sediment can abrade and or suffocate the eggs, trapping fry in the gravels. Dewatering of tributary streams isolates fish populations and fry from the main stem, which provides critical summer and

winter habitat needed for sustainable fish populations. Increased water temperature caused by natural drought or dewatering of streams reduces habitat viability. Loss of vegetation along streambank also affects stream temperature and habitat viability both directly and indirectly for fish. The Pahsimeroi River has a unique population of Chinook salmon that is a summer run Chinook salmon.

There are three federally listed aquatic plants and animals that will be influenced by actions suggested in this TMDL implementation plan. Agricultural conservation planning will be coordinated with other species recovery and protection efforts in the subbasin to improve listed species' habitats and address any potential impacts from BMP implementation. Improvements in water quality, achieved from BMPs installed on agricultural lands, are not expected to adversely affect these listed species and should improve or enhance their habitat.

3.4 animal feeding operations and dairies

As of 2005, new and existing operations must have Nutrient Management Plans (NMP) in place. Cattle in winter feeding or grazing areas or pastures—those areas that are not confined—are not regulated under the AFO/CAFO regulations. Attempts are made to provide technical assistance, and improvements to winter feeding areas, or even relocating some operations away from live water sources.

The Custer Soil and Water Conservation has worked during the past 15 years to address water quality concerns in the subbasin by removing or working to address issues from "numerous" feedlot type operations in order to address water quality concerns. (Custer SWCD 2017)

4.0 Treatment

4.1 critical areas

Areas of agricultural lands that contribute excessive pollutants to water bodies are defined as "Critical Areas" for BMP implementation. Critical areas are prioritized for treatment based on their location to a water body of concern of concern and the potential for pollutant transport and delivery to the receiving water body. Accordingly, the following is a general rule that applies to the prioritization of critical acres within in each watershed.

Agricultural critical areas with the Pahsimeroi River subbasin include:

- Surface irrigated cropland and pastureland
- Unstable and erosive stream banks
- Areas of severe gully erosion
- Areas where livestock have unlimited or direct access to streams
- Animal Feed Operations (AFOs) and Confined Animal Feeding Operations (CAFOs) impacting surface or irrigation waters

In addition to the above, consideration is given to proximity to higher pollutant reduction goals and willingness of landowners to implement BMPs. Each operation and location is unique, and individual farm planning is needed to optimized BMP implementation and load reductions.

4.2 treatment units (TU)

The following Treatment Units (TUs) describe areas in the Pahsimeroi subbasin with similar land uses, soils, productivity, resource concerns, and treatment needs. These TUs not only provide a method for delineating and describing land use but are also used to evaluate land use impacts to water quality and in the formulation of alternatives for solving water quality problems. BMPs to improve water quality are suggested for critical areas within each treatment unit.

- Riparian Areas
- Pasture
- Irrigated Cropland or Hayland/Pasture
- Rangeland
- Livestock Feeding Operations

4.3 recommended bmps

BMPs appropriate for the reduction of agricultural impacts to water quality in the Pahsimeroi subbasin subwatersheds are listed below in following tables. Individual conservation planning for willing landowners will determine the most appropriate BMPs to install on a case by case basis. The information included in Table X provides an estimate only of the BMPs recommended for critical acres in the subbasin and their approximate costs. A more precise estimate of quantities of each BMP recommended to install will be determined at the time of conservation planning for a particular landowner.

Tables 12 through 15 provide types of voluntary BMPs that are available to producers with the subbasin that will improve site specific water quality concerns with proper design, installation, and/or implementation based applicable NRCS standards and specifications, as appropriate. Only those combination of BMPs necessary for water quality improvement that are also feasible to the participant will be voluntarily implemented.

Agricultural conservation and soil erosion practices are designed to control, reduce, or prevent soil erosion and sedimentation on agricultural land uses are listed in Tables 12 - 15 below. Recommended BMPs are selected to reduce irrigation-induced and streambank erosion, contain and filter sediment, nutrients, and bacteria from irrigation wastewater, contain and properly dispose of animal wastes, and reduce leaching of nutrients and pesticides.

Temperature

Typically, the longer a body of water is exposed to high ambient temperatures, such as >90º F, the more likely that the water body is going to warm up as it flows downstream. Additional inflows from tributaries and natural springs may help maintain lower water temperatures, but if those inflows are warmer than the receiving water, temperatures will increase. Grazing management in riparian areas can help maintain water temperatures but cannot lower them. Ambient temperatures typically drive water temperatures, even more so than does direct infrared solar radiation. Reflected radiation is important, as it can increase air temperatures, especially within narrow canyon areas.

Planting and/or maintaining vegetation, especially woody species, seem to be the most successful method for decreasing water temperatures. Again, it's actually only about reducing the "increase of temperature". Woody species are generally thought of as the only vegetative species tall enough to cast shadows over waters, to reduce infiltration infrared. They can do that, as well as reduce the adjacent microclimate temperatures, helping reduce ambient temperatures surrounding the water body. In very low gradient streams, with high water tables, woody species may not be appropriate. Herbaceous riparian species, such as sedge, rush, and other like varieties, can tolerate and thrive on saturated or nearly saturated soils. If this vegetation can be increased where stream channels are dish-shaped, channels can narrow, converting to more trapezoid-shaped channels with undercut banks. These channel shapes generally coincide with deeper water depths, narrower bankfull widths, and greater contact to subsurface ground water flow, which is cooler than ambient air temperatures. Depending on the stream type (gradient, soils, existing vegetation, or water availability), reducing the increase of stream water temperature can be achieved through woody or non-woody vegetation. Channel shape is also very important, which follows with the change in increase of riparian vegetation. The less surface exposure air and a greater contact to soil water, regardless of sunlight penetration (infrared to approx. 0.5 cm), temperatures are not as likely to increase dramatically in summer months. Regardless of the TMDL objectives, these rules apply to riparian areas.

Bacteria

Where streams are designated as Primary or Secondary Contact Recreation (PCR and SCR) and have load allocations under a TMDL for bacteria, reducing a host's access to the stream may help reduce the chance for in-stream exceedances. However, overland flows, especially within irrigated pasture systems, need to be addressed as well. If irrigation occurs while grazing is taking place, the chance for bacteria movement to the stream increases. Therefore, grazing and irrigation schedules should be coordinated. If a stream has no flow at certain locations for a period of time, then PCR, SCR, and other designated uses are not supported. Grazing management and other land uses may then be adjusted to occur within that period of time to reduce the chance of standards being exceeded. Typically, though, grazing management is not as dependent on stream flows as on forage availability. Regardless, planners must be cognizant of such flow characteristics and actual PCR and SCR uses of the stream when planning with

landowners to help meet TMDL requirements. Acknowledging other non-agricultural bacterial sources during planning, such as concentrated wildlife sources, is important.

