

Butte Soil and Water Conservation District
Five-Year Conservation Plan
July 2025 – June 2030

“Assisting landowners and operators with their conservation decisions”

FORWARD

The Butte Soil and Water Conservation District (SWCD) is one of 50 Conservation Districts in Idaho. The SWCDs in Idaho are considered political subdivisions of the state government but are not considered state agencies. Conservation Districts were developed to be the leading organization to provide locally led conservation and development of soil, water, and other natural resources (ISACD Policy Manual, 2014).

Conservation Districts were formed in the 1930s when conservation and proper management of the Nation's soil and water resources came to the national spotlight during the Dust Bowl. On April 27, 1935, President Roosevelt signed the Soil and Water Conservation Act, creating the Soil Conservation Service, now known as the Natural Resources Conservation Service (NRCS). With nearly 75% of the United States in private ownership, states needed a way to promote voluntary adoption of conservation practices on private lands. In 1937, President Roosevelt urged states to create locally-led conservation districts to fill this role.

In 1940, Idaho developed its first Soil and Water Conservation District in Latah County with several other counties following suite. The Butte SWCD was developed in 1953 and included all of Butte County except for incorporated towns and land owned by the Atomic Energy Commission. In 1967, the Butte SWCD expanded to its current boundaries which includes all of the Big Lost River and Little Lost River drainages.

Today, the Butte SWCD is one of 3,000 conservation districts that operate nationwide to promote the voluntary adoption of conservation practices to protect the quality and quantity of soil, water, and other natural resources through grassroots advocacy, education and partnerships.

The Butte SWCD acts as the catalyst for coordinating and implementing conservation programs and works to channel expertise from all levels of government into action at the local level. Programs are offered on a voluntary basis with both technical and financial assistance available. The primary avenue for providing these services comes through a legislative agreement with the NRCS. Through this agreement, the Butte SWCD will direct the technical and financial assistance provided by the NRCS to address local conservation issues.

This five-year plan, along with the annual work plan was developed not only as a guide for the Butte SWCD, but also to encourage cooperation among landowners, government agencies, private organizations, and elected officials. Through knowledge and cooperation, we can ensure a sustainable natural resource base for present and future generations in the Butte SWCD.

This document identifies the resource needs within the Butte SWCD and presents an action plan for meeting these needs.

CERTIFICATE OF ADOPTION

The Board of elected supervisors of the Butte Soil and Water Conservation District this 18th day of March, 2025 do hereby approve the following document known as the Resource Conservation Business Plan. This Plan will be in effect for a five-year period ending June 30, 2030, during which time, it will be updated annually and/or amended as necessary.

As evidence of our adoption and final approval, we do hereby affix our signatures to this document.

