

Bonner County Planning Department

"Protecting property rights and enhancing property value"

1500 Highway 2, Suite 208, Sandpoint, Idaho 83864

Phone (208) 265-1458

Email: planning@bonnercountyid.gov - Web site: www.bonnercountyid.gov



BONNER COUNTY COMPREHENSIVE PLAN

COMPONENT: NATURAL RESOURCES

ADOPTED UPDATE – MARCH 13, 2024

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Introduction

Idaho Code §67-6508 (f) requires the following for the Natural Resources Component:

An analysis of the uses of rivers and other waters, forests, range, soils, harbors, fisheries, wildlife, minerals, thermal waters, beaches, watersheds, and shorelines.

Chapter 1 – Water Bodies

Section 1.1 – Surface Water

WATER BASINS AND WATERSHEDS

There are three water basins within Bonner County – Kootenai Basin, Pend Oreille Basin and Spokane Basin. (USGS Watershed Boundaries, 2020). These basins have several watersheds that drain into either Lake Pend Oreille, Priest Lake, or the Clark Fork River. Table 1 and Table 2 list the recognized water basins and watersheds of each basin as well as their area in acres and square miles. This information is obtained from the United States Geological Survey's Watershed Boundary Dataset 2020.

The Pend Oreille Basin encompasses nearly 26,100 square miles of the intermountain northwest in the states of Montana, Idaho, Washington and some parts of Canada. The Clark Fork River, Lake Pend Oreille, Pend Oreille River, Priest Lake and Priest River are the main bodies of water in the basin. The Pend Oreille Basin is characterized by highly valued recreational economic resources. Vast resources of minerals, timber, fish, wildlife, water, rangeland, and croplands support a variety of human uses, ranging from mining and agriculture to recreational fishing and boating.

The Kootenai and Spokane basin cover approximately 19,345 square miles and 6583 square miles in area, respectively, only a small portion of which lies in Bonner County.

Table 1 identifies the water basins in Bonner County. Table 2 identifies the watersheds in Bonner County within each of the three aforementioned water basins. See Appendix.

For any beneficial use of water, a water right must be obtained from IDWR prior to putting the water to beneficial use. There are a few exceptions (mainly domestic use from a well or instream stock water use). If wells are being drilled, IDWR has rules about well construction and setbacks. The agency also has jurisdiction over stream channel alterations (for bridges, culverts, etc.). (Idaho Department of Water Resources, personal communication, July 18, 2023)

SURFACE WATER USES

Recreational Uses:

Bonner County's surface water resources are used for a wide range of recreational activities, including but not limited to the following:

- Aquatic sports such as wake boarding, water skiing, etc.
- Boating, both motorized and non-motorized.
- Fishing - A number of high-quality sport fisheries are found in Bonner County.
- Swimming

Domestic Water Supply:

Many homeowners utilize surface water for drinking and/or irrigation. Any property owner, municipality or community that wants to use surface water on or adjacent to their property for domestic water supply must claim a water right from IDWR. Owners can apply for a license to use water beyond the statutory water right amount.

Hydro – Electric Power Generation:

Two major dams located in Bonner County are used to generate hydro-electric power. The Cabinet Gorge dam is located on the Clark Fork River just west of the Idaho-Montana border. The dam is operated by Avista, and has an installed capacity of 230 megawatts. The Albeni Falls dam is located on the Pend Oreille River between Priest River and Oldtown. The Albeni Falls dam is operated by the Army Corps of Engineers, and has an installed capacity of 42 megawatts. It generates about 200,000,000 kilowatt-hours of electrical power per year for the Bonneville Power Administration.

Operation of these two dams is coordinated to control the Lake Pend Oreille water level.

There are an unknown number of small privately-owned hydroelectric generation facilities in Bonner County. A water right is needed for such systems on private property.

Irrigation and/or Livestock:

Property owners with surface water resources located on their property may hold water rights to use that water for irrigation and/or livestock. Water rights are recorded and administered by the Idaho Department of Water Resources.

CURRENT AND POTENTIAL THREATS TO SURFACE WATER RESOURCES

There are several threats to our water quality where appropriate land use policies can have a positive impact on our water quality. Bonner County recognizes that there are impaired waterways in the county. A reference to such waterways can be found in the bibliography of this component. In order to continue to enjoy the uses of our surface water resources identified in the previous section, Bonner County should continue implementing land use policies protecting surface water quality so that it is safe and enjoyable for human use, and it continues to support our aquatic wildlife.

Treated Wastewater Discharge:

There are wastewater treatment plants located within Bonner County that discharge in the Bonner County waterways. The operation of these facilities is regulated by the Idaho Department of Environmental Quality. While Bonner County has no authority over these operations, it is noted here as they are a potentially significant source of pollution. There are a number of other smaller sewer districts that discharge effluent using land application sites.

Sediment:

Excess sediment can negatively affect water quality. A source of excess sediment is stormwater runoff. The impact from stormwater runoff can be reduced by land use policies.

Non-Point Source Chemical Run-Off:

This occurs when the cumulative impact of run-off from many small sources adds up to create negative impacts to the water quality. An area of concern are chemicals from fertilizers washing into the water. These chemicals can cause excess growth of aquatic plants and algae, which leads to reduced oxygen content in the water. This in turn impacts fish and other aquatic wildlife.

Excess phosphorus in the water can lead to harmful algal blooms. They are toxic to humans and animals, and can negatively impact many of the uses of our surface water resources. Some common sources of phosphorus are fertilizers, wastewater treatment plant discharge, livestock poorly maintained septic systems, stormwater runoff, and shoreline development.

High Water Temperatures:

High water temperatures are a threat to fish, especially the salmonid species. High water temperatures often occur when stream banks that have historically been shaded are altered such that shade is reduced. Additional reasons for high water temperatures may include: excess sediment, nearshore development, removal of riparian vegetation, and stormwater runoff.

LAND USE STRATEGIES TO MITIGATE THREATS TO SURFACE WATER RESOURCES:

Bonner County should use a combination of two approaches to mitigating impacts to surface water through land use management. The first should be to implement a program of educating owners of shoreline property about best management practices to reduce impacts to surface water quality. Refer to Lake Assist, a program of the Bonner Soil and Water Conservation District. (*Pollution Prevention* | *Lake Assist*, n.d.)

The second approach should be to implement and codify shoreline development land use regulations that address those areas where the county can enforce such regulations effectively.

Education and Voluntary Action:

The Lake Assist guidebook developed by the Bonner County Soil Conservation District provides a comprehensive description of ways that shoreline property owners can help mitigate impacts to surface water quality. This guidebook can be a useful tool to educate residents about best practices to minimize impacts to water quality. One benefit of this educational/voluntary approach is that we can address some topics that are not amenable to land use regulation. To cite just one example, avoiding “over-fertilization” near shorelines is important to reduce non-point source run-off, but it is certainly not practical for the county to attempt to regulate this in any way.

The county should establish a policy of doing the following as a means of educating shoreline property owners about ways they can minimize their impact to surface waters:

- Provide a copy (physical or link) of the Lake Assist guidebook to property owners or their representatives applying for BLPs on shoreline properties.
- Make a link to the guidebook available via the Planning Department web site.

Shoreline Development Regulations:

The County should continue enforcing land use regulations aimed at mitigating impacts to surface water resources, including the following:

- Sufficient setbacks between structures and shorelines.
- Implementation of stormwater flow control measures on properties that slope towards shorelines.
- Require temporary stormwater flow control measures before ground disturbing development near shorelines.
- Follow Panhandle Health guidelines regarding setbacks of septic systems to shorelines.
- Shoreline Buffer Regulations

Section 1.2 – Groundwater Resources

GROUNDWATER SYSTEMS AND THEIR USES:

The Idaho Department of Water Resources conducted a study in 1981 – Ground Water Resources of Idaho, in an attempt to identify and describe the aquifers of Idaho. The aim of the study was to designate these aquifers as underground sources of drinking water, or exempt them from the designation based on the use of the water source at that time and in the future. The agency noted that after review of the existing data at the time identifying and describing every aquifer was neither practical nor possible. Therefore, the Department adopted an alternate approach of identifying and describing the major groundwater flow systems in the State of Idaho. (Graham & Campbell, 1981)

USES OF GROUNDWATER SYSTEMS:

The study identifies three major groundwater systems in Bonner County – Priest River, Pend Oreille River and Rathdrum Prairie. While Priest River and Pend Oreille groundwater systems seem to be located entirely within Bonner County, Rathdrum Prairie groundwater system is only partly located within Bonner County. The majority of this system is located within Kootenai County to the south. Future land use in this area of overlap should be evaluated in further detail to appropriately address concerns of potential future impacts of growth. See the map attached in the Appendix of this document.

WATER LEVELS, QUALITY AND DISTRIBUTION:

Idaho Department of Water Resources (IDWR) manages water in the State of Idaho through water allocation and distribution processes. The agency issues water rights that authorize the use of public water by private individuals and organizations. The organization also measures groundwater levels and groundwater quality in Idaho. More information regarding this can be found on the agency's website. (*Idaho Department of Water Resources*, n.d.)

Land use applications in Bonner County are reviewed by the Idaho Department of Water Resources for the purpose for regulating water quality and quantity.

Section 1.3 – Wetlands

Congress enacted the Emergency Wetlands Resources Act in 1986 (Public Law 99-645). This legislation directed the U.S. Fish and Wildlife Service to map America's wetlands and to conduct decadal national wetlands status and trends studies and report the findings to Congress. The Service created the National Wetlands Inventory to carry out these responsibilities. (*National Wetlands Inventory* | U.S. Fish & Wildlife Service, 2023)

The Environmental Protection Agency (EPA) develops and interprets policy, guidance and environmental criteria used in evaluating permit applications, determines the scope of geographic jurisdiction and applicability of exemptions, reviews and comments on individual permit application and has the authority to prohibit, deny, or restrict the use of any defined area as a disposal site (Section 404(c)).

The U.S. Army Corps of Engineers (USACE) administers the day-to-day program, including individual and general permit decisions, conducts or verifies jurisdictional determinations and develops policy and guidance.

Both EPA and USACE enforce Section 404 provisions. Section 404 of the Clean Water Act (CWA) establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Activities in waters of the United States regulated under this program include fill for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports) and mining projects. (US EPA, 2015)

National Wetland Inventory (NWI) maps are tools of probability. They are not controlling in terms of regulatory authorities. Aquatic resource features in NWI maps are not federally recognized wetlands for determining jurisdiction under CWA Section 404. This map generally gives a reasonable indication on the potential presence for wetlands. (U.S. Army Corps of Engineers, Walla Walla District, personal communication, 2023)

The NWI map currently indicates potential presence of several wetlands in Bonner County. (*National Wetlands Inventory*, n.d.) Bonner County uses NWI maps as the basis of regulating land use adjacent to wetlands in the county. Bonner County property owners requesting development on parcels of land for which the NWI indicates the presence of wetlands are required to produce a wetland reconnaissance by a design professional that is accepted or authorized by the U.S. Army Corps of Engineers to determine wetland boundaries. While the U.S. Army Corp of Engineers performs Jurisdictional Determinations¹ to determine if the wetlands are jurisdictional or not, the agency does not determine the boundaries of the wetlands. The boundaries of wetlands are determined by the wetland delineations performed by professionals in accordance with U.S. Army Corp of Engineers guidelines.