In summary, to reduce the risk of bacterial contamination to a stream, landowners must reduce the chance for direct or indirect bacteria entry to the stream. This will generally include fencing, which may not be required for streambank stability. If timing and/or control of grazing and pasture irrigation can be accomplished within the critical period for PCR and SCR, then TMDL objectives can be met. The management and conservation measures necessary to meet bacterial TMDLs seem to be the most difficult of all pollutant TMDLs in the following situations:

- where land uses adjacent to streams need radical adjustment
- where livestock grazing and confinement is removed from the stream (which may simply mean capturing all storm and irrigation runoff prior to entering the stream)

Many times, perception of potential contamination may be more important than actual risk of contamination. Planners and landowners should incorporate social aspects into conservation plans.

Sediment – Total suspended solids and substrates

Many streams' sediment-related problems, originating from stream bank erosion caused by grazing activities, could be improved by simply adjusting time and duration of grazing. Adjustments that allow for existing riparian vegetation to increase in quantity and improve in vigor, increased stream bank stability generally follows. If soils are adequate to support multiple species for vegetation, along with adequate water supply, then improvements can be dramatic with grazing adjustments. Willows, alder, cottonwood and other appropriate riparian species should be managed to increase numbers and root densities along the stream channels, which in turn will generally convert a dish-shaped channel to a trapezoid-shaped channel, which increases the flood plain as well. Increasing woody species within the floodplain also increases roughness to dissipate storm flows. In low gradient streams, such as below 1%, water tables may be higher and woody species may not be as tolerable to saturated soils. Other herbaceous wetland plants, such as sedge and rushes, may be all that is necessary for adequate stream bank stability.

Total Suspended Solids (TSS) and substrate TMDL objectives may not fully coincide. Agricultural related stream bank damage and erosion can contribute to both TSS and substrate problems, but not necessarily at the same time or for similar lengths of time. High percentages of fine material, causing an increase of embedded gravels, may not only be sourced back to stream bank erosions but cropland, pasture, and ditch erosion. Typically, in surface-irrigated cropland, TSS exceedance is caused by in-field erosion and sedimentation. In riparian pasture areas where little commercial cropland exists, irrigated pasture waste runoff ditches may also be contributing to TSS and substrate problems. The timing of irrigation and pasture conditions, however, needs to be compared to in-stream TSS data to make that conclusion. Channel conditions and

activities, such as stream gradient, channelization, and beaver activity will also cause pockets of increased percent fines and embeddedness. During the conservation planning process, pasture-by-pasture inventory and planning will generally identify actual and potential sources of substrate and TSS problems. The landowner will appropriate conservation measures associated to each pasture and associated riparian area.

Numerous techniques are available to the landowner to improve stream bank and pasture conditions, but each pasture and riparian area is generally managed differently and requires individual attention. Fencing, grazing management, water facilities, water gaps, protein supplements, pasture irrigation water management, erosion controls, and other practices should all be considered during the development of an individual Conservation Plan. BMPs include, but are not limited to, the following:

Table 12: Recommended BMPs for elevated water temperature in riparian areas.

Recommended BMPs: Water Quality Degradation - Elevated Water Temperature - Riparian	NRCS Code
Watering Facility	614
Tree/Shrub Establishment	612
Structure for Water Control	587
Streambank and Shoreline Protection	580
Stream Habitat Improvement and Management	395
Riparian Herbaceous Cover	390
Restoration and Management of Rare or Declining Habitats	643
Prescribed Grazing	528
Channel Bed Stabilization	584
Aquatic Organism Passage	396
Access Control	472

Table 13: Recommended BMPs for elevated water temperature for rangeland areas.

Recommended BMPs: Water Quality Degradation – Elevated Water Temperature - Rangeland	NRCS Code
Watering Facility	614
Water Well	642
Pumping Plant	533
Spring Development	574
Pipeline	516
Range Planting	550
Prescribed Grazing	528A
Fence	382
Brush Management	314
Pest Management	595
Heavy Use Area Protection	561

Table 14: Recommended BMPs for elevated water temperatures for cropland and hayland.

Recommended BMPs: Water Quality Degradation – Elevated Water Temperature - Surface Irrigated Cropland and Hayland	NRCS Code
Conservation Crop Rotation	328
Irrigation System, Sprinkler	442
Irrigation System, Surface and Subsurface	443
Irrigation Water Management	449
Nutrient Management	590
Upland Wildlife Management	645
Pest Management	595
Residue Management, Mulch Till	329B
Residue Management, Seasonal	344
Filter Strips	393

Table 15: Recommended BMPS for elevated water temperature for irrigated pasture.

Recommended BMPs: Water Quality Degradation – Elevated Water Temperature - Irrigated Pasture	NRCS Code
Fencing	382
Heavy Use Area Protection	561
Filter Strips	393
Spring Water Development	574
Irrigations Systems	442, 447
Pasture and Hayland Planting	512
Livestock Water Facility	614
Irrigation Water Management	449
Stream Channel Stabilization	584
Prescribed Grazing System	528A
Pest Management	595

The Idaho Legislature passed the Beef Cattle Environmental Control Act in the spring of 2000. Governor Kempthorne then signed this Act in April 2000. ISDA then went into a rule making process and on September 18, 2000 the "Rules of the Department of Agriculture Governing Beef Cattle Animal Feeding Operations" (IDAPA 02.04.15) became effective. Subsequent to the rules becoming effective, a Memorandum of Understanding (MOU) was written and signed by ISDA, IDEQ, ICA and EPA in January 2001. The MOU gave ISDA authority to regulate beef cattle feeding operations that fall under the definitions of IDAPA 02.04.15 not located on Indian Reservations (ISDA 2000).

5.0 Treatment Priority

The TMDL implementation planning process included assessing impacts to water quality in the Pahsimeroi subbasin from agricultural lands on 303(d) listed streams and recommending a priority for installing BMPs to meet water quality objectives stated in the Pahsimeroi River Subbasin Assessment and Total Maximum Daily Load 2013 Addendum and Five-Year Review. Data from water quality monitoring and field inventory and evaluations were used to identify critical agricultural areas affecting water quality and set priorities for treatment.