_____ Chairman

_____ Vice-Chairman

_____ Secretary/Treasurer

_____ Member

_____ Member

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SECTION 1: PHYSICAL CHARACTERISTICS OF THE DISTRICT

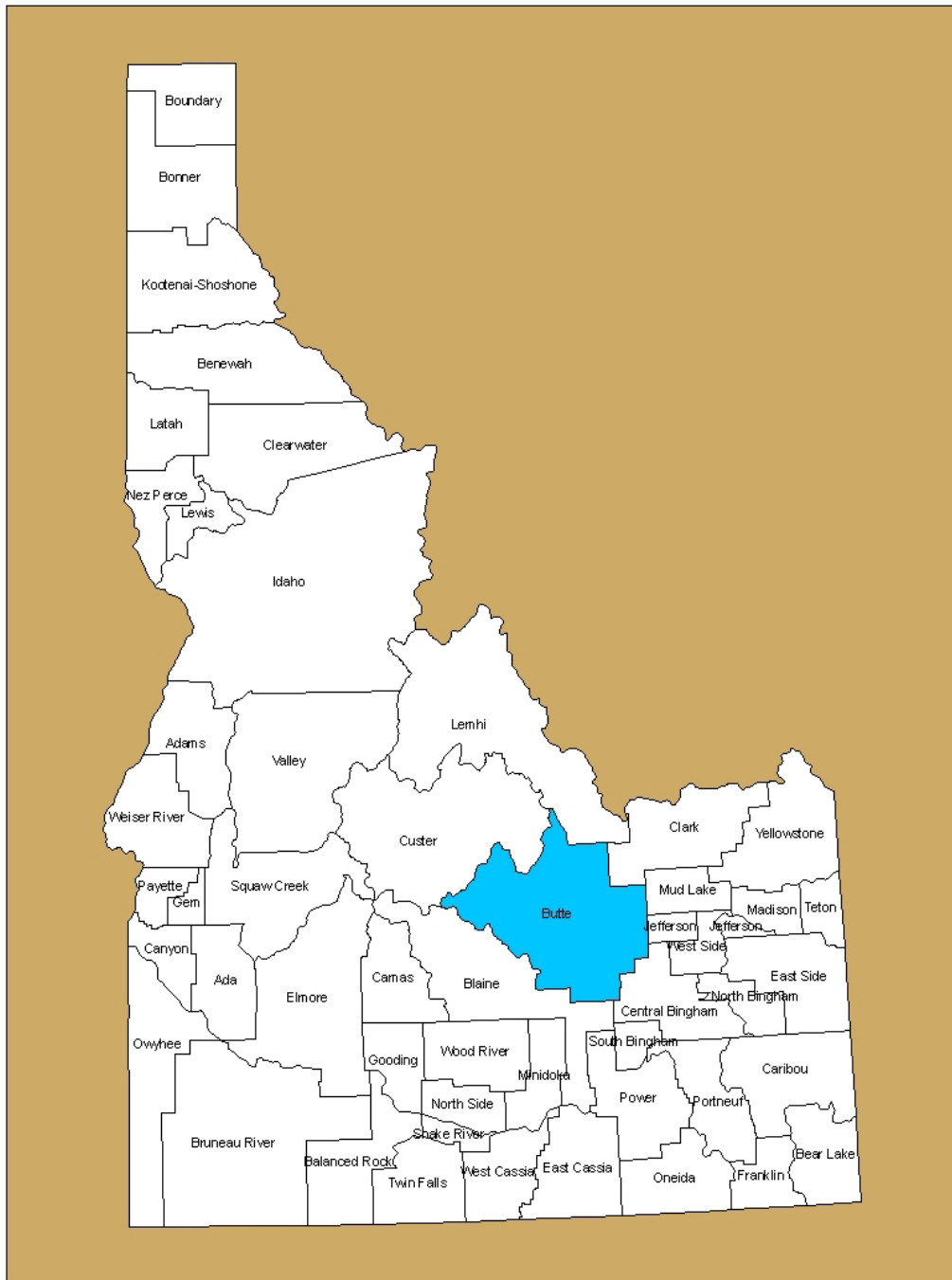


Figure 1: Location of the Butte SWCD

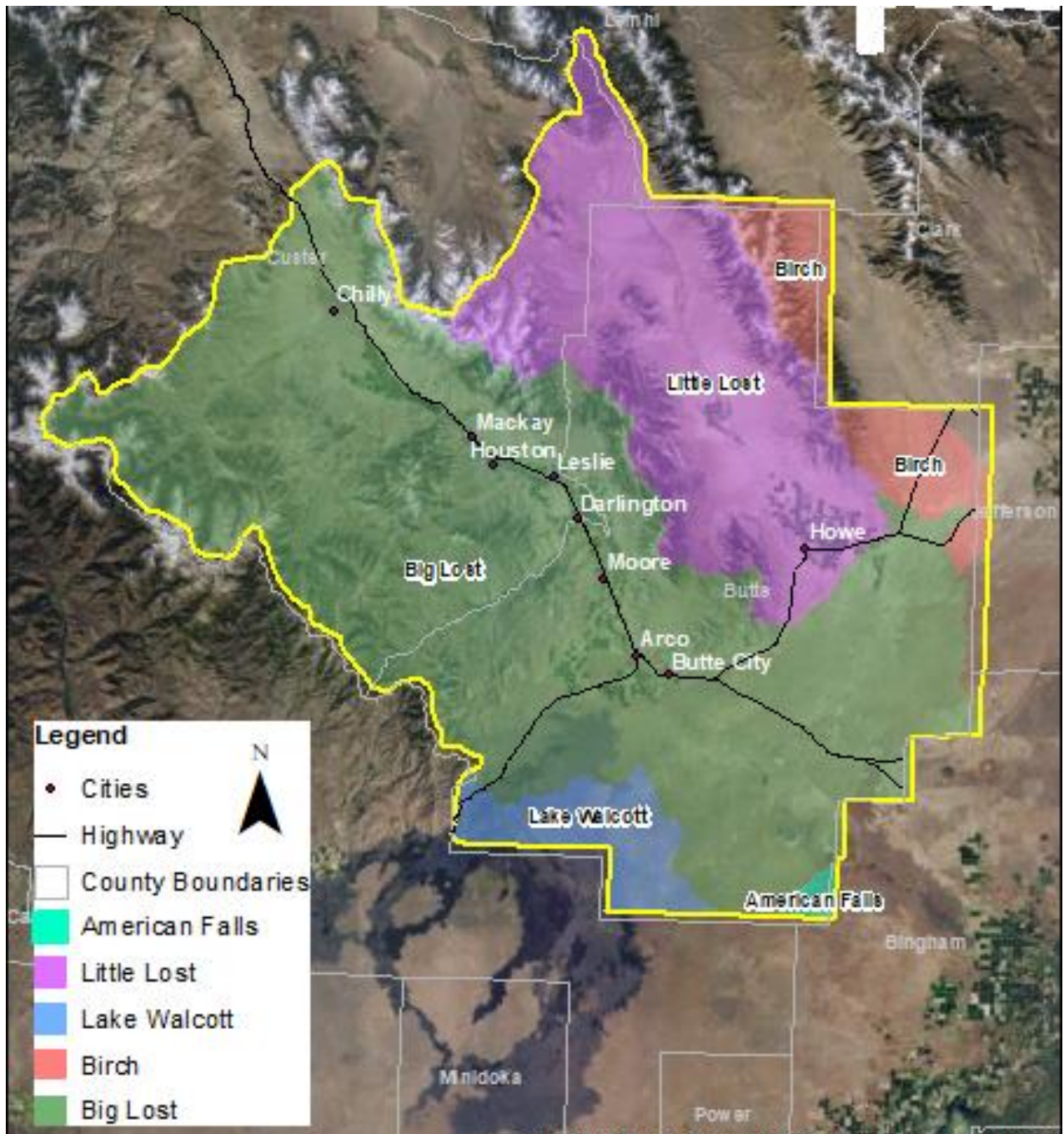
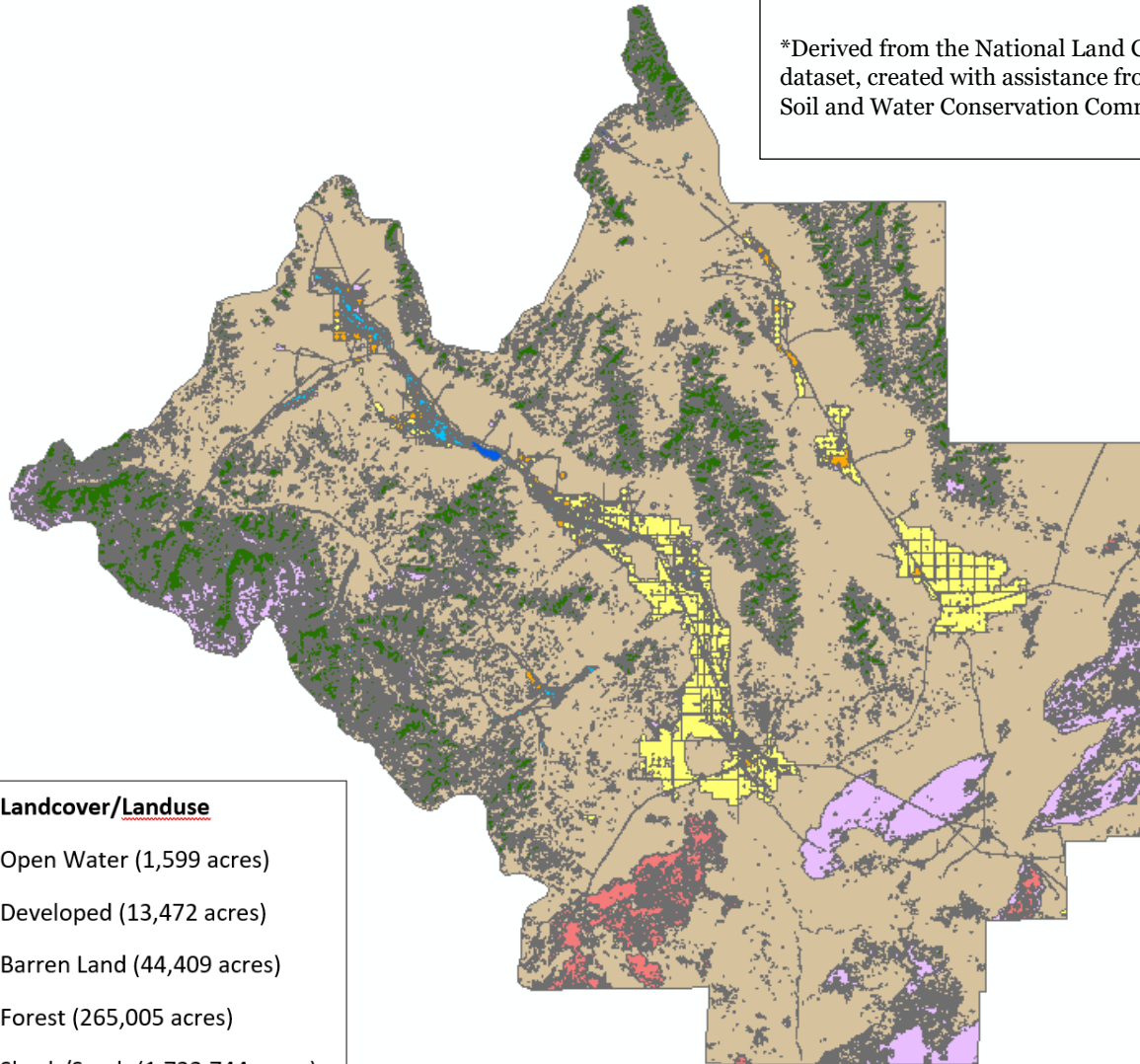


Figure 2: Watersheds in the Butte SWCD

Butte SWCD Landcover Map

*Derived from the National Land Cover 2016 dataset, created with assistance from the Idaho Soil and Water Conservation Commission



Landcover/Landuse

- Open Water (1,599 acres)
- Developed (13,472 acres)
- Barren Land (44,409 acres)
- Forest (265,005 acres)
- Shrub/Scrub (1,722,744 acres)
- Hay/Pasture (12,204 acres)
- Herbaceous (162,772 acres)
- Cultivated Crops (94,060 acres)
- Wetlands (19,704 acres)

Figure 3: Butte SWCD Landcover Map

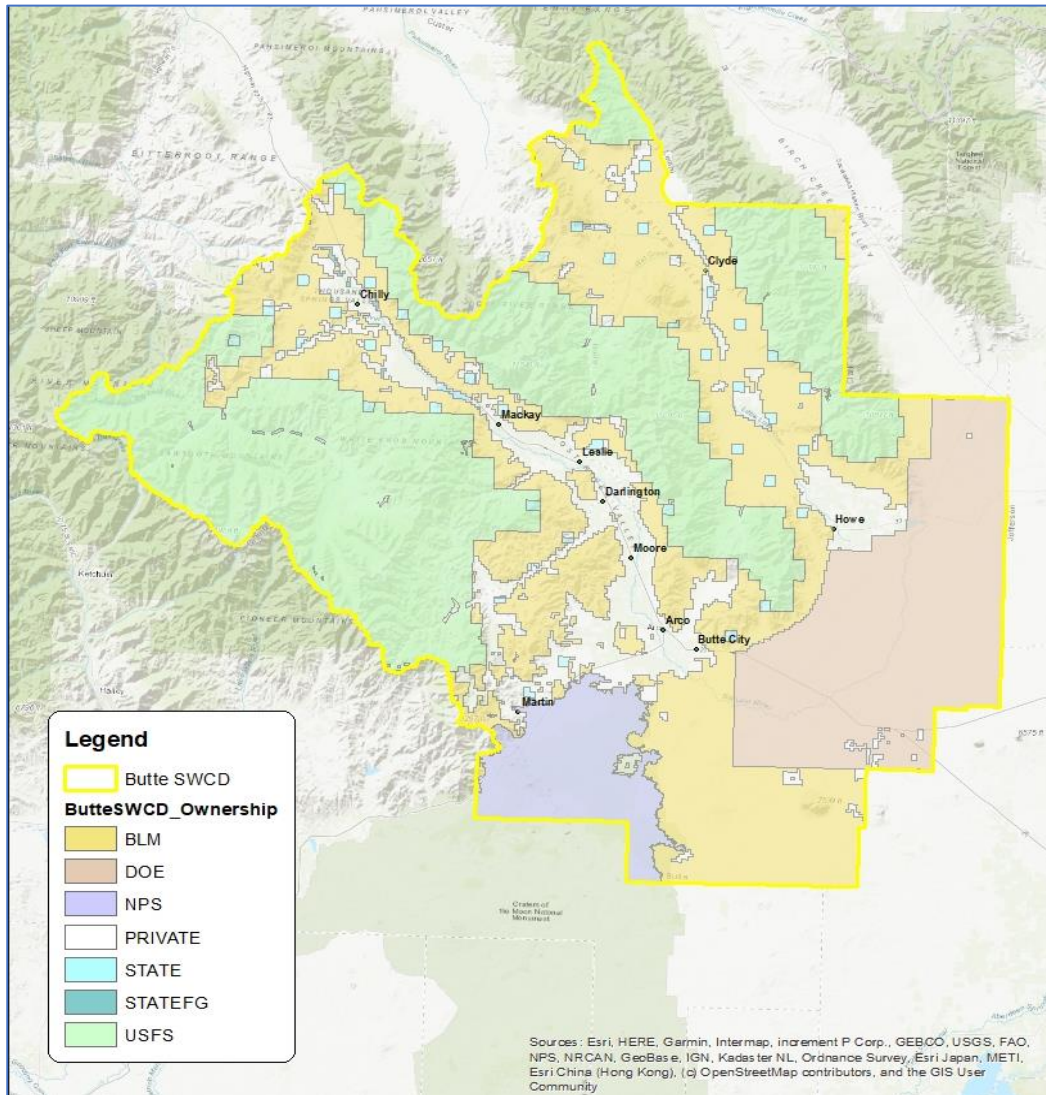


Figure 4: District Landownership Map; map created by NRCS

Table 1: Landownership by Acres and Percentage

Land Ownership	Acres	% of District
BLM	798,899.07	34.56%
DOE	764,996.43	33.09%
NPS	339,530.61	14.69%
Private	259,197.47	11.21%
State	119,529.86	5.17%
State F&G	28,298.08	1.22%
USFS	1,160.94	0.05%
TOTAL	2,311,612.48	100%

Geology:

The Craters of the Moon National Monument is twenty miles southwest of Arco. It contains basalt flows that are only a few thousand years old. The mountains north of the monument, west of Newman Canyon and into Copper Basin are old Challis volcanic rocks; predominantly rhyolite resting on carboniferous deformed sedimentary rocks.