Currently, Bonner County ordinances regarding wetlands are administered independently of the U.S. Army Corp of Engineer's Jurisdictional Determination.

¹ Jurisdictional Determinations are performed on a property in order to delineate which waters are Waters of the U.S. and are therefore subject to Clean Water Act (CWA) 404.

USES OF WETLANDS

The United States Environmental Protection Agency states that wetlands play an integral role in the ecology of a watershed.

The agency notes, "The combination of shallow water, high levels of nutrients and primary productivity is ideal for the development of organisms that form the base of the food web and feed many species of fish, amphibians, shellfish and insects. Many species of birds and mammals rely on wetlands for food, water and shelter, especially during migration and breeding."

Wetlands' microbes, plants and wildlife are part of global cycles for water, nitrogen and sulfur. Furthermore, scientists are beginning to realize that atmospheric maintenance may be an additional wetlands function. Wetlands store carbon within their plant communities and soil instead of releasing it to the atmosphere as carbon dioxide. Thus, wetlands help to moderate global climate conditions." (US EPA, 2015).

Wetlands are also flood attenuation and filtering tools. (Murphy, 2014)

To the extent of the County's jurisdiction and consistent with the Clean Water Act, delineated wetlands should be protected.

Section 1.4 – Geothermal Waters

According to the United States Geological Survey, there are no hot springs or thermal water wells in Bonner County. (*Thermal Springs in the U.S.*, n.d.)

Section 1.5 – Fisheries and their Uses

Bonner County is home to many incredible fisheries resources. In particular, the Pend Oreille Basin supports some of the most popular recreational fisheries and strongest native fish populations in all of Idaho. Lake Pend Oreille has worldwide notoriety as a trophy fishery for species such as Gerrard strain rainbow trout and bull trout. The lake also offers diverse angling opportunities for over a dozen fish species. The lake and its tributaries are a stronghold for the ESA-listed bull trout. Many fish populations in the lake rely on high-quality tributary habitat for spawning and rearing. Migration between the lakes and spawning grounds is of particular importance for these species. Threats to these fisheries include predation and competition from introduced aquatic species, water quality impairments from shoreline development, stream alterations, erosion and sedimentation and water use. (Idaho Fisheries Management Plan, 2016)

Bonner County's fisheries are significant contributors to the economy and enjoyment of the county's waters by citizens and visitors alike. Bonner County waters support recreational fishing, a number of businesses directly tied to fishing, and contribute to a much broader segment of the business community to include a considerable portion of the tourism economy.

Section 1.6 – Beaches, Harbors and their Uses

There are several beaches in Bonner County. However, the land use regulations that apply to the beaches are the same as those that apply to other shoreland areas. No special land use regulations apply to beaches in Bonner County. Public beaches provide access to public waters and provide recreation through activities such as swimming, kayaking, boating etc.

There are no designated harbors in Bonner County.

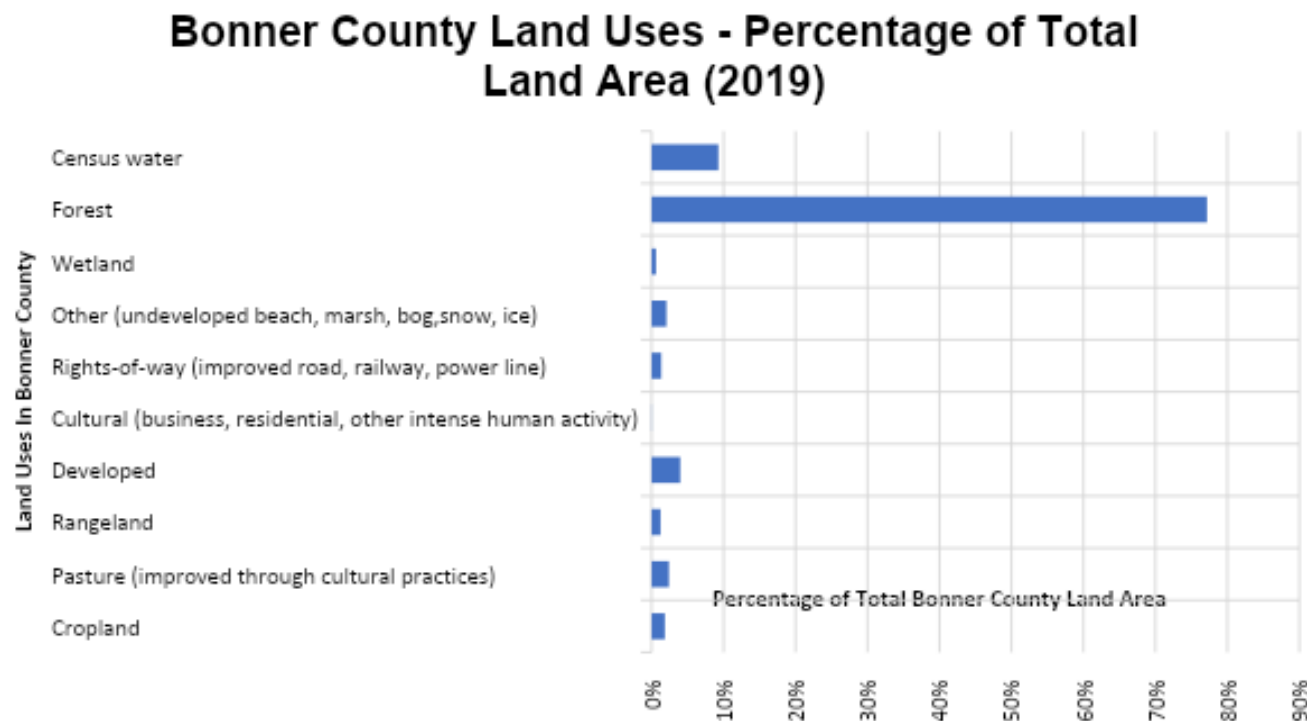
Chapter 2 – Forests

Section 2.1 – Forest Composition

A variety of tree species groups grow in the mixed conifer forests of Bonner County. These include moist cedar/hemlock forests and drier Douglas fir/ponderosa pine forests. (J. York, personal communication, November 13, 2023)

According to the Forest Inventory and Analysis by U.S. Forest Service’s 2019 estimates, nearly 77.17% of the land area in Bonner County is covered by forests. Water covers nearly 9.28% area of the County. Developed areas constitute nearly 3.98% of the total area. The remaining uses constitute less than 10% of the total land area of the county. See figure below. (*FIA Land Resources Explorer*, 2019)

Figure 1 Bonner County: Land Use Area Estimates, in 1000 acres (2019)



Source: Forest Inventory and Analysis Land Resources Explorer – U.S. Forest Service, 2019

Section 2.2 – Ownership

Of the total land area covered by forests in Bonner County (948,055 acres), approximately 26% (250,390 acres) of the forests are owned by private landowners in the unincorporated Bonner County. (*FIA Land Resources Explorer*, 2019 and Bonner County Assessor's Office, 2023)

Section 2.3 – Uses of Forests

Forests provide places for recreational activities such as camping, hiking, hunting, foraging etc. They also provide valuable products and resources such as paper and packaging material, lumber for homes and buildings, composite materials for construction, renewable energy materials, stronger and lighter laminated building materials, high value wood for furniture and flooring and structural materials for bridges and transportation safety. (*Forest Products*, 2016)

In the year 2021, nearly 58% of the timber harvested in Bonner County came from privately owned land. In 2021, Bonner County produced a total of 121 Million Board Feet of timber. 35% of the total production was harvested from state endowment lands and 7% timber was harvested from federal lands. Over the last two decades the contribution of timber harvest from privately owned lands has remained over 50% of the total harvest each year. (*Bonner County's Forest Products Industry 2021*, 2022)

Section 2.4 – Threatened or Endangered Plant Species

There are no endangered plants species, as listed under the Federal Endangered Species Act (1973) that are known to occur in Bonner County. Whitebark Pine (*Pinus albicaulis*) is the only threatened species of plant known or believed to occur in Bonner County. (*ECOS: USFWS Threatened & Endangered Species Active Critical Habitat Report*, n.d.)

Chapter 3 – Soils

This chapter provides a brief discussion of the soils found in Bonner County, Idaho. The subject matter is a summary of the detailed information that can be found at the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS), formerly known as the Soil Conservation Service, Soil Survey of the Bonner County Area, Idaho, 1982. Please refer to the NRCS survey for detailed descriptions of the soil map units (Table 8-15). The NRCS survey does not include all portions of Bonner County. The survey addresses areas in the County that are in private ownership as the survey was produced to help farmers and other land owners understand the makeup and capabilities of their soils.

The Farmland Protection Policy Act was enacted by the Congress in 1981. The purpose of the Act is to minimize unnecessary and irreversible federally-aided conversion of farmland to nonagricultural uses. This Act does not authorize the Federal Government to regulate the use of private or nonfederal land or, in any way, affect the property rights of owners. (*Farmland Protection Policy Act* | *Natural Resources Conservation Service*, n.d.)

Section 3.1 - Farmland Protection Policy Act

According to United States Department of Agriculture (USDA), Natural Resource Conservation Services (NRCS), Farmland Protection Policy Act, important farmland includes all land that is defined as prime, unique or statewide or locally important. The Act states that the identification of important farmlands will be determined from currently published or interim soil survey maps and data produced and certified by NRCS National Cooperative Soil Survey Program (NRCS, USDA, n.d.).

The Act further states the following pertaining to defining Prime Farmlands and Farmland of Statewide Importance.

"530.20 (2) Designating Important Farmland Soils

A. Defining Farmland Subject to Provisions of Farmland Protection Policy Act (FPPA)

(2) Soil map units with components of prime farmland are defined as follows. All other soil map units should be shown as not important farmland, unless they are unique farmland.

- (i) Prime Farmland.—Fifty percent or more of the components in the map unit are prime farmland.
- (ii) Farmland of Statewide Importance.—Less than 50 percent of the components in the map unit are prime farmland, but the combination of prime farmland and farmland of statewide importance is 50 percent or more of the map unit."

DESIGNATION OF SOILS

Designating Prime Farmland Soils: The Act states that the lists of prime farmland soils will be developed by NRCS according to criteria in USDA Departmental Regulation (DR) 9500-3, dated March 22, 1983, and 7 CFR Section 657.5 (NRCS, USDA, n.d.).

Designating Unique Farmland Soils: The Act states that Unique Farmland will be created based on the criteria outlined in DR 9500-3 and 7 CFR Section 657.5 (NRCS, USDA, n.d.).

Designating Farmland of Statewide Importance: The Act states that farmland of Statewide Importance must be designated by the State Government (i.e., the office of the State Secretary of Agriculture or a higher office) and that the NRCS State Conservationist must concur with this designation in order for it to apply to FPPA (NRCS, USDA, n.d.).

Section 3.2 - Prime Farmland Soils

According to the Code of Federal Regulations, Title 7, Subtitle B, Chapter VI, Subchapter F, Section 657.5, Prime Farmland is defined as *"land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses (the land could be cropland, pastureland, rangeland, forest land, or other land, but not urban built-up land or water). It has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management, according to acceptable farming methods. In general, prime farmlands have an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, acceptable salt and sodium content, and few or no rocks. They are permeable to water and air. Prime farmlands are not excessively erodible or saturated with water for a long period of time, and they either do not flood frequently or are protected from flooding. Examples of soils that qualify as prime farmland are Palouse silt loam, 0 to 7 percent slopes; Brookston silty clay loam, drained; and Tama silty clay loam, 0 to 5 percent slopes."* (7 CFR Part 657 -- Prime and Unique Farmlands, n.d.)

