CHAPTER 3

AFFECTED ENVIRONMENT

3.0 AFFECTED ENVIRONMENT

The purpose of this chapter is to describe the existing or affected environment, including conditions and trends that could be affected by the alternatives described in Chapter 2. Information about the landscape, cultural, natural, and human environment is provided to describe more fully the statement of needs explained in Chapter 1. The affected environment also sets the foundation for understanding and evaluating the alternatives discussed in Chapters 2 and the environmental consequences discussed in Chapter 4.

This chapter focuses on those portions of the environment that are directly related to the conditions and resource categories being addressed by the alternatives. The description is not meant to be a complete portrait of the study area, but is intended to portray the conditions and trends of most concern to the public and the Bureau of Land Management (BLM). Indicators for the impact assessment have been established by resource to better assess the consequences of each alternative.

3.0.1 Critical Elements Not Affected or Present Within the Proposed Project Area

Areas of Critical Environmental Concern

There are no Areas of Critical Environmental Concern within or adjacent to the Proposed Project area.

Wetlands

Under Alternative C and Alternative D, the proposed transmission interconnect line would cross the air space over the Snake River. No impacts to wetlands would occur from this action.

Wild and Scenic Rivers

There are no wild and scenic rivers within or adjacent to the Proposed Project area.

Wilderness

There are no wilderness areas within or adjacent to the Proposed Project area.

Floodplains

Under Alternative C and Alternative D, the proposed transmission interconnect line would cross the air space over the Snake River. No impacts to the floodplain of the Snake River would occur from this action.

Farm Lands

No impacts to farm lands would occur under any of the Proposed Project alternatives.

3.1 PHYSICAL RESOURCES

3.1.1 Climate and Air Quality

Climate

The nearest climate recording station from the Proposed Project area is at the town of Malta, located approximately five miles to the east of the Proposed Project area at the base of Cotterel Mountain. The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS, formerly Soil Conservation Service) does not believe that the Malta station is entirely representative of the weather patterns throughout the area. The Malta weather station is located in the rain shadow of several mountains in the area, including Cotterel Mountain, Jim Sage Mountain, Mount Harrison, and Mount Independence. The average annual precipitation ranges from 12 to 16 inches throughout these mountains at elevations below about 6,000 feet. Above 6,000 feet, precipitation can range from 14 to more than 25 inches per year. Approximately 60 percent of the precipitation in the area falls in April through September. Average seasonal snowfall at the Malta station is about 18 inches (USDA, NRCS 1986). On the higher mountains more than 50 percent of the precipitation may fall as snow.

At the Malta station, the winter average temperature is 29 degrees Fahrenheit (^{o}F), the average daily minimum temperature is 10^{o}F, and the extreme historical low was -27^{o}F. In summer, the average temperature is 60^{o}F and the average daily maximum temperature is 85^{o}F with an extreme historical high of 104^{o}F (USDA, NRCS 1986).

Wind on Cotterel Mountain typically blows from west to east with minor seasonal variations. Winter snowfall blows clear on some portions of the mountain while forming deep drifts on others. During winter there are periods when low clouds settle over the mountain. When temperatures are low enough, these clouds can create freezing fog that forms rime ice on the west face of trees, shrubs, fences, and other structures. In the summer, afternoon thunderstorms can form resulting in heavy rainfall events with lightening and strong winds.

Air Quality

The Proposed Project would be located entirely in Cassia County, Idaho, in United States (U.S.) Environmental Protection Agency (EPA) Air Quality Control Region 63. The area is classified as attainment or unclassifiable for all of the following federal and state criteria air pollutants:

- Carbon monoxide (CO);
- Nitrogen dioxide (NO_2);
- Particulate matter with an aerodynamic diameter less than 10 microns (PM_{10});
- Oxides of sulfur (SO_X);
- Ozone ($O_{3)}$, and
- Lead (Pb).

The National Ambient Air Quality Standards (NAAQS) for criteria pollutants are shown in Table 3.1-1. These match the Idaho Ambient Air Quality Standards listed in the Idaho Administrative Rules (IDAPA) 58.01.01.577.

Table 3.1-1. National Ambient Air Quality Standards.

Pollutant	Averaging Period	NAAQS[a]
CO	1-hour	40 mg/m^3
	8-hour	10 mg/m^3
NO_2	Annual	100 $\mu g/m^3$
PM_{10}	24-hour	150 $\mu g/m^3$
	Annual	50 $\mu g/m^3$
SO_X (measured as SO_2)	3-hour	1,300 $\mu g/m^3$
	24-hour	365 $\mu g/m^3$
	Annual	80 $\mu g/m^3$
O_3	1-hour	235 $\mu g/m^3$
Pb	Quarterly	1.5 $\mu g/m^3$

[a] mg/m^3 = milligrams per cubic meter
$\mu g/m^3$ = micrograms per cubic meter
CO = Carbon monoxide
NO_2 = Nitrogen dioxide
PM_{10} = Particulate matter with an aerodynamic diameter less than 10 microns
SO_X = Oxides of sulfur
O_3 = Ozone
Pb = Lead

All areas throughout the country are assigned to one of three different classes of air quality protection. These are called Prevention of Significant Deterioration (PSD) Classes I, II, and III. Essentially, they help to ensure that the air quality in clean air areas remains clean, and does not deteriorate to the level of the NAAQS. The mechanism created by Congress to meet this goal is the establishment of "PSD increments." These increments define the maximum allowable increases over baseline concentrations that are allowed in a clean air area for a particular pollutant. These increments are promulgated in the EPA PSD regulations at 40 Code of Federal Regulations (CFR) 52.21(c). Idaho has adopted these increments as state regulation in IDAPA 58.01.01.577.

In the 1977 Clean Air Act Amendments, Congress designated all international parks, national wilderness areas, and national memorial parks, which exceed 5,000 acres in size, and all national parks, which exceed 6,000 acres in size as mandatory PSD Class I areas. Class I areas are to receive special protection from degradation of air quality, and the most stringent PSD increments apply in these areas. The Class I areas closest to the Proposed Project area are: the Craters of the Moon National Monument, located 60 miles north of the proposed area, and the Jarbidge Wilderness area in Nevada, located 75 miles southwest of the proposed area. All of Cassia County and the remainder of Idaho are designated as PSD Class II areas. PSD Class II areas are those that need reasonably or moderately good air quality protection. Most proposed development projects can be accommodated within the increments set for PSD Class II areas. There are no Class III areas in Idaho.

The two pollutants of concern in Idaho are PM_{10} and CO; PM_{10} is currently the most problematic pollutant in Idaho. PM_{10} sources include windblown dust, re-entrained road dust, smoke (residential, agricultural, and forest fires), industrial emissions, and motor vehicle emissions (IDEQ 2001). There are five areas in Idaho designated as PM_{10} nonattainment. The PM_{10} nonattainment area nearest to the proposed area is located approximately 70 miles northeast at Fort Hall, Idaho.

PM_{10} was monitored at the Rupert active ambient air monitoring station by IDEQ from 1995 to 1998. Rupert is located approximately 14 miles northwest of the proposed area in Minidoka County. Data collected from 1995 to 1998 indicate that the PM_{10} NAAQS were not exceeded at this station during this time. From 1995 to 1998, the mean annual PM_{10} concentration was 23 µg/m3 and the maximum mean annual PM_{10} concentration was 24.5 µg/m3. From 1995 to 1998, the maximum 24-hour PM_{10} concentration was 145 µg/m3.

The primary source of CO is incomplete fossil fuel combustion. CO concentrations have the potential to be high in urbanized areas where automobile traffic is heavy and cars frequently idle at stoplights. The Boise area is the only CO nonattainment area in the state. No violations of the 1-hour CO NAAQS have occurred in Idaho since 1987. The 8-hour CO NAAQS in Boise was exceeded once in 1991 on January 11. There have been no exceedances since that date (IDEQ 2001).

3.1.2 Geology

Cotterel Mountain is a long, low ridge with a relatively steep face or escarpment on the east side and a long, gentle slope on the west side. Cotterel Mountain comprises part of the Malta Range, which flanks the west side of the Raft River Valley. The Raft River Valley is a north-trending intermontane tectonic basin approximately 37 miles long and approximately 15 miles wide with an average valley floor elevation of about 4,600 feet. The valley opens northward toward the broad Snake River Plain. The Raft River basin lies in the northeast part of the Basin and Range province and is within an area of relatively high heat flow known as the Cordilleran thermotectonic anomaly (Williams *et al.* 1982).

The eastern side of Cotterel Mountain is flanked by the Raft River detachment fault, which is an east-dipping low-angle normal fault. North-striking normal faults are numerous and conspicuous in the Cotterel Mountain vicinity, implying that the area is block faulted. This is common for late Cenozoic tectonic activity in the Basin and Range province, which has been recognized as a region dominated by extensional tectonics (Williams *et al.* 1982).

The Proposed Project area generally consists of Pliocene and Upper Miocene volcanic rocks, rhyolite flows, tuffs, and ignimbrites (Link 2002). Specifically, the northern end of Cotterel Mountain is composed of lower and upper successions of rhyolite flows, and a middle unit of varied lithology with a total maximum thickness of approximately 3,900 feet. The lower and upper rhyolite flows are very similar and consist of mainly dark gray to black, glassy porphyritic rhyolite that weathers to dark reddish brown. The rhyolite rock is commonly flow banded, and has well-developed columnar jointing that is square in cross section. The southern part of Cotterel Mountain is volcanic explosion breccia that was produced by rhyolite flowing into a body of water. The breccia is overlain by two

thin, vitric, rhyolite ash-flow tuffs that were erupted from sources to the east. The tuffs are overlain by approximately ten feet of white to gray tuffaceous sandstone to siltstone (Williams *et al.* 1982).

The basalt of the northern end of Cotterel Mountain is the oldest basalt in the Raft River region and consists of two flows. The basalt rock is gray to light gray with a reddish oxidation tint. It contains olivine and plagioclase clasts in a dense groundmass of fine-grained plagioclase, olivine, pyroxene, opaque minerals, and glass (Williams *et al.* 1982).

GeoEngineers (2004) performed a limited subsurface geotechnical investigation as a basis for developing preliminary recommendations for foundation design of the wind turbine towers. Their investigation included drilling eight air-track holes and four rock core holes. The rock core holes were drilled to a depth of about 40 feet; three holes were drilled in rhyolite, and one hole was drilled in basalt. GeoEngineers described the core, which included assigning a rock quality designation (RQD). RQD is a modified core recovery index defined as the total length of unfractured core greater than 100 millimeters in length, divided by the total length of the core run. The resulting value is presented in the form of a percentage (Deere and Deere 1988). A high RQD value generally means that the rock has few natural discontinuities (fractures, faults, etc). The RQD percentage is typically translated into the following descriptors of rock quality (Deere and Deere 1988):

0 – 25% RQD = Very Poor rock quality;
25 – 50% RQD = Poor rock quality;
50 – 75% RQD = Fair rock quality;
75 – 90% RQD = Good rock quality; and
90 – 100% RQD = Excellent rock quality.

The basalt exhibits good rock quality. The rhyolite exhibits very poor to poor rock quality.

Mineral Resources

The Cotterel Mountain area has known mineral resources (Griggs 2004). There is a platy rhyolite locally referred to as “desert antique” in the southern reaches of the Proposed Project area. Due to the difficulty of access, there has been little or no interest in mineral sales. The Nibbs Creek Community Pit is within one mile of the Proposed Project, and there has been one mineral material sale from that site since April 2003 (Griggs 2004). Within the Proposed Project area, there are:

- No known oil and gas discoveries;
- No active coal leases;
- No coal bed methane producing resources;
- No locatable minerals are known to exist in sufficient quantities for economical recovery.

Geologic Hazards

The potential for seismic activity within the Proposed Project area is moderate, according to the Uniform Building Code Seismic Code Map (Idaho Geologic Survey 2003). There are landslides within the proposed ROW boundary, located on the east side of the escarpment (Griggs 2004).

3.1.3 Soils

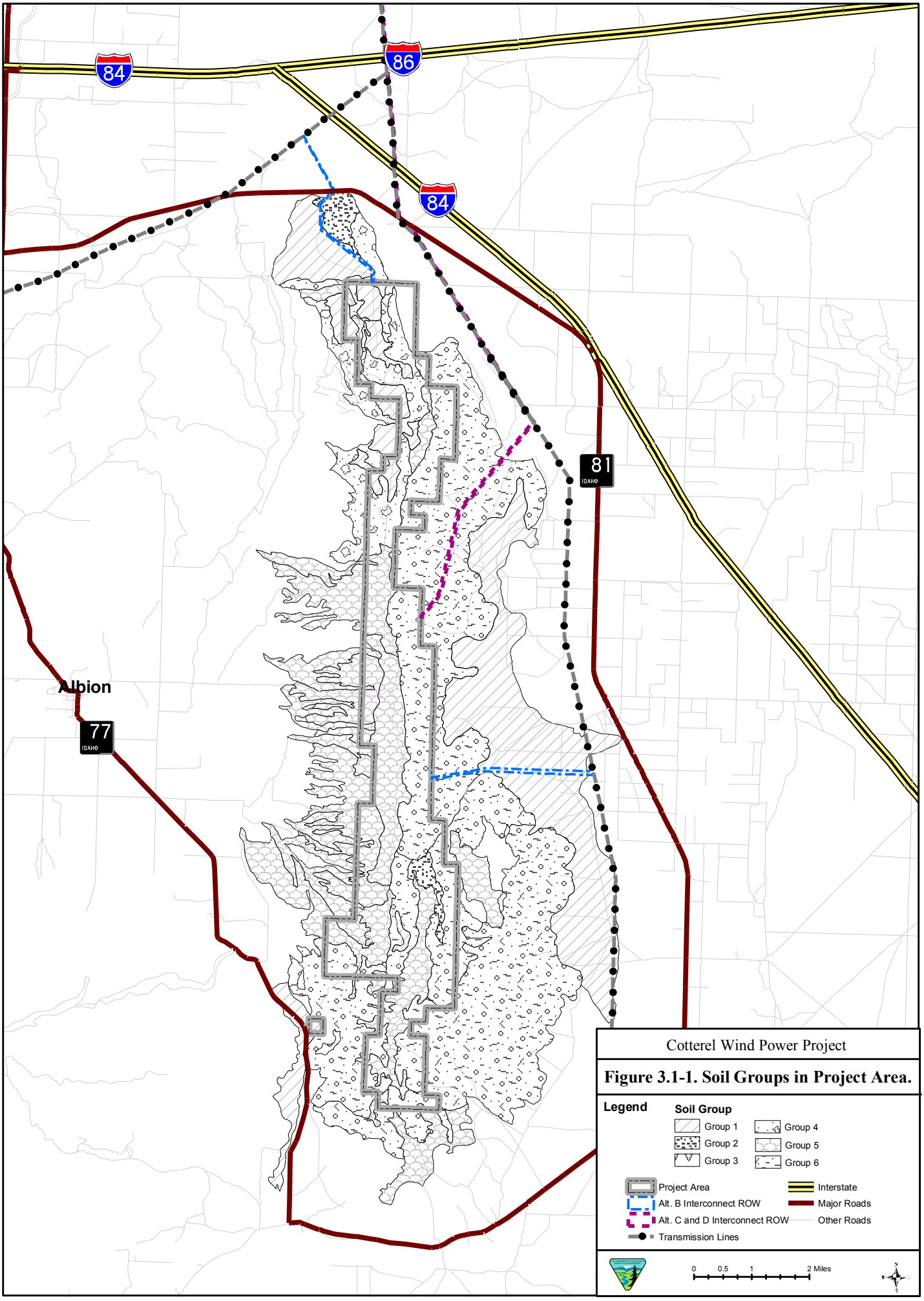
Soils in the Proposed Project area were differentiated and mapped by the NRCS into 17 soil types (USDA, NRCS 1986). These 17 soil types all have the following general characteristics. They are located at high elevation, have low water-carrying capacity, have a potential for erosion by wind and water, and have minimal to moderate productivity capabilities as rangeland. For the Proposed Project area, we separated the 17 soil types into six soil groups; based on characteristics such as slope, soil depth, depth to bedrock or hardpan, and susceptibility to erosion. Each soil group contains from one to five soil types. Figure 3.1-1 shows the locations of these six major soil groups. The following descriptions for the soil groups are compilations of the individual soil types described by the NRCS (USDA, NRCS 1986).