The first small range of mountains to the west of the Big Lost River between Arco and Willow Creek Summit are predominately Paleozoic limestones and dolomites. The mountain range to the east of Arco to Ramshorn Canyon consists of younger limestone rocks and are Carboniferous in age. From Ramshorn Canyon to Elbow Canyon Mountains, older dolomite and limestone rock occur. A fault occurs at Pass Creek a fault occurs that exposes deep Paleozoic dolomite on the south side and deep Challis volcanic on the north.

Moving north from Pass Creek to Borah Peak the geology becomes very mixed. Here, quartzite, argillite, sandstone, basalt, limestone and dolomite rocks are exposed. Relatively broad outwash fans, fan terraces and alluvial fans occur at the foot of the mountains on both sides of the Big and Little Lost River Valleys. The fan formations are formed of deep alluvium that were deposited in the Pleistocene after glaciation and were produced by periods of high annual precipitation. The fan terraces are made of coarse textured material, preventing them from maintaining stream channels from the mountains.

Moving further South, the Thousand Springs area, limestone bedrock is very close to the surface; suggested by the numerous small hills of Whiteknob Limestone that protrude through the valley fill. This condition causes a perched water table and makes most of the area marshland.

Copper is mined in the Mackay mining district, which runs southwest of Mackay into Copper Basin. Copper and other deposits have been known in the area since 1900 and the aggregate production from about 50 properties neared \$10 million. The mining area is a complex of granites, quartz, Challis volcanic and Paleozoic limestone and the intrusive rocks are the source of copper ore near Mackay. Large mines are worked when copper prices are high. A mine was operated there in the 1990's but is closed at this time. Water quality monitoring and rehabilitation are ongoing at the site. In 2015, new mining interest was generated at the mines located on Mine Hill near Mackay. At current, exploration is ongoing and the mines have not opened to full operation.

The topography of the district is varied, with elevations ranging from 4,820 feet near Howe to 12,655 feet at Mount Borah. The Lost River Mountain Range occurs at a Midwest point of a great deformation extending from Alaska to the southern tip of Chile in South America.

Climate data:

Climatic conditions are varied because of rapid elevation changes and air currents controlled by numerous high mountains. Elevations of irrigated farmland in the district range from 4,820 feet

near Howe to 6,260 feet elevation near Chilly. This elevation change results in a nine-day growing season difference within the District (IU Extension, 1992). Air currents near Mackay produce a longer growing season than Arco even though Mackay is 577 feet higher in elevation (IU Extension, 1992). Rainfall varies from less than eight inches on the valley floors to over 20 inches in the higher mountains.

<https://www.ncei.noaa.gov/access/search/data-search/local-climatological-data?startDate=2003-07-10T00:00:00&endDate=2024-10-31T23:59:59>

Table 2 shows elevation, precipitation, frost-free days at weather stations located in the district:

Table 2: Climate Data for the Butte SWCD

Weather Stations (see location map, Figure 1)	Elevation (ft.)	Annual Average Precipitation (Inches)	Average Growing Season Days (days above 32°F)*	Annual Average Low (°F)	Annual Average High (°F)
Arco	5,325	10.4	88	7.2	85.6
Chilly Barton Flat	6,260	8.0	--	5.9	81.5
Craters of the Moon	5,914	15.6	--	11.1	84.2
Howe	4,820	7.8	--	6.4	87.8
Mackay Lost River Ranger Station	5,897	9.8	97	7.3	82.3
May 2 SSE	5,049	8.67	--	5.0	86.0
Weather station climate data retrieved from www.ncdc.noaa.gov and shows averages from 1981-2010. *Growing season data retrieved from University of Idaho Extension Publication 744.					

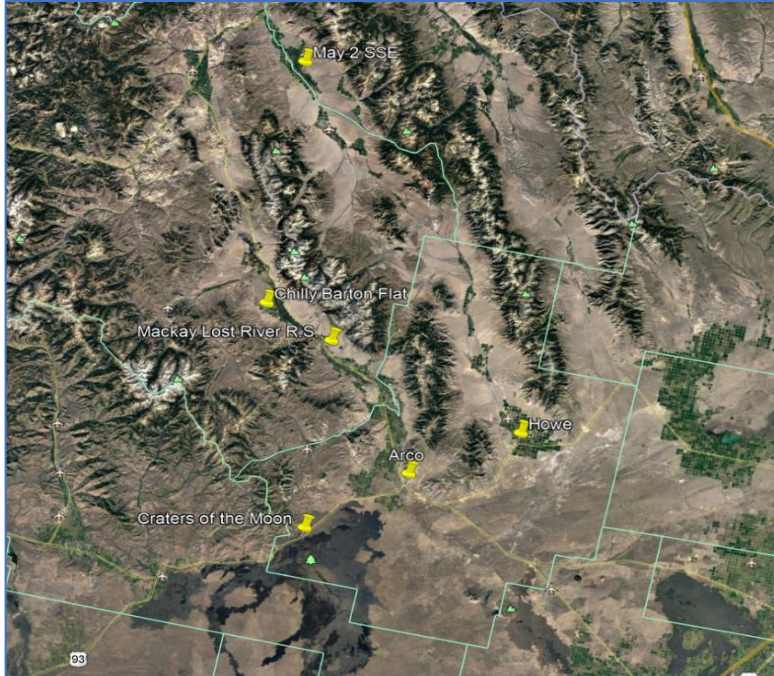


Figure 5: Location of Weather Stations (Google Earth imagery)

Snow Survey:

The NRCS and the National Water and Climate Center work cooperatively to monitor snowfall in the Western United States and Alaska. These measurements allow the prediction of annual runoff and water supply for the coming year. There are several snow courses and snow telemetry (SNOTEL) sites located within the Butte SWCD. Snow courses are permanent locations where manual snow measurements are taken monthly during the winter months to determine snow depth and water content. Snow telemetry sites collect data throughout the winter season unattended. Data collected includes snowpack, precipitation, temperature, and other climatic conditions. The most current snow survey data is from 1981-2010 and is shown in Tables 3 and 4.

Table 3: Snow survey data for the Big Lost River Drainage

BIG LOST RIVER DRAINAGE – 30-Year Average (1981-2010), median snow water equivalents (inches)											
Site Name	Elevation (ft.)	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.
Bear Canyon	7,900	0.0	0.6	2.9	6.3	8.7	11.8	14.2	12.7	0.0	0.0
Copper Basin*	7,640	--	--	--	3.1	5.2	6.9	8.7	2.8	--	--
Dry Fork*	7,220	--	--	--	0.0	8.8	11.0	12.1	--	--	--
Fishpole Lake	9,300	--	--	--	--	--	18.0	21.8	23.0	--	--

Lost Wood Divide	7,900										
		0.0	0.3	3.2	7.9	12.4	15.9	18.5	13.7	0.0	0.0
Smiley Mountain	9,520										
		0.0	1.4	4.3	8.8	12.0	13.9	17.8	20.7	11.3	0.0
Stickney Mill	7,430	0.0	0.0	1.2	3.4	5.1	6.7	7.5	0.0	0.0	0.0
Data retrieved from USDA-NRCS Snow Survey Webpage. *denotes snow course site											

Table 4: Snow survey data for the Little Lost River Drainage

LITTLE LOST RIVER DRAINAGE - 30-Year Average (1981-2010), median snow water equivalents (inches)											
Site Name	Elevation (ft.)	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.
Hilts Creek	8,000	0.0	0.6	2.7	5.5	7.9	10.0	11.7	9.8	0.0	0.0
Moonshine	7,440	0.0	0.1	2.2	4.3	6.0	7.6	8.6	3.9	0.0	0.0
Data retrieved from USDA-NRCS Snow Survey Webpage.											

SECTION TWO: ECONOMIC CONDITIONS AND OUTLOOK

Population and Demographics:

The population estimate for the Butte SWCD is 3,013 (2020 census data, combining Butte County total with the City of Mackay). The majority of the population are located within the District’s towns of Arco, Butte City, Howe, Mackay, and Moore. Of the total population, 87.6% identified as white, 0.1% black or African American, 0.7% American Indian, 4.9% Hispanic, 0.1% Asian, 0.1% Pacific Islander, and 5.3% identified as two or more races, and 1.2% as some other race (Census, 2020). Operator (those who identified as landowners producing agricultural products) characteristics were obtained from the 2017 Census of Agriculture County Profiles (Census, 2022) and are displayed in Tables 5 and 6.