5.1 recommended priorities for BMP implementation

To implement the TMDL, land managers should work to attain target shade levels for individual stream reaches with priority given to areas with the greatest discrepancies between existing and target shade levels, described in this plan as “lack of shade”. Because of the analysis methodology used, AUs with lack of shade less than 10% can be considered in good condition and should be treated with low priority (DEQ, 2012).

Those AUs with lack of shade between 10% and 30% have real shade deficiencies, and those above 30% (red) have serious problems. These stream segments should be the highest priority for treatment.

In addition to the above, consideration is given to proximity to higher pollutant reduction goals, and willingness of landowner to implement the BMPs. Each operation and location is unique, and individual on farm planning is needed to optimize BMP implementation and load reductions

5.2 treatment alternatives

All BMPs are voluntary. All BMPs need to be site specific according to the conservation needs of the location and the land management goals of the cooperating landowner. Innovative approaches to conservation could include:

- Beaver Mimicry Structures
- Flow Enhancement
- Ground water well sources
- Reconnecting streams to their receiving waters
- Water Right Diversion Consolidation and Relocation

Because of the complexity of land use in this large watershed, ongoing efforts from the four Soil Conservation Districts will be critical in providing direction and guidance to local landowners who strive to optimize implementation of BMPs that will achieve the goals of the TMDL. Implementation of BMPs at this large scale may take up to 20 years to accomplish. On-site monitoring and BMP effectiveness evaluations will be performed as part of the feedback loop, to assure agricultural-related activities are achieving the desired results

6.0 Funding

Financial and technical assistance for installation of BMPs is needed to ensure success of this implementation plan. The Custer Soil and Water Conservation District will actively pursue multiple potential funding sources to implement water quality improvements on private agricultural and grazing lands. Many of these programs can be used in combination with each other to implement BMPs.

These sources include (but are not limited to :

CWA 319 –These are Environmental Protection Agency funds allocated to the Nez Perce Tribe and the State of Idaho. The Idaho Department of Environmental Quality (DEQ) administers the Clean Water Act §319 Non-point Source Management Program for areas outside the Nez Perce Reservation. Funds focus on projects to improve water quality and are usually related to the TMDL process. The Nez Perce tribe has CWA 319 funds available for projects on Tribal lands on a competitive basis. Source: DEQ *http://www.deq.idaho.gov/water/prog_issues/surface_water/nonpoint.cfm#management*

Resource Conservation and Rangeland Development Program (RCRDP) –The RCRDP is a loan program administered by the ISCC for implementation of agricultural and rangeland best management practices or loans to purchase equipment to increase conservation. Source: ISWCC *https://swc.idaho.gov/what-we-do/conservation-loans/*

PL-566 –This is the Small Watershed Rehabilitation Program administered by the USDA Natural Resources Conservation Service (NRCS).

Agricultural Management Assistance (AMA) –The AMA provides cost-share assistance to agricultural producers for constructing or improving water management structures or irrigation structures; planting trees for windbreaks or to improve water quality; and mitigating risk through production diversification or resource conservation practices, including soil erosion control, integrated pest management, or transition to organic farming. Source: NRCS *https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/ama/*

Conservation Reserve Program (CRP) –The CRP is a land retirement program for blocks of land or strips of land that protect the soil and water resources, such as buffers and grassed waterways. Source: NRCS *https://www.fsa.usda.gov/programs-and-services/conservation-programs/conservation-reserve-program/index*

Conservation Technical Assistance (CTA) –The CTA provides free technical assistance to help farmers and ranchers identify and solve natural resource problems on their farms and ranches. This might come as advice and counsel, through the design and implementation of a practice or treatment, or as part of an active conservation plan. Source: Local Conservation District and NRCS: *https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/technical/*

Environmental Quality Incentives Program (EQIP): EQIP offers cost-share and incentive payments and technical help to assist eligible participants in installing or implementing structural and management practices on eligible agricultural land. Source: NRCS *https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/*

Agricultural Conservation Easement Program (ACEP) – The ACEP program provides financial and technical assistance to help conserve agricultural lands and wetlands and their related benefits. Under the Agricultural Land Easements component, NRCS helps

Indian tribes, state and local governments and non-governmental organizations protect working agricultural lands and limit non-agricultural uses of the land. Under the Wetlands Reserve Easements component, NRCS helps to restore, protect and enhance enrolled wetlands.
https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/

Conservation Security Program (CSP) –CSP is a voluntary program that rewards the Nation's premier farm and ranch land conservationists who meet the highest standards of conservation environmental management. Source: NRCS
https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/csp/

Grazing Land Conservation Initiative (GLCI) –The GLCI's mission is to provide high quality technical assistance on privately owned grazing lands on a voluntary basis and to increase the awareness of the importance of grazing land resources.
https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/people/partners/glci/

Habitat Improvement Program (HIP) – This is an Idaho Department of Fish and Game program to provide technical and financial assistance to private landowners and public land managers who want to enhance upland game bird and waterfowl habitat. Funds are available for cost sharing on habitat projects in partnership with private landowners, non-profit organizations, and state and federal agencies. Source: IDFG
https://idfg.idaho.gov/conservation/habitat/hip

Partner's Program in Idaho – The goal of the U.S. Fish and Wildlife Service's Partners Program is to work with private and Tribal landowners who want to voluntarily improve fish, wildlife, and plant habitat on their lands. Source: USFWS
https://www.fws.gov/idaho/articles.cfm?id=149489623

Sage Grouse Initiative (SGI) - A highly targeted and science-based landscape approach to proactively conserve sage-grouse and sustain the working rangelands that support western ranching economies. Source: NRCS
https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/plantsanimals/fishwildlife/?cid=steldevb1027671

Working Lands for Wildlife (WLFW) - Target conservation efforts to improve agricultural and forest productivity which enhance wildlife habitat on working landscapes. Target species are used as barometers for success because their habitat needs are representative of healthy, functioning ecosystems where conservation efforts benefit a much broader suite of species. Source: NRCS
https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/plantsanimals/fishwildlife/?cid=stelprdb1046975

7.0 Outreach

Conservation partners in the Pahsimeroi subbasin will use their combined resources to provide information about BMPs to improve water quality to agricultural landowners and operators within Pahsimeroi subbasin. A local outreach plan may be developed. Newspaper articles, district newsletters, watershed and project tours, landowner meetings and one-on-one personal contact may be used as outreach tools.