Group 1 consists of deep silt-loam soils on slopes of less than 12 percent. These soils occur predominantly on hillsides, in alluvial fans and on fan terraces. Bedrock occurs at a depth of greater than 60 inches. Water capacities of these soils are higher relative to other soils in the Proposed Project area. This may result in complications for construction due to severe frost action. Erosion potential from water runoff is moderate to very severe within this group, while the potential for wind-caused erosion is only moderate. Soils in Group 1 represent approximately 22 percent of the total soils in the Proposed Project area and about eight percent of the soils that may be affected by construction. Soil units in Group 1 include:

Rexburg Silt-Loam;
Watercanyon Silt-Loam;
Hades Gravelly Loam;
Heglar Silt-Loam; and
Kancan Gravelly Silt-Loam.

Group 2 consists of moderately deep loam to silt-loam soils on slopes less than eight percent. These soils are typically found on fan terraces or hillsides. Bedrock occurs at a depth of greater than 60 inches. A hardpan generally exists at a depth of 20 inches to 40 inches in Group 2 soils. This hardpan may impact any proposed construction activities in these soils. Erosion potential due to water run-off is only slight to moderate within this group, but erosion potential due to wind is moderate to severe. Soils in Group 2 represent about one percent of the total soils in the Proposed Project area and about one percent of the soils that may be affected by construction. Soil units in Group 2 include:

Raftriver loam; and
Taunton Silt Loam.


84
86
84
81
IDAHO
Albion
77
IDAHO
Cotterel Wind Power Project
Figure 3.1-1. Soil Groups in Project Area.
Legend
Soil Group
Group 1
Group 2
Group 3
Group 4
Group 5
Group 6
Project Area
Alt. B Interconnect ROW
Alt. C and D Interconnect ROW
Transmission Lines
Interstate
Major Roads
Other Roads
0
0.5
1
2 Miles

Group 3 contains a deep silt-loam soil located on top of basalt bedrock at a depth of 40 inches. This soil group can be found on basalt plains and fan terraces in the area. Erosion potential due to water and wind are only slight to moderate within this group. Because of the low erosion potential and gentle slopes, this soil group would be suitable for the proposed construction activities. Group 3 soils represent three percent of the soils in the Proposed Project area and less than one percent of the soils that may be affected by construction. The soil unit in Group 3 includes:

McClendon Silt-Loam.

Group 4 contains silt-loam soils interspersed with large stones or rock outcrops. These occur on gentle slopes of less than 12 percent. The soils are very shallow because of a short depth to bedrock or hardpan. This factor also results in moderate to severe erosion potential from water and wind. Proposed construction may be difficult due to the shallow depth to bedrock or hardpan. Group 4 soils represent approximately ten percent of the total soils in the Proposed Project area and approximately 11 percent of soils that may be affected by construction. The soil units in Group 4 include:

Trevino Rock Outcrop Complex; and
Harroun Stony Silt-Loam.

Group 5 contains gravelly loam soils on moderate slopes of four percent to 35 percent. Soils are shallow to moderately deep because the bedrock occurs at depths of ten to 20 inches. These soils are typically found on the slopes of cuestas, hillsides, and mountainsides. Erosion potential is moderate to severe for water and wind. Depth to bedrock, erosion potential, and steeper slopes may result in difficult construction conditions. This soil group represents 16 percent of the soils in the Proposed Project area, and 69 percent of soils that may be affected by construction. The soil units in Group 5 include:

Hutchley Gravelly Loam; and
Hutchley Vipoint Complex.

Group 6 is characterized by large stones with very deep soils between them. These soils are typically found on sides of canyons and mountainsides on slopes between 30 percent and 70 percent. Erosion potential due to water is very severe, while wind erosion potential is only slight to moderate. Steep slopes, large stones, and the potential for water erosion may result in extremely difficult construction. This soil group represents 48 percent of the total soils in the Proposed Project area, and 11 percent of soils that may be affected by construction. The soil units in Group 6 include:

Rubble Land – Jimsage Complex;
Vitale – Jimsage Association
Watercanyon – Jimsage – Rexburg Association;
Jimsage – Doodlelink Complex; and
Jimsage – Vitale Association.

GeoTek (2004) evaluated the soil at ten test pits along the proposed 4.5 mile-long Cotterel Mountain north access road. GeoTek visually assessed and described the soil encountered in the test pits. In general, the upper zero to one foot of soil consists of silt, silt with sand, and clay. From one to about 12 feet below the surface, the soil in the test pits consists primarily of silt, sand, and gravel; some of the gravel is cemented with calcium carbonate, forming a hardpan layer located at depths ranging from two to six feet beneath the surface.

GeoEngineers (2004) performed a limited subsurface geotechnical investigation as a basis for developing preliminary recommendations for foundation design of the wind turbine towers. GeoEngineers indicated that where the towers are to be located, the soil cover over the rock typically varies from one to two feet thick, and in many places, the soil is non-existent.

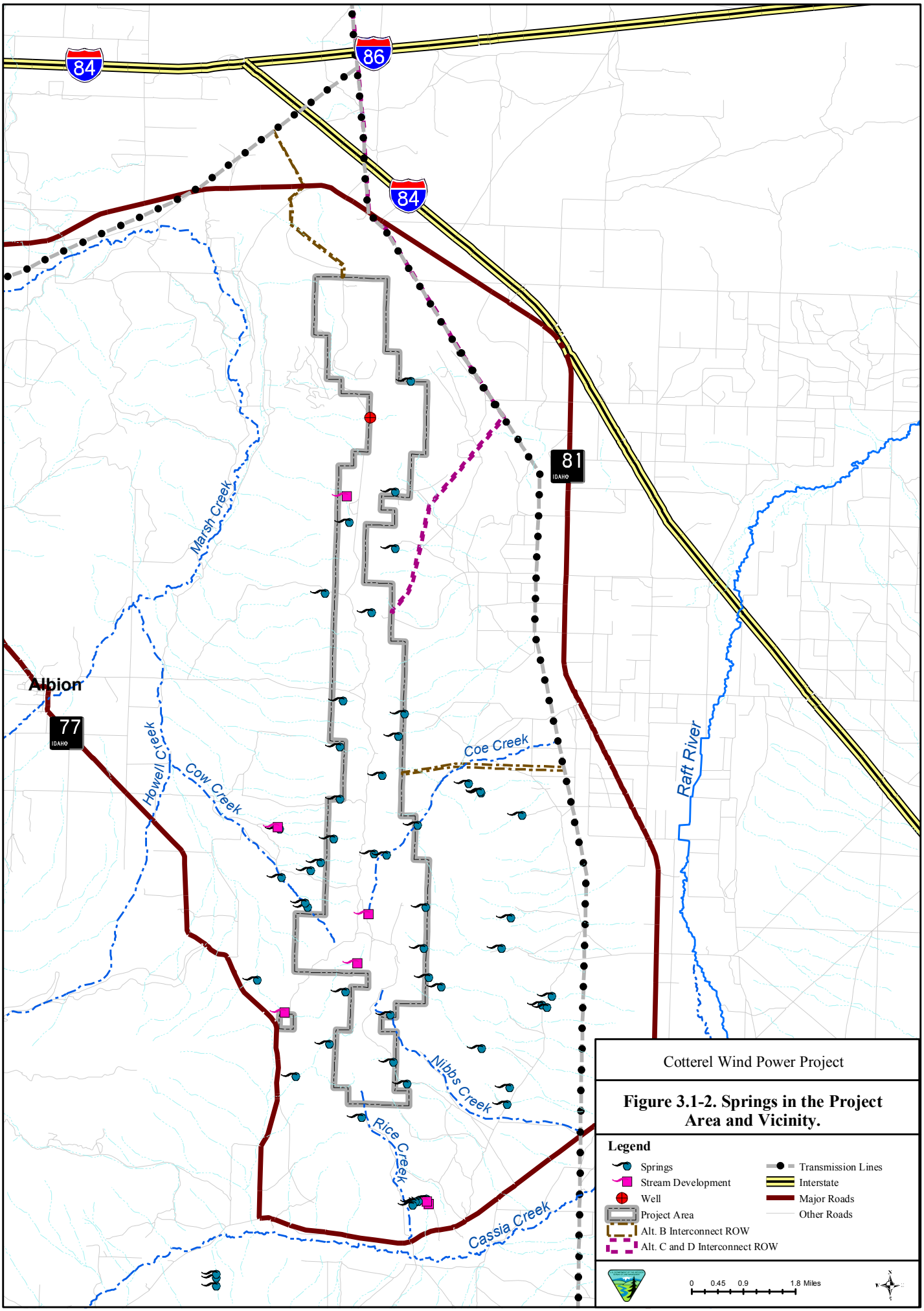
3.1.4 Water Resources

The Cotterel Mountain ridgeline divides the Raft River watershed on the east from the Lake Walcott watershed on the west. There are no major streams within the Proposed Project area. Intermittent streams fed by snowmelt contribute directly and indirectly to perennial streams in the Proposed Project vicinity, such as Cassia Creek on the southern end of Cotterel Mountain. Cassia Creek is a tributary to the Raft River located east of Cotterel Mountain. The Raft River drains into the Snake River. Marsh Creek near the north end of Cotterel Mountain is also fed by intermittent streams, and is also a tributary to the Snake River. The Snake River is the dominant hydrologic feature in southern Idaho, with a drainage basin of approximately 72,000 square miles (IDWR 1999).

There are 14 springs, three spring developments, and one well within the Proposed Project area (Figure 3.1-2). There are additional springs and stream developments outside the Proposed Project area. Some of the springs and stream developments along the eastern and southern slopes feed intermittent streams such as Coe Creek, Nibbs Creek, and Rice Creek, which feed the perennial streams such as Cassia Creek. Along the western slopes of Cotterel Mountain, a few spring and stream developments feed Cow Creek and Howell Creek, both of which are direct tributaries to Marsh Creek.

Many of these springs have been developed for use by livestock. Spring development can be as simple as driving a section of pipe horizontally into the location where the spring appears on the slope. Of the remaining springs, several have not been developed because they occur on steep slopes along the east flank of Cotterel Mountain, or because flows are probably too low for development.

The occurrence of springs is closely related to the geology of an area. If an impervious layer of rock, such as a clay deposit, underlies a layer of water-saturated soil or rock, then a line of springs will tend to appear on a slope where the clay layer outcrops. Igneous rocks are also impervious to water, yet they are often extensively fractured, and springs commonly appear where water-saturated fractures come to the surface, or where the fractures intersect underlying impervious rock. Springs are also


84
86
84
81
IDAHO
77
IDAHO
Albion
Marsh Creek
Howell Creek
Cow Creek
Coe Creek
Raft River
Nibbs Creek
Rice Creek
Cassia Creek
Cotterel Wind Power Project
Figure 3.1-2. Springs in the Project Area and Vicinity.
Legend
Springs
Stream Development
Well
Project Area
Alt. B Interconnect ROW
Alt. C and D Interconnect ROW
Transmission Lines
Interstate
Major Roads
Other Roads
0 0.45 0.9 1.8 Miles

common along faults, because the fault plane may act as a conduit for groundwater to reach the surface, or the fault plane may be impervious, and force the water to reach the surface.

Under section 303(d) of the Clean Water Act, states, territories, and tribes are required to develop lists of impaired waters that do not meet water quality standards. Cassia Creek, Marsh Creek, and the Raft River are listed by the State of Idaho as impaired or threatened waters under the 303d designation (IDEQ 2003). Table 3.1-2 summarizes the status of the 303d designation for each stream segment.

Table 3.1-2. Impaired (303d designation) Waters Near the Proposed Project Area (IDEQ 2003).

Cassia Creek (Headwaters to Connor Creek)	De-listed from 303(d) list in 1998.
Cassia Creek (Connor Creek to Raft River)	Listed in 1996 for concerns over habitat alteration and sediment.
Raft River (Malta to Snake River)	Listed in 1996 for concerns over pathogens (replaced by "bacteria" in the 1998 list), dissolved oxygen, channel flow alteration, ammonia, nutrient loading, and sediment.
Marsh Creek	Listed in 1998 for reasons not stated.

The State of Idaho has designated beneficial uses for Cassia Creek, Marsh Creek and the Raft River. Each of these perennial streams should provide water quality appropriate for aesthetics, irrigation and livestock, industrial water supply, and wildlife habitat. In addition, the Raft River should also provide water quality suitable for primary contact recreation (i.e. swimming), the protection and maintenance of populations of cold-water species, and habitat for the active self-propagation of salmonid fish species.

Groundwater within the Proposed Project vicinity occurs at depths ranging from 800 to 2,500 feet below ground surface within the unconfined Raft River Valley aquifer. Regional groundwater flows to the northwest towards the Snake River. The western slopes of Cotterel Mountain are within a Critical Groundwater Management Area designated by the Idaho State Department of Water Resources (IDWR). This designation indicates that all or part of the groundwater basin does not have sufficient groundwater to provide a reasonably safe supply for irrigation or other uses at the current or projected rates of withdrawal (IDAPA 1993; IDWR 1999). There are no public drinking water wells within the Proposed Project area boundary (Risley 2003).

3.1.5 Noise

Sound is mechanical energy transmitted by pressure waves through a medium such as air. Noise is defined as unwanted sound. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In particular, the sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level. Sound pressure level is measured in

decibels (dB), with zero dB corresponding roughly to the threshold of human hearing, and 120 to 140 dB corresponding roughly to the threshold of pain.

Human response to noise is subjective and can vary greatly from person to person. Factors that can influence individual response include: intensity, frequency, and time pattern of the noise; the amount of background noise present prior to the intruding noise; and the nature of work or human activity that is exposed to the noise. The adverse effects of noise include interference with concentration, communication, and sleep. At the highest levels, noise can induce hearing damage.

There are several methods of characterizing sound. Environmental noise is usually measured in A-weighted decibels (dBA). This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive for typical environmentally occurring sounds. Some representative noise sources and their corresponding noise levels (in dBA) are shown in Table 3.1-3 (USDOT-FHWA 1998). The noise levels presented in Table 3.1-3 are representative of measured noise at a given instant in time; however, they rarely persist consistently over a long period of time.

Table 3.1-3. Representative Noise Sources and Corresponding Noise Levels.

Noise Level (dBA)	Common Indoor Noise Levels	Common Outdoor Noise Levels
100-110	Above 100 dBA – rock band	Jet flyover at 1,000 feet.
90-100	Inside subway train (New York)	Gas lawn mower at 3 feet.
80-90	Food blender at 3 feet, garbage disposal at 3 feet.	Diesel truck at 50 feet, noisy urban daytime
70-80	Shouting at 3 feet, vacuum cleaner at 10 feet.	Gas lawn mower at 100 feet
60-70		Commercial area, heavy traffic at 300 feet.
50-60	Large business office	Quiet urban daytime setting
40-50	Small theater	Quiet urban nighttime setting
30-40	Conference room (background), library	Quiet suburban nighttime setting
20-30	Concert hall (background)	Quiet rural nighttime setting
10-20	Broadcast and recording studio	
0-10	Threshold of hearing	

Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies. Local regulation of noise involves implementation of general plan policies and noise ordinance standards.

At the federal and state level, there are no regulations that would apply to noise from commercial wind turbine generator operation. In a Wind Energy Programmatic EIS Frequently Asked Question report (USDI, BLM 2004), the BLM stated that much of the wind turbine noise is masked by the sound of the wind itself, and that turbines only operate when the wind is blowing. Noise from wind turbines has diminished as the technology of turbines has improved. Newer turbine blade design

results in wind energy being converted into greater rotational torque with less acoustic noise versus early-model turbines. Under most conditions, modern wind turbines are quiet (USDI, BLM 2004b).

The relatively remote Proposed Project area has no industrial noise sources. Existing background noise in the Proposed Project area is expected to be similar to the EPA "farm in valley" noise category, which is about 32 to 39 dBA. Existing noise in the Proposed Project area vicinity is attributable to: recreational users such as off-highway vehicles (OHV) and snowmobile riders; occasional low flying aircraft; agricultural equipment; and traffic on area roads such as State Highway (SH)-77, SH-81, and Interstate 84 (I-84).

3.2 BIOLOGICAL RESOURCES

As a federal land manager, the BLM is responsible for conserving wildlife, plant populations, and their habitats in the Proposed Project area. Within the Proposed Project area, the potential impact on biological resources required studies of vegetation and wildlife. Biological resources may not be found in the same place from year to year. Therefore, inventories needed to be completed prior to the construction of the Proposed Project. To provide an adequate inventory, some of the resource studies extended beyond the Proposed Project area boundary to better assess potential project impacts to wide ranging species like ferruginous hawk, sage-grouse, and mule deer.