Table 5: Butte County Agricultural Profile

Butte County 2022	147 Farms (Reported County Value)
Operator Characteristics	Quantity
Principal Operators by Sex:	
Male	168
Female	97
Operators by Race:	
White	262
Asian	2
More than one race	1
Hispanic, Latino, or Spanish	12
Other Characteristics:	
With military service	25
New and beginning farmer	55

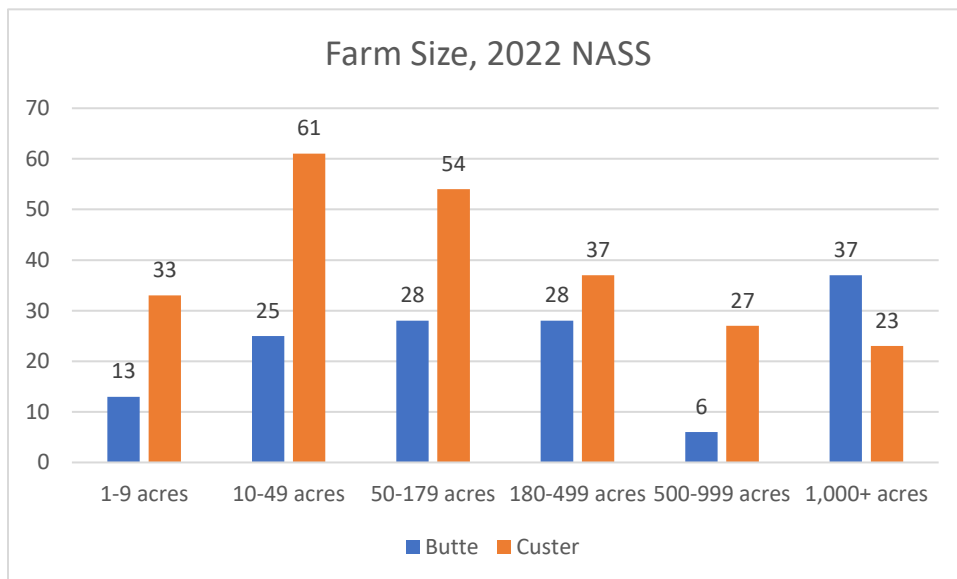
Age:	
>35	18
35-64	150
65 and older	97

Table 6: Custer County Agricultural Profile

Custer County 2022	235 Farms (Reported County Value)
Operator Characteristics	Quantity
Principal Operators by Sex:	
Male	255
Female	186
Operators by Race:	
White	436
More than one race	2
Hispanic, Spanish or Latino Origin	2
American Indian/Alaska Native	3
Other Characteristics:	
With military service	26
New and beginning farmer	125
Age:	
>35	40
35-64	231
65 and older	170

According to the 2022 National Census of Agriculture County Profile, average farm size in Butte County was 680 acres, down 1% from the 2017 census (Chart 1). The average farm size decreased as well as the number of farms in Butte County, down 22% from the 2017 census (NASS, 2022). Custer County also saw a decrease in the number of farms, down 12%, and a decrease in average farm size, down 12% since 2017 (NASS, 2022).

Chart 1: Farms by Size for Butte and Custer Counties



Agricultural Economy and Outlook:

The reported top agricultural related sales for Butte County were categorized by the Census of Agriculture (2022) as other crops and hay* (Table 7), while the top agricultural sales for Custer County were generated from cattle and calves (Table 8).

*data for some categories was withheld to avoid disclosing personal information, so only categories with actual data are reported here

Table 7: Top Agricultural Sales for Butte County

Butte County 2022, Top five reported values	
Market Value of Agricultural Products Sold	Value of Sales by Commodity Group (\$1,000)
Other crops and hay	39,869
Nursery, greenhouse, floriculture, sod	119
Horses, ponies, mules, burros, donkeys	35
Hogs and pigs	10

Table 8: Top Agricultural Sales for Custer County

Custer County 2022, Top five reported values	
Market Value of Agricultural Products Sold	Value of Sales by Commodity Group (\$1,000)
Cattle and calves	16,836
Other crops and hay	10,382
Aquaculture	2,535
Horses, ponies, mules, burros, donkeys	318
Hogs and pigs	309

Total government payments made to agricultural farms in Butte County increased 15% from 2017, with an average per farm receiving \$21,648 (Census, 2022). For Custer County, the total government payments to agricultural farms increased 245% since 2017, with an average per farm receiving \$33,843 (Census, 2022).

Employment:

Employment for both counties is dominated by agricultural related industries (Tables 9 and 10).

Table 9: Employment Industries in Butte County

Butte County, 2021 (includes employees who commute from out-of-county to work in Butte County)	
Industry	Average Employment
Natural resources and mining	41
Construction	37
Manufacturing	43
Trade, transportation, and utilities	138
Information	20
Financial activities	10
Professional and business services	8,251
Education and health services	213
Leisure and hospitality	77
Other services	14

Public Administration	97
Data obtained from the Idaho Department of Labor.	

Table 10: Employment Industries for Custer County (Includes the entire County)

Custer County, 2021	
Industry	Average Employment
Natural resources and mining	117
Construction	96
Manufacturing	18
Trade, transportation, and utilities	277
Information	36
Financial activities	19
Professional and business services	53
Education and health services	247
Leisure and hospitality	391
Other services	31
Public Administration	246
Data obtained from the Idaho Department of Labor.	

SECTION 3: NATURAL RESOURCE ASSESSMENT

Soil Resources:

Soils within the District include prime farm ground along the valley floor if adequately irrigated. The Natural Resource Conservation Service (NRCS) completed a rapid watershed assessment for the Little Lost River Valley that includes information regarding erosion potential (NRCS, 2006). Occurrences of sheet and rill erosion within the Little Lost River Valley is limited due to the low amount of precipitation and the flatness of the farm ground (NRCS, 2006). However, wind erosion on farm ground where low residue crops are grown can be quite significant (NRCS, 2006). The rapid watershed assessment for the Big Lost River Valley has not been completed as of 2020 and data regarding erosion in the Big Lost River Valley is limited, however, we do have data to show the locations of highly erodible land (HEL) (Figure 6).

In order to participate in federally assisted programs, producers are required to comply with the Food Security Act regarding soil disturbance activities on highly erodible land. This includes having a plan in place to reduce erosion from wind, water, or both. Within the Butte SWCD, most HEL soils have been determined as not prime farmland and are likely not farmed. However, should HEL soils be farmed within the District boundaries, the Butte SWCD supports producers forming an erosion control plan with the NRCS.

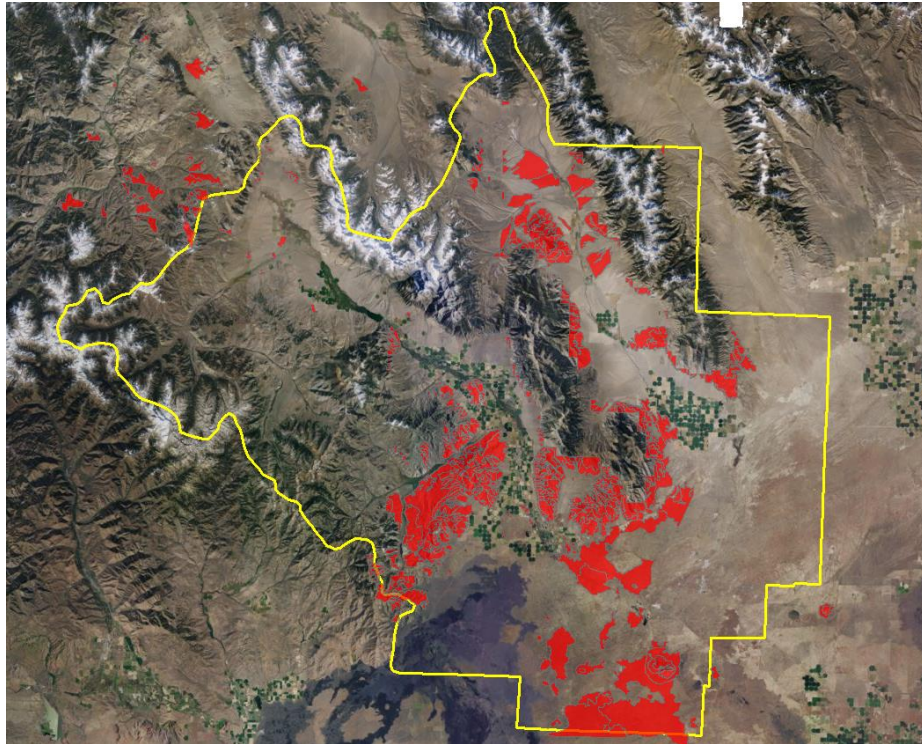
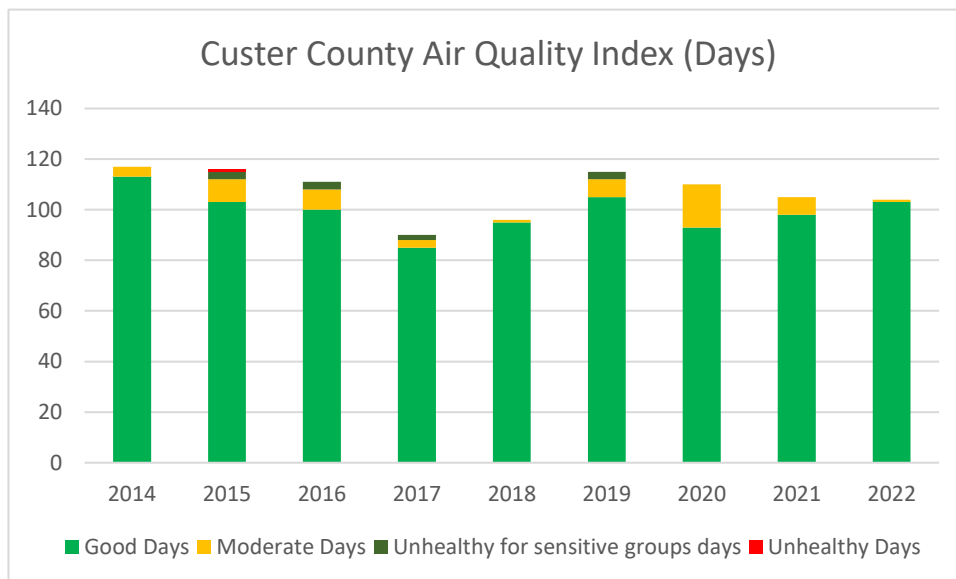
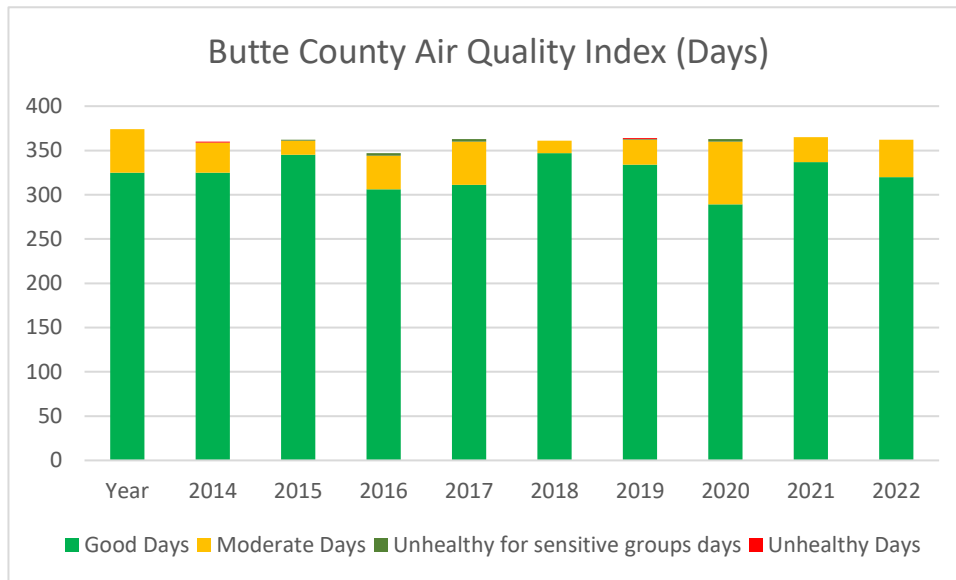