Outreach efforts will:

- Provide information about the TMDL process
- Supply water quality monitoring results
- Accelerate the development of conservation plans and program participation
- Distribute progress reports
- Enhance technology transfer related to BMP implementation
- Increase public understanding of agriculture's contribution to conserve and enhance natural resources
- Improve public appreciation of agriculture's commitment to meeting the TMDL challenge
- Identify and encourage the use of BMPs for recreation activities on the subbasin

8.0 Monitoring and Evaluation

8.1 field level

At the field level, annual status reviews will be conducted to ensure that the contracts are on schedule and that BMPs are being installed according to standards and specifications. BMP effectiveness monitoring will be conducted on installed projects to determine installation adequacy, operation consistency and maintenance, and the relative effectiveness of implemented BMPs in reducing water quality impacts. This monitoring will also measure the effectiveness of BMPs in controlling agricultural nonpoint-source pollution. These BMP effectiveness evaluations will be conducted according to the protocols outlined in the Agriculture Pollution Abatement Plan and the ISCC Field Guide for Evaluating BMP Effectiveness.

The Revised Universal Soil Loss Equation (RUSLE) and Surface Irrigation Soil Loss (SISL) Equation are used to predict sheet and rill erosion on non-irrigated and irrigated lands. The Alutin Method, Imhoff Cones, and direct-volume measurements are used to determine sheet and rill irrigation-induced and gully erosion. Stream Visual Assessment Protocol (SVAP) and Streambank Erosion Condition Inventory (SECI) are used to assess aquatic habitat, stream bank erosion, and lateral recession rates. The Idaho OnePlan's CAFO/AFO Assessment Worksheet is used to evaluate livestock waste, feeding, storage, and application areas. The Water Quality Indicators Guide is utilized to assess nitrogen, phosphorus, sediment, and bacteria contamination from agricultural land.

8.2 watershed level

At the watershed level, there are many governmental and private groups involved with water quality monitoring. The Idaho Department of Environmental Quality uses the Beneficial Use Reconnaissance Protocol (BURP) to collect and measure key water quality variables that aid in determining the beneficial use support status of Idaho's water bodies. The determination will tell if a water body is in compliance with water quality standards and criteria. In addition, IDEQ will be conducting five-year TMDL reviews.

Annual reviews for funded projects will be conducted to ensure the project is kept on schedule. With many projects being implemented across the state, ISCC developed a software program to track the costs and other details of each BMP installed. This program can show what has been installed by project, by watershed level, by sub-basin level, and by state level. These project and program reviews will insure that TMDL implementation remains on schedule and on target. Monitoring BMPs and projects will be the key to a successful application of the adaptive watershed planning and implementation process.

References

1. http://www.deq.idaho.gov/water-quality/

2. Custer Soil and Water Conservation District 2017. Custer Soil and Water Conservation District Five Year Resource Conservation Business Plan July 1, 2018 – June 30, 2022 and Annual Plan July 1, 2018 to June 2019. 46 pgs

3. Idaho Department of Environmental Quality 2013. Pahsimeroi River Subbasin Assessment and Total Maximum Daily Load 2013 Addendum and Five-Year Review. 198 pgs.

4. http://www.deq.idaho.gov/water-quality/surface-water/

5. http://www.deq.idaho.gov/water-quality/surface-water/monitoring-assessment/burp/

6. Idaho Department of Environmental Quality 2018. Idaho 2016 Integrated Report 563 pgs.

7. Idaho Department of Environmental Quality 2012. Owyhee River Watershed Total Maximum Daily Loads: North and Middle Fork Owyhee (HUC 17050107) South Fork Owyhee (HUC 17050105) Upper Owyhee (HUC 17050104). Boise, ID: DEQ, Boise Regional Office.

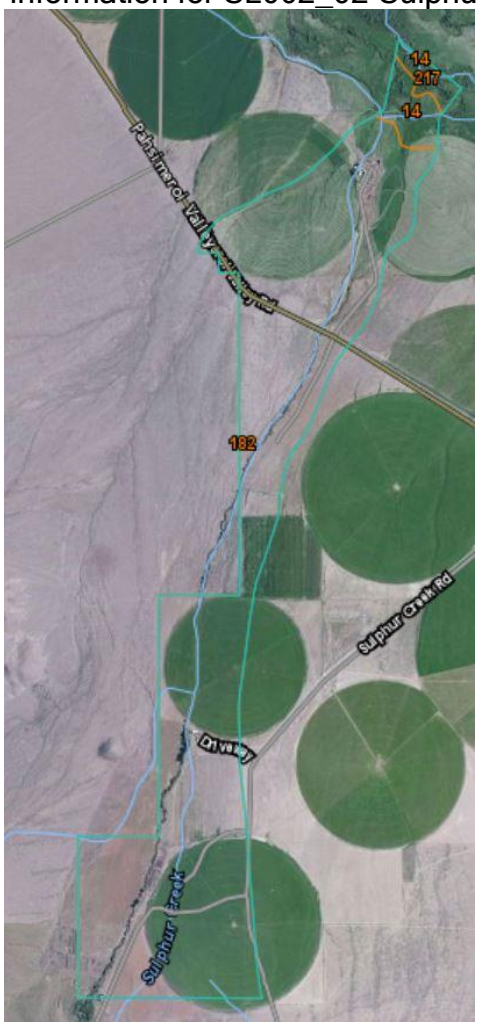
8. Idaho Department of Fish and Game 2015. Idaho State Wildlife Action Plan. 1458 pgs.