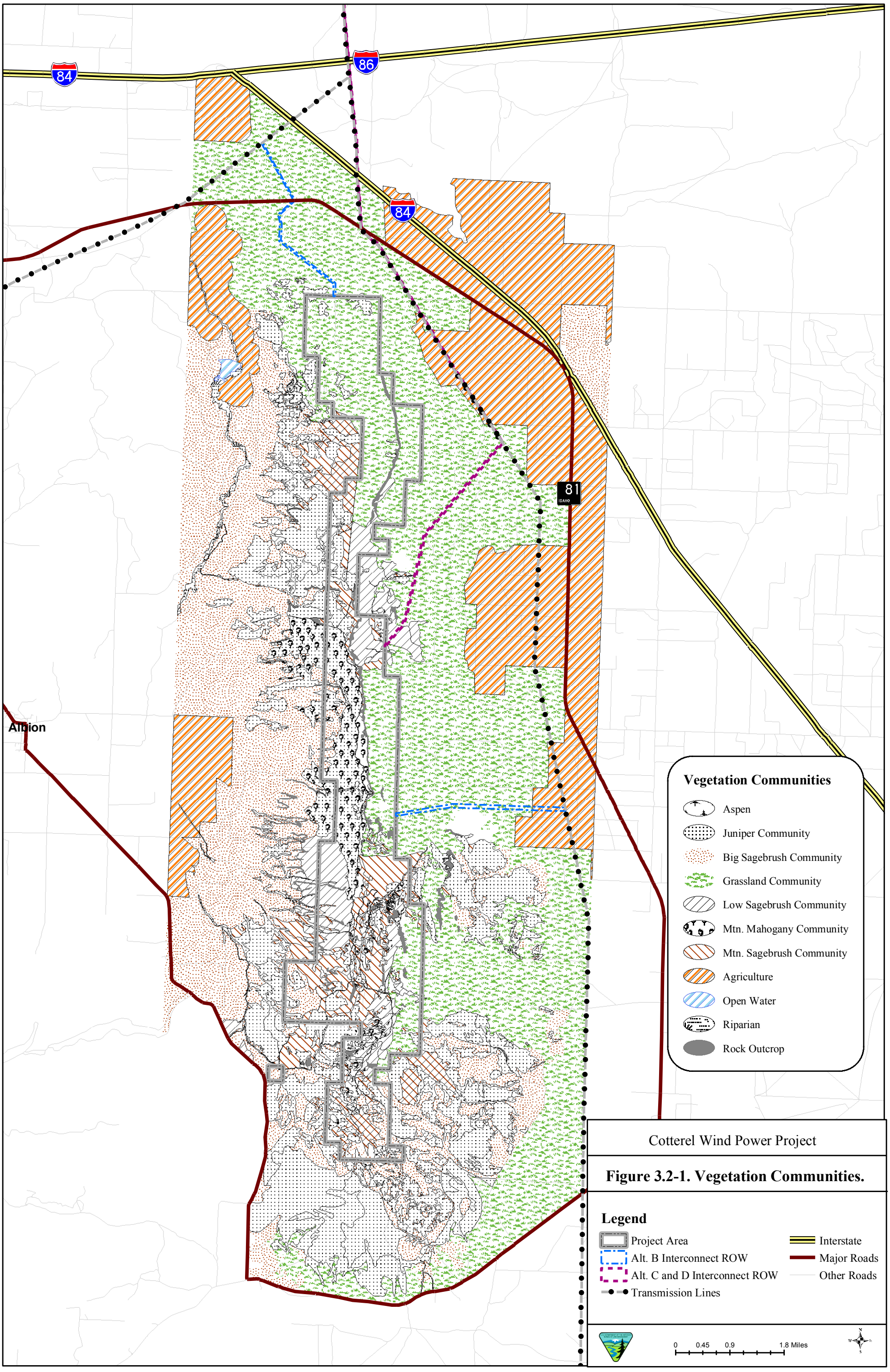
3.2.1 Vegetation

The Proposed Project area is located within the southeast portion of the Interior Columbia Basin. The area is characterized primarily as semi-desert shrub-steppe with sagebrush and woodland sites as the major potential vegetation groups (USDA, FS 1994; USDA, NRCS 1994; USGS 2003).

Vegetation types within the Proposed Project area were delineated from digital color orthophotography with an approximate ground resolution of one foot (0.3 meter). A buffer of 2.5 miles around the Proposed Project area was mapped using digital color orthophotography with a ground resolution of approximately two feet (0.6 meter). The buffer area delineation is approximately 67,600 acres. Additional resources used in the vegetation delineation and verification process included district soil maps (USDA, NRCS 1994), sagebrush assessment data (USGS 2003), and ground surveys. Six major and six minor community types were delineated within the Proposed Project area (Figure 3.2-1). Overlapping polygons in Figure 3.2-1 are transition sites where characteristics from multiple community types are represented.

Community Types

Twelve general community types were located within the Proposed Project area and the associated buffer (Figure 3.2-1). Within the Proposed Project area nine community types were identified including: low sagebrush, mountain mahogany, juniper, juniper/mountain mahogany mix, mountain sagebrush, low/mountain sagebrush mix, grasslands, big sagebrush, aspen, rock outcrops, and riparian communities (Tables 3.2-1, 3.2-2 and 3.2-3). Because of the complexity and distribution of the


84
86
84
81
IDAHO
Albion
Vegetation Communities
Aspen
Juniper Community
Big Sagebrush Community
Grassland Community
Low Sagebrush Community
Mtn. Mahogany Community
Mtn. Sagebrush Community
Agriculture
Open Water
Riparian
Rock Outcrop
Cotterel Wind Power Project
Figure 3.2-1. Vegetation Communities.
Legend
Project Area
Alt. B Interconnect ROW
Alt. C and D Interconnect ROW
Transmission Lines
Interstate
Major Roads
Other Roads
0 0.45 0.9 1.8 Miles

overlapping community type ranges of low/mountain sagebrush mix and juniper/mountain mahogany mix, they were not able to be visually displayed on the vegetation map for the Proposed Project area.

Table 3.2-1. Vegetative Components within Each Community Type.

Community Type	Tall Woody Shrubs	Low Woody Shrubs	Forbs	Grasses and Grass Like Species
Low sagebrush	Not Present (NP)	low sage, and rabbitbrush	phlox, onions, buckwheat, agoseris, death camas (*Zygaenus venenosos),* and cactus	Sandberg's bluegrass, bluebunch wheatgrass, and squirreltail
Big sagebrush	NP	Great Basin and Wyoming big sagebrush, and rabbitbrush	arrowleaf balsamroot, yarrow, buckwheat, stone seed, agoseris, lupine, phlox, mullein (*Verbuscum thapsus*), common dandelion (*Taraxacum officinale*)	bluebunch wheatgrass, Sandberg's bluegrass, bulbous bluegrass, needle and thread grass, great basin rye, and crested wheatgrass, cheatgrass, and Indian rye grass
Mountain sagebrush	NP	mountain sagebrush, and rabbit brush	arrowleaf balsamroot, phlox, buckwheats, lupines, penstemon, agoseris, depinium yarrow, mertensia	bluebunch wheatgrass, Sandberg's bluegrass, bulbous bluegrass, great basin wild rye, needle and thread, and squirrel tail
Juniper	juniper	Wyoming Big sagebrush, mountain big sagebrush, bitter brush and rabbitbrush	buckwheat, and cactus	Sandberg's bluegrass and bluebunch wheatgrass
Mountain mahogany	mountain mahogany	mountain sagebrush, rabbit brush, bitter brush, and snowberry	buckwheat, yarrow, and cactus	bluebunch wheatgrass and Sandberg's bluegrass
Grasslands		rabbitbrush, big and mountain sagebrush	phlox, onions, agoseris, penstemon, buckwheat, stone seed, death camas, and cactus	Intermediate and desert wheatgrass, bulbous bluegrass, cheatgrass, Sandberg's bluegrass, bluebunch wheatgrass, Russian wild rye, Great Basin wild rye, annual fescue, and Indian rice grass
Aspen	service berry, Rocky Mountain Juniper, chokecherry, snowberry, currant (Ribes spp.)	mountain big sagebrush, rabbitbrush	yarrow, arrowleaf balsamroot, lupine, stone seed, lily, violet, waterleaf	

Table 3.2-2. Acreage of Each Community Type Within Vegetation Survey Area.

Vegetative Community	Total Acres	Percent of Total Area
Low sagebrush	2,376	3.1%
Big sagebrush	17,582	22.6%
Mountain sagebrush	2,079	2.7%
Low/mountain sage mix	356	0.5%
Juniper	11,449	14.7%
Mountain mahogany	265	0.3%
Juniper/Mahogany mix	1,805	2.3%
Grasslands	25,521	32.8%
Aspen	42	0.1%
Agricultural land	14,998	19.3%
Rock outcrop	469	0.6%
Riparian	333	0.4%
Open water	50	0.1%
Existing roads*	395	0.5%
Total Area:	**77,720 acres**	**100%**

Total area calculation is +/- 2%.
*Not included as a community type.

Table 3.2-3. Acres of Each Community Type Within The Proposed Project Area.

Vegetative Community	Acres within Proposed Project Area	Percent of Proposed Project Area
Low sagebrush	1,435	12.8%
Big sagebrush	1,522	13.6%
Mountain sagebrush	1,527	13.7%
Low/Mountain sage mix	84	0.8%
Juniper	1,267	11.3%
Mountain mahogany	255	2.3%
Juniper/Mahogany mix	1,127	10.1%
Grasslands	3,465	31.0%
Aspen	41	0.4%
Agricultural land	0	0.0%
Rock outcrop	268	2.4%
Riparian	20	0.2%
Open water	0	0.0%
Existing roads*	158	1.4%
Total Area:	****11,169 acres**	**100%**

*Not included as a community type.
**Total area calculation is +/- 1%. Actual Proposed Project area is approximately 11,500 acres.

Low Sage

The low sage community type is principally shrub land with a dominant low shrub layer. It occupies approximately 2,376 acres (3.1%) of the total area and 1,435 acres (12.8%) of the Proposed Project area. This community type normally occurs on hilltops and ridges and consists of well-drained shallow soils that are severely susceptible to water and wind erosion.

The low sage community is comprised primarily of woody shrubs, with some forbs, grasses, moss, and lichens. The vegetation component of this community makes up approximately 55 percent of the ground cover (Tharp 2004), with the rest consisting of litter, cryptogrammic soils, rock and bare ground. The total vegetation cover of this community type can vary significantly depending on the amount of rock and soil depth. It consists of: low, woody shrubs consisting of low sage (*Artemisia arbuscula*), and rabbitbrush (*Chrysothamnus spp*.); grasses, including Sandberg bluegrass (*Poa secunda*), bluebunch wheatgrass (*Agropyron spicatum*), and squirreltail (*Sitanion hystrix*); forbs, including hoods phlox (*Phlox hoodii*), onion (*Allium spp*.), buckwheat (*Eriogonum spp.*), Mariposa lily (*Calochortus spp*.), and cactus (*Opuntia spp*. and *Pediocactus simpsonii*); and moss and lichens.

Wyoming/Great Basin Big Sage

The big sagebrush community type is normally found in the lowest elevation of the Proposed Project area and is principally shrubland with a dominant layer of low shrubs and a significant graminoid/ herb understory. This community type occupies approximately 17,582 acres (22.6%) of the total area and 1,522 acres (13.6%) of the Proposed Project area. It consists of well-drained, very deep soils that are severely susceptible to water erosion and only moderately susceptible to wind erosion.

The Wyoming/Great Basin big sage complex includes low shrubs, forbs, grasses, moss, and lichens. Great Basin big sage generally occupies drainage bottoms and deeper soils within the Wyoming sagebrush zone. The vegetation component comprises approximately 55 to 60 percent (Tharp 2004) of the total ground cover, with litter, bare ground, and rocks comprising the remainder. The vegetation cover of this community type consists of: low shrubs such as Great Basin (*Artemisia tridentata spp. tridentata*) and Wyoming big sagebrush (*Artemisia tridentata ssp. Wyomingensis*) and rabbitbrush; grasses, including Bluebunch wheatgrass, Sandberg bluegrass, bulbous bluegrass, needle and thread grass (*Stipa thurberiana*), Indian rice grass (*Oryzopsis hymenoides*), Great Basin wild rye (*Elymus scinereus*), cheatgrass and crested wheatgrass (*Agropyron desertorum*); forbs consisting of arrowleaf balsamroot, yarrow, buckwheat, lupine, and phlox; and moss, and lichens.

Mountain Big Sage

The mountain big sagebrush community type is principally shrub land with a dominant layer of low shrubs and a significant graminoid understory. It is normally found at elevations above Wyoming and Great Basin sagebrush habitat and occupies approximately 2,079 acres (2.7%) of the total area and 1,527 acres (13.7%) of the Proposed Project area. It consists of well-drained, deep soils that are severely susceptible to water erosion, but only slightly susceptible to wind erosion due to increased vegetative cover.

The mountain big sage community includes woody shrubs, forbs, grasses, moss and lichens. The vegetation component of the community comprises approximately 60 to 70 percent of the ground cover (Tharp 2004), with the remainder consisting of litter, open-faced rock, and bare ground. The total vegetation cover of this community type consists of: short, woody shrubs including mountain sagebrush, bitterbrush, and rabbitbrush; grasses consisting of bluebunch wheatgrass, Sandberg bluegrass, bulbous bluegrass (*Poa bulbosa*), Great Basin wild rye, and squirrel tail; forbs such as phlox, buckwheat, onions, lupine (*Lupinus spp*.), and arrowleaf balsamroot (*Balsamorhiza hookeri*); and moss and lichens are present as well.

Low Sagebrush/Mountain Sagebrush Mix

The low sagebrush/mountain sagebrush mix community occupies approximately 356 acres (0.5%) of the total area and 84 acres (0.8%) of the Proposed Project area. This type is characterized by an irregular mix of low sagebrush and mountain community types.

Juniper

The juniper (*Juniperous Osteosperma*) community type is generally a low precipitation woodland with varying amounts of understory. It occupies approximately 11,449 acres (14.7%) of the total area and 1,267 acres (11.3%) of the Proposed Project area. It consists of well-drained, deep soils that are severely susceptible to water erosion, but only slightly susceptible to wind erosion.

The juniper community includes tall and short woody shrubs, forbs, grasses, moss, and lichens, comprises approximately 65 percent of the ground cover, with the rest consisting primarily of bare ground and some open-face rock. The total vegetation cover of this community type consists of: juniper and mountain mahogany; low shrubs including big sagebrush, mountain sagebrush, bitterbrush, and rabbitbrush; grasses that consist of Sandberg bluegrass and bluebunch wheatgrass; forbs such as buckwheat and cactus; and moss and lichens are present as well.

Mountain Mahogany

The mountain mahogany community type is low-precipitation woodland generally found in environments similar to Utah Juniper (USGS 2003; USDA, FS 1994). It occupies approximately 265 acres (0.3%) of the total area and 255 acres (2.3%) of the Proposed Project area. It typically occurs on hilltops and east-facing slopes with shallow soils with little understory.

The mountain mahogany community includes woody shrubs, forbs, grasses, moss and lichens. It comprises approximately 50 to 65 percent of the ground cover (Tharp 2004), with the rest consisting of litter, bare ground, and some open-faced rock. The total vegetation cover of this community type consists of: mountain mahogany (*Cercocarpus ledifolius*); low, woody shrubs, including mountain sagebrush (*Artemisia tridentata spp. Vaseyana*), rabbitbrush, and bitterbrush; grasses consisting of Bluebunch wheatgrass and Sandberg bluegrass; forbs such as buckwheat, yarrow (*Achillea millefolium*), and cactus; and moss, and lichens.

Juniper/Mountain Mahogany Mix

The juniper/mountain mahogany mix community type occupies approximately 1,805 acres (2.3%) of the total area and 1,127 acres (10.1%) of the Proposed Project area.

Grasslands

The grassland community type is composed primarily of native and seeded communities that were historically big sagebrush, low sagebrush, and juniper communities that burned primarily due to wildfire. This type contains some of the most disturbed, and support primarily localized concentration of annual exotics. It occupies approximately 25,521 acres (32.8%) of the total area and 3,465 acres (31.0%) of the Proposed Project area. It consists of soil types ranging from well-drained, very deep soils that are only moderately susceptible to water and wind erosion to well-drained, shallow soils that are very susceptible to water and wind erosion (USDA, NRCS 1994).