Figure 6: Location of HEL soils within the Butte SWCD boundaries shown in red.

Air Quality:

The Air Quality Index (AQI) data was sourced from the Environmental Protection Agency (EPA). The AQI serves as a comprehensive indicator of overall air quality, encompassing all measured criteria pollutants within a specific geographic area. The summary values include qualitative measures, such as the number of days per year classified as having "good" air quality, among other metrics. Idaho DEQ also has an oversight program of the Idaho National Laboratory (INL) that includes monitoring air, soil, water, and local dairies for contaminations and emissions generated from INL activities. Most air quality issues in the Butte SWCD are from particulate matter created from fires, especially wildfires (Idaho DEQ, 2015a).



The Butte SWCD encourages following Idaho DEQ’s burning guidance, using proper disposal of non-burnable items and obtaining the proper permits when burning crop residue. The Idaho DEQ lists the following items as non-burnable due to the hazardous substances released into the air and potentially surface and groundwater:

- Garbage
- Dead animals/animal waste
- Junk motor vehicles or parts
- Tires or other rubber materials
- Plastic
- Asphalt
- Paints
- Lumber or preservative-treated wood
- Hazardous waste
- Insulated wire
- Pathogenic waste
- Trade waste (construction/demolition waste)

- Tar/petroleum materials

Fish and Wildlife Resources:

According to the U.S. Fish and Wildlife Service’s Information, Planning, and Consultation System (IPaC), several threatened or endangered plant, animal and critical habitats are found within the District’s boundaries (Table 11).

Table 11: Species and Habitats of Concern in the Butte SWCD

Name	Status	Notes
Mammals		
Canada Lynx, <i>Lynx canadensis</i>	Threatened	
North American Wolverine, <i>Gulo gulo iuscus</i>	Threatened	
Fish		
Bull Trout, <i>Salvelinus confluentus</i>	Threatened	Habitat also threatened
Conifers and Cycads		
Whitebark Pine, <i>Pinus albicaulis</i>	Threatened	
Birds		
Bald Eagle, <i>Haliaeetus leucocephalus</i>	Protected under the Eagle Act	
Golden Eagle, <i>Aquila chrysaetos</i>	Protected under the Eagle Act	
American Avocet, <i>Recurvirostra americana</i>	Bird of Conservation Concern in certain regions	
American White Pelican, <i>Pelecanus erythrorhynchos</i>	Bird of Conservation Concern in certain regions	
Black Rosy-finch, <i>Leucosticte atrata</i>	Bird of Conservation Concern	
Broad-tailed Hummingbird, <i>Selasphorus platycercus</i>	Bird of Conservation Concern	
California Gull, <i>Larus californicus</i>	Bird of Conservation Concern	
Calliope Hummingbird, <i>Selasphorus calliope</i>	Bird of Conservation Concern	
Cassin’s Finch, <i>Carpodacus cassinii</i>	Bird of Conservation Concern	
Clark’s Grebe, <i>Aechmophorus clarkia</i>	Bird of Conservation Concern	

Evening Grosbeak, <i>Coccothraustes vespertinus</i>	Bird of Conservation Concern	
Flammulated Owl, <i>Psiloscopus flammeolus</i>	Bird of Conservation Concern	
Foster's Tern, <i>Sterna forsteri</i>	Bird of Conservation Concern	
Franklin's Gull, <i>Leucophaeus pipixcan</i>	Bird of Conservation Concern	
Green-tailed Towhee, <i>Pipilo chlorurus</i>	Bird of Conservation Concern	
Lesser Yellowlegs, <i>Tringa flavipes</i>	Bird of Conservation Concern	
Lewis's Woodpecker, <i>Melanerpes lewis</i>	Bird of Conservation Concern	
Long-billed Curlew, <i>Numenius americanus</i>	Bird of Conservation Concern	
Long-eared Owl, <i>Asio otus</i>	Bird of Conservation Concern	
Marbled Godwit, <i>Limosa fedoa</i>	Bird of Conservation Concern	
Northern Harrier, <i>Circus hudsonius</i>	Bird of Conservation Concern in certain regions	
Olive-sided Flycatcher, <i>Contopus cooperi</i>	Bird of Conservation Concern	
Peregrine falcon, <i>Falco peregrinus</i>	Threatened	
Pinyon Jay, <i>Gymnorhinus cyanocephalus</i>	Bird of Conservation Concern	
Rufous Hummingbird, <i>Selasphorus rufus</i>	Bird of Conservation Concern	
Sage Thrasher, <i>Oreoscoptes montanus</i>	Bird of Conservation Concern	
Virginia's Warbler, <i>Vermivora virginiae</i>	Bird of Conservation Concern	
Willet, <i>Tringa semipalmata</i>	Bird of Conservation Concern	
Western Gerbe, <i>Aechmophorus occidentalis</i>	Bird of Conservation Concern	
Williamson's Sapsucker, <i>Sphyrapicus thyroideus</i>	Bird of Conservation Concern	
*Greater Sage Grouse, <i>Centrocercus urophasianus</i>	Proposed threatened	*not listed in the USFWS IPaC, but is considered a species of concern by the NRCS and is the focus of the Sage Grouse Initiative program
Insects		
Monarch Butterfly, <i>Danaus plexippus</i>	Candidate	

Critical Habitats		
Bull Trout, <i>Salvelinus confluentus</i>		
Data obtained from the USFWS's IPaC website, 2024		

Additionally, the Idaho Department of Fish and Game has listed the Bull Trout, *Salvelinus confluentus*, as a State threatened species in both Butte and Custer Counties.

Invasive weeds:

Invasive species can be native or non-native species that have escaped their intended ecological niches and enter habitats where it may grow and spread uncontrollably. Invasive species can be plants, animals or pathogens that damage our economy and environments. Invasive species often out compete native species, changing the natural ecosystem over time and reducing the ecosystem's ability to function sustainably.

Invasive species are highly competitive, persistent, and can create monocultures that eliminates diversity of the biological landscape. Select invasive species are labeled noxious when they are known to directly or indirectly cause ecosystem harm, create economic loss, or cause harm to human health and wildlife.

The Butte SWCD assists state and local partners to control the spread of invasive and noxious weeds within the District.

Invasive weeds found in Butte and Custer Counties include (*denotes a noxious weed):

- *Leafy spurge, *Euphorbia esula*
- *Canada thistle, *Cirsium arvense*
- Matgrass (Custer only)
- *Scotch thistle, *Onopordum acanthium*
- *Musk thistle, *Carduus nutans*
- Oxeye daisy, (Custer only)
- Plumeless thistle, *Carduus acanthoides* (Butte only)
- *Russian knapweed, *Acroptilon repens*
- *Spotted knapweed, *Centaurea stoebe*
- *Yellow toadflax, *Linaria vulgaris*
- Houndstongue, *Cynoglossum officinale*
- *Black henbane, *Hyoscyamus niger*
- *Field bindweed, *Convolvulus arvensis*
- *Perennial pepperweed, *Lepidium latifolium*
- Dalmation toadflax, (Custer only)
- Diffuse knapweed
- Dyers woad (Custer only)
- Hoary alyssum (Custer only)
- Poison hemlock (Custer only)
- *Puncturevine, *Tribulus terrestris*
- Purple Loosestrife
- Tansy Ragwort (Custer only)
- Rush skeletonweed

Salt cedar

White top, *Lepidium draba*

White bryony, *Bryonia alba*

NEED TO CHECK ON THEIR NOXIOUS WEED STATUS

District Operations:

Financially, support received from Butte and Custer Counties and the State has remained stable and provides most of the operating funds for the District. The District also receives funding from various other sources including donations, drill rental, and grants. From 2018-2024 the District received a technical assistance grant from the National Association of Conservation Districts to provide a technical employee to directly assist NRCS operations.