9. ISWCC 2005. Pahsimeroi River Subbasin Total Maximum Daily Load Agricultural Implementation Plan. 28 pgs

Appendices

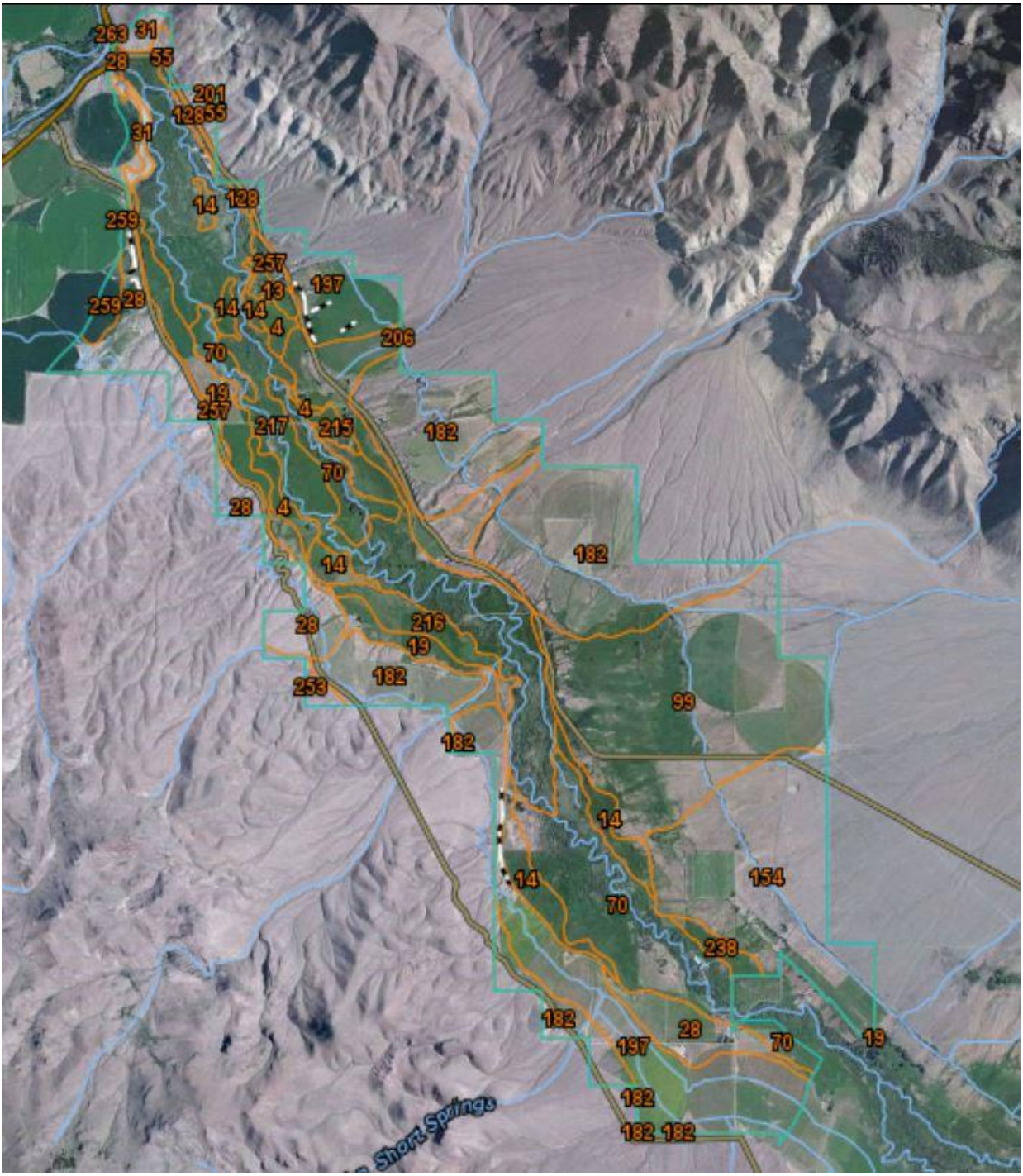
Appendix A: Soils Information for Conservation Planning

Figure 9: Soil Conservation Information for SL002_02 Sulphur Creek



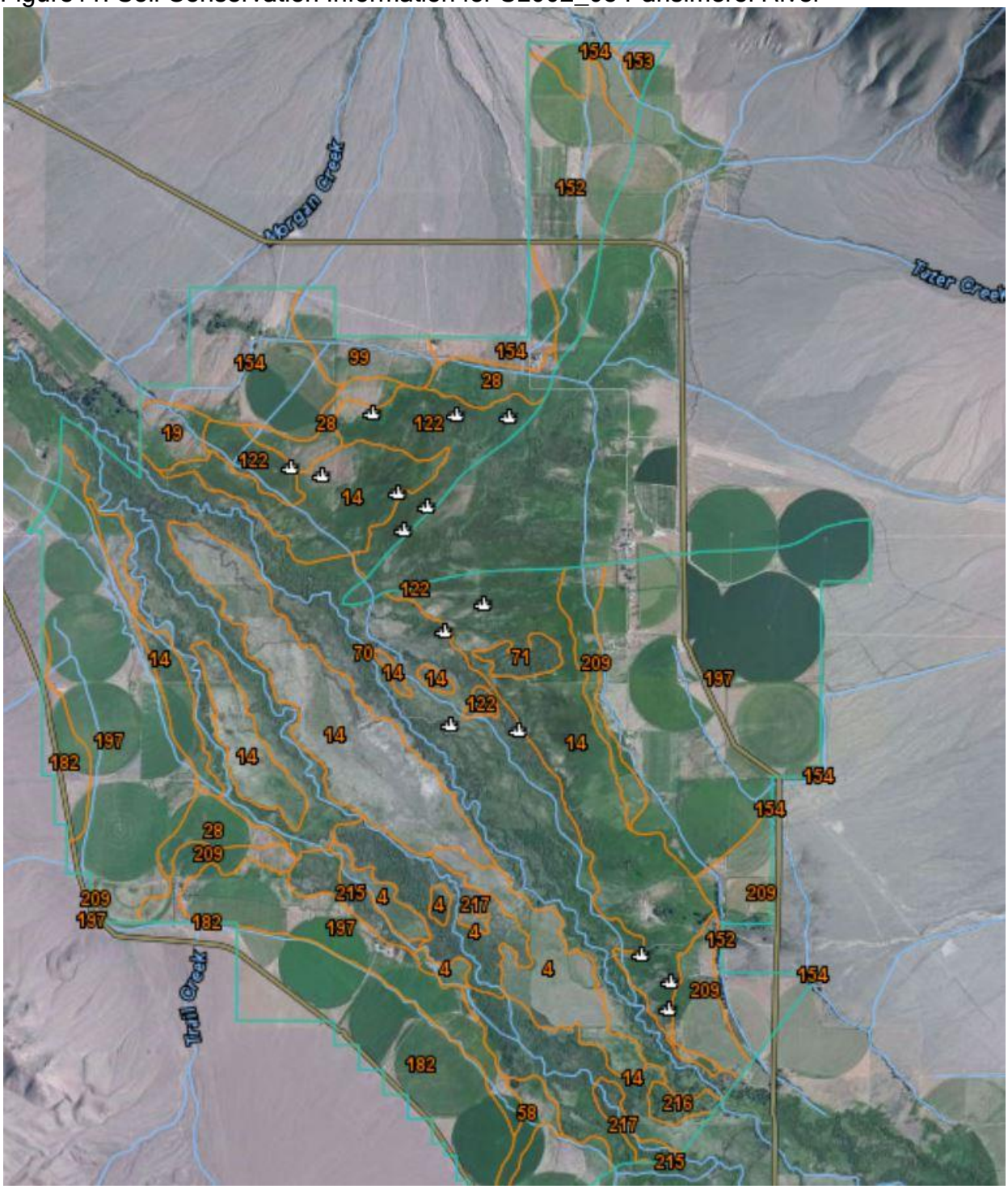
	Soils Conservation Planning Information for Sulphur Creek AOI									Surface	Surface	Surface	Surface	Surface	Surface
% of AOI /	Map Unit Symbol	% of	Slope	T				NIRR	Hydrologic	Depths	K	Fragments	Sand	Silt	Clay
Acres of AOI	Soil Name	MU	RV	Factor	WEI	WEG	Drainage	LCC	Group	In.	Factor	RV	RV	RV	RV
3.3% / 20.1 acres	14 - Bigrant-Thosand-Dickeypeak complex, 0 to 4 percent slopes														
	Bigrant	35	2	5	86	4L	Poorly drained	6c	C/D	3- 22	0.32	4	24	52	23
	Thosand	30	1	2	86	4L	Poorly drained	6c	B/D	0 - 5			35	50	15
	Dickypeak	20	3	2	86	4L	Somewhat poorly drained	6s	C	0 - 3	0.37	5	20	48	31
	Chillybu	5	1	2	134	2	Very poorly drained	5w	D	0 - 31	0.2		15	60	25
94.9% / 576.3 acres	182 - Ringle gravelly loam, 2 to 8 percent slopes														
	Ringle	95	5	2	56	5	Somewhat excessively drained	6c	B	0 - 3	0.43	25	44	40	15
1.8% / 10.7 acres	217 - Thosand-Wiskisprings complex, 0 to 2 percent slopes														
	Thosand	45	1	2	86	4L	Poorly drained	6c	B/D	0 - 5			35	50	15
	Wikisprings	35	1	4	48	6	Poorly drained	6c	B/D	0 -7	0.37		26	53	20