The grassland community includes tall and short woody shrubs, forbs, grasses, moss, and lichens that comprise approximately 30 to 60 percent of the ground cover, with the rest consisting of litter, bare ground and rock. The vegetation cover of this community type consists primarily of grasses including Intermediate (*Agropyron intermidia*) and desert wheatgrass, bulbous bluegrass, cheatgrass (*Bromus tectorum*), Sandberg bluegrass, bluebunch wheatgrass, Russian wild rye (*Elymus junceus*), Great Basin wild rye, six weeks fescue (*Vulpia bromoides*), Indian rice grass, bulbous bluegrass, needle and thread grass, crested wheatgrass, and Junegrass (*Koeleria cristata*). Scattered among the grass species are sparse patches of low, woody shrubs such as rabbitbrush, big sage, and mountain sagebrush, as well as forbs such as phlox, onion, agosoris (*Agosoris spp*.), penstemon (*Penstemon spp*.), buckwheat, stone seed (*Lithospermum ruderale*), western wheatgrass, and cactus, moss and lichens.

Aspen

The aspen community type is generally found at mid elevations on east-facing slopes. It is principally occupied by a dominant layer of tall to medium deciduous shrubs and a significant graminoid/herb understory. This community type occupies approximately 42 acres (0.1%) of the total area, and 41 acres (0.4%) of the Proposed Project area. It typically occurs in snow catch pockets or near springs with very deep, highly erodable soils (USGS 2003; USDA, FS 1994).

The aspen community includes tall trees, woody shrubs, forbs, and some moss and lichens, which comprises approximately 85 percent of the ground cover. The rest of the community consists of litter, bare ground, and some open-faced rock. The total vegetation cover of this community type consists of: aspen trees and service berry (*Amelanchier alnifolia*); Rocky Mountain Juniper (*Juniperus scopulorum*); chokecherry (*Prunis virginiana*); snowberry (*Symphoricarpos albu*); currant (*Ribes spp*.); low, woody shrubs, including mountain big sagebrush and rabbitbrush; and forbs such as yarrow, arrowleaf balsamroot, lupine, stone seed, lily, violet, and waterleaf.

Minor Community Types

There are a variety of other community types that make up a very small portion of the Proposed Project area but are key functional components including: barren rock outcrops make up 469 acres (0.6%) of the total area and 268 acres (2.4%) of the Proposed Project area; open waters make up 50 acres (0.1%) of the total area and zero acres of the Proposed Project area; riparian zones make up 333 acres (0.4%) of the total area and 20 acres (0.2%) of the Proposed Project area; and agricultural lands make up 14,998 acres (19.3%) of the total area and zero acres of the Proposed Project area (Tables 3.2-2 and 3.2-3). These minor community types make up approximately 15,850 (20.4%) of the total area and 288 acres (2.6%) of the Proposed Project area. They occur throughout the area and are key process and structural components of the Cotterel Mountain area ecosystem, as well as habitat and forage sites for wildlife, birds, cattle, and big game. However, based on the limited size and low probability of impact from the Proposed Project, these community types have not been described in detail. Non-vegetated community influences include: rock outcrop, disturbed sites, and open water.

Threatened or Endangered Plant Species

The only federally listed plant species in the area is Christ's paintbrush (*Castilleja christii*; federal candidate). This species is known only from the type location at Mount Harrison, approximately 12 miles west of the Proposed Project area, at the northern end of the Albion Mountains in Cassia County, Idaho. It occurs primarily on gentle, northerly–facing slopes between 8,600 and 9,200 feet, and is inversely related to the density of sagebrush. It generally occurs only in openings in the sagebrush and within the nearly shrubless swales of the patterned ground (CDC 2000). According to personal communications with James Tharp of BLM, Christ's paintbrush has not been found, and is not expected to be found, within the Proposed Project area due to a lack of appropriate habitat.

Special Status Plant Species

There is only one special status species that has been identified by the Idaho Conservation Data Center (CDC), or the BLM, that is within the Proposed Project area, the Simpson's hedgehog cactus (*Pediocactus simpsonii*). Cotterel Mountain supports a large population of Simpson's hedgehog cactus. This species occurs sporadically on almost every portion of the Mountain.

Noxious Weeds

There are six known noxious weed species that are currently identified by the BLM within or near the Proposed Project area (within five to ten miles). These include, leafy spurge (*Euphorbia esula*), Russian knapweed (*Centaurea repens*), diffuse knapweed (*Centaurea diffusa*), Scotch thistle (*Onopordum acanthium*), rush skeleton weed, and black henbane (*Hyoscyamus niger*). Only two, scotch thistle and black henbane, of these noxious weed species have been found within the Proposed Project area. Scotch thistle is primarily found only on the northern end of Cotterel Mountain, where black henbane is found scattered along roadways within the Proposed Project area.

Several species identified as "invasive species" do occur within the Proposed Project area. These species include: cheatgrass, bulbous bluegrass, curlycup gumweed (*Grindillia squarrosa*), annual sunflower (*Helianthus annuus*), field bindweed (*Convolvulus arvensis*), tumble mustard (*Sisymbrium altissimum)*, and Russian thistle (*Salsola iberica*). These invasive species typically occur on disturbed areas including: the current roadway corridors, communication facility platforms, OHV and livestock trails, burned areas, and rodent dig spots. These species can be monitored and controlled with appropriate mitigation with the exception of cheatgrass and bulbous bluegrass. These two species have spread throughout a majority of southern Idaho and can only be controlled on a site-specific basis with intensive management actions.

3.2.2 Wildlife

This section is a summary of wildlife resources in the vicinity of the Proposed Project area. The sources of information include published literature, unpublished Idaho Department of Fish and Game (IDFG) data on big game and game birds, BLM sensitive species lists from the Burley Field Office (BFO), BLM Wildlife Data Base, and interviews with BLM and IDFG biologists familiar with the area. In addition, a year-long baseline field study was conducted starting in the fall of 2002, and included surveys of nesting raptors, breeding sage-grouse, bird use, diurnal fall raptor migration, and a radar study of nocturnal fall migrating birds and bat species. The detailed methods and results of the baseline study are provided in the Technical Baseline Reports for Biological Resources (TBR 2004) The Technical Baseline Reports for Biological Resources is a compilation of nine reports documenting the results of field surveys, data searches, and historical BLM data summaries. These reports were prepared by numerous authors (ABR 2004; Sharp 2004; TREC 2004a; TREC 2004b; TREC 2004c; URS 2004; USDI BLM 2004) and constitute the best available knowledge of the existing biological resources within the Proposed Project area.

Typically, wildlife species are evaluated across their range by using ranking systems. These ranking systems evaluate each species population status and provide a general idea about the overall trend of the species. IDFG, Idaho BLM and CDC all use different ranking systems, which are discussed below. Species are classified by several different ranking systems including BLM sensitive species 1 to 5; Idaho State Status 1 to 5; Global Status 1 to 5, and federally protected under the Endangered Species Act (ESA) (16 U.S.C. 1531-1543) (1973) including: Endangered, Threatened and Candidate species. Federally protected species will be evaluated in greater detail in Biological Assessments (BA) presented to the United States Fish and Wildlife Service (USFWS) and available for public review.

IDFG ranks nongame species based on a ranking protocol of 1 to 5. State ranked species are summarized in the following ranks: (1) critically imperiled because of extreme rarity or because of some factor of its biology making it especially vulnerable to extinction (typically five or fewer occurrences); (2) imperiled because of rarity or because of other factors demonstrably making it vulnerable to extinction (typically six to 20 occurrences); (3) vulnerable (typically 21 to 100 occurrences; (4) not rare, and apparently secure, but with cause for long-term concern; and (5) demonstrably widespread, abundant and secure.

The Nature Conservancy is a worldwide conservation organization that ranks a species not just within one state, but also on a worldwide (global) level. The Nature Conservancy uses the same definitions for their ranking system 1 to 5 as CDC. The state status and the global status ranks of the same species provide a description of the status of this species within Idaho and worldwide.

BLM sensitive ranking includes Type 1 to 5. Species listed by the USFWS as threatened or endangered or are proposed or candidates for listing under the ESA are Type 1. Species experiencing significant declines throughout their range with a high likelihood of being listed in the foreseeable future due to their rarity and/or significant endangerment factors are Type 2. Species that are experiencing significant declines in population or habitat, or are in danger of regional or local extinctions in Idaho in the foreseeable future, are listed as Type 3. Species that are generally rare in Idaho with the majority of their breeding range located largely outside of the state, are listed as Type 4. Watch list species are not considered BLM sensitive species and are listed as Type 5. Watch list species include species that may be added to the sensitive species list depending on new information concerning threats, species biologist evaluations, or statewide trends.

Big Game

Four big game mammal species occur within or near the Cotterel Mountain area: mule deer (*Odocoileus hemionus*), mountain lion (*Felis concolor*), California bighorn sheep (*Ovis canadensis californiana*), and American pronghorn (*Antelocapra americana*).

Mule Deer

Mule deer are the most abundant big game species in the Proposed Project area. Populations in Idaho have been decreasing since 1996, primarily due to habitat reduction, specifically critical winter habitat. Winter/year-round range is defined as that range of which a portion is used yearlong, but which during winter has a substantial influx of animals from other seasonal ranges. The Proposed Project area is located within year-round mule deer habitat. Approximately 5,475 acres (48%) of the Proposed Project area lies within winter habitat range for mule deer (IDFG 2003a; Figure 3.2-2).

Mule deer occupy nearly all habitats in Idaho from dry, open country to dense forests. They prefer rocky, brushy areas, open meadows, open pine forests, and burns (Brown 1992). Mule deer can also be found in coniferous forests, shrub steppe, chaparral, and grasslands with shrubs. Mule deer are often associated with early succession vegetation or vegetation resulting from disturbance, especially near agricultural lands.

Cotterel Mountain is within mule deer hunting management unit #55. This unit is restricted to archery between November 25 and December 19th, and any-weapon controlled hunts between August 15 and September 24th and October 5 and October 31. All other hunting means are prohibited in this unit. Mule deer harvest statistics for 1999-2003 are shown in Table 3.2-4. Table 3.2-4 shows a decline in the number of permits issued, but an increase in the number of deer harvested. For the 2003 hunting season, the number of permits being issued for the any-weapon October hunt were reduced to 350, due to the decreasing populations within the area (IDFG 2003b).

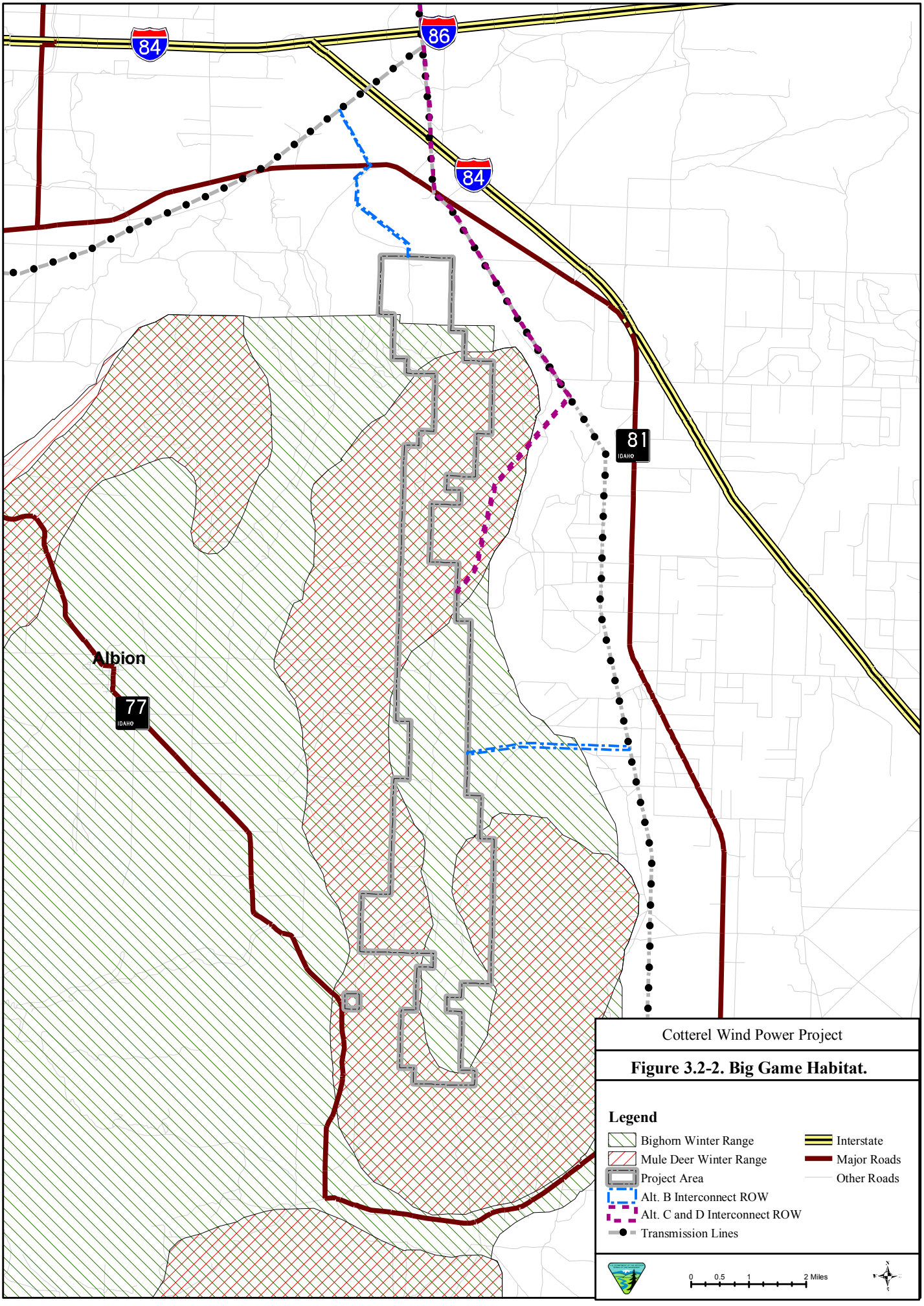

84
86
84
81
IDAHO
Albion
77
IDAHO
Cotterel Wind Power Project
Figure 3.2-2. Big Game Habitat.
Legend
Bighorn Winter Range
Mule Deer Winter Range
Project Area
Alt. B Interconnect ROW
Alt. C and D Interconnect ROW
Transmission Lines
Interstate
Major Roads
Other Roads
0
0.5
1
2 Miles

Table 3.2-4. Idaho Department of Fish and Game Unit 55 Mule Deer Harvest Statistics 1998 to 2003.

Year	Season-Type	Permits Authorized	Permits Issued	No. Hunters	Harvest			Total Days Hunted	Pct. Success	Pct. 4-pts.
					Antlered	Antlerless	Total			
1998	General Archery	NA[a]	NA	59	7	0	7	308	12	ND[b]
	Any-Weapon Early-Antlered	25	23	19	14	0	14	80	74	30
	Any-Weapon Antlered – Oct.	500	492	461	201	0	201	1669	44	37
	Total	525	515	539	222	0	222	2057		
1999	General Archery	NA	NA	80	13	0	13	433	16	ND
	Any-Weapon Early-Antlered	25	24	24	14	0	14	123	58	50
	Any-Weapon Antlered – Oct.	500	460	436	232	0	232	1800	53	28
	Total	525	484	540	259	0	259	2356		
2000	General Archery	NA	NA	ND	12	1	13	ND	ND	27
	Any-Weapon Early-Antlered	25	24	ND	19	0	19	ND	ND	31
	Any-Weapon Antlered – Oct.	500	469	ND	232	0	232	ND	ND	32
	Total	525	493	ND	263	1	264	ND	ND	
2001	General Archery	NA	NA	131	8	2	10	380	8	71
	Any-Weapon Early-Antlered	25	21	21	14	0	14	86	67	77
	Any-Weapon Antlered – Oct.	500	468	447	232	0	232	2068	52	44
	Total	525	489	599	254	2	256	2534		
2002	General Archery	NA	NA	220	12	5	17	1132	8	70
	Any-Weapon Early-Antlered	25	23	22	18	0	18	104	82	71
	Any-Weapon Antlered – Oct.	500	459	440	238	0	238	2074	54	45
	Total	525	482	682	268	5	273	3310		
2003	General Archery	-	-	229	13	7	17	763	7	58
	Any-Weapon Early-Antlered	-	-	0	0	0	0	0	0	0
	Any-Weapon Antlered – Oct.	-	-	0	0	0	0	0	0	0
	Total	-	-	229	13	5	17	763	-	-

[a]NA = Not Applicable
[b]ND = No Data
Harvest data are estimates derived from telephone sampling or harvest report cards. Data for 1999 to 2003 does not include harvest in the 300-permit youth-only either-sex deer hunt.