In accordance with the Code of Federal Regulations as noted above, NRCS designated Prime Farmland soils in Bonner County. The designation of Prime Farmland soils is based on the limitations imposed by irrigation, drainage and flooding. The designated categories of Prime Farmland are:

- All areas are Prime Farmland
- Prime Farmland, if irrigated
- Prime Farmland, if drained
- Prime farmland, if drained and protected from flooding or not frequently flooded during the growing season.

These soil designations can be found in the Appendix of this component. The agency also provided a map depicting the location of prime farmland soils in Bonner County. The map can be found in the Appendix of this component.

Approximately 436,717 acres (39.48% of the total land area) of Bonner County consists of privately-owned lands. Of all the privately owned land in Bonner County, nearly 15% (65,515 acres) of the land contains soils classified as "All areas are Prime Farmland." This soil designation can be found scattered throughout Bonner County, but most of it is in the southwestern and north-central portions of the county.

The main crops (in acres) grown in Bonner County are hay, wheat, cultivated Christmas trees, oats and barley. See Tables in the Appendix of this component. (*Census of Agriculture - 2017 Census Publications - State and County Profiles - Idaho*, n.d.)

Section 3.3 - Farmland of Statewide Importance

As noted above, the Farmland Protection Policy Act states that Farmland of Statewide Importance must be designated by the State Government (i.e., the office of the State Secretary of Agriculture or a higher office) and that the NRCS State Conservationist must concur with this designation in order for it to apply to FPPA (NRCS, USDA, n.d.).

It is not evident that the Idaho State Department of Agriculture or any other higher office of the state has designated the "Farmland of Statewide Importance" for the State of Idaho. Further, as required by the Act, it is not evident that such designations have been formally adopted by the NRCS State Conservationist for the State of Idaho.

It is to be noted that NRCS has provided Bonner County a list of soils classified as "Farmland of Statewide Importance." The list of soils classified as Farmland of Statewide Importance can be found in the Appendix of this component. However, as noted previously, evidence of formal designation of soils as "Farmland of Statewide Importance" does not exist.

Section 3.4 - Not-Prime Farmland

All other soil types not classified as Prime Farmland or Farmland of Statewide Importance are classified as Not-Prime Farmland.

Section 3.5 – Land Capability Classification

The soils are further classified based on Land Capability Classification. This is a system of grouping soils primarily on the basis of their capability to produce common cultivated crops and pasture plants without deteriorating over a long period of time. This classification system classifies soils into capability class and capability subclass. Detailed information about this classification system can be found in the Appendix of this component.

Section 3.6 - Soil Properties

The USDA Natural Resource Conservation Service (NRCS) Soil Survey of the Bonner County Area, Idaho, gives estimates of the engineering classifications and of the index properties of the major soil layers of contrasting properties within the upper 5 or 6 feet. Most soils have layers of contrasting properties within this depth range.

A detailed description of these engineering, physical and chemical properties as well as the water features of the soils in Bonner County can be found in the Soil Survey of the Bonner County Area, Idaho, 1982. These estimates are available for the major layers of each soil in the survey area and are based on field observations and on test data for these and similar soils. (*Idaho Soil Surveys*, n.d.).

SEWAGE DISPOSAL CHARACTERISTICS

The USDA Natural Resource Conservation Service Soil Survey of the Bonner County Area, Idaho, shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. Panhandle Health District determines the suitability of soils on private properties for the location of septic systems.

Chapter 4 – Wildlife

Section 4.1 – General Overview

The varied vegetation and topography of Bonner County offer diverse habitat for a wide variety of wildlife. The plentiful waters provided by the County's rivers, lakes, and streams are wintering and breeding grounds for hundreds of bald eagles and ospreys and thousands of waterfowl. Forested foothills and mountains and the broad grass valleys provide habitat for moose, bear, elk, and deer and countless species of songbirds, fur-bearing mammals, predators, and non-game animals. Wildlife is an important resource to Bonner County in terms of aesthetic values, economics, and recreation. However, fish and wildlife habitats in Bonner County can be sensitive to growing rural development.

Section 4.2 – Endangered and Threatened Species

UNITED STATES FISH AND WILDLIFE SERVICE

The Endangered Species Act (ESA) of 1973 provides a program for the conservation of Endangered and Threatened species of plants and animals and the habitats in which they are found. The lead federal agencies for implementing ESA are:

- U.S. Fish and Wildlife Service (FWS)
 - The Fish and Wildlife Service maintains a worldwide list of endangered species. Species include birds, insects, fish, reptiles, mammals, crustaceans, flowers, grasses, and trees.
- U.S. National Oceanic and Atmospheric Administration (NOAA) Fisheries Service (US EPA, 2013)

According to the U.S. Fish and Wildlife Service, the following threatened or endangered species are observed in Bonner County:

- Canada Lynx
- Grizzly Bear
- North American Wolverine
- Southern Mountain Caribou DPS
- Yellow-billed Cuckoo
- Bull Trout
- Monarch Butterfly
- Whitebark Pine

It is to be noted that while the above listed species may be observed in Bonner County, the County is not a designated Critical Habitat for all of the species. Refer to Section 4.2 (*IPaC*, n.d.).

IDAHO FISH AND GAME COMMISSION

Idaho State Code Section 36-201 establishes that with the exception of predatory animals, the Idaho Fish and Game Commission is authorized to define by classification or reclassification all wildlife in the state of Idaho. Such definitions and classifications shall include (*Section 36-201 – Idaho State Legislature*, n.d.):

- (a) Game animals
- (b) Game birds
- (c) Game fish
- (d) Fur-bearing animals
- (e) Migratory birds
- (f) Threatened or endangered wildlife
- (g) Protected nongame species
- (h) Unprotected wildlife

Pursuant to the Idaho State Code Section 36-201 and IDAPA (Idaho Administrative Procedures Act) Section 13.01.06, Idaho Fish and Game Commission classified some animal species as Endangered or Threatened in the State of Idaho. (*Idaho Classification of Wildlife (IDAPA)* | *Idaho Fish and Game*, n.d.). The agency notes that the following have been observed in Bonner County:

- Caribou *Rangifer tarandus* (Endangered)
- Bull Trout *Salvelinus confluentus* (Threatened)
- Canada Lynx *Lynx Canadensis* (Threatened)
- Grizzly Bear *Ursus arctos horribilis* (Threatened)

In addition to the threatened and endangered species, the 2023 Idaho State Wildlife Action Plan (SWAP) designates certain non-game species as Species of Greatest Conservation Need or SGCN. In the interest of preserving these species and maintaining our current level of biodiversity, the SWAP provides ways to minimize and mitigate negative effects on these species.

Section 4.2 – Critical Habitat

WHAT IS CRITICAL HABITAT AND WHO DESIGNATES SUCH AREAS?

U.S. Fish and Wildlife Service identifies specific areas that are essential to a species' conservation listed as endangered or threatened under the Endangered Species Act (ESA) at the time of its listing. It is a tool that supports the continued conservation of imperiled species by guiding cooperation with the federal government. Critical habitat designations affect only federal agency actions or federally funded and permitted activities. (*Critical Habitat* | *U.S. Fish & Wildlife Service*, 2017)

FOR PRIVATE LANDOWNERS AND CITIZENS

U.S. Fish and Wildlife Service (USFWS) further notes that, for private landowners and citizens, Critical Habitat designations do not affect activities by private landowners if there is no federal "nexus" – that is, no federal funding or permits are required to carry out the activity.

Identifying critical habitat informs landowners and the public which specific areas are important to a species' conservation and recovery. It also raises awareness of the habitat needs of imperiled species and focuses the efforts of USFWS's conservation partners.

USFWS further notes that designation of critical habitat does not:

- "Affect land ownership.
- Allow the government to take or manage private property.

- *Establish a refuge, reserve, preserve, or other conservation area.*
- *Allow government or public access to private land.”*

(Critical Habitat | U.S. Fish & Wildlife Service, 2017)

CRITICAL HABITAT AND LAND DEVELOPMENT

USFWS notes that *"Critical Habitat does not prevent all development or other activities that occur in a designated area. Only activities that involve a federal permit, license, or funding, and are likely to destroy or adversely modify critical habitat will be affected. If this is the case, the Service works with the agency and landowners to amend the project to enable it to proceed with adversely affecting critical habitat. Most federal projects are likely to go forward, but some may be modified to minimize harm."* (Critical Habitat | U.S. Fish & Wildlife Service, 2017)

CRITICAL HABITAT EXCLUSIONS

An area may be excluded from critical habitat designation based on economic, national security, or other relevant impacts. In some cases, USFWS may determine that the benefits of excluding it outweigh the benefits of including it.

USFWS can also make a determination not to designate critical habitat when a designation would likely increase the threat of collection, vandalism, or incidental habitat degradation by curiosity seekers (Critical Habitat | U.S. Fish & Wildlife Service, 2017).

CRITICAL HABITATS IN BONNER COUNTY

Of all the Endangered and Threatened species of plants and animals as classified by the U.S. Fish and Wildlife Service, Bonner County is a designated Critical Habitat for Bull Trout only (IPaC, n.d.).

ESA SECTION 7 CONSULTATION

The United States Fish and Wildlife Service notes that the purpose of the Endangered Species Act is to provide a means to conserve the ecosystems upon which endangered and threatened species depend and provide a program for the conservation of such species.

Section 7 Consultation of The Endangered Species Act (ESA) directs all Federal agencies to work to conserve endangered and threatened species and to use their authorities to further the purposes of the Act. This is a consultation process initiated by any federal agency when any project or action they authorize, fund, or carry out may affect a listed species or designated critical habitat. The consultation process can vary depending on the complexity of the project or action.

The Consultation process occurs in five steps – Informal Consultation, Review, Determination, Formal Consultation and Conclusion of Biological Opinion.

The conclusion of the biological opinion will state whether the federal agency has ensured that its action is not likely to jeopardize the continued existence of a listed species and/or result in the destruction or adverse modification of critical habitat. A biological opinion usually includes conservation recommendations to further the recovery of listed species, and it also may include

reasonable and prudent measures, as needed, to minimize any "take" of listed species (*ESA Section 7 Consultation* | *U.S. Fish & Wildlife Service*, 1998).

Chapter 5 - Minerals

Idaho defines "Mineral" in Title 47-1503. "Mineral" means coal, clay, stone, sand, gravel, metalliferous and nonmetalliferous type of ores, and any other similar solid material or substance of commercial value to be excavated from natural deposits on or in the earth.

Since Idaho became a State in 1890, the legislature recognized the importance of mining and the material that is utilized in nearly every aspect of development. Idaho State Code section 67-6502 (e) states, *"To encourage the protection of prime agricultural, forestry and mining lands and land uses for production of food, fiber and minerals, as well as the economic benefits they provide to the community."* Realizing this importance, the legislature went so far as to allow even private mines to utilize eminent domain to ensure their completion of the resource. (*Section 14 – Idaho State Legislature*, n.d.; *Marsh mining v. Inland Empire Mining*; *Potlatch Lumber v. Henry Peterson*; *Boise Redevelopment v. Yick Kong*)

Most of the mining activity today in Bonner County is limited to sand, gravel, and rock extractions.