Figure 10: Soil Conservation Information for SL001_05 Pahsimeroi River



	Soils Conservation Planning Information for Pahsimeroi River AU L001_05															
% of AOI / Acres of AOI	Map Unit Symbol Soil Name	% of MU	Slope RV	T Factor	WEI	WEG	Drainage	NIRR LCC	Hydrologic Group	Surface Depths In.	Surface K Factor	Surface Fragments RV	Surface Sand RV	Surface Silt RV	Surface Clay RV
1% / 60.2 acres	4 - Arco silt loam, 0 to 2 percent slopes														
	Arco	90	1	5	86	4L	Somewhat Poorly Drained	6c	C	0 - 12	0.32	4	9	67	23
	Bigrant	5	1	5	86	4L	Poorly Drained	4w	C	1 - 20	0.37	4	24	52	23
	Thosand	5	1	4	0	8	Poorly Drained	5w	D	0 - 5			35	50	15
0.4% / 21.9 acres	13 - Bigrant Complex, 0 to 2 percent slopes														
	Bigrant, very poorly drained	45	1	5	86	4L	Poorly Drained	6c	C/D	1 - 7	0.28	4	20	48	31
	Bigrant, poorly drained	45	1	5	86	4L	Poorly Drained	6c	C/D	3 -22	0.28	4	17	52	30
	Thosand	10	1	4	0	8	Poorly Drained	5w	D	0 - 5			35	50	15
3.3% / 191.3 acres	14 - Bigrant-Thosand-Dickeypeak complex, 0 to 4 percent slopes														
	Bigrant	35	2	5	86	4L	Poorly Drained	6c	C/D	3 - 22	0.32	4	24	52	23
	Thosand	30	1	2	86	4L	Poorly Drained	6c	B/D	0 - 5	0.37		35	50	15
	Dickypeak	20	3	2	86	4L	Somewhat Poorly Drained	6s	C	0 - 3	0.37	5	20	48	31
	Chillybu	5	1	2	134	2	Very Poorly Drained	5w	D	0 - 31	0.02		15	60	25
3.5% / 204.8 acres	19—Bock- Bromaglin complex, 1 to 4 percent slopes														
	Bock	55	3	4	56	5	Well drained	6c	B	0 - 11	0.43	5	29	54	16
	Bromaglin	35	3	3	56	5	Well drained	4c	B	0 - 5	0.37	4	29	53	17
7.2 % / 423.8 acres	28—Bursteadt-Tohobit complex, 0 to 3 percent slopes														
	Bursteadt	50	2	3	86	4L	Moderately well drained	6c	C	0 - 5	0.43	8	62	234	13
	Tohobit	35	2	3	86	4L	Somewhat poorly drained	6c	C	0 - 9	0.43	4	29	53	17
	Cowbone	10	2	4	0	8	Poorle drained	5w	D	1 - 17	0.37	4	30	56	12
0.7% / 43.8 acres	31—Calcids- Rubble land-Rock outcrop complex, 50 to 80 percent slopes														
	Calcids	50	65	5	38	7	Well drained		B	0 - 1	0.37	47	43	40	16
	Rubble land	25	65							0 - 59					
	Rock Outcrop	15	65							0 -59					
0.5% / 28.5 acres	55—Dawtonia- Dacont association, 20 to 50 percent slopes														
	Dawtonia	50	35	5	0	8	Well drained	7e	C	0 - 3	0.32	47	42	37	20
	Dacont	30	35	5	48	6	Well drained	7e	B	0 - 3	0.32	31	43	39	17
8.9% / 518.9 acres	70—Fezip- Lemroi-Redfish complex, 0 to 2 percent slopes														
	Fezip	35	1	3	86	3	Poorly drained	6c	A/D	0 - 1	0.28	2	63	26	10
	Lemroi	25	1	2	86	4L	Poorly drained	6c	B/D	3 -11	0.32		32	56	11
	Redfish	15	1	2	86	3	Poorly drained	6c	A/D	0 - 5	0.2	7	62	26	11
14% / 822 acres	99—Kadletz very gravelly loam, 2 to 6 percent slopes														
	Kadletz	90	4	5	28	7	Somewhat execessively drained	6c	B	0 - 1	0.43	37	44	40	15
0.4% / 22.7 acres	128—Millhi complex, 10 to 30 percent slopes														
	Millhi	50	18	2	48	6	Moderately well drained	6s	D	0 - 1	0.43	24	26	53	19
	Millhi - eroded	30	25	2	56	5	Moderately well drained	6e	D	0 - 1	0.24	24	22	27	50
10.1% / 590.1 acres	154—Pahsimeroi extremely gravelly loam, 2 to 10 percent slopes														
	Pahsimeroi	85	6	2	0	8	Somewhat excessively drained	7s	B	0 - 5	0.37	60	44	40	15
17.9 % / 1047.7 acres	182—Ringle gravelly loam, 2 to 8 percent slopes														
	Ringle	95	5	2	56	5	Somewhat excessively drained	6c	B	0 - 3	0.43	25	44	40	15
10.4 % / 607 acres	197—Snowslide gravelly loam, dry, 1 to 10 percent slopes														
	Snowslide, dry	90	6	4	56	5	Well drained	6c	B	0 - 7	0.43	30	44	40	15
	Farvant	30	25	2	86	4	Well drained	7s	D	0 - 1	0.24	30	65	18	16
3.9 % / 225.8 acres	206—Sparmo-Zer complex, 1 to 5 percent slopes														
	Sparmo	55	3	4	86	4L	Well drained	6c	B	0 - 3	0.37		44	40	15
	Zer	40	3	3	48	6	Well drained	6c	B	0 - 3	0.43	17	45	41	13
0.3% / 20.4 acres	215—Thosand-Chillybu complex, 0 to 2 percent slopes														
	Thosand	55	1	2	86	4L	Poorly drained	6c	B/D	0 - 5			35	50	15
	Chillybu	35	1	1	134	2	Very poorly drained	6c	B/D	0 - 31			15	60	25
1.4% / 84.8 acres	216—Thosand-Sancrane complex, 0 to 2 percent slopes														
	Thosand	45	1	2	86	4L	Poorly drained	6c	B/D	0 - 5			35	50	15
	Sarcane	35	1	3	86	4L	Poorly drained	6c	B/D	0 - 1	0.32		26	53	20
14% / 820.9 acres	217—Thosand-Wiskisprings complex, 0 to 2 percent slopes														
	Thosand	45	1	2	86	4L	Poorly drained	6c	B/D	0 - 5			35	50	15
	Wikkisprings	35	1	4	48	6	Poorly drained	6c	B/D	0 - 7	0.37		26	53	20
0.6 % / 32.2 acres	238 — Wiskisprings-Biglost complex, 0 to 3 percent slopes														
	Wikisprings	45	2	4	48	6	Poorly drained	6c	B/D	0 - 7	0.37		26	53	20
	Boiglost	35	2	3	56	5	Moderately well drained	6c	B	0 - 5	0.43		30	55	14
0.4 % / 21.3 acres	253—Zer gravelly loam, 20 to 50 percent slopes														
	Zer	95	35	2	48	6	Well drained	7e	B	0 - 5	0.43	17	45	41	13
0.5% / 29.8 acres	257—Zer very gravelly silt loam, saline, 5 to 10 percent slopes														
	Zer, saline	80	8	5	48	6	Well drained	6c	B	0 - 7	0.43	45	26	53	70
0.5 % / 29.3 acres	259—Zer- Snowslide complex, 1 to 4 percent slopes														
	Zer	75	3	2	48	6	Well drained	6c	B	0 - 5	0.43	17	45	41	13
	Snowslide	20	3	5	56	5	Well drained	6s	B	0 - 7	0.43	30	44	40	15