Mountain Lion

Mountain lions generally prefer mountainous country with cliffs and rimrock, and semi-wooded canyon habitat with slopes of mixed open areas and forest. They range over vast areas and thus can move through a diversity of habitat types (Holmes 2000). Mountain lions are active day or night throughout the year and in all kinds of weather. In the absence of human disturbance, peak activity occurs within two hours of sunset and sunrise; near human presence, activity peaks after sunset. With the exception of females with kittens, mountain lions are primarily solitary. Population densities are usually not more than 3 to 4 animals per 40 square miles. Mountain lion home range size varies greatly in different areas. In Idaho, home ranges of males were from 20 to 90 square miles, while females had home ranges of 5.5 to 57 square miles (Holmes 2000).

Mountain lions are hunted annually on Cotterel Mountain. Mountain lion hunting season in hunting management unit #55 is from August 30 to March 31 or until the female quota is reached, whichever comes first. Harvest statistics are not known for the specific unit but are tallied for the entire Magic Valley region, which includes statistics for units 43-49, 52, and 52a-57. Since 1996, there have been 190 (80 females, 110 males) mountain lions killed, primarily using hounds (76 to 80%). Of those killed, 11 to 15 percent were killed by hunters who were not hunting specifically for mountain lions (IDFG 2003b).

Mountain lions could occur on any portion of Cotterel Mountain. While conducting surveys for other resources in 2003, four Mountain lions were observed on Cotterel Mountain. One observation was of a female with two kittens. During 2004, two observations of Mountain lions were observed on Cotterel Mountain (USDI, BLM 2005). The average mountain lion population on Cotterel Mountain is estimated to range between 4-5 adult individuals.

Bighorn Sheep

California bighorn sheep (BLM sensitive Type 3; G4 and S4) inhabit high mountain grass meadows in the summer, using open slopes where the land is rough, rocky, sparsely vegetated, and characterized by steep slopes and canyons. In winter, they occupy high, windswept ridges, or migrate to the lower elevation sagebrush-steppe habitat as low as 4,800 feet to escape deep winter snows and find more nutritious forage (Lauer and Peek 1976). Typically, this species relies heavily upon grassland forage and forbs.

California bighorn sheep are currently not known to occur on Cotterel Mountain. Bighorn sheep do occur in the Jim Sage Mountains located about eight miles south of Cotterel Mountain, and may be rare visitors to Cotterel Mountain. In February of 2000 and 2001 the IDFG, BLM, and The Foundation for North American Wild Sheep reintroduced 45 California bighorn sheep into the Jim Sage Mountains. By September 2001, 17 of the originally released sheep had died. During the 2000 California bighorn sheep release, one ewe and her lamb initially used the southern portion of Cotterel Mountain, but were predated by cougars (Fowles 2002). The majority of these mortalities were the result of kills by mountain lions (Fowles 2001). The reintroduced herd has since increased to about 75

individuals. Prior to the initial bighorn sheep release, Cotterel Mountain was evaluated as potential bighorn sheep range (ID-024-EA-99-023).

American Pronghorn

Pronghorn groups have not been observed on Cotterel Mountain. They have been recorded to the north and east of the Proposed Project area. Pronghorn groups are considered to be unlikely to occur in the Proposed Project area.

Furbearers

Bobcat

Bobcats (Game species; S4; G5) are generally trapped for their fur on Cotterel Mountain. Populations in southern Idaho are up to one bobcat per 3.9 square kilometers (Knick 1990). Bobcats are solitary, except during breeding and typically forage on rabbits. When rabbit numbers decline, then bobcat populations follow. During 2003, two photographs of bobcats were obtained and cataloged (USDI, BLM 2005). The estimated bobcat population on Cotterel Mountain is unknown, but Cotterel Mountain offers suitable habitats for home ranges including rocks, crevices and a surrounding productive rabbit population.

Bats

Bats probably use Cotterel Mountain on a year-round basis. Bats forage and roost from lower elevations on Cotterel Mountain to the highest elevations of the mountain (IDFG 2002). Bats utilize water resources on the mountain as foraging habitat for some species, and as a water source for most, if not all species. Two types of bat groupings occur on Cotterel Mountain including resident bats that remain on site year round or during the spring through fall breeding and rearing season and migrating bats or those that fly over the site in the spring or the fall. Bat migration typically follows the moth migrations. In southern Idaho, moth migrations generally peak about the first two weeks in October. Moth migration times vary at different elevations and depending upon the species, moths generally migrate through a higher elevation site later in the season.

One bat (unknown type) was recorded during all of the surveys for this Proposed Project; however, many bat species are known to, or suspected to occur in the study area (CDC 2002; IDFG 2002; USDI, BLM 2003). Species known to occur in the area include the western small-footed myotis (*Myotis ciliolabrum*), long-eared myotis (*Myotis evotis*), and pallid bat (*Antrozous pallidus*). Species suspected to occur in the Proposed Project area include the big brown bat (*Eptesicus fuscus*), Townsend's big-eared bat (*Corynorhinus townsendii*), Yuma myotis (*Myotis yumanensis*), long-legged myotis (*Myotis volans*), and western pipistrelle (*Pipistrellus hesperus*). Migratory species such as the hoary bat (*Lasionycteris noctivagans*) and silver-haired bat (*Lasiurus borealis*) may also pass through the area during the fall, following the moth migrations of southern Idaho.

The western small-footed myotis (BLM sensitive Type 5; G5; S4) is primarily found in arid sites with cliffs and talus slopes. It may be more abundant in southern Idaho in lava-tube caves where it

hibernates in cracks and crevices. During summer months, the western small-footed myotis roosts in rock crevices, under boulders, beneath loose bark, or in buildings. It leaves its daytime roost shortly after sunset. The western small-footed myotis generally forage along cliffs and rocky slopes for small insects including moths, flies, true bugs, and ants. It hibernates in caves and abandoned mines in winter (one of the last bats to begin hibernation).

The long-eared myotis (BLM sensitive Type 5; G5; S3) is found in a wide range of habitats. In shrub communities, it may be found in crevices in cliffs, crevices in rocks on the ground, lava-tube caves, and abandoned mines. An Idaho study found roosts were normally associated with areas adjacent to reservoirs or streams containing slow-moving water. Their diet consists primarily of moths and beetles, along with lacewings, true bugs, wasps, and bees. This species may glean insects from the surface of a variety of desert shrubs but it also occurs and feeds in coniferous forests. In northern Idaho, long-eared myotis appear to feed near the back of mines, especially at the portal. They do not seem to use these mines for night roosting or winter hibernation. The long-eared myotis is known to forage with long-legged myotis, big brown bat, silver-haired bat, and hoary bat, but an Idaho study found species foraged earlier in evening than several other bat species (Keller *et al*. 1993; Keller 2000).

The pallid bat (No BLM ranking; G5; S1) is generally found in arid or semi-arid shrub steppe/grasslands, and to a lesser extent in higher elevation coniferous forests, where rocky river canyons or cliffs are near water. They roost in rock crevices, mines, hollow cavities in trees, and buildings. Their prey can be captured in the air, but is predominantly captured on the ground. The pallid bat is a gregarious species that fly at low levels and have a much more acute sense of sight than the Myotis genus. They seldom hibernate, are active year round, and only migrate short distances. Breeding occurs in late fall, but sperm is stored until ovulation in early spring (IDFG 2002; Keller 2000).

The big brown bat (No BLM ranking; G5; S4) is a common species throughout North America; it can even be found in urban areas. In forested areas, they generally roost in hollow spaces in snags or living trees. The big brown bat is a common species near the entrances of caves and mines but usually does not cluster with other individuals in these colder locations. Foraging occurs primarily near the permanent roost, but temporary roosts may also be utilized. They may hibernate for a shorter period of time than members of the genus *Myotis*. Breeding occurs in late fall and sometimes in winter (IDFG 2002; Keller 2000).

The Townsend's big-eared bat (BLM sensitive Type 3, G4, S2) roosts colonially in caves, buildings, and mine adits. This species may use Cotterel Mountain for both roosting and foraging needs (IDFG 2002). In addition, there is a known hibernation site on the east side of the Proposed Project area (IDFG 2002). The Townsend's big-eared bat occurs at a wide range of elevations in a variety of habitats from desert shrub to deciduous and coniferous forests. In Idaho, some individuals likely migrate to hibernal sites to overwinter and disperse to forested areas during summer when the sexes separate. Their diet consists mostly of moths, beetles, flies, and lesser amounts of other insects. The

Townsend's big-eared bat may eat insects near or over still or slow moving water (Vullo *et al*. 1999). During winter months they hibernate. If multiple hibernation sites are close together, some bats may move from one to the other (Vullo *et al* 1999). Populations in southern Idaho are strongly loyal to roost sites during winter hibernation (Humphrey and Kunz 1976; Wackenhut 1990), and weakly loyal to roost sites during summer months due to shifting prey populations (Keller *et al*. 1993).

The Yuma myotis (BLM sensitive Type 5; G5; S3) occurs in a wide variety of upland and lowland habitats, including riparian settings, desert scrub, and moist woodlands. Summer roosts include crevices in cliffs, old buildings, underground mines, caves, bridges, and abandoned cliff swallow nests. They eat a variety of soft-bodied small insects, especially moths and emergent aquatic insects, including stoneflies and mayflies found near and over water. No large winter concentrations of this species have been studied in Idaho (Keller *et al*. 1993; Keller 2000).

The long-legged myotis (BLM sensitive Type 5; G5; S3) occurs in a variety of habitats from desert to mountainous coniferous forests, where it may be the most common bat species, especially if open water occurs in the area. They eat a variety of small insects found in forests including moths, leafhoppers, lacewings, termites, flies, and small beetles. The food taken may vary with insect availability. Summer roosts include cliff crevices, cracks in the ground, hollows in snags, hollow areas under exfoliating bark and in living trees, and old buildings. Winter hibernal sites include caves and mine tunnels. No large winter concentrations of this species have been found in mines in Idaho (Keller *et al*. 1993; Keller 2000).

The western pipistrelle (BLM sensitive Type 4; G5; S1) is found in deserts and lowlands, desert mountain ranges, desert scrub flats, and rocky canyons. In Idaho, it prefers cliffs and canyon walls close to water. The western pipistrelle roosts in crevices, mine tunnels, and buildings. They emerge in the early evening, especially in canyon areas, where they are often seen feeding over slack water. An important predator on small swarming insects, pipistrelles feed on flying ants, mosquitoes, leafhoppers, and fruit flies, but often select only one kind of insect that is abundant when feeding (Keller *et al*. 1993; Keller 2000).

Small Mammals

Cliff chipmunks (*Neotamias dorsalis*) and an unidentified fox were observed during 2003 field surveys (TBR 2004). Several other small mammal species observed at Cotterel Mountain were Uinta chipmunk (*Tamias umbrinus*), snowshoe hare (*Lepus americanus*), coyote (*Canis latrans*), bushy tailed woodrat (*Neotoma cinerea*) (USDI, BLM Wildlife Database 2005). A variety of other mammal species occur on Cotterel Mountain, including shrews, voles, mice, pack rats, ground squirrels, pocket gophers, weasels, coyotes, cottontails, and jackrabbits (IDFG 2003a).

Amphibians and Reptiles

No amphibians or reptiles were recorded during the 2003 field surveys. BFO has conducted amphibian and reptile surveys within the Proposed Project area from 1997 through 2004 and have found the following species around the Proposed Project area: Great Basin spadefoot toad

(*Scaphiopus intermontanus*) and eggs in McClendon Spring pond; western toad (*Bufo boreas*) in Coe Creek; striped whipsnake (*Masticophis taeniatus*) along Nibbs Creek; and Common racer (*Coluber constrictor*) in mountain mahogany on rocky outcrops. Other common species that were found in the past within the general area include Pacific treefrog (*Hyla regilla*) and western skink (USDI, BLM 2005).

The majority of amphibian and reptile species found in southern Idaho could potentially be found in suitable habitats on Cotterel Mountain including: longnose lizard (*Gambelia wislizenii*); short horned lizard (*Phrynosoma dougalassii*); desert horned lizard (*Phrynosoma platyrhinos*); sagebrush lizard (*Sceleporus graciosis*); western fence lizard (*Sceloporus occidentalis*); western skink (*Eumeces skiltoninus*); gopher snake (*Pituophis catenifer*); western garter snake (*Thamnophis elegans*); common garter snake (*Thamnophis sirtalis*); and night snake (*Hypsiglena torquata*).

Three of these species will be discussed in further detail due to their BLM sensitive species status including the common garter snake, night snake and western toad. The common garter snake (BLM sensitive Type 3; State 5; GS 5) is nocturnal/diurnal and usually found in habitats associated with water, such as streams, rivers, lakes, ponds and marshes. They can also be found in open meadows and coniferous forests. They hibernate underground, or under surface cover at times with other snake species. Active from about March or April through October in northern range and at higher elevations, active season is longer in southern range, to year-round in Florida (Nussbaum *et al*. 1983; Cossell 1997).

The night snake (BLM sensitive Type 5; State Status 5; Global Status 3) is nocturnal. This snake inhabits desert lowlands, grassland, chaparral, sagebrush flats, woodlands, and moist mountain meadows that generally have a rocky component. They can also be found in areas lacking rocks, provided there are rodent burrows (Diller and Wallace 1986; Cossell 1997).

The western toad (BLM sensitive Type 3; G4; S4) is found in mountain meadows to brushy desert flats and typically near a water source. Its distribution is throughout Idaho, but populations appear to be declining in parts of the U.S. due to water channeling and re-direction, thus leading to a loss of habitat (Bartels and Peterson 1994).

Birds

Large expanses of big and low sagebrush, juniper, grasslands and mountain mahogany are found within the Proposed Project area. These vegetation covers are potential habitat for a number of BLM sensitive species, including sage-grouse, Brewer's sparrow, grasshopper sparrow, loggerhead shrike, pinyon jay, plumbeus vireo, sage sparrow, and sage thrasher. In addition, the abundance of open cliffs, strong updrafts, and the close proximity of agricultural lands make this area prime habitat for BLM sensitive raptor species including ferruginous hawks, peregrine falcon, prairie falcon, golden eagle and Swainson's hawk. In addition to the wide diversity of bird species found during the surveys, there are specialized topographical features that provide breeding, nesting and wintering

habitats for many avian species that are not widely available in the Raft River Valley-Cassia Creek and Marsh Creek sub-basin habitats.