Administration of the District is conducted by the District Board of Supervisors who meet monthly to review finances, discuss projects and provide feedback to the NRCS. The Board delegates daily operational duties to District employees. Currently, the District employs one full time position (technical assistance grant position) and three part-time/less than part-time employees.

Most of the technical assistance for the District comes from the NRCS. The Arco NRCS field office covers all of Butte SWCD and the majority of the Blaine SWCD. Currently, the Arco NRCS field office has an administrative assistance, one soil conservationist, one resource conservationist, one natural resource specialist, one natural resource technician and one conservation team lead. However, with the current contract load, especially engineering workload, additional employees may be warranted to meet the workload demand.

Other technical assistance for District activities comes from our partner agencies, including, but not limited to, Idaho Department of Fish and Game, University of Idaho Extension, Idaho Soil and Water Conservation Commission, Bureau of Land Management, Trout Unlimited, Big Lost River Irrigation District, Big Lost River Groundwater Management District.

SECTION 4: WATER QUALITY AND QUANTITY:

The major drainages in the District are the Little Lost River Subbasin and the Big Lost River Subbasin. These drainages originate in the surrounding mountains and end at the sinks near Howe.

The Little Lost River Subbasin is 963 square miles and lies along the northern boundary of the Snake River plain and is flanked by the Lost River mountain range to the West and the Lemhi mountain range to the East (IDEQ, 2015b).

The Big Lost River Subbasin is 2,452 square miles and begins at the confluence of the East Fork and North Fork Big Lost Rivers and ends at the sinks near Howe. The river re-emerges near the city of Hagerman. The river flows into the Mackay Reservoir where it is stored for irrigation before continuing downstream. Due to irrigation demands, the Big Lost River goes dry during

the summer of most years. The de-watering of the Big Lost River creates concerns for native fish populations, water quality, riparian habitat and flooding.

The Big Lost River Irrigation District manages the delivery of water to all farms below the Mackay Reservoir. This includes approximately 37,800 acres of cropland and pasture supplied by surface and another 300 acres supplied entirely by pumps. The Mackay Reservoir has a capacity of 44,000 acre-feet and is empty by fall many years. Irrigation water is short during dry years. This shortage is increased by water loss in the delivery system and poor efficiency of on-farm systems.

A reservoir management plan with the Big Lost River Irrigation District in cooperation with NRCS Snow Survey has been used to reduce flood peaks. Improvement of irrigation canals and delivery ditches is needed to stop water losses. Irrigation water management on the cropland is also needed.

Surface Water Quality:

The Idaho DEQ has conducted studies in the Big Lost River and Little Lost River subbasins to determine water quality status, pollutant sources, and recent pollution control efforts. The Idaho DEQ has established total maximum daily loads (TMDL) for known pollutants for both the Big Lost (Idaho DEQ, 2019) and Little Lost (Idaho DEQ, 2015) River Subbasins. A 2016 Integrated Report was published in 2018, listing all §303(d) listed impaired streams (Idaho DEQ, 2016). The data provided in this 5-Year Plan was obtained from the 2016 Integrated Report. For the Big Lost River and Little Lost River Subbasins, sediment entering streams and water temperature are the main pollutants.

Tables 12 and 13 list the §303(d) impaired water bodies as identified in the Idaho DEQ’s 2016 Integrated Report.

Table 12: Little Lost River Subbasin Impaired Water Bodies

Little Lost River Subbasin		
Stream Name (ID Number)	Impairment	Length of Stream Impaired
Little Lost River – Big Spring Creek to canal (T06N, R28E) (ID17040217SK002_05)	Sedimentation/Siltation	5.66 miles
Little Lost River – Badger Creek to Big Spring Creek (ID17040217SK007_04)	Sedimentation/Siltation	14.16 miles
Little Lost River – West Creek to Badger Creek (ID17040217SK009_04)	Sedimentation/Siltation	8.9 miles
Little Lost River – confluence of Summit and Sawmill Creeks (ID17040217SK010_04)	Sedimentation/Siltation	8.56 miles

Sawmill Creek – Warm Creek to mouth (ID17040217SK012_04)	Sedimentation/Siltation	8.13 miles
Sawmill Creek (ID17040217SK014_04)	Sedimentation/Siltation	7.66 miles
Main Fork – source to mouth (ID17040217SK017_02 ID17040217SK17_03)	Sedimentation/Siltation	18.36 miles
Wet Creek – source to Squaw Creek (ID17040217SK024_02 ID17040217SK024_03)	Sedimentation/Siltation	59.03 miles

Table 13: Big Lost River Subbasin Impaired Water Bodies

Big Lost River Subbasin		
Stream Name (ID Number)	Impairment	Length of Stream Impaired
Thousand Springs Creek – source to mouth (ID17040218SK016_02 ID17040218SK016_03)	Sedimentation/Siltation	32.18 miles
Bridge Creek – source to mouth (ID17040218SK026_02 ID17040218SK026_03)	Sedimentation/Siltation	25.44 miles
North Fork Big Lost River – source to mouth (ID17040218SK027_03)	Sedimentation/Siltation Temperature, water	12.56 miles
Summit Creek – source to mouth (ID17040218SK028_02)	Sedimentation/Siltation Temperature, water	33.34 miles
Wildhorse Creek – Fall Creek to mouth (ID17040218SK030_04)	Temperature, water	4.95 miles
East Fork Big Lost River – Cabin Creek to mouth (ID17040218SK033_02 ID17040218SK033_03 ID17040218SK033_04)	Sedimentation/Siltation	78.84 miles
Star Hope Creek – Lake Creek to mouth (ID17040218SK035_02 ID17040218SK035_04)	Sedimentation/Siltation Temperature, water	28.06 miles
East Fork Big Lost River – source to Cabin Creek (ID17040218SK039_02)	Sedimentation/Siltation	42.94 miles

ID17040218SK039_03)		
Corral Creek – source to mouth (ID17040218SK041_02)	Sedimentation/Siltation Temperature, water	18.04 miles
Warm Springs Creek – source to mouth (ID17040218SK043_02 ID17040218SK043_03)	Temperature, water	66.31 miles
Antelope Creek – Spring Creek to mouth (ID17040218SK046_02)	Sedimentation/Siltation Temperature, water	49.58 miles
Antelope Creek – Dry Fork Creek to Spring Creek (ID17040218SK047_04)	Sedimentation/Siltation	3.56 miles
Cherry Creek – confluence of Left Fork Cherry and Lupine Creek (ID17040218SK049_04 ID17040218SK049_05)	Sedimentation/Siltation	14.11 miles
Bear Creek – source to mouth (ID17040218SK053_03)	Sedimentation/Siltation Temperature, water	5.09 miles
Lower Pass Creek – source to mouth (ID17040218SK006_06)	Temperature, water	3.95 miles
Big Lost River – Alder Creek to Antelope Creek (ID17040218SK007_05)	Temperature, water	16.0 miles
Big Lost River – Beck and Evan Ditch to Alder Creek (ID17040218SK010_05)	Temperature, water	7.82 miles
Big Lost River – Mackay Reservoir Dam to Beck and Evan Ditch (ID17040218SK011_05)	Temperature, water	14.72 miles
Big Lost River – Jones Creek to Mackay Reservoir (ID17040218SK013_05)	Sedimentation/Siltation Temperature, water	4.15 miles
Big Lost River – Thousand Springs Creek to Jones Creek (ID17040218SK015_05)	Sedimentation/Siltation Temperature, water	4.77 miles
Thousand Springs Creek – source to mouth (ID17040218SK016_02)	Temperature, water	20.15 miles
Sage Creek – source to mouth (ID17040218SK022_02)	<i>E. coli</i>	35.64 miles

Big Lost River – Burnt Creek to Thousand Springs Creek (ID17040218SK024_05)	Sedimentation/Siltation Temperature, water	18.99 miles
Big Lost River – Summit Creek to and including Burnt Creek (ID17040218SK025_05)	Temperature, water	5.43 miles
Bridge Creek – source to mouth (ID17040218SK026_02 ID17040218SK026_03)	Temperature, water	25.44 miles
East Fork Fig Lost River – Cabin Creek to mouth (ID17040218SK033_02 ID17040218SK033_03 ID17040218sK033_04)	Temperature, water	78.84 miles
East Fork Big Lost River – source to Cabin Creek (ID17040218SK039_02 ID17040218SK039_03)	Temperature, water	42.94 miles
Antelope Creek – Spring Creek to mouth (ID17040218SK046_05)	Temperature, water	26.73 miles
Antelope Creek - Dry Fork Creek to Spring Creek (ID17040218SK047_04 ID17040218SK047_05)	Temperature, water	3.81 miles
Cherry Creek – confluence of Left Fork Cherry and Lupine Creek (ID17040218SK049_04 ID17040218SK049_05)	Temperature, water	14.11 miles
Antelope Creek – Iron Bog Creek to Dry Fork Creek (ID17040218SK052_04)	Temperature, water	12.45 miles
Antelope Creek – source to Iron Bog (ID17040218SK057_02 ID17040218SK057_03)	Temperature, water	22.66 miles
Leadbelt Creek – source to mouth (ID17040218SK058_02)	Temperature, water	16.82 miles
Wildhorse Creek – Fall Creek to mouth (ID17040218SK030_04)	Sedimentation/Siltation	4.95 miles

For the Little Lost River Subbasin, the Five-Year Review recommended that riparian management and restoration activities continue along with fish habitat improvement. The adoption of stream bank best management practices (BMP) on public land fall under the responsibility of the Bureau of Land Management, while the Butte SWCD will encourage and promote the adoption of BMPs on private land.