The established gravel pits, mines, quarries, and sand pits in Bonner County are shown on the map titled, *Mines Located in Bonner County, Idaho*, found in the map appendix in the Natural Resources component.

Section 5.1 - Metals

There are a few metallic ore mines being operated in Bonner County, but work is restricted to exploration and assessment.

QUANTITY:

Though prospectors have explored Bonner County in search of valuable ores, there is little present-day activity.

Section 5.2 - Non-Metals

TYPE:

Sand, gravel, and rock quarry mining comprise the majority of mining activities in Bonner County.

LOCATION & QUANTITY:

Mines are located in several areas of Bonner County. With noted locations East of Dover; Colburn; North Kootenai road; Sagle; Priest River, and Clark Fork areas. Slate mines are noted East of Clark Fork. These mines employ over 300 full and part time jobs. This does not include the independent dump truck drivers; excavation companies that rely on this material for projects. These mines currently produce over 1,000,000 tons of material per year.

USES:

Mined materials in Bonner County are largely used for road and building construction for private, county and state roads. Uses also include material for building pads, concrete, asphalt, septic leach fields, decorative, rip-rap, lawns and gardens. It must be noted that not all mines supply the same material. For example, drain rock for septic leach fields have a certain specification that must be met. Only a few mines can supply this material to meet that criteria. Just as sand and small rock must meet specifications for cement mixtures. And hard rock must be utilized to meet asphalt specifications. Mining for hard rock and quartzite can be used for rip rap, cover material, etc.

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Appendix

Table 1 Water Basins in Bonner County

Name	HUC6	Area (Acres)	Area (Sq.Miles)	States
Kootenai	170101	12380972.8	19345.3	CN,ID,MT
Pend Oreille	170102	16704074.6	26100.1	CN,ID,MT,WA
Spokane	170103	4213523.8	6583.6	ID,MT,WA

Note: Watersheds are delineated by USGS using a nationwide system based on surface hydrologic features. This system divides the country into 22 regions (2-digit), 245 subregions (4-digit), 405 basins (6-digit), ~2,400 subbasins (8-digit), ~19,000 watersheds (10-digit), and ~105,000 subwatersheds (12-digit). A hierarchical hydrologic unit code (HUC) consisting of 2 additional digits for each level in the hydrologic unit system is used to identify any hydrologic area (see Federal Standards and Procedures for the National Watershed Boundary Dataset). A complete list of Hydrologic Unit codes, descriptions, names, and drainage areas can be found in the United States Geological Survey Water-Supply Paper 2294, entitled "Hydrologic Unit Maps".

Source: Watershed Boundary Dataset, 2020 – United States Geological Survey.

Table 2 Watersheds in Bonner County

Name	HUC10	Area (Acres)	Area (Sq.Miles)	States
Kootenai Basin				
Lake Creek	1701010116	130865.3	204.5	ID,MT
O'Brien Creek-Kootenai River	1701010117	142162.1	222.1	ID,MT
Deep Creek	1701010404	118599.0	185.3	ID
Pend Oreille Basin				
Lightning Creek	1701021312	75306.0	117.7	ID,MT
Cabinet Gorge Reservoir-Clark Fork	1701021313	195451.4	305.4	ID,MT
Pack River	1701021401	182415.1	285.0	ID
Sand Creek-Lake Pend Oreille	1701021402	255447.7	399.1	ID
Cocolalla Creek-Pend Oreille River	1701021403	111522.1	174.3	ID
Hoodoo Creek-Pend Oreille River	1701021404	122443.9	191.3	ID
Spirit Lake	1701021405	104356.4	163.1	ID,WA
Upper Priest River	1701021501	131895.6	206.1	CN,ID,WA
Granite Creek	1701021502	63637.4	99.4	ID,WA
Priest Lake-Priest River	1701021503	197621.8	308.8	ID,WA
Upper West Branch Priest River	1701021504	44893.7	70.1	ID,WA
East River	1701021505	43603.1	68.1	ID
Lower West Branch Priest River	1701021506	56390.5	88.1	ID,WA
Outlet Priest River	1701021507	89902.2	140.5	ID,WA
Spokane Basin				
North Fork Coeur d'Alene River	1701030101	65512.0	102.4	ID,MT
Tepee Creek	1701030102	91809.9	143.5	ID
Little North Fork Coeur d'Alene River	1701030106	109013.5	170.3	ID
Upper Little Spokane River	1701030801	178244.3	278.5	ID,WA

Note: Watersheds are delineated by USGS using a nationwide system based on surface hydrologic features. This system divides the country into 22 regions (2-digit), 245 subregions (4-digit), 405 basins (6-digit), ~2,400 subbasins (8-digit), ~19,000 watersheds (10-digit), and ~105,000 subwatersheds (12-digit). A hierarchical hydrologic unit code (HUC) consisting of 2 additional digits for each level in the hydrologic unit system is used to identify any hydrologic area (see Federal Standards and Procedures for the National Watershed Boundary Dataset). A complete list of Hydrologic Unit codes, descriptions, names, and drainage areas can be found in the United States Geological Survey Water-Supply Paper 2294, entitled "Hydrologic Unit Maps".

Source: Watershed Boundary Dataset, 2020 – United States Geological Survey.

Table 3 Bonner County: Land Use Area Estimates (2019)

Land Uses in Bonner County	Area Estimates (acres)	% of Total Land Area
Cropland	22663.50	1.84%
Pasture (improved through cultural practices)	29562.56	2.41%
Rangeland	15253.76	1.24%
Developed	48929.96	3.98%
Cultural (business, residential, other intense human activity)	563.65	0.05%
Rights-of-way (improved road, railway, power line)	16498.48	1.34%
Other (undeveloped beach, marsh, bog, snow, ice)	25411.00	2.07%
Wetland	7554.50	0.61%
Forest	948055.92	77.17%
Census water	114041.66	9.28%
Total Land Area	1228535.00	100.00%

Source: Forest Inventory and Analysis, 2019 – U.S. Forest Service.

Table 4 Bonner County (Unincorporated): Number of Parcels with Tax Exemptions (March 2023)

	Bonner County	% of Total No. of Parcels	Bonner County (Uninc.)	% of Total No. of Parcels
Total Number of Parcels	43205		34705	
Forestland Exemptions	7922	18.3%	7841	22.6%
Agricultural Exemptions	1629	3.8%	1583	4.6%
Forestland and Agricultural Exemptions	588	1.4%	588	1.7%
Homeowner Exemptions	13987	32.4%	10565	30.4%

Note: The estimates for these tax exemption categories are not exclusive of each other. For instance, some of the parcels with Agricultural Exemptions may also have Forestland or Homeowner Exemptions and vice versa.

Source: Bonner County Planning Department and Assessor's Office (March 2023)

Table 5 Bonner County: Number of active Idaho primary wood products facilities by County (2001)

Sawmills	5
Veneer/ Plywood	1
Posts, Poles and other roundwood products	5
House logs	4
Cedar	
Residue-related products*	3
Total	18

Note: *Residue-related products include a particleboard plant, round wood/ chip conversion facilities, pulp and paper facilities, decorative bark plants, and biomass/energy facilities.

Source: Idaho's Forest Products Industry: A Descriptive Analysis

Table 6 Bonner County: Timber Harvest (1979, 1985, 1990, 1995, 2001, 2021)

Year	Million Board Feet	Percentage of Total Harvest in Idaho
1979	142	8
1985	175	11
1990	197	12
1995	139	10
2001	124	12
2021*	121*	

Source: Idaho's Forest Products Industry: A Descriptive Analysis

***Source:** Bonner County Forest Inventory Stocks. College of Natural Resources Policy Analysis Group – University of Idaho.

Table 7 Bonner County Soils: Prime Farmland (2022)

Soil Map Unit(s)	Map Unit Name	Acres
2	Bonner gravelly ashy silt loam, 0 to 4 percent slopes	23,693
4, 546c	Bonner silt loam, cool, 0 to 4 percent slopes	15,972
9, 547c	Colburn very fine sandy loam, 0 to 4 percent slopes	8,136
12	Elmira loamy sand, 0 to 8 percent slopes	889
13	Elmira loamy coarse sand, 0 to 4 percent slopes	211
20	Kaniksu sandy loam, 0 to 4 percent slopes	5,122
2yxtj	Bonner-Dufort outwash terraces, complex, 0 to 6 percent slopes	542
2yxtk	Pend Oreille-Highfalls complex, 0 to 6 percent slopes	669
2yxtn	Dufort-Highfalls complex, 0 to 7 percent slopes	132
43	Rathdrum silt loam, 0 to 2 percent slopes	794
44	Rathdrum silt loam, cool, 0 to 8 percent slopes	215
45	Rathdrum-Bonner ashy silt loams, 0 to 8 percent slopes	2,343
48	Selle fine sandy loam, 0 to 8 percent slopes	4,509
51	Treble gravelly sandy loam, 5 to 20 percent slopes	1,943
59vt	Martella silt loam, 0 to 5 percent slopes	291
72	Rubson ashy silt loam, 2 to 8 percent slopes	54

Source: Natural Resources Conservation Service, United States Department of Agriculture

Table 8 Bonner County: Prime Farmland Soils Description

Map Unit	Map Unit Name	Component Name	Map Unit Description
2	Bonner gravelly ashy silt loam, 0 to 4 percent slopes	Bonner	The Bonner component makes up 85 percent of the map unit. Slopes are 0 to 4 percent. This component is on outwash terraces, outwash plains. The parent material consists of thick mantle of volcanic ash and/or loess over outwash derived from granite and/or schist and/or gneiss. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 75 percent. Below this thin organic horizon the organic matter content is about 5 percent. This component is in the F043AY521WA Warm-Frigid, Moist- Xeric Loamy Foothills/Mountainsides, ashy surface (Grand Fir Warm Dry Shrub) <i>Abies grandis</i> - <i>Pseudotsuga menziesii</i> / <i>Physocarpus malvaceus</i> - <i>Symphoricarpos albus</i> ecological site. Nonirrigated land capability classification is 3s. Irrigated land capability classification is 3s. This soil does not meet hydric criteria.
4	Bonner silt loam, cool, 0 to 4 percent slopes	Bonner	The Bonner, cool component makes up 80 percent of the map unit. Slopes are 0 to 4 percent. This component is on outwash terraces, outwash plains. The parent material consists of volcanic ash and loess over outwash derived from granite and/or schist and/or gneiss. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 75 percent. Below this thin organic horizon the organic matter content is about 5 percent. This component is in the F043AY524WA Frigid, Udic, Loamy, Foothills/Mountainsides, ashy surface (Western Hemlock/Moist Forbes) <i>Tsuga heterophylla</i> / <i>Clintonia uniflora</i> , <i>Tsuga heterophylla</i> / <i>Asarum caudatum</i> ecological site. Nonirrigated land capability classification is 4e. Irrigated land capability classification is 4e. This soil does not meet hydric criteria.
2yxtj	Bonner-Dufort outwash terraces, complex, 0 to 6 percent slopes	Bonner	The Bonner, outwash terrace component makes up 55 percent of the map unit. Slopes are 0 to 2 percent. This component is on outwash terraces, valleys. The parent material consists of thick mantle of volcanic ash over loamy and sandy skeletal outwash. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential

			<p>is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 75 percent. Below this thin organic horizon the organic matter content is about 5 percent. This component is in the F043AY521WA Warm-Frigid, Moist- Xeric Loamy Foothills/Mountainsides, ashy surface (Grand Fir Warm Dry Shrub) <i>Abies grandis</i> - <i>Pseudotsuga menziesii</i> / <i>Physocarpus malvaceus</i> - <i>Symphoricarpos albus</i> ecological site. Nonirrigated land capability classification is 4e. Irrigated land capability classification is 4e. This soil does not meet hydric criteria.</p>
2yxtj	Bonner-Dufort outwash terraces, complex, 0 to 6 percent slopes	Dufort	<p>The Dufort, outwash terrace component makes up 30 percent of the map unit. Slopes are 0 to 6 percent. This component is on outwash terraces, valleys. The parent material consists of thick mantle of volcanic ash over loamy and sandy skeletal outwash. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 75 percent. Below this thin organic horizon the organic matter content is about 5 percent. This component is in the F043AY521WA Warm-Frigid, Moist- Xeric Loamy Foothills/Mountainsides, ashy surface (Grand Fir Warm Dry Shrub) <i>Abies grandis</i> - <i>Pseudotsuga menziesii</i> / <i>Physocarpus malvaceus</i> - <i>Symphoricarpos albus</i> ecological site. Nonirrigated land capability classification is 3s. Irrigated land capability classification is 3e. This soil does not meet hydric criteria.</p>
9	Colburn very fine sandy loam, 0 to 4 percent slopes	Colburn	<p>The Colburn component makes up 70 percent of the map unit. Slopes are 0 to 4 percent. This component is on low stream terraces, hills. The parent material consists of mixed alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is rarely flooded. It is not ponded. A seasonal zone of water saturation is at 33 inches during January, February, March, April, May, December. Organic matter content in the surface horizon is about 3 percent. This component is in the F043AY526WA Warm-Frigid, Udic, Loamy Foothills/Mountainsides, ashy surface (western redcedar, moist herb) <i>Thuja plicata</i> / <i>Clintonia uniflora</i> ecological site. Nonirrigated land capability classification is 3e. Irrigated land capability classification is 3e. This soil does not meet hydric criteria.</p>
2yxtn	Dufort- Highfalls complex, 0 to	Dufort	<p>The Dufort component makes up 60 percent of the map unit. Slopes are 0 to 7 percent. This component is on outwash plains, valleys. The parent material consists of thick mantle of volcanic ash over loamy and sandy skeletal outwash. Depth to a root restrictive layer</p>

7 percent
slopes

is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 75 percent. Below this thin organic horizon the organic matter content is about 5 percent. This component is in the F043AY521WA Warm-Frigid, Moist- Xeric Loamy Foothills/Mountainsides, ashy surface (Grand Fir Warm Dry Shrub) *Abies grandis* - *Pseudotsuga menziesii* / *Physocarpus malvaceus* - *Symphoricarpos albus* ecological site. Nonirrigated land capability classification is 3s. Irrigated land capability classification is 3e. This soil does not meet hydric criteria.

2yxtn	Dufort-Highfalls complex, 0 to 7 percent slopes	Highfalls	The Highfalls component makes up 20 percent of the map unit. Slopes are 0 to 4 percent. This component is on swales on outwash plains, valleys. The parent material consists of thick mantle of volcanic ash over loamy and sandy skeletal outwash. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 75 percent. Below this thin organic horizon the organic matter content is about 5 percent. This component is in the F043AY524WA Frigid, Udic, Loamy, Foothills/Mountainsides, ashy surface (Western Hemlock/Moist Forbes) <i>Tsuga heterophylla</i> / <i>Clintonia uniflora</i> , <i>Tsuga heterophylla</i> / <i>Asarum caudatum</i> ecological site. Nonirrigated land capability classification is 4e. Irrigated land capability classification is 4e. This soil does not meet hydric criteria.
12	Elmira loamy sand, 0 to 8 percent slopes	Elmira	The Elmira component makes up 80 percent of the map unit. Slopes are 0 to 8 percent. This component is on dunes. The parent material consists of volcanic ash and loess over sandy glaciolacustrine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is excessively drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 75 percent. Below this thin organic horizon the organic matter content is about 2 percent. This component is in the F043AY518WA Warm-Frigid, Xeric, Loamy Slopes, mixed ash surface (Douglas-Fir/Warm Dry Shrub) <i>Pseudotsuga menziesii</i> / <i>Physocarpus malvaceus</i> - <i>Symphoricarpos albus</i> ecological site. Nonirrigated land capability classification is 4e. Irrigated land capability classification is 4e. This soil does not meet hydric criteria.

13	Elmira variant loamy coarse sand, 0 to 2 percent slopes	Elmira variant	The Elmira variant component makes up 75 percent of the map unit. Slopes are 0 to 2 percent. This component is on fan remnants, valleys. The parent material consists of volcanic ash and loess over alluvium derived from granite and/or metamorphic rock. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is rarely flooded. It is not ponded. A seasonal zone of water saturation is at 33 inches (depth from the mineral surface is 32 inches) during January, February, March, April, May, December. Organic matter content in the surface horizon is about 75 percent. Below this thin organic horizon the organic matter content is about 2 percent. This component is in the F043AY525WA Frigid, Udic, Loamy Foothills/Mountainsides, mixed ash surface (Western Hemlock/Moist Forbes) Tsuga heterophylla / Clintonia uniflora , Tsuga heterophylla / Asarum caudatum ecological site. Nonirrigated land capability classification is 4e. Irrigated land capability classification is 4e. This soil does not meet hydric criteria.
20	Kaniksu sandy loam, 0 to 4 percent slopes	Kaniksu	The Kaniksu component makes up 80 percent of the map unit. Slopes are 0 to 4 percent. This component is on outwash terraces, outwash plains. The parent material consists of volcanic ash and/or loess over outwash derived from granite and/or gneiss and/or schist. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 75 percent. Below this thin organic horizon the organic matter content is about 2 percent. This component is in the F043AY518WA Warm-Frigid, Xeric, Loamy Slopes, mixed ash surface (Douglas-Fir/Warm Dry Shrub) Pseudotsuga menziesii / Physocarpus malvaceus - Symphoricarpos albus ecological site. Nonirrigated land capability classification is 4e. Irrigated land capability classification is 4e. This soil does not meet hydric criteria.
2yxtk	Pend Oreille-Highfalls complex, 0 to 6 percent slopes	Pend Oreille	The Pend Oreille, outwash terrace component makes up 55 percent of the map unit. Slopes are 0 to 2 percent. This component is on outwash terraces, valleys. The parent material consists of thick mantle of volcanic ash over loamy and sandy skeletal glaciofluvial deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 75 percent. Below this thin organic horizon the organic matter content is about 5 percent. This component is in the F043AY524WA Frigid, Udic, Loamy,

			Foothills/Mountainsides, ashy surface (Western Hemlock/Moist Forbes) Tsuga heterophylla / Clintonia uniflora , Tsuga heterophylla / Asarum caudatum ecological site. Nonirrigated land capability classification is 4e. Irrigated land capability classification is 4e. This soil does not meet hydric criteria.
2yxtk	Pend Oreille-Highfalls complex, 0 to 6 percent slopes	Highfalls	The Highfalls, outwash terrace component makes up 35 percent of the map unit. Slopes are 0 to 6 percent. This component is on outwash terraces, valleys. The parent material consists of thick mantle of volcanic ash over loamy and sandy skeletal outwash. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 75 percent. Below this thin organic horizon the organic matter content is about 5 percent. This component is in the F043AY524WA Frigid, Udic, Loamy, Foothills/Mountainsides, ashy surface (Western Hemlock/Moist Forbes) Tsuga heterophylla / Clintonia uniflora , Tsuga heterophylla / Asarum caudatum ecological site. Nonirrigated land capability classification is 3s. Irrigated land capability classification is 3e. This soil does not meet hydric criteria.
43	Rathdrum silt loam, 0 to 2 percent slopes	Rathdrum	The Rathdrum component makes up 80 percent of the map unit. Slopes are 0 to 2 percent. The parent material consists of volcanic ash and/or loess over alluvium and/or outwash. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 75 percent. Below this thin organic horizon the organic matter content is about 6 percent. This component is in the F043AY526WA Warm-Frigid, Udic, Loamy Foothills/Mountainsides, ashy surface (western redcedar, moist herb) Thuja plicata / Clintonia uniflora ecological site. Nonirrigated land capability classification is 4e. Irrigated land capability classification is 4e. This soil does not meet hydric criteria.
44	Rathdrum silt loam, cool, 0 to 8 percent slopes	Rathdrum	The Rathdrum, cool component makes up 80 percent of the map unit. Slopes are 0 to 8 percent. The parent material consists of volcanic ash and/or loess over alluvium and/or outwash. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in

the surface horizon is about 75 percent. Below this thin organic horizon the organic matter content is about 6 percent. This component is in the F043AY524WA Frigid, Udic, Loamy, Foothills/Mountainsides, ashy surface (Western Hemlock/Moist Forbes) *Tsuga heterophylla* / *Clintonia uniflora* , *Tsuga heterophylla* / *Asarum caudatum* ecological site. Nonirrigated land capability classification is 4e. Irrigated land capability classification is 4e. This soil does not meet hydric criteria.

45	Rathdrum-Bonner ashy silt loams, 0 to 8 percent slopes	Rathdrum	The Rathdrum component makes up 40 percent of the map unit. Slopes are 0 to 2 percent. This component is on depressions on outwash terraces, outwash plains. The parent material consists of volcanic ash and/or loess over alluvium and/or outwash. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is very high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 75 percent. Below this thin organic horizon the organic matter content is about 6 percent. This component is in the F043AY526WA Warm-Frigid, Udic, Loamy Foothills/Mountainsides, ashy surface (western redcedar, moist herb) <i>Thuja plicata</i> / <i>Clintonia uniflora</i> ecological site. Nonirrigated land capability classification is 4e. Irrigated land capability classification is 4e. This soil does not meet hydric criteria.
45	Rathdrum-Bonner ashy silt loams, 0 to 8 percent slopes	Bonner	The Bonner component makes up 35 percent of the map unit. Slopes are 0 to 8 percent. This component is on outwash terraces, outwash plains. The parent material consists of thick mantle of volcanic ash and/or loess over outwash derived from granite and/or schist and/or gneiss. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 75 percent. Below this thin organic horizon the organic matter content is about 5 percent. This component is in the F043AY521WA Warm-Frigid, Moist- Xeric Loamy Foothills/Mountainsides, ashy surface (Grand Fir Warm Dry Shrub) <i>Abies grandis</i> - <i>Pseudotsuga menziesii</i> / <i>Physocarpus malvaceus</i> - <i>Symphoricarpos albus</i> ecological site. Nonirrigated land capability classification is 4e. Irrigated land capability classification is 4e. This soil does not meet hydric criteria.
72	Rubson ashy silt loam, 2 to 8 percent slopes	Rubson	The Rubson component makes up 85 percent of the map unit. Slopes are 2 to 8 percent. This component is on glacial lake terraces, valleys. The parent material consists of mixed volcanic ash, loess and glaciolacustrine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well