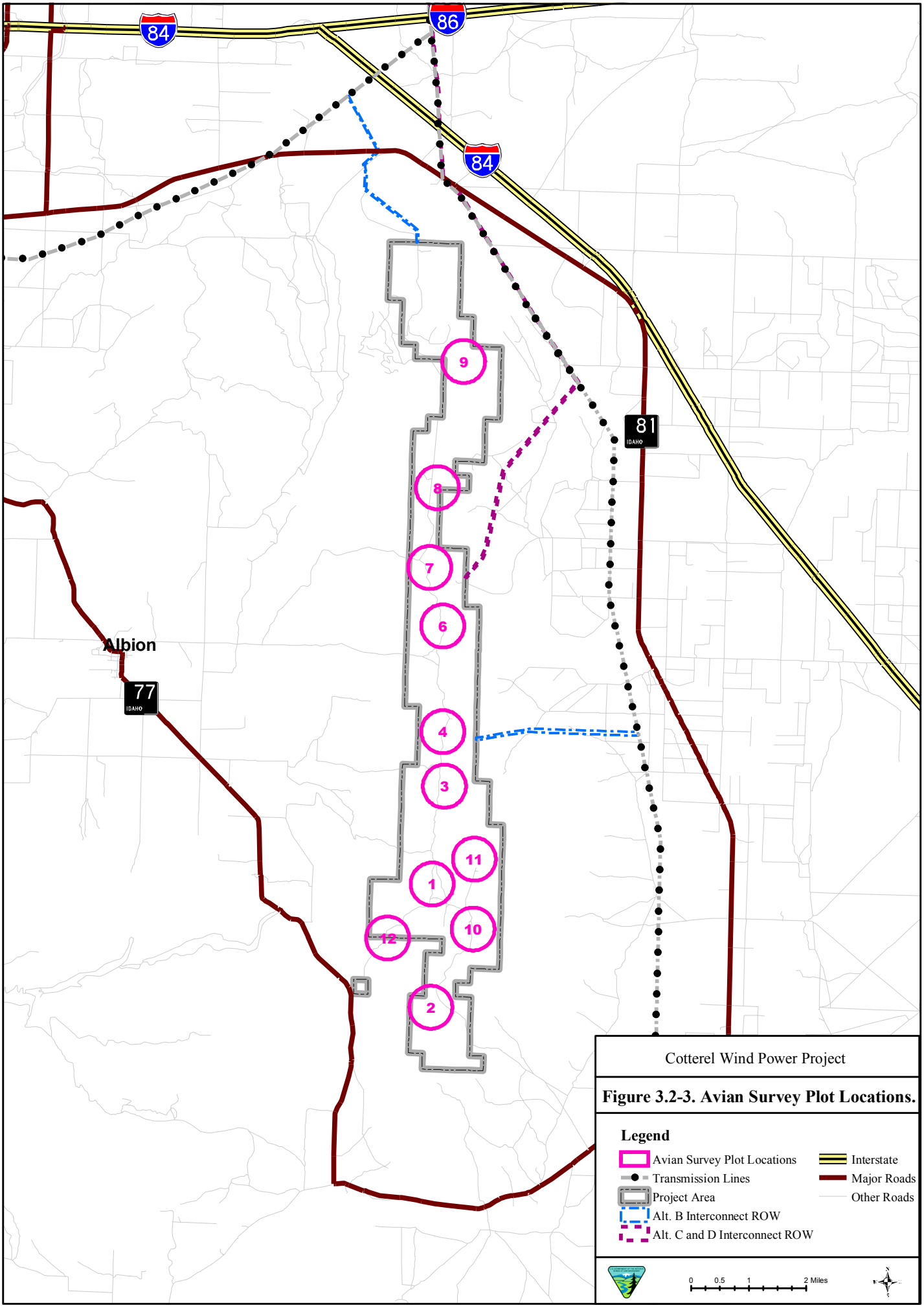
Avian Survey Efforts

To assess the abundance and location of birds using specific habitats in the area, the following studies were conducted: (1) a yearlong avian point count survey; (2) a fall migration point survey; (3) a raptor nest survey; (4) a nocturnal bird migration survey using radar; (5) two sage-grouse lek surveys; and (6) a sage-grouse radio telemetry study (TBR 2004). The field methods chosen for use in the Cotterel Mountain study were derived from a review of guidelines for studying wind energy and bird interactions published by the National Wind Coordinating Committee (Anderson *et al.* 1999) and of the methods used in a number of other recent avian baseline studies at proposed wind plants in the western U.S. The baseline studies included Johnson *et al.* (1997); Johnson *et al.* (2000b); Erickson *et al*. (2001a); Sharp *et al*. (2001a), West Inc. (2002) and Young *et al*. (2002). During the point count surveys, in-transit observations were made of large birds and sensitive species while the observers were in transit between observations points. In-transit observations were entered into a separate database and analyzed separately. After analysis, these data were deemed not comparable to the point count data. Therefore, the in-transit observation data were only used in a general way to augment the species composition and richness information for the avian study areas.

Yearlong Avian Point Count Survey

For the yearlong avian point count survey, 11 circular plots, each with a radius of 1,970 feet (600 meters), were established on Cotterel Mountain, and each plot was surveyed for 20 minutes at weekly intervals between November 26, 2002 and November 23, 2003 (Figure 3.2-3; TBR 2004). Approximately 17.3 hours of observations were made at each circular point count station through the four seasons for an entire year. All birds, including raptors, passerines, corvids, upland gamebirds and other species were recorded and when possible, ocular estimates of flight height of these birds were also recorded. In addition, flight paths of large birds were mapped. Data were recorded on data sheets, entered into a database, and analyzed. Flight paths were digitized into a Geographical Information System coverage layer.

Observational data was compiled for each point count location. For the yearlong avian point count survey, 84 species of birds were identified. Species observed are listed in the Technical Baseline Reports for Biological Resources report prepared by the Applicant's consultant for the Proposed Project (TBR 2004). Table 3.2-5 lists the avian groups and their subtotals. The averages of bird use varied geographically among the yearlong point count survey plots. Near the north end of Cotterel Mountain, plots 7, 8, and 9, had the highest average use, while near the south end of the mountain, plots 2, 11, and 12 had the lowest average use (Figure 3.2-4). By season, the number of species observed, along with percent of total birds observed for each season were:


84
86
84
81
IDAHO
77
IDAHO
Albion
9
8
7
6
4
3
11
1
12
10
2
Cotterel Wind Power Project
Figure 3.2-3. Avian Survey Plot Locations.
Legend
Avian Survey Plot Locations
Transmission Lines
Project Area
Alt. B Interconnect ROW
Alt. C and D Interconnect ROW
Interstate
Major Roads
Other Roads
0
0.5
1
2 Miles

- Winter, with 21 species and 22 percent of total birds observed;
- Spring, with 62 species and 30 percent of total birds observed;
- Summer, with 66 species and 23 percent of total birds observed; and
- Fall, with 49 species and 25 percent of total birds observed.

During the yearlong avian point count survey, the most abundant avian groups identified during all seasons were as percentages of total number of birds:

- Passerines, 68 percent (31 percent were finches);
- Raptors, 15 percent (observations of: 131 turkey vultures, 123 red-tailed hawks, and 119 northern harriers);
- Corvids, ten percent (mostly common ravens);
- Upland gamebirds, about two percent (about one percent sage-grouse); and
- A variety of other groups for the remaining five percent.

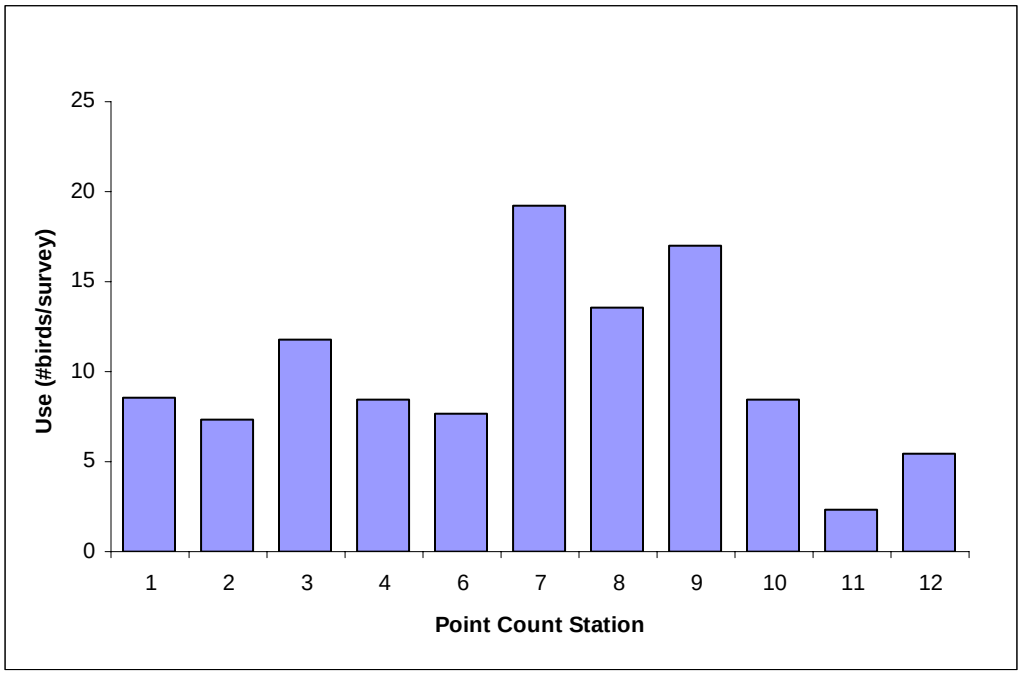


Figure 3.2-4. Avian Use by Point Count Station.

Table 3.2-5. Avian Abundance During Yearlong Point Counts in the Cotterel Study Area.

Group Name Common Name	Winter		Spring		Summer		Fall		Total	
	# ind	# obs	# ind	# obs	#ind	# obs	# ind	# obs	# ind	# obs
Corvids	48	41	118	86	92	41	264	80	522	248
Doves	0	0	13	8	48	33	3	3	64	44
Gulls	0	0	52	5	0	0	15	1	67	6
Other	2	2	38	31	51	42	20	18	113	93
Passerines	1028	79	1009	321	676	460	711	177	3424	1037
Raptors										
American Kestrel	0	0	9	9	37	35	18	17	64	61
Bald Eagle	0	0	0	0	0	0	1	1	1	1
Cooper's Hawk	0	0	1	1	0	0	11	11	12	12
Ferruginous Hawk	0	0	2	2	1	1	0	0	3	3
Golden Eagle	8	7	9	9	10	7	5	5	32	28
Merlin		0	0	2	2	0	0	2	2	4
Northern Goshawk	0	0	2	2	0	0	3	3	5	5
Northern Harrier	4	4	72	65	33	31	21	19	130	119
Prairie Falcon	0	0	5	4	9	8	1	1	15	13
Red-tailed Hawk	1	1	38	29	57	50	47	43	143	123
Sharp-shinned Hawk	0	0	2	2	2	1	13	13	17	16
Swainson's Hawk	0	0	0	0	0	0	1	1	1	1
Turkey Vulture	0	0	80	40	138	81	13	10	231	131
Unknown Buteo	0	0	3	3	2	2	69	2	74	7
Unknown Raptor	1	1	0	0	2	2	5	4	8	7
Raptor subtotal	14	13	225	168	291	218	210	132	740	531
Upland Gamebirds										
Chukar	6	1	17	16	17	10	12	12	52	39
Gray Partridge	0	0	1	1	0	0	3	1	4	2
Sage-Grouse	0	0	19	4	1	1	12	3	32	8
Upland Gamebird subtotal	6	1	37	21	18	11	27	16	88	49
Total All Birds	1098	136	1492	640	1176	805	1250	427	5018	2008

Passerines were consistently the most abundant group observed during all four seasons, with winter use being significantly higher than the other seasons. One half of the passerines (52 to 55%) that were observed during the point count surveys were estimated to fly at a height within the rotor-swept area of the three proposed turbine types (TBR 2004). It should be noted that while avian surveys on Cotterel Mountain indicate that approximately one half of the birds are flying within the rotor swept area of the turbine blades, not all of these birds would be expected to be killed as they would be able to fly through the rotor swept area without being hit (See Section 4.6.4).

Raptor sightings were similar during the spring, summer, and fall surveys (ranged from 1.49 to 1.89 birds per plot), but declined during the winter (to 0.18 birds per plot). Turkey vulture, red-tailed hawk and northern harrier were the three species with highest use of the area during spring and summer. Sixty-two to seventy-eight percent of raptors were estimated to fly at a height within the rotor-swept area of three proposed turbine types (TBR 2004).

Of the corvids, the common raven was consistently one of the top two species with highest use of the plot areas during all seasons. High percentages (65 to 76%) of Corvids were estimated to fly at a height equal to the rotor-swept area of three different turbine types (TBR 2004).

Three groups of upland game birds were observed during the yearlong avian point count survey: the chukar (52 observed), the gray partridge (four observed), and the sage-grouse (32 observed). The greater sage-grouse is the only native species of the three. Low to moderate percentages (six to 56%) of upland game birds were estimated to fly at a height within the rotor-swept area of three different turbine types (TBR 2004).

Other avian groups observed included: two small flocks of migrating California gulls and two small flocks of ring-billed gulls, both flocks observed during the spring; and a single flock of 15 American white pelicans observed during the fall.

Of the small birds observed during the yearlong avian point count survey, gray-crowned rosy finches and Townsend's solitaire had the highest plot area use during fall and winter, while the rock wren, mountain bluebird, western meadowlark, American robin, spotted towhee, vesper sparrow, violet-green swallow, chipping sparrow, dark-eyed junco, and Brewer's sparrow had the highest plot area use during spring and summer. The species with the highest plot area use generally had the highest frequency of occurrence during the yearlong avian point count surveys (except for the gray-crowned rosy finch).

Fall Migration Survey

For the fall migration plot survey, 18 plots, each with a radius of 3,280 feet (one kilometer), were established on Cotterel Mountain, and each plot was surveyed for 30 minutes, six days a week, from mid-August to mid-October 2003 (TBR 2004; Figure 3.2-5). The data were similar to the yearlong avian point count survey, but only raptors, large birds of interest, and threatened or endangered or sensitive (TES) species were recorded.

For the fall migration plot survey, 49 species of birds were identified. Species observed are listed in the Technical Baseline Reports for Biological Resources report prepared by the Applicant's consultant (TBR 2004). Table 3.2-6 lists the avian groups and their subtotals. Use by plot area varied from 5.5 birds per survey at plot 15, to 22.4 birds per survey at plot 11. Plots 8, 9, 11, and 13 had the highest plot area use, while plots 4, 6, 12, and 13 had the lowest plot area use.

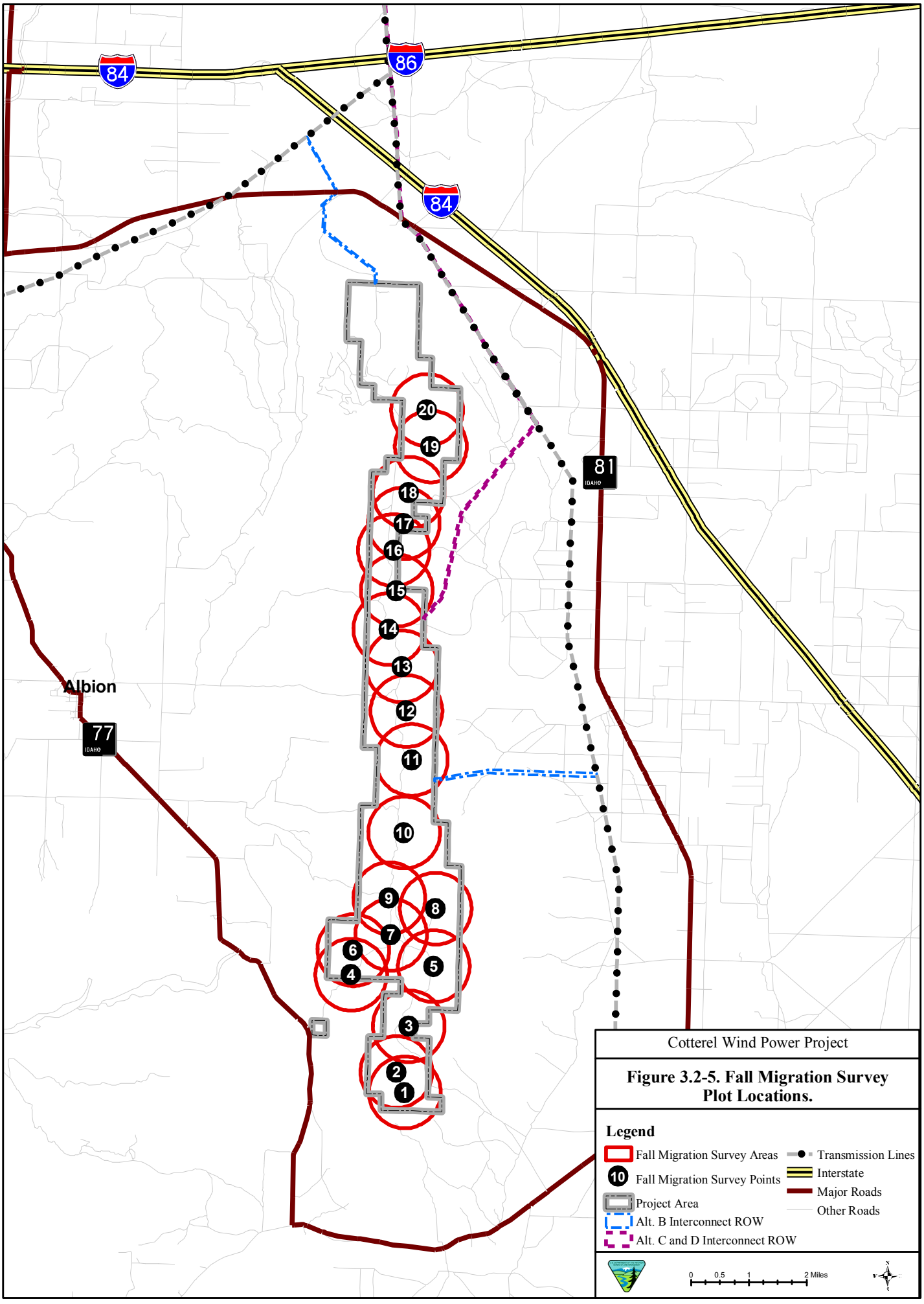

84
86
84
81
IDAHO
77
IDAHO
Albion
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
Cotterel Wind Power Project
Figure 3.2-5. Fall Migration Survey Plot Locations.
Legend
Fall Migration Survey Areas
Fall Migration Survey Points
Project Area
Alt. B Interconnect ROW
Alt. C and D Interconnect ROW
Transmission Lines
Interstate
Major Roads
Other Roads
0
0.5
1
2 Miles

Table 3.2-6. Avian Use, Percent Composition and Percent Frequency of Occurrence by Groups with Species in the Cotterel Study Area During Avian Point Count Surveys.