Figure11: Soil Conservation Information for SL002_05 Pahsimeroi River



	Soils Conservation Planning Information for Pahsimeroi River AU L002_05															
% of AOI /	Map Unit Symbol	% of	Slope	T				NIRR	Hydrologic	Surface Depths	Surface K	Surface Fragments	Surface Sand	Surface	Surface
Acres of AOI	Soil Name	MU	RV	Factor	WEI	WEG	Drainage	LCC	Group	In.	Factor	RV	RV	Silt RV	Clay RV
3.4% / 286.4 acres	4—Arco silt loam, 0 to 2 percent slopes														
	Arco	9	1	5	86	4L	Somewhat poorly drained	6c	C	0 - 12	0.32	4	9	67	23
21.1% / 1775.3 acres	14—Bigrant-Thosand-Dickeypeak complex, 0 to 4percent slopes														
	Bigrant	35	2	5	86	4L	Poorly drained	6c	C/D	3 - 22	0.32	4	24	53	23
	Thosand	30	1	2	86	4L	Poorly drained	6c	B/D	0 - 5			35	50	15
	Dickeypeak	20	3	2	86	4L	Somewhat poorly draine	6c	C	0 - 3	0.37	5	20	48	31
0.8% / 63.6 acres	19—Bock-Bromaglin complex, 1 to 4 percent slopes														
	Bock	55	3	4	56	5	Well drained	6c	B	0 - 11	0.43	5	29	54	16
	Bromaglin	35	3	3	56	5	Well drained	4c	B	0 - 5	0.37	4	29	53	17
2.5% / 211.1 acres	28—Bursteadt-Tohobit complex, 0 to 3 percent slopes														
	Bursteadt	50	2	3	86	3	Moderately well drained	6c	C	0 - 5	0.43	8	62	24	13
	Tohobit	35	2	3	86	4L	Somewhat poorly drained	6c	C	0 - 9	0.43	4	29	53	17
0.6% / 49.6 acres	58—Dickeypeak-Bigrant complex, 2 to 6 percent slopes														
	Dickypeak	60	4	2	86	4L	Somewhat poorly drained	6s	C	0 - 3	0.37	5	20	48	31
	Bigrant	25	4	5	86	4L	Poorly drained	6c	C/D	1 - 20	0.32	4	24	52	23
16% / 1348.2 acres	70—Fezip-Lemroi-Redfishcomplex, 0 to 2 percent slopes														
	Fezip	35	1	3	86	3	Poorly drained	6c	A/D	0 - 1	0.28	2	63	26	10
	Lemroi	25	10	2	86	4L	Poorly drained	6c	B/D	3 - 11	0.32		32	56	11
	Redfish	15	1	2	86	3	Poorly drained	6c	A/D	0 - 5	0.2	7	62	26	11
0.5% / 39.3 acres	71—Fezip-Redfish-Copperbasin complex, 0 to 3 percent slopes														
	Fezip	40	2	3	86	3	Poorly drained	6c	A/D	0 - 1	0.28	2	63	26	10
	Redfish	25	2	2	86	3	Poorly drained	6c	A/D	0 - 5	0.2	7	62	26	11
	Copperbasin	15	2	5	48	6	Somewhat poorly drained	6s	B	0 - 9	0.24	45	67	20	12
1.5% / 122.2 acres	99—Kadletz very gravelly loam, 2 to 6 percent slopes														
	Kadletz	90	4	5	38	7	Somewhat excessively drained	6c	B	0 - 1	0.43	37	44	40	15
3.7% / 308.5 acres	122—Lilylake-Grandjean complex, 0 to 2 percent slopes														
	Lilylake	55	1	1	134	2	Very poorly drained	6c	B/D	0 - 11			15	60	25
	Grandjean	25	1	1	56	5	Very poorly drained	6c	B/D	0 - 5			15	60	25
6.1% / 511.8 acres	152—Pahsimeroi gravelly loam, 2 to 6 percent slopes														
	Pahsimeroi	90	4	2	48	6	Somewhat excessively drained	6c	B	0 - 7	0.37	30	44	40	15
0.3% / 26.5 acres	153—Pahsimeroi gravelly loam, 10 to 20 percent slopes														
	Pahsimeroi	90	15	2	48	6	Somewhat excessively drained	6c	B	0 - 7	0.37	30	44	40	15
5.5% / 462 acres	154—Pahsimeroi extremely gravelly loam, 2 to 10 percent slopes														
	Pahsimeroi	85	6	2	0	8	Somewhat excessively drained	7s	B	0 - 5	0.37	60	44	40	15
7.9% / 663.7 acres	182—Ringle gravelly loam, 2 to 8 percent slopes														
	Ringle	95	5	2	56	5	Somewhat excessively drained	6c	B	0 - 3	0.43	25	44	40	15
23.2% / 1947.6 acres	197—Snowslide gravelly loam, dry, 1 to 10 percent slopes														
	Snowslide, dry	90	6	4	56	5	Well drained	6c	B	0 - 7	0.43	30	44	40	15
3.2% / 270.8 acres	209—Sprabat-Snowslide complex, 1 to 8 percent slopes														
	Sprabat	65	5	5	56	5	Well drained	6c	A	0 - 5	0.2	17	65	23	11
	Snowslide	25	5	4	56	5	Well drained	6c	B	0 - 7	0.43	30	44	40	15
0.8% / 64.8 acres	215—Thosand-Chillybu complex, 0 to 2 percent slopes														
	Thosand	55	1	2	86	4L	Poorly Drained	6c	B/D	0 - 5			35	50	15
	Chillybu	35	1	1	134	2	Very poorly drained	6c	B/D	0 - 31			15	60	25
0.4% / 30.6 acres	216—Thosand-Sancrane complex, 0 to 2 percent slopes														
	Thosand	45	1	2	86	4L	Poorly Drained	6c	B/D	0 - 5			35	50	15
	Sancrane	35	1	3	86	4L	Poorly Drained	6c	B/D	0 - 1	0.32		26	53	20
2.7% / 230.7 acres	217—Thosand-Wiskisprings complex, 0 to 2 percent slopes														
	Thosand	45	1	2	86	4L	Poorly Drained	6c	B/D	0 - 5			35	50	15
	Wikisprings	35	1	4	48	6	Poorly drained	6c	B/D	0 - 7	0.37		26	53	20

Appendix B: Implemented Conservation by NRCS

The USDA Natural Resource Conservation Service (NRCS) is one of the primary agencies involved with developing and implementing BMPs in the Pahsimeroi Subbasin on privately owned lands. The NRCS has been very active in the Subbasin installing conservation measures to help man and the environment. Below is a list of accomplishments for the Subbasin. Practices are organized by watershed (HUC10).

This information was condensed from the PRS database and contains all records available for applied practices approved from 2004 to spring 2016.

Table 16: HUC 1706020201 Applied Practices

Practice Name	Amount Installed	Units
Upland Wildlife Habitat Management	12,269.9	acres

Table 17: HUC 1706020202 Applied Practices

Practice Name	Amount Installed	Units
Fence	51,510	feet
Sprinkler System	824.2	acres
Irrigation Water Management	831.4	acres
Access Control	27	acres
Forage and Biomass Planting	50	acres
Structure for Water Control	2	
Upland Wildlife Habitat Management	22,770.7	acres
Structures for Wildlife	2	
Irrigation Water Conveyance, Pipeline, High-Pressure, Underground, Plastic	35,564	feet

Table 18: HUC 1706020203 Applied Practices

Practice Name	Amount Installed	Units
Comprehensive Nutrient Management Plan	7	
Waste Storage Facility	10	
Conservation Cover	12	acres
Fence	74,943.7	feet
Stream Habitat Improvement and Management	72.5	acres
Irrigation Pipeline	9,236	feet
Sprinkler System	1,192.3	acres
Irrigation Water Management	1,193.7	acres
Access Control	352.3	acres
Obstruction Removal	474.9	acres
Forage and Biomass Planting	71.6	acres
Livestock Pipeline	11,455.3	feet
Prescribed Grazing	1,631.1	acres
Pumping Plant	11	

Structure for Water Control	9	
Nutrient Management	1,007.6	acres
Integrated Pest Management (IPM)	23.4	acres
Watering Facility	33	
Water Well	1	
Wetland Wildlife Habitat Management	346.4	acres
Upland Wildlife Habitat Management	70	acres
Wetland Enhancement	130.4	acres
Seasonal High Tunnel System for Crops	1,440	sq. feet
Irrigation Water Conveyance, Pipeline, High-Pressure, Underground, Plastic	61,529	feet

NRCS programs used to fund these projects include Environmental Quality Incentives Program (EQIP), Wildlife Habitat Incentive Program (WHIP), General Conservation Technical Assistance, and Grazing Lands Initiative Conservation Technical Assistance.