			<p>drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 75 percent. Below this thin organic horizon the organic matter content is about 2 percent. This component is in the F043AY560ID Frigid, Udic, Unglaciaded, Loamy, Hills, Mountains and Valleys, Mixed ash surface (western hemlock) Western hemlock/Brides bonnet-wild ginger ecological site. Nonirrigated land capability classification is 4e. Irrigated land capability classification is 4e. This soil does not meet hydric criteria.</p>
48	Selle fine sandy loam, 0 to 8 percent slopes	Selle	<p>The Selle component makes up 70 percent of the map unit. Slopes are 0 to 8 percent. This component is on sandy glaciolacustrine deposits on glacial lake terraces, sand plains. The parent material consists of volcanic ash and/or loess over sandy glaciolacustrine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 75 percent. Below this thin organic horizon the organic matter content is about 2 percent. This component is in the F043AY526WA Warm-Frigid, Udic, Loamy Foothills/Mountainsides, ashy surface (western redcedar, moist herb) Thuja plicata / Clintonia uniflora ecological site. Nonirrigated land capability classification is 4e. Irrigated land capability classification is 4e. This soil does not meet hydric criteria.</p>
51	Treble gravelly sandy loam, 5 to 20 percent slopes	Treble	<p>The Treble component makes up 80 percent of the map unit. Slopes are 5 to 20 percent. The parent material consists of volcanic ash and loess over till derived from granite and/or gneiss and/or schist. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 75 percent. Below this thin organic horizon the organic matter content is about 2 percent. This component is in the F043AY519WA Warm-Frigid, Xeric, Loamy Slopes, low AWC subsoils (Douglas-Fir/Warm Dry Shrub) Pseudotsuga menziesii / Physocarpus malvaceus - Symphoricarpos albus ecological site. Nonirrigated land capability classification is 4s. This soil does not meet hydric criteria.</p>

Source: Natural Resources Conservation Service, United States Department of Agriculture

Table 9 Bonner County: Prime Farmland, if Irrigated (2022)

Soil Map Unit(s)	Map Unit Name	Acres
2nm6	Bonner ashy silt loam, 0 to 8 percent slopes	65
23	Kootenai gravelly ashy silt loam, 0 to 4 percent slopes	8,562
2yxtm	Stien-Dufort-Andic Haploxerepts complex, 0 to 4 percent slopes	189
3200	Torboy fine gravelly ashy coarse sandy loam, 0 to 3 percent slopes	4
3201	Torboy ashy sandy loam, 3 to 8 percent slopes	110
3210	Kanisku ashy sandy loam, 0 to 3 percent slopes	29
3211	Kaniksu ashy sandy loam, 3 to 8 percent slopes	404

Source: Natural Resources Conservation Service, United States Department of Agriculture

Table 10 Bonner County: Prime Farmland, if Drained (2022)

Soil Map Unit(s)	Map Unit Name	Acres
109	Schnoorson family, glaciased floodplains, bogs, and wet meadows	3,209
15	Hoodoo silt loam, 0 to 1 percent slopes	7,220
2lfy2	Schnoorson family, glaciased floodplains, bogs, and wet meadows	6
31	Mission silt loam, 0 to 2 percent slopes	12,849
34	Odenon silt loam, 0 to 2 percent slopes	3,634
41	Pywell muck, 0 to 1 percent slopes, occasionally flooded	869
42	Pywell-Hoodoo complex, 0 to 1 percent slopes	7,247
50	Selle-Mission complex, 0 to 12 percent slopes	1,951
545h	Hoodoo silt loam, 0 to 1 percent slopes	108
5462	Mission silt loam, 0 to 2 percent slopes	11
546g	Pywell-Hoodoo complex, 0 to 1 percent slopes	253
77	Kegel loam, 0 to 5 percent slopes	300

Source: Natural Resources Conservation Service, United States Department of Agriculture

Table 11 Bonner County: Prime Farmland, if Drained and Protected from Flooding or not Frequently Flooded during the Growing Season (2022)

Soil Map Unit(s)	Map Unit Name	Acres
1050	Hoodoo-Kronquist complex, 0 to 3 percent slopes	83
59sz	Blueslide silt loam	454
75	Pywell muck, unprotected, undrained, 0 to 1 percent slopes	7

Source: Natural Resources Conservation Service, United States Department of Agriculture

Table 12 Bonner County Soils: Farmland of Statewide Importance (2022)

Soil Map Unit(s)	Map Unit Name	Acres
119	Zee family, dissected glacial lacustrine plains	1,488
122	Zee family, lacustrine plains	4,166
25	Kootenai-Bonner gravelly silt loams, 0 to 20 percent slopes	3,664
27	Kruse variant silt loam, 5 to 20 percent slopes	821
2lfy5	Zee family, dissected glacial lacustrine plains	29
2yx1l	Stien very gravelly ashy silt loam, 0 to 5 percent slopes	155
3221	Stapaloop-Kaniksu, dry complex, 8 to 25 percent slopes	1,970
49	Selle-Elmira complex, 0 to 20 percent slopes	3,442
5067	Quinnamose-Micapeak complex, 15 to 30 percent slopes	12
5090	Brevco-Ardtoo complex, 3 to 15 percent slopes	15
5093	Blackprince-Ardtoo complex, 15 to 30 percent slopes	129
5120	Kellerbutte-Boulderjud complex, 15 to 30 percent slopes	22
5140	Jacot-Hysing complex, dry, 3 to 15 percent slopes	75
5141	Jacot-Hysing complex, 15 to 30 percent slopes	64
5418	Pend Oreille ashy silt loam, 5 to 15 percent slopes	48
59vw	Martella silt loam, 15 to 25 percent slopes	126

Note: Designating Farmland of Statewide Importance: The Act states that farmland of Statewide Importance must be designated by the State Government (i.e., the office of the State Secretary of Agriculture or a higher office) and that the NRCS State Conservationist must concur with this designation in order for it to apply to FPPA (NRCS, USDA, n.d.).

It is not evident that the Idaho State Department of Agriculture or any other higher office of the state has designated the “Farmland of Statewide Importance” for the State of Idaho. Further, as required by the Act, it is not evident that such designations have been formally adopted by the NRCS State Conservationist for the State of Idaho.

Source: Natural Resources Conservation Service, United States Department of Agriculture

Table 13 Bonner County: Farmland of Statewide Importance, if Drained (2022)

Soil Map Unit(s)	Map Unit Name	Acres
32	Mission silt loam, 2 to 12 percent slopes	12,917
5463	Mission silt loam, 2 to 12 percent slopes	41
5472	Cabinet silt loam, 2 to 12 percent slopes	33
6	Cabinet silt loam, 2 to 12 percent slopes	3,263

Source: Natural Resources Conservation Service, United States Department of Agriculture

Table 14 Bonner County: Farmland of Statewide Importance, if Drained and Protected from Flooding or Not Frequently Flooded during the Growing Season (2022)

Soil Map Unit(s)	Map Unit Name	Acres
547b	Capehorn silt loam, 0 to 2 percent slopes	9
8	Capehorn silt loam, 0 to 2 percent slopes	3,603

Source: Natural Resources Conservation Service, United States Department of Agriculture

Table 15 Bonner County: Farmland of Statewide Importance, if Protected from Flooding or Not Frequently Flooded during the Growing Season (2022)

Soil Map Unit(s)	Map Unit Name	Acres
64	Wrencoe silty clay, 0 to 2 percent slopes	1,640

Source: Natural Resources Conservation Service, United States Department of Agriculture

Table 16 Land Capability Classification System

Categories

(1) Capability Class

- (i) Definition.—Capability class is the broadest category in the land capability classification system. Class codes I (1), II (2), III (3), IV (4), V (5), VI (6), VII (7), and VIII (8) are used to represent both irrigated and non-irrigated land capability classes.
- (ii) Classes and definitions.—The following definitions, from Agriculture Handbook No. 210, have been slightly altered:

Class I (1) soils have slight limitations that restrict their use.

Class II (2) soils have moderate limitations that reduce the choice of plants or require moderate conservation practices.

Class III (3) soils have severe limitations that reduce the choice of plants or require special conservation practices, or both.

Class IV (4) soils have very severe limitations that restrict the choice of plants, require very careful management, or both.

Class V (5) soils have little or no hazard of erosion but have other limitations, impractical to remove, that limit their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class VI (6) soils have severe limitations that make them generally unsuited to cultivation and that limit their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class VII (7) soils have very severe limitations that make them unsuited to cultivation and that restrict their use mainly to rangeland, forestland, or wildlife habitat.

Class VIII (8) soils and miscellaneous areas have limitations that preclude their use for commercial plant production and limit their use mainly to recreation, wildlife habitat, water supply, or aesthetic purposes.

(2) Capability Subclass

- (i) Definition.—Capability subclass is the second category in the land capability classification system. Class codes e, w, s, and c are used for land capability subclasses.
- (ii) Subclasses and Definitions

Subclass **e** is made up of soils for which the susceptibility to erosion is the dominant problem or hazard affecting their use. Erosion susceptibility and past erosion damage are the major soil factors that affect soils in this subclass.

Subclass **w** is made up of soils for which excess water is the dominant hazard or limitation affecting their use. Poor soil drainage, wetness, a high water table, and overflow are the factors that affect soils in this subclass.

Subclass **s** is made up of soils that have soil limitations within the rooting zone, such as shallowness of the rooting zone, stones, low moisture-holding capacity, low fertility that is difficult to correct, and salinity or sodium content.

Subclass **c** is made up of soils for which the climate (the temperature or lack of moisture) is the major hazard or limitation affecting their use.

- (iii) Application - The subclass represents the dominant limitation that determines the capability class. Within a capability class, where the kinds of limitations are essentially equal, the subclasses have

the following priority: e, w, s, and c. See the rules (shown below) on appropriate entries for capability subclass.