Groups and Species	Use				% Composition				% Frequency of Occurrence			
	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
Corvids	0.623	0.887	0.597	1.872	4.37	7.91	7.81	21.12	38.96	42.11	22.73	43.26
Doves	0.000	0.098	0.312	0.021	0.00	0.87	4.07	0.24	0.00	4.51	20.13	2.13
Gulls and White Pelican	0.000	0.391	0.000	0.106	0.00	3.49	0.00	1.20	0.00	3.76	0.00	0.71
Other	0.026	0.286	0.344	0.142	0.18	2.55	4.50	1.60	2.60	20.30	22.73	12.06
Passerines	13.351	7.586	4.390	5.043	93.62	67.63	57.39	56.88	64.94	75.19	89.61	59.57
Raptors												
American Kestrel	0.000	0.068	0.240	0.128	0.00	0.60	3.14	1.44	0.00	6.02	16.88	9.93
Bald Eagle	0.000	0.000	0.000	0.007	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.71
Cooper's Hawk	0.000	0.008	0.000	0.078	0.00	0.07	0.00	0.88	0.00	0.75	0.00	5.67
Ferruginous Hawk	0.000	0.015	0.006	0.000	0.00	0.13	0.08	0.00	0.00	0.75	0.65	0.00
Golden Eagle	0.104	0.068	0.065	0.035	0.73	0.60	0.85	0.40	9.09	3.01	4.55	3.55
Merlin	0.000	0.015	0.000	0.014	0.00	0.13	0.00	0.16	0.00	0.75	0.00	0.71
Northern Goshawk	0.000	0.015	0.000	0.021	0.00	0.13	0.00	0.24	0.00	1.50	0.00	1.42
Northern Harrier	0.052	0.541	0.214	0.149	0.36	4.83	2.80	1.68	3.90	27.82	15.58	12.06
Prairie Falcon	0.000	0.038	0.058	0.007	0.00	0.34	0.76	0.08	0.00	2.26	5.19	0.71
Red-tailed Hawk	0.013	0.286	0.370	0.333	0.09	2.55	4.84	3.76	1.30	14.29	24.68	19.86
Sharp-shinned Hawk	0.000	0.015	0.013	0.092	0.00	0.13	0.17	1.04	0.00	1.50	1.30	7.09
Swainson's Hawk	0.000	0.000	0.000	0.007	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.71
Turkey Vulture	0.000	0.602	0.896	0.092	0.00	5.36	11.71	1.04	0.00	20.30	26.62	5.67
Unknown Buteo	0.000	0.023	0.013	0.489	0.00	0.20	0.17	5.52	0.00	1.50	1.30	1.42
Unknown Raptor	0.013	0.000	0.013	0.035	0.09	0.00	0.17	0.40	1.30	0.00	1.30	2.13
Group Total	0.182	1.692	1.890	1.489	1.28	15.08	24.70	16.80	12.99	57.14	66.88	48.23
Upland Gamebird												
Chukar	0.078	0.128	0.110	0.085	0.55	1.14	1.44	0.96	1.30	9.02	5.84	8.51
Gray Partridge	0.000	0.008	0.000	0.021	0.00	0.07	0.00	0.24	0.00	0.75	0.00	0.71
Sage-Grouse	0.000	0.143	0.006	0.085	0.00	1.27	0.08	0.96	0.00	2.26	0.65	2.13
Group Total	0.078	0.278	0.117	0.191	0.55	2.48	1.53	2.16	1.30	11.28	5.84	11.35

Use is expressed as the average number of individuals of a particular species or group observed per plot survey. Percent composition is the proportion of the total birds observed comprised by a particular species or group. Percent frequency is the proportion of all plots surveyed in which at least one individual of a particular species or group was seen.

The most abundant avian groups as percentages of total number of raptors, large birds of interest, and TES species identified during the fall migration period were:

- Corvids, 46%;
- Raptors, 29%;
- Passerines, 17%;
- Doves, 6%; and
- Upland game birds, 2%.

The common raven was the most frequently observed species, accounting for 54 percent of observations during the fall migration plot survey. Other species observed in more than five percent of the surveys included the northern harrier (30%), American kestrel (22%), turkey vulture (19%), sharp-skinned hawk (15%), and Cooper's hawk (15%).

Daily mean raptor use ranged from 0.6 to 8.3 raptors per 20-minute survey, with day-to-day variations in numbers (Figure 3.2-6). This pattern is typical of fall raptor migration.

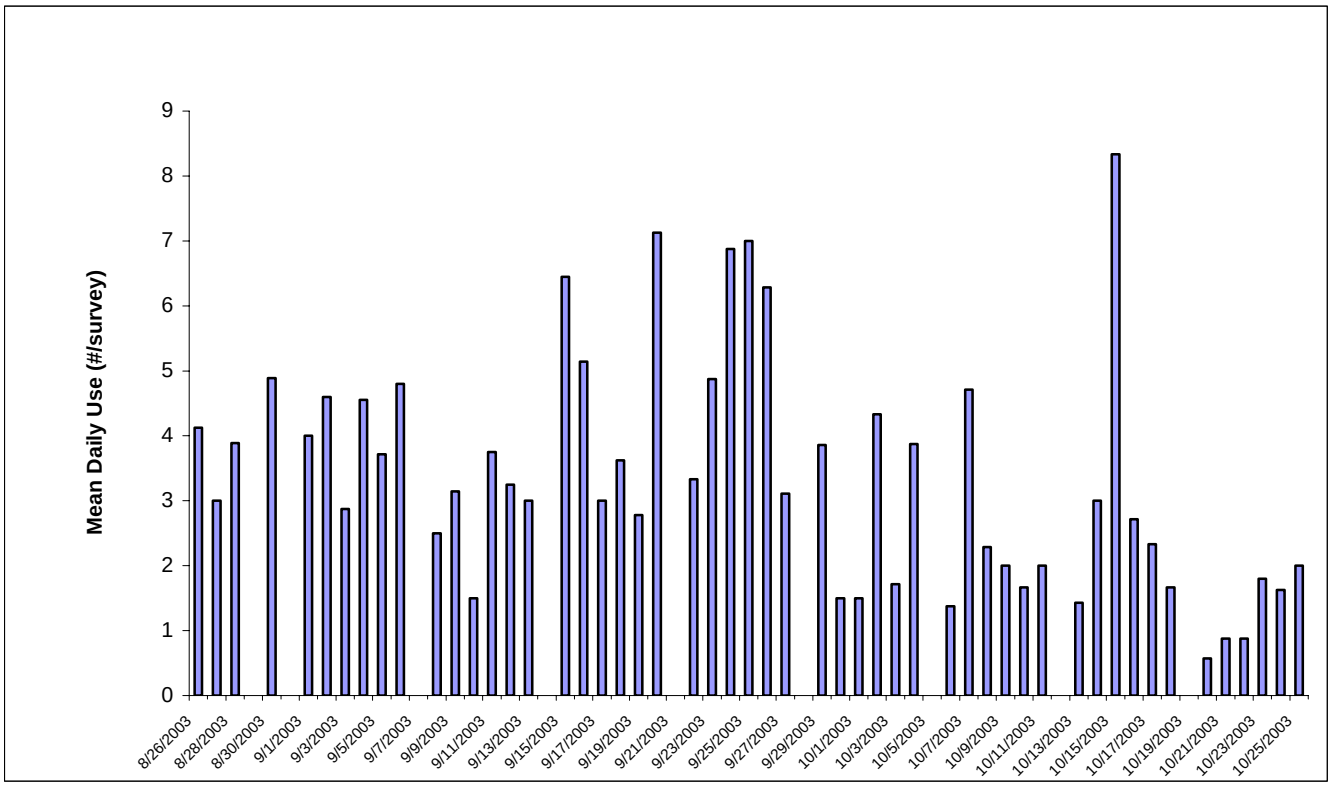


Figure 3.2-6. Mean Daily Raptor Use During Fall Migration

High percentages (66 to 70%) of corvids were estimated to fly at a height equal to the rotor-swept area of three different turbine types.

Moderate to high percentages (54 to 62%) of raptors were estimated to fly at a height equal to the rotor-swept area of three different turbine types.

Moderate to high percentages (60 to 62%) of passerines were estimated to fly at a height equal to the rotor-swept area of three different turbine types.

Moderate to high percentages (43 to 87%) of doves were estimated to fly at a height equal to the rotor-swept area of three different turbine types.

No upland game birds were estimated to fly at a height equal to the rotor-swept area of three different turbine types.

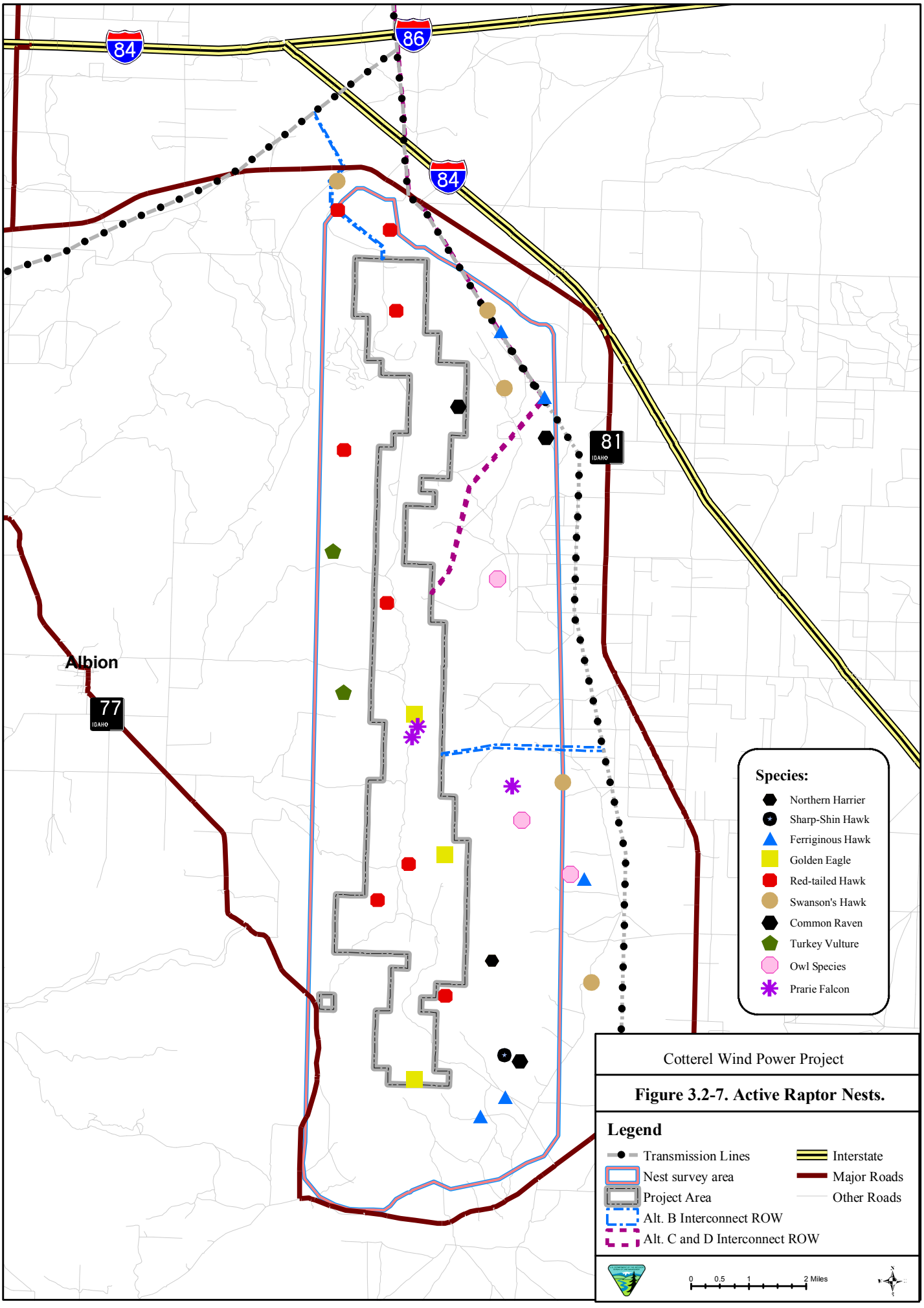
Raptor Nest Survey

A raptor nest survey was conducted during May and June 2003 to evaluate the numbers and distribution of nesting raptors that may be potentially influenced by the Proposed Project (TBR 2004). Two helicopter aerial surveys, along with ground surveys were used to locate active raptor nests within a raptor nesting area defined by a two-mile buffer surrounding the outermost edge of the proposed turbine strings.

A total of 21 active and 20 inactive raptor nests were identified in the raptor nesting area surveyed. Nine nesting species were identified: golden eagle, turkey vulture, red-tailed hawk, Swainson's hawk, ferruginous hawk, northern harrier, prairie falcon, short-eared owl, and great horned owl. Figure 3.2-7 is a map of raptor nests active during the 2003 raptor nest survey. Based on observations made during the 2003 aerial and ground surveys, the sharp-shinned hawk, American kestrel, and barn owl probably also nested in the study area. The cliffs on the east side of Cotterel Mountain provide nesting habitat for golden eagles, prairie falcons, red-tailed hawks, American kestrels, and barn owls. The ferruginous and Swainson's hawk nests were generally at lower elevations to the east and mostly two miles or farther from Cotterel Mountain.

Nocturnal Bird Migration Survey

A radar study of bird migration was conducted during August and October 2003 (ABR 2004). Radar observations were collected for about 6 hours per night on 30 nights within the 45-day study period. The baseline information collected included flight direction, migration passage rates, and flight altitude of nocturnal passerine migrants.


84
86
84
81
IDAHO
Albion
77
IDAHO
Species:
Northern Harrier
Sharp-Shin Hawk
Ferriginous Hawk
Golden Eagle
Red-tailed Hawk
Swanson's Hawk
Common Raven
Turkey Vulture
Owl Species
Prarie Falcon
Cotterel Wind Power Project
Figure 3.2-7. Active Raptor Nests.
Legend
Transmission Lines
Nest survey area
Project Area
Alt. B Interconnect ROW
Alt. C and D Interconnect ROW
Interstate
Major Roads
Other Roads
0
0.5
1
2 Miles

The results of the radar study showed:

- A south, southeast average flight direction;
- A variable migration passage rate ranging from two to 210 targets per 0.62 mile (one kilometer) per hour, with an average rate of 32 targets per 0.62 mile (one kilometer) per hour;
- An overall average nocturnal flight altitude of 1,854 feet (565 meters) above ground level; and
- On low ceiling cloud nights, avian flight altitude decreased with statistical significance in relationship to the cloud height.

About 700 to 3,700 nocturnal migrating birds were estimated to pass through the rotor-swept zone of the proposed turbines during the 45-day study period.

3.2.3 Special Status Species, Including Endangered, Threatened, Candidate Sensitive and Watch List Species

The ESA protects listed threatened and endangered plant and animal species and their critical habitats. To ensure compliance with the ESA, a BA analyzing the effects of the Proposed Project on Federally Listed and candidate species is being prepared and will be available for public review. USFWS was contacted to initiate informal consultation and to obtain a list of Federally Listed species potentially present within and adjacent to the Proposed Project area. The USFWS response indicated that the bald eagle and gray wolf are the only TES species that may occur in or adjacent to the Proposed Project area (USFWS 2003). USFWS routinely requests that BFO provide ecosystem level management and consider the following species and their habitats in project planning and review: pygmy rabbit, spotted bat, Townsend's big eared bat, California bighorn sheep, cliff chipmunk, western pipistrelle, little pocket mouse, kit fox, American white pelican, northern goshawk, prairie falcon, ferruginous hawk, Greater sage-grouse, loggerhead shrike, Brewer's sparrow, sage sparrow, grasshopper sparrow, western toad and common garter snake (Moroz 2004). In addition, observation records obtained from the CDC provided a list of state sensitive species that occur on or adjacent to the Proposed Project area. A list of BLM sensitive species that could potentially occur within or adjacent to the Proposed Project area was also provided. Table 3.2-7 presents information on special status species known or suspected to occur within the Proposed Project area.