The Big Lost River Subbasin’s impaired waters were re-evaluated by IDEQ in their 2019 Temperature TMDL Addendum (IDEQ, 2019). For the Big Lost River Subbasin, the 2019 TMDL Addendum recommends that managers focus on reaching target shade levels for individual streams, starting with those with the largest differences between current and target shade levels (IDEA, 2019). Figure 8 shows the streams with approved TMDLs and the §303(d) listed impaired streams within the District boundaries.

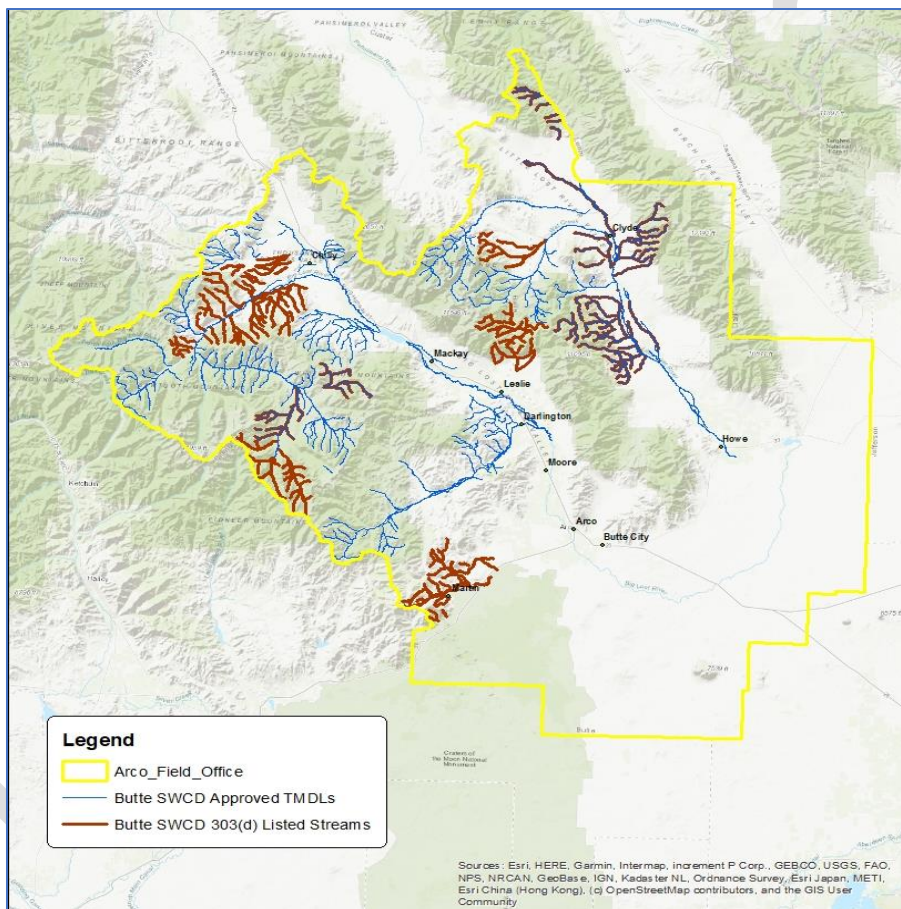


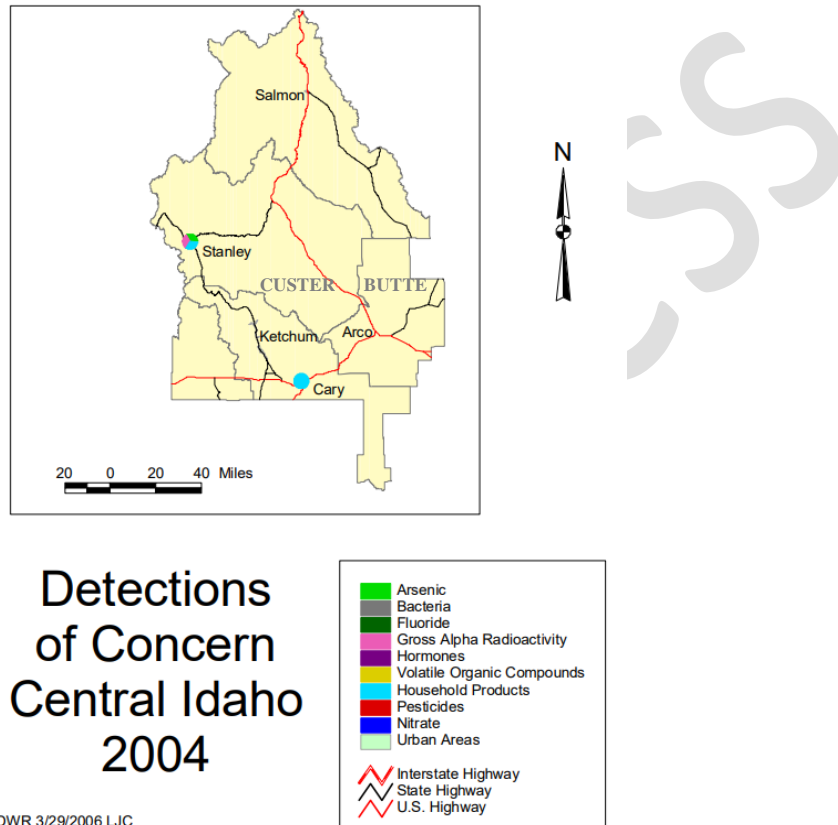
Figure 6: Streams with approved TMDLs and 303(d) listed streams in the District; map created by the NRCS

Groundwater Quality:

There are currently no critical groundwater areas or groundwater management areas within the District that are acknowledged by the Idaho Department of Water Resources. However, the recently formed Big Lost River Groundwater District is working to create a management plan that would cover both the Big Lost and Little Lost River Subbasins.

The latest groundwater quality study conducted in the Butte SWCD was done as part of a statewide monitoring effort in 2004 (IDWR, 2006). Samples were collected in Butte and Custer Counties, but no detections of common contaminants (including nitrate), volatile organic compounds, pesticides or household products were found (Figure 9).

There are no Basin Advisory Groups or Watershed Advisory Groups for the Big Lost River or Little Lost River Subbasins.



Detections of Concern Central Idaho 2004

IDWR 3/29/2006 LJC

Figure 7: Groundwater Quality Results from 2004 Statewide Sampling, map taken from IDWR, 2006.

SECTION 5: IDENTIFY AND PRIORITIZE OBJECTIVES

In 2024, a local work group meeting was held to determine natural resource priorities for the coming year. This meeting also provided direction for the NRCS office on how the District, residents, and partner agencies would like to see NRCS funding prioritized for the coming year. The top seven resource concerns from this meeting were:

- 1) Source water depletion
- 2) Terrestrial habitat for wildlife and invertebrates
- 3) Inefficient irrigation water use
- 4) Bank erosion from streams, shorelines, or conveyance channels
- 5) Pest pressure
- 6) Plant productivity and health
- 7) Inadequate livestock water quality, quantity, and distribution
- 8) Soil: Aggregate instability

To focus on these priorities, it was suggested to the NRCS, that applications that promote desired activities receive higher rankings. These suggestions are taken from local meetings and forwarded onto the state level for final determination of NRCS funding. These desired qualities are found in Table 14:

Table 14: Desired project qualities for NRCS funding

	LWG Ranking Pool Category	List desired qualities of a priority project
1	Focused Conservation	<ul style="list-style-type: none"> • Increased irrigation water efficiency • Improved surface water delivery rates • Benefit multiple landowners/water users
2	Wildlife	<ul style="list-style-type: none"> • Remove fence from the landscape • Retrofit existing fence lines to wildlife friendly specifications • Improve fish passage in waterways • Reduce streambank erosion for aquatic health
3	Range	<ul style="list-style-type: none"> • Improve plant community • Enhance livestock distribution for uniform grazing • Install/remove fences for even livestock distribution • Protection/improvements of riparian areas
4	Seasonal High Tunnel	<ul style="list-style-type: none"> • Extend plant growing season for produce harvest • Address soil health concerns • Addition of conservation cover/pollinator planting borders
5	Irrigated Ground	<ul style="list-style-type: none"> • Address soil health concerns • Increased amount of perennial species • Implemented pollinator planting plots

SECTION 6: IMPLEMENTATION

FY 2025 (1/1/2025 – 12/31/2025) Annual Plan of Work

Butte Soil and Water Conservation District

For Information Contact: Randy Purser, Chairman

Telephone: 208-589-3831

Email: rpurser@atcnet.net; butteswcd@outlook.com

Counties Served: Butte and South Custer

Legislative Districts 8 and 30

#8: Sen. Christy Zito, Rep. Rob Beiswenger, Rep. Faye Thompson

#30: Sen. Julie Van Orden, Rep. David Cannon, Rep. Ben Fuhriman

Priority 1

Goal: Increase water quantity and improve water quality within the Butte SWCD

Technical resources: Partner agency staff

Objectives:

- Increase efficiency of irrigation water usage.
- Increase water quality of water bodies designated as impaired by the Idaho Department of Water Resources.
- Promote energy efficiency of irrigation systems.