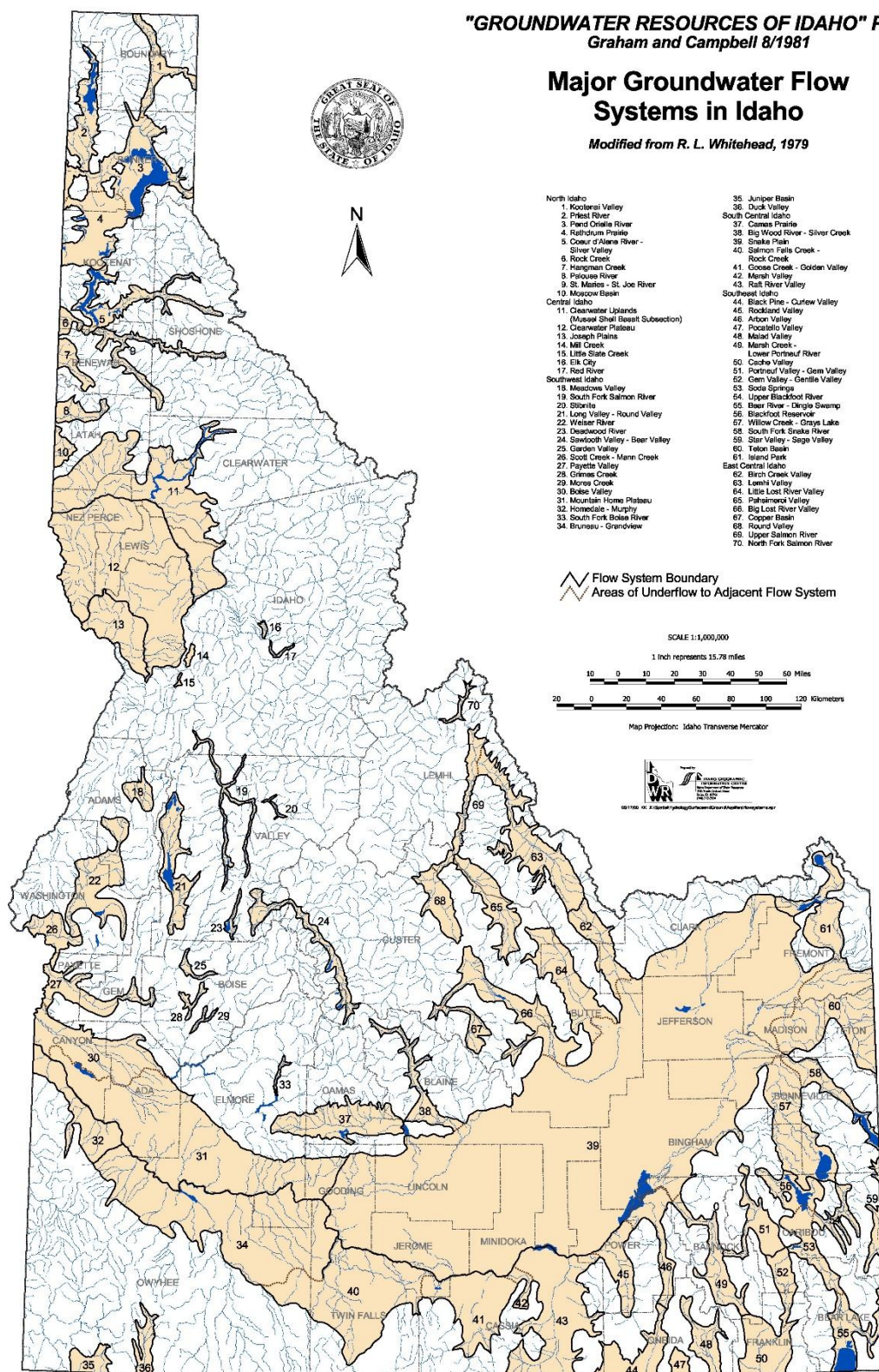
Source: Title 430 – National Soil Survey Handbook, Part 622 – Interpretive Groups, Subpart A – General Information

Table 17 Bonner County: Top Crops in Acres (2017)

Crop	Acreage
Forage (hay/haylage), all	21,602
Wheat for grain, all	507
Cultivated Christmas Trees	386
Oats for grain	211
Barley for grain	206

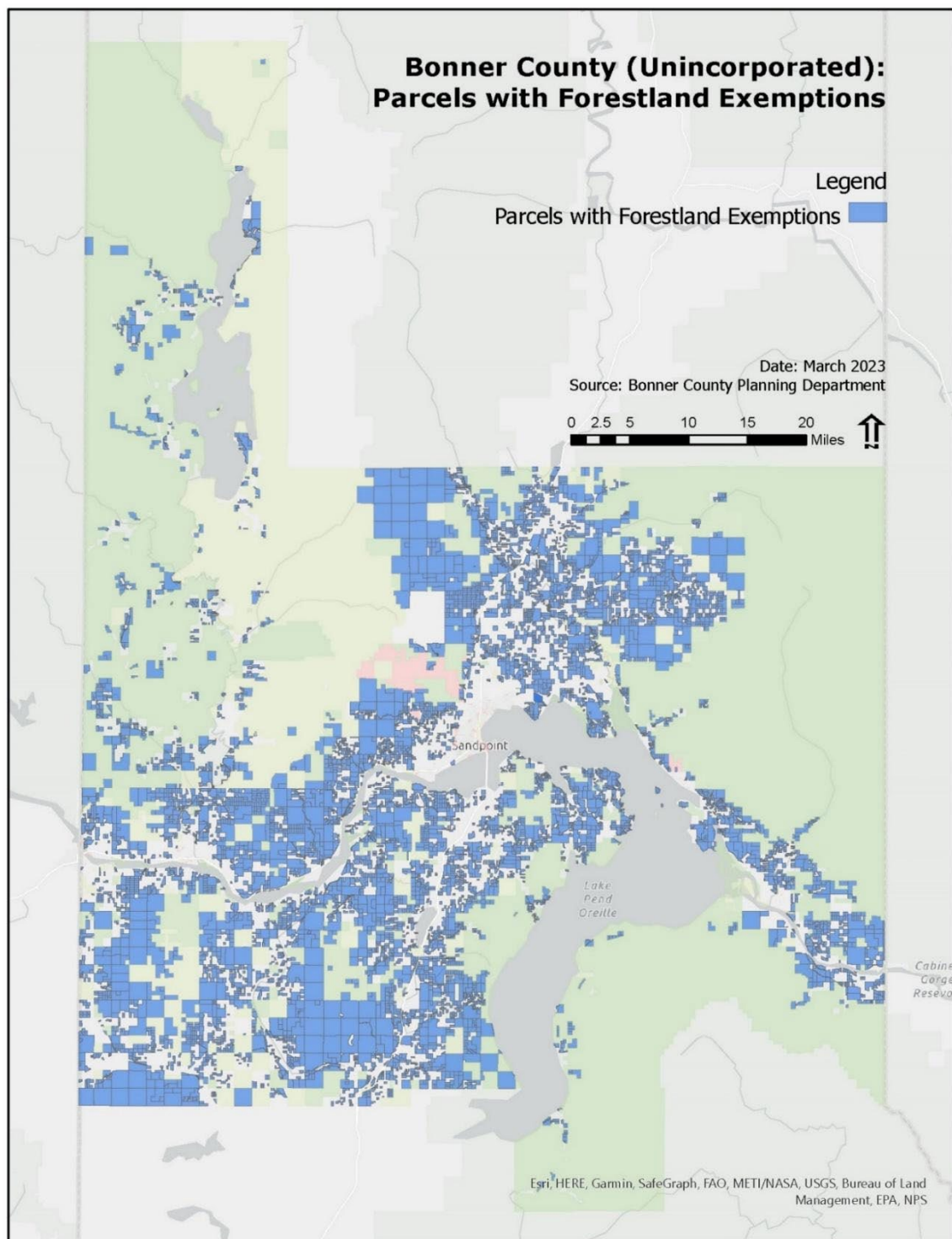
Source: County Profile, Census of Agriculture 2017, United States Department of Agriculture

Figure 2 Major Groundwater Flow Systems in Idaho. Source: Idaho Department of Water Resources



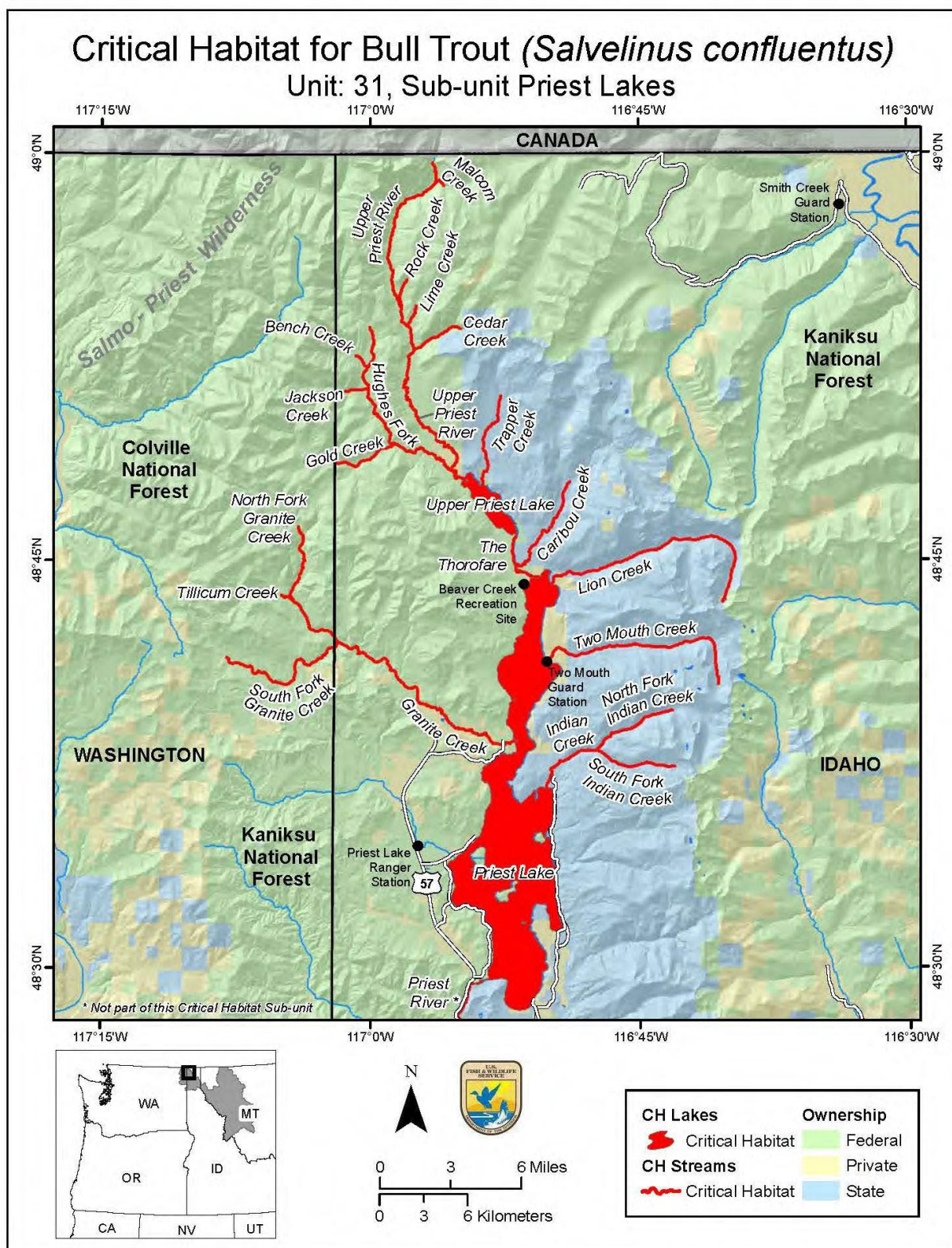
Source: Groundwater Resources in Idaho, 1981 - Idaho Department of Water Resource

Figure 3 Bonner County (Unincorporated): Parcels with Forestland Exemptions (2023)



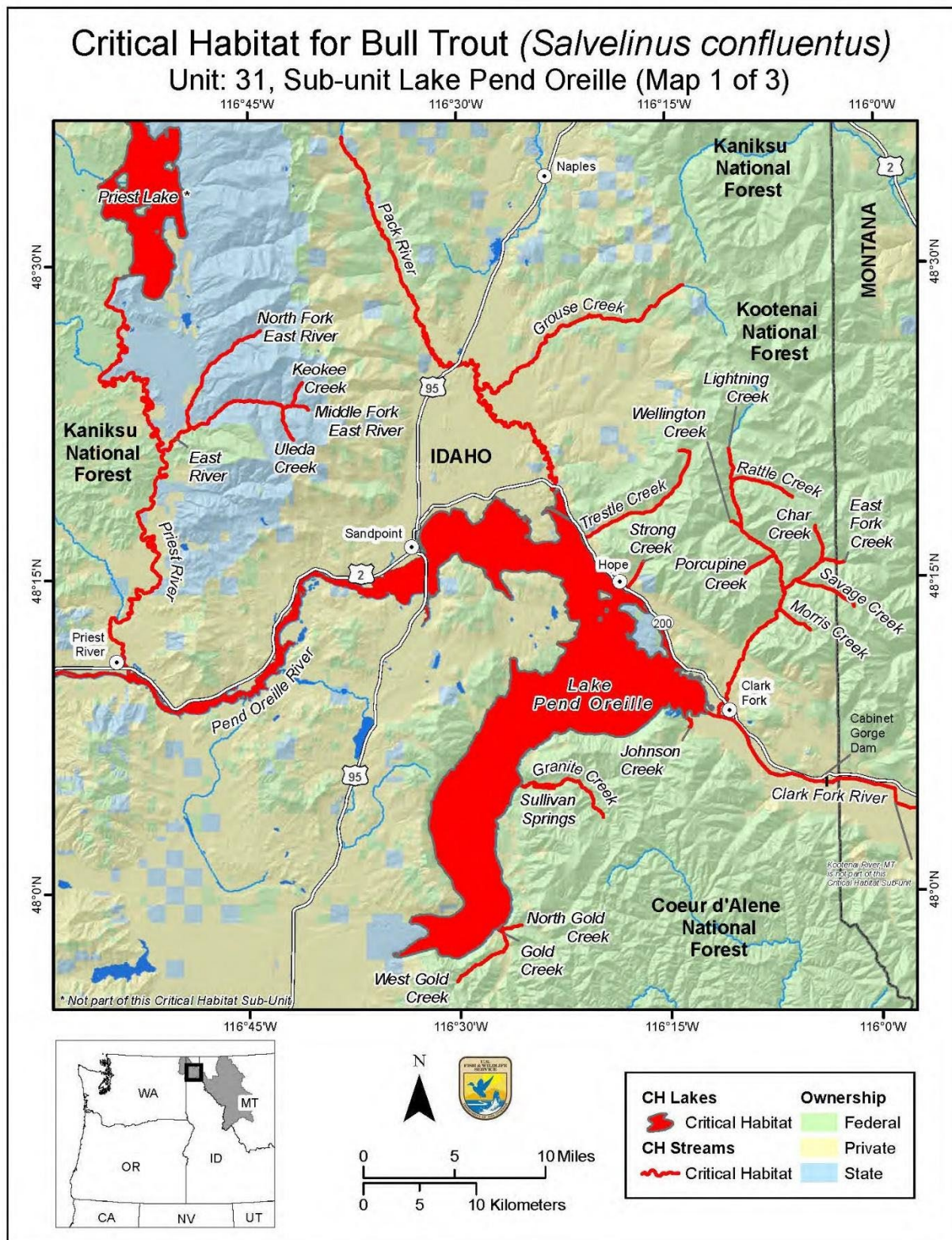
Note: This depiction of tax exemptions in March 2023 is not accurate and may contain a small margin of error.
Source: Data from Bonner County Planning Department and Assessor's Office (March 2023). Map produced by Bonner County Planning Department.

Figure 4 Bonner County Critical Wildlife Habitat - Priest Lake Area (2023)



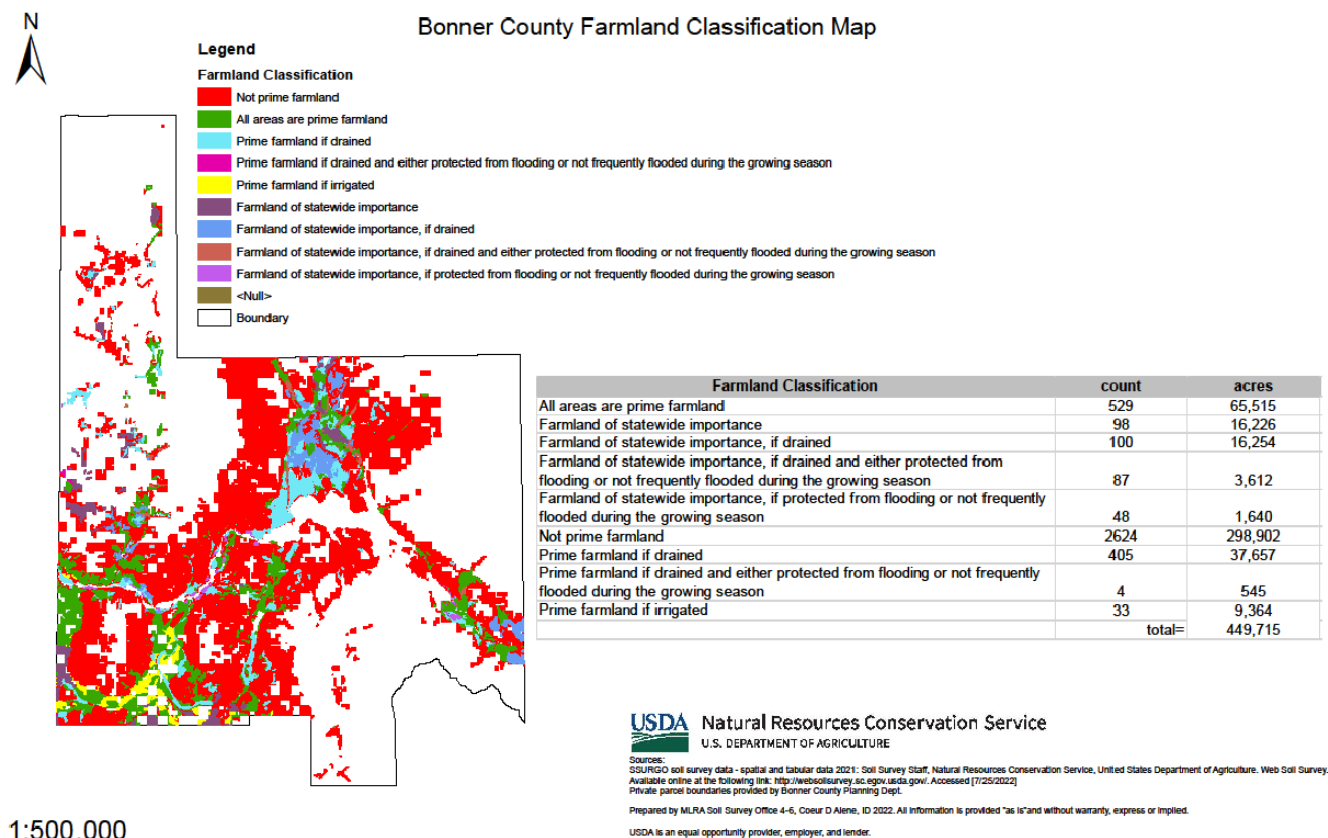
Source: United States Fish and Wildlife Service.

Figure 5 Bonner County Critical Wildlife Habitat – Lake Pend Oreille (2023)



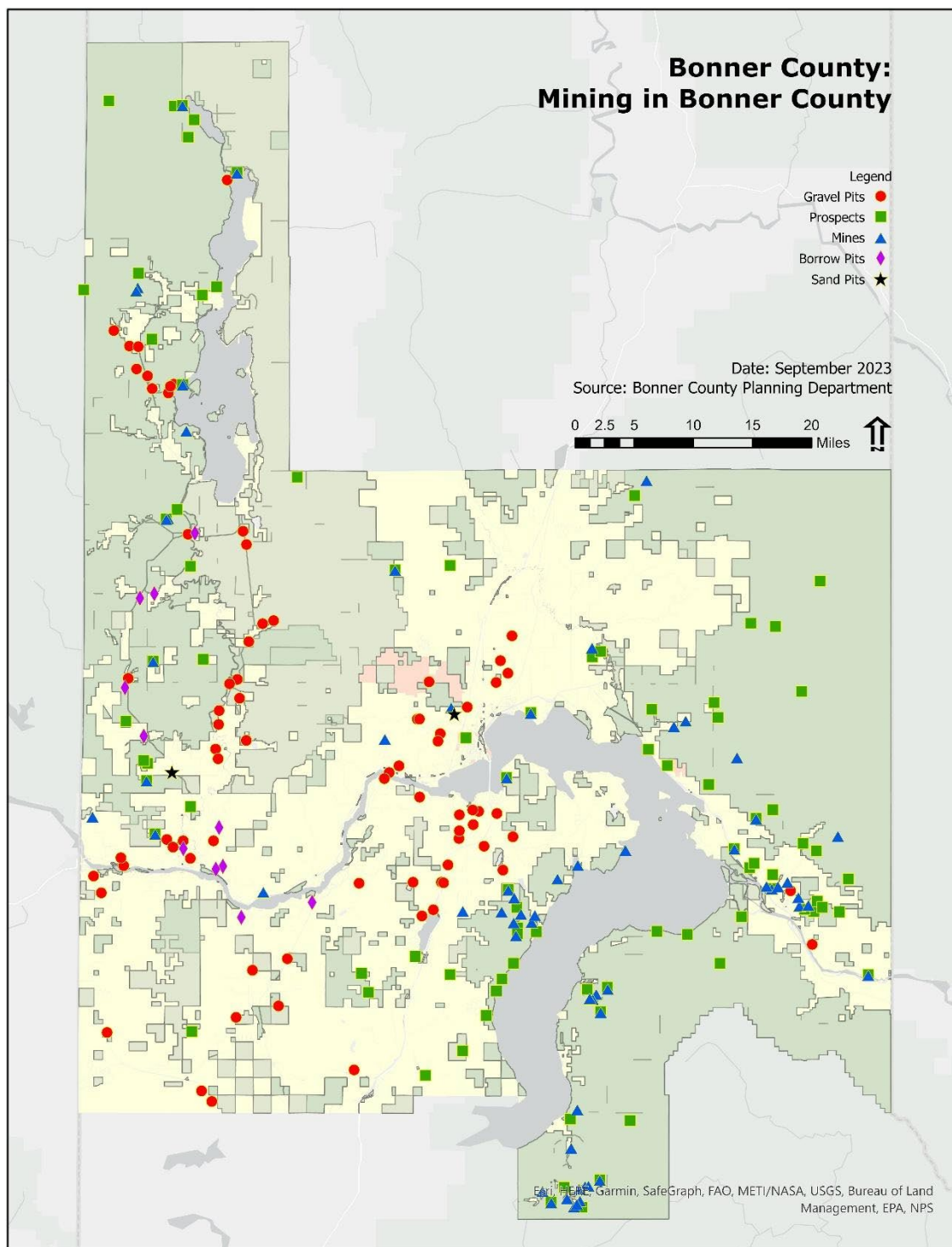
Source: United States Fish and Wildlife Service.

Figure 6 Bonner County: Soil Types (2022)



Source: Natural Resource Conservation Services, USDA

Figure 7 Bonner County: Mining (2016)



Source: Mineral Resources Online Spatial Data, 2016, United States Geological Survey