The federal Bald Eagle Protection Act (16 CFR 668-668c) prohibits the taking possession, purchase, sale, barter, transport, export, or import of any bald or golden eagle or any part, nest, or egg of a bald or golden eagle, except for certain scientific, exhibition, and religious purposes. Eagle permit regulations are found in 50 CFR 22.

Table 3.2-7. Special Status Wildlife Species of Known or Potential Occurrence in the Proposed Project Area.

Common name	(Scientific name)	Status	Habitat Requirements/Associations	Likelihood of Occurrence
Mammals				
Gray wolf	*Canis lupus*	Federally Threatened, nonessential population[1]	Requires large home range which may include number of different topographic features; distribution appears to be prey (ungulate) dependent.	Very unlikely. Not recorded in Cassia County or adjacent counties.
Canada Lynx	*Lynx canadensis*	Federally Threatened	Primarily occurs in coniferous forests above 4,000 feet in elevation and support stable populations of snowshoe hare. They will on occasion disperse through areas of non-habitat.	Last confirmed observation in the Cassia and Twin Falls counties was 1975 and 1990. Area south of the Snake River is excluded from USFWS Lynx recovery range.
Pygmy rabbit	*Brachylagus idahoensis*	Type 2[2]	Shrub steppe with deep, friable soils.	May occur. IDFG Element Occurrence in vicinity of Proposed Project.
California bighorn sheep	*Ovis canadensis californiana*	Type 3[2]	Semi-desert arid mountains and canyons.	May occur. Potentially suitable habitat present within Proposed Project area. Bighorn sheep were reintroduced south of Cotterel Mountain on the Jim Sage Mountain.
Townsend's big-eared bat	*Plecotus townsendii*	Type 3[2]	Roosts colonially in caves, buildings, mine adits; forages over diverse habitats.	May occur. IDFG Element Occurrence in vicinity of Proposed Project.
Western pipistrelle	*Pipistrellus hesperus*	Type 4[2]	Caves, under loose rocks, crevices in cliffs, buildings; arid conditions, but near watercourses.	May occur. Potentially suitable habitat present within Proposed Project area. Nearest documented occurrence is in Twin Falls County.
Cliff chipmunk	*Eutamias dorsalis*	Type 4[2]	Pinyon pine/juniper slopes and lower edges of pines.	Documented in Proposed Project area.
Little pocket mouse	*Perognathus longimembris*	Type 4[2]	Valleys and slopes; sandy soil covered with small pebbles; sagebrush, creosote bush, and cactus; scattered pinyon pines and junipers.	May occur. Potentially suitable habitat present within Proposed Project area.
Kit fox	*Vulpes velox*	Type 4[2]	Grassland and shrub-steppe.	May occur. Potentially suitable habitat present within Proposed Project area.
Yuma myotis	*Myotis yumanensis*	Type 5[2]	Caves, tunnels, or buildings; arid areas.	May occur. Potentially suitable habitat present within Proposed Project area.
Long-eared myotis	*Myotis evotis*	Type 5[2]	Thinly forested areas around buildings or trees; occasionally caves.	May occur. IDFG Element Occurrence in vicinity of Proposed Project. Potentially suitable habitat present within Proposed Project area.

Table 3.2-7. Special Status Wildlife Species of Known or Potential Occurrence in the Proposed Project Area.

Common name	(Scientific name)	Status	Habitat Requirements/Associations	Likelihood of Occurrence
Long-legged myotis	*Myotis volans*	Type 5[2]	Buildings, small pockets or crevices in rock ledges.	May occur. IDFG Element Occurrence in vicinity of Proposed Project. Potentially suitable habitat present within Proposed Project area.
Spotted bat	*Euderma maculatum*	Type 3	High cliffs and rocky ledges, larger and older trees, hollows, and crevices. Generally associated with nearby water sources.	May occur. IDFG Element Occurrence in vicinity of Proposed Project. Potentially suitable habitat present within Proposed Project area.
Western small-footed myotis	*Myotis ciliolabrum*	Type 5[2]	Caves, mine tunnels, crevices in rocks, buildings; in or near forested areas.	May occur. IDFG Element Occurrence in vicinity of Proposed Project. Potentially suitable habitat present within Proposed Project area.
Birds				
All bird species that are protected under the Migratory Bird Treaty Act.			All	Some species documented to occur within Proposed Project area boundary.
American white pelican	*Pelecanus erythrorhynchos*	Type 2[2]	Nests colonially in large lakes, flies long distances for food, migrant.	Nests at Lake Walcott. May migrate through the area.
Bald eagle	*Haliaeetus leucocephalus*	Federally Threatened[1]	Rivers, lakes, forages on fish and waterfowl, carrion over a variety of habitats.	Documented to occur. Nearby wintering areas and nesting sites.
Black tern	*Chlidonias niger*	Type 3[2]	Nests in loose colonies in lakes, marshes.	Nests at Lake Walcott. May migrate through the area.
Boreal owl	*Aegolius funereus*	Type 5[2]	Dense coniferous forest, mixed forest, thickets of alder, aspen, or stunted spruce, most commonly in proximity to open grassy situations. Nests in tree hole, natural cavity or old woodpecker hole; sometimes in artificial nest boxes.	Documented to occur. Potentially suitable habitat present within Proposed Project area.
Brewer's sparrow	*Spizella breweri*	Type 3[2]	Shrub-steppe and alpine habitats.	Potentially suitable habitat occurs within Proposed Project area.
Calliope hummingbird	*Stellula calliope*	Type 5	Mountain forest, shrub, and grassland mosaics.	Potentially suitable habitat present within Proposed Project area.
Cassin's finch	*Carpodacus cassinii*	Type 5[2]	Open coniferous forest; in migration and winter also in deciduous woodland, second growth, scrub, brushy areas, partly open situations with scattered trees.	Potentially suitable habitat present within Proposed Project area.

Table 3.2-7. Special Status Wildlife Species of Known or Potential Occurrence in the Proposed Project Area.

Common name	(Scientific name)	Status	Habitat Requirements/Associations	Likelihood of Occurrence
Columbian sharp-tailed grouse	*Tympanuchus phasianellus columbianus*	Type 3[2]	Breeds at communal display sites (leks), grassland and steppe habitats.	Potentially suitable habitat present within Proposed Project area.
Ferruginous hawk	*Buteo regalis*	Type 3[2]	Nests on trees, cliffs, ground, forages over grassland and steppe habitats.	Documented nesting in lower elevations within Proposed Project vicinity, but outside of Proposed Project area. IDFG Element Occurrence in Proposed Project vicinity.
Flammulated owl	*Otus flammeolus*	Type 3[2]	Montane forest, usually open conifer forests containing pine, with some brush or saplings Most often found on ridges and upper slopes. Cavity nester.	May occur. Potentially suitable habitat present within Proposed Project area.
Golden Eagle	*Aquila chrysaetos*	Bald Eagle Protection Act[3]	Nests on cliffs or in trees, forages over open habitats.	Documented to occur.
Grasshopper sparrow	*Ammodramus savannarum*	Type 3[2]	Grassland and shrub-steppe.	Documented to occur and nest within the Proposed Project area.
Greater sage-grouse	*Centrocercus urophasianus*	Type 3[2]	Breeds at communal display sites (leks), grassland and steppe habitats.	Documented to occur in Proposed Project area. IDFG Element Occurrence in Proposed Project area.
Green-tailed towhee	*Pipilo chlorurus*	Type 5[2]	Habitat is usually low shrubs, sometimes interspersed with trees; avoids typical forest, other than open pinyon/juniper woodlands.	Documented to occur and nest within the Proposed Project area.
Loggerhead shrike	*Lanius ludovicianus*	Type 3[2]	Shrub-steppe habitats.	Documented to occur and nest within the Proposed Project area.
Long-billed curlew	*Numenius americanus*	Type 5[2]	Grassland and shrub-steppe.	May occur. IDFG Element Occurrence in Proposed Project vicinity. Potentially suitable habitat occurs within Proposed Project area at the northern end of Cotterel Mountain.
Northern goshawk	*Accipiter gentilis*	Type 3[2]	Mature Forests.	May pass through the Proposed Project area on occasion. Was observed during avian surveys in 2003. Potentially suitable foraging habitat within the Proposed Project area.

Table 3.2-7. Special Status Wildlife Species of Known or Potential Occurrence in the Proposed Project Area.

Common name	(Scientific name)	Status	Habitat Requirements/Associations	Likelihood of Occurrence
Northern pygmy-owl	*Glaucidium gnoma*	Type 5[2]	Forests or open woodlands in foothills and mountains; frequents meadows while foraging. Nests in abandoned woodpecker holes and natural tree cavities, so requires snags and larger living trees.	May occur. Potentially suitable habitat present within Proposed Project area. IDFG Element Occurrence in Proposed Project vicinity.
Peregrine falcon	*Falco peregrinus anatum*	Type 3[2]	Nests on cliffs, forages over open habitats.	May occur. Potentially suitable habitat occurs within Proposed Project vicinity.
Pinyon jay	*Gymnorhinus cynanocephalus*	Type 5[2]	Pinyon/juniper woodland, less frequently pine; in nonbreeding season, also occurs in scrub oak and sagebrush. Nests in shrubs or trees (e.g., pine, oak, or juniper).	Potentially suitable habitat present within Proposed Project area.
Plumbeus vireo	*Vireo plumbeus*	Type 5[2]	Pinyon/juniper, oak woodland; pine savanna, aspen forests, foothill riparian forests, and Gambel oak shrublands with scattered tall trees; occasionally breeds in lowland riparian forests adjacent to foothills.	Potentially suitable habitat present within Proposed Project area.
Prairie falcon	*Falco mexicanus*	Type 3[2]	Nests on cliffs, forages over open habitats.	Known to occur, suitable habitat occurs within Proposed Project vicinity.
Red-naped sapsucker	*Sphyrapicus nuchalis*	Type 5[2]	Primarily coniferous forest that includes aspen and other hardwoods. Cavity nester.	Potentially suitable habitat present within Proposed Project area.
Sage sparrow	*Amphispiza belli*	Type 3[2]	Shrub-steppe habitats.	May occur. Potentially suitable habitat occurs within Proposed Project area.
Sage thrasher	*Oreoscoptes montanus*	Type 5[2]	Sagebrush plains, primarily in arid or semi-arid situations, rarely around towns. In northern Great Basin, breeds and forages in tall sagebrush/bunchgrass, juniper/sagebrush/bunchgrass, mountain mahogany/shrub, and aspen/sagebrush/ bunchgrass communities.	May occur. Potentially suitable habitat present within Proposed Project area.
Virginia's warbler	*Vermivora virginae*	Type 5[2]	Arid montane woodlands, oak thickets, pinyon/juniper, coniferous scrub, chaparral. Brushy steep mountain slopes within or near dry coniferous woodlands. Will inhabit ravines or rocky slopes with dense scrub oaks or mountain mahogany. Also found along mountain streams in sagebrush, or cottonwood and willow habitat at 5,800 to 9,000 feet.	May occur. Potentially suitable habitat present within Proposed Project area.

Table 3.2-7. Special Status Wildlife Species of Known or Potential Occurrence in the Proposed Project Area.

Common name	(Scientific name)	Status	Habitat Requirements/Associations	Likelihood of Occurrence
Western burrowing owl	*Athene cunicularia*	Type 5[2]	Grassland and shrub-steppe.	May occur. Potentially suitable habitat present within northern portion of the Proposed Project area. IDFG Element Occurrence in Proposed Project vicinity.
Amphibians and Reptiles				
Common garter snake	*Thamnophis sirtalis*	Type 3[2]	Occurs in variety of habitats; lives in or near ponds, marshes, prairie swales, roadside ditches, streams, sloughs, damp meadows, woods, farms and city lots. Sea level to 8,000 feet.	Not likely to occur.
Night snake	*Hypsiglena torquata*	Type 5[2]	Occurs in variety of habitats: grassland, chaparral, sagebrush flats, deserts, woodlands, and moist mountain meadows. Rocky and sandy areas. Sea level to 8,700 feet.	Potential to occur.

KEY

Federally listed, proposed and candidate species: Species that are listed under the ESA, proposed or candidates for listing.

Type 2: Range wide/global imperilment species: includes species that are experiencing significant declines throughout their range with a high likelihood of being listed under the ESA in the foreseeable future due to their rarity and/or significant endangerment factors.

Type 3: Regional/state imperilment species: includes species that are experiencing significant declines in population or habitat and are in danger of regional or local extinctions in Idaho in the foreseeable future.

Type 4: Peripheral species in Idaho: includes species that are generally rare in Idaho with the majority of their breeding range outside the state.

Type 5: Watch list species: includes species that are not considered Idaho BLM sensitive species but current populations or habitat information suggests that species may warrant sensitive status in the future.

[1] Source: U.S. Fish and Wildlife Service consultation letter, dated September 27, 2002.

[2] Source: Idaho BLM Special Status Animal Species for Districts and Field Offices, dated August 2002.

[3] Bald Eagle Protection Act.16 U.S.C. §§ 668-668d, June 8, 1940, as amended 1959, 1962, 1972, and 1978. The Act prohibits the taking or possession of and commerce in bald and golden eagles.

No specific surveys were conducted for special status species. However, special status species observations were recorded during point count, in-transit, and raptor fall migration studies. Information review indicates that as many as 45 Special Status species may be present in or near the Proposed Project area (Table 3.2-7). Of the 45 TES species reported in Table 3.2-7, six are known from recent or historical records or observations, fourteen were observed during the 2003 baseline surveys for this Proposed Project, including nine species that were suspected to occur but had not previously been documented in the Proposed Project area. The only federally listed species observed was the bald eagle (*Haliaeetus leucocephalus*, Threatened).

Birds

Bald eagle (Threatened) home ranges are generally associated with large montane rivers, lakes, impoundments, and coniferous and cottonwood forests. They generally occupy riparian or lakeside habitat during the breeding season, but occasionally exploit upland areas for food and roost sites. However, nesting sites in the BFO are located at least 25 miles from the Snake River (USDI, BLM Wildlife Database 2005). Some breeding birds remain near nesting territories throughout the winter months. Wintering bald eagles are usually associated with areas that have a high number of daytime perch sites near open slow-moving water (Gough *et al.* 1998; USFWS 1986).

The bald eagle was observed only twice during the avian surveys. All observations occurred during the fall months. No nests for this species were observed. There are four bald eagle nesting sites located within the Cassia Creek-Raft River Valley area. One nesting site is located approximately eight miles south of the Proposed Project area. A second is located approximately ten miles from the Proposed Project area; a third and fourth nest are located approximately 15 miles from the Proposed Project area. An annual winter bald eagle survey route has been conducted for the past 20 years within the Cassia Creek-Raft River area. Up to 12 bald eagles are observed during the route every year with an average of five bald eagles observed per survey year. Bald eagles do winter along Cassia Creek located about three miles south of the Proposed Project area. They also are known to winter and forage for waterfowl at the man-made pond located on Marsh Creek northwest of the Proposed Project area. In addition, bald eagles have been observed perching on utility poles in the Raft River Valley located to the east of the Proposed Project area (USDI, BLM 2005). Bald eagles may search Cotterel Mountain for winter kill carrion for foraging.

The golden eagle (protected under the Bald Eagle Protection Act 1978) is found on prairies, tundra, open wooded country, and barren areas, especially in hilly or mountainous regions where they generally build stick nests on cliffs, or in trees. In Idaho they prefer open and semi-open areas in both deserts and mountains. They commonly forage in early morning and early evening and feed on small mammals, but may also eat insects, snakes, birds, juvenile ungulates, and carrion. Jackrabbits are their principal prey in southern Idaho, and there is a positive correlation between golden eagle breeding success and jackrabbit numbers reported in Idaho, Colorado, and Utah (Gough *et al.* 1998; Karl 2000). Golden eagles were observed 141 times during all avian surveys. In 2003 there were three active golden eagle nests on Cotterel Mountain. These nests were located on east and southeast facing cliffs. The nest success rate for Golden Eagles was estimated at 100 percent and the fledging success