Actions:	Target Date:	Individual(s) Responsible
Host and support informational/educational activities	January – December	Hayden Isham/ Butte SWCD staff
Support the recharge program within the BSWCD	January – December	Randy Purser/ Butte SWCD staff
Facilitate public meetings on alternatives for large scale irrigation water conservation (e.g. Pipeline, energy conservation)	January – December	Hayden Isham/ Butte SWCD staff
Promote proper disposal of agriculture related waste (e.g. chemical containers)	January – December	Board/Butte SWCD staff

Priority 2:

Goal: Improve soil health and reduce erosion through the adoption of best management practices on cropland, pasture, and rangeland

Technical resources: Partner agency staff

Objectives:

- Promote and coordinate conservation programs/workshops with partner agencies
- Improve irrigated pasture management
- Improve rangeland condition and trends

Actions:	Target Date:	Individual(s) Responsible:
Promote participation in the NRCS' EQIP for technical and financial assistance	January – December	Board/Butte SWCD staff/NRCS
Partner with local County Weed Departments and/or U of I Extension to host a workshop addressing weeds and IPM	January – December	Todd Perkes/Butte SWCD board and staff
Promote control of invasive weeds and promote participation in the NRCS Cheatgrass Challenge	January – December	Walt Johnson/Butte SWCD board and staff
Promote development of grazing plans for producers and financially support the development of U of I Extension's Redbook	January – December	Walt Johnson/Butte SWCD board and staff
Promote adoption of improved hay/forage seed varieties	January – December	Mark Telford/Butte SWCD board and staff
Support U of I Extension Pasture School with funding and outreach	January – December	Board/Butte SWCD staff
Promote the adoption of regenerative farming practices (e.g., no-till farming, cover crops, etc.)	January – December	Todd Perkes/Butte SWCD board and staff

Priority 3

Goal: Improve animal waste management and promote riparian area protection

Technical resources: Partner agency staff

Objectives:

- Assist producers in complying with the Clean Water Act and protect streams listed as impaired by the Idaho Department of Water Resources

Actions:	Target Date:	Individual(s) Responsible:
Promote participation in the NRCS' EQIP for technical and financial assistance	January – December	Board/Butte SWCD staff
Promote development of nutrient management plans for producers	January – December	Randy Purser/Butte SWCD staff
Promote protection and preservation of riparian areas, especially along water bodies listed as impaired for temperature by IDEQ	January – December	Randy Purser/Butte SWCD board and staff

Priority 4

Goals: Conduct natural resources information and education activities

Technical resources: District staff/Partner agency staff

Objectives:

- Develop, present, and support youth and adult educational programs

Actions:	Target Date:	Individual(s) Responsible:
Sponsor up to three high school teams for Envirothon	January – July	Butte SWCD board
Participate in NACD's 6 th grade poster contest	January - March	Butte SWCD board and staff
Conduct educational activities for NACD's Stewardship Week at Arco and Mackay Public Schools	January - April	Butte SWCD board and staff

Coordinate scholarships for 10-12 students to attend the Natural Resources Workshop	May - June	Butte SWCD board and staff
Coordinate annual 6 th grade Natural Resources Tour for Arco and Mackay students	September	Butte SWCD board and staff
Create or assist with the creation of informational activities/material that support the District's priorities	January – December	Butte SWCD board and staff
Promote coordination and cooperation among partner agencies	January – December	Butte SWCD board and staff
Participate in community fairs/events	January – December	Butte SWCD board and staff
Develop a quarterly District newsletter	January – December	Butte SWCD staff

Priority 5

Goal: Effectively carry out District operations

Technical resources: Partner agency staff

Objectives:

- Increase effectiveness of supervisors carrying out the functions of the District

Actions:	Target Date:	Individual(s) Responsible:
Update or develop a Policy and Procedure Manual for Butte SWCD	July	Chairman
Set policy of supervisor duties	July	Chairman
Appoint supervisors to oversee: <ul style="list-style-type: none"> • District Operations • Financial Operations • Resource Planning and Operation • Public Outreach • Elections 	July	Chairman

Encourage meeting attendance (monthly board meetings, division meetings, IASCD Conference, other meetings as assigned)	January - December	Chairman
Pay membership dues to NACD, IASCD, High Country RC&D, Division VI, IDEA	January - December	Board
Keep informed on current conservation and environmental issues/developments	January - December	Board
Keep the District financially sound and responsible	January - December	Treasurer
Comply with Idaho's Open Meeting Law	January - December	Board
Notify Idaho NRCS of District priorities and host local work group meetings	January - December	Board
Ensure SWCD is complying with civil rights priorities	January - December	Board
Annually evaluate District employee performance	February	Board

Priority 6

Goal: Promote wildlife conservation

Technical resources: Partner agency staff

Objectives:

- Enhance wildlife habitat in the Butte SWCD

Actions:	Target Date:	Individual(s) Responsible:
Encourage shelterbelt planning and application Promote tree sales held by partner Districts	January - December	Mark Telford/Butte SWCD staff

Encourage delayed haying to facilitate enhanced wildlife habitat	January - December	Mark Telford/Butte SWCD staff
Support producer participation in NRCS programs	January - December	Board
Encourage large- and small-scale pollinator plantings to increase available habitat for pollinator species	January - December	Board/Butte SWCD staff/NRCS
Promote invasive weed control and participation in the NRCS' Cheatgrass Challenge	January - December	Board/Butte SWCD staff/NRCS

Priority 7

Goal: Improve natural resources conservation in urban settings

Technical resources: Partner agency staff

Objectives:

- Support the adoption of natural resources conservation practices in urban settings and on small acreage farms

Actions:	Target Date:	Individual(s) Responsible:
Host informational/educational meetings about conserving natural resources on a small-scale level	January - December	Board/Butte SWCD staff/NRCS
Promote participation in the NRCS EQIP program to install seasonal high tunnels to lengthen the growing season and increase the amount of locally grown produce	January - December	Board/Butte SWCD staff/NRCS

Literature Cited:

Butte County 2017 Census of Agriculture County Profile. Obtained from the USDA National Agricultural Statistics Service www.agcensus.usda.gov on 8/30/19.

Butte County 2013-2017 American Community Survey 5-year Estimates. Obtained from <https://factfinder.census.gov/> on 3/19/19.

Climate data retrieved from <https://www.ncdc.noaa.gov> on 3/18/19.

Custer County 2017 Census of Agriculture County Profile. Obtained from the USDA National Agricultural Statistics Service www.agcensus.usda.gov on 8/30/19.

Custer County 2013-2017 American Community Survey 5-year Estimates. Obtained from <https://factfinder.census.gov/> on 3/19/19.

Idaho Association of Soil Conservation Districts Policy Manual. 2014. Obtained from www.isacd.org on 3/15/2019.

Idaho Department of Environmental Quality. 2019. Big Lost River Subbasin TMDL Five-Year Review, 2019 Addendum and five-year review. Obtained from <https://www.deq.idaho.gov/water-quality/surface-water/tmdls/table-of-sbas-tmdls/big-lost-river-subbasin/> on 11/05/2019.

Idaho Department of Environmental Quality. 2018. Idaho's 2016 Integrated Report. Obtained from <https://www.deq.idaho.gov/water-quality/surface-water/monitoring-assessment/integrated-report.aspx> on 11/05/2019.

Idaho Department of Environmental Quality. 2015a. 2013 Air Quality Monitoring Data Summary. Retrieved from <http://www.deq.idaho.gov/air-quality/monitoring/monitoring-network/> on 3/20/19.

Idaho Department of Environmental Quality. 2015b. Little Lost River Subbasin TMDL Five Year Review. Obtained from <http://www.deq.idaho.gov/water-quality/surface-water/tmdls/table-of-sbas-tmdls/little-lost-river-subbasin/> on 3/22/19.

Idaho Department of Environmental Quality. 2011. Big Lost River Subbasin Total Maximum Daily Load Five-Year Review. Obtained from <http://www.deq.idaho.gov/water-quality/surface-water/tmdls/table-of-sbas-tmdls/big-lost-river-subbasin/> on 3/20/19.

Idaho Department of Water Resources. 2006. Summary of Year 2004 Detections of Concern. Statewide Ambient Ground Water Quality Monitoring Program. Obtained from <https://idwr.idaho.gov/water-data/groundwater-quality/publications.html> on 1/2/2020.

Natural Resources Conservation Service. Snow Survey Products. 30-Year Averages. Retrieved from https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/id/snow/products/?cid=nrcs144p2_46683 on 3/19/2019.

Natural Resource Conservation Service. 2006. Rapid Watershed Assessment for the Little Lost River Valley. Obtained from https://www.nrcs.usda.gov/wps/portal/nrcs/detail/id/water/watersheds/?cid=nrcs144p2_48177 on 12/30/2019.

USFWS IPaC Report for Butte SWCD. Obtained from <https://ecos.fws.gov/> on 2/22/19.

University of Idaho Extension Publication 744. 1992. *Specialty Farming in Idaho: Selecting a Site*.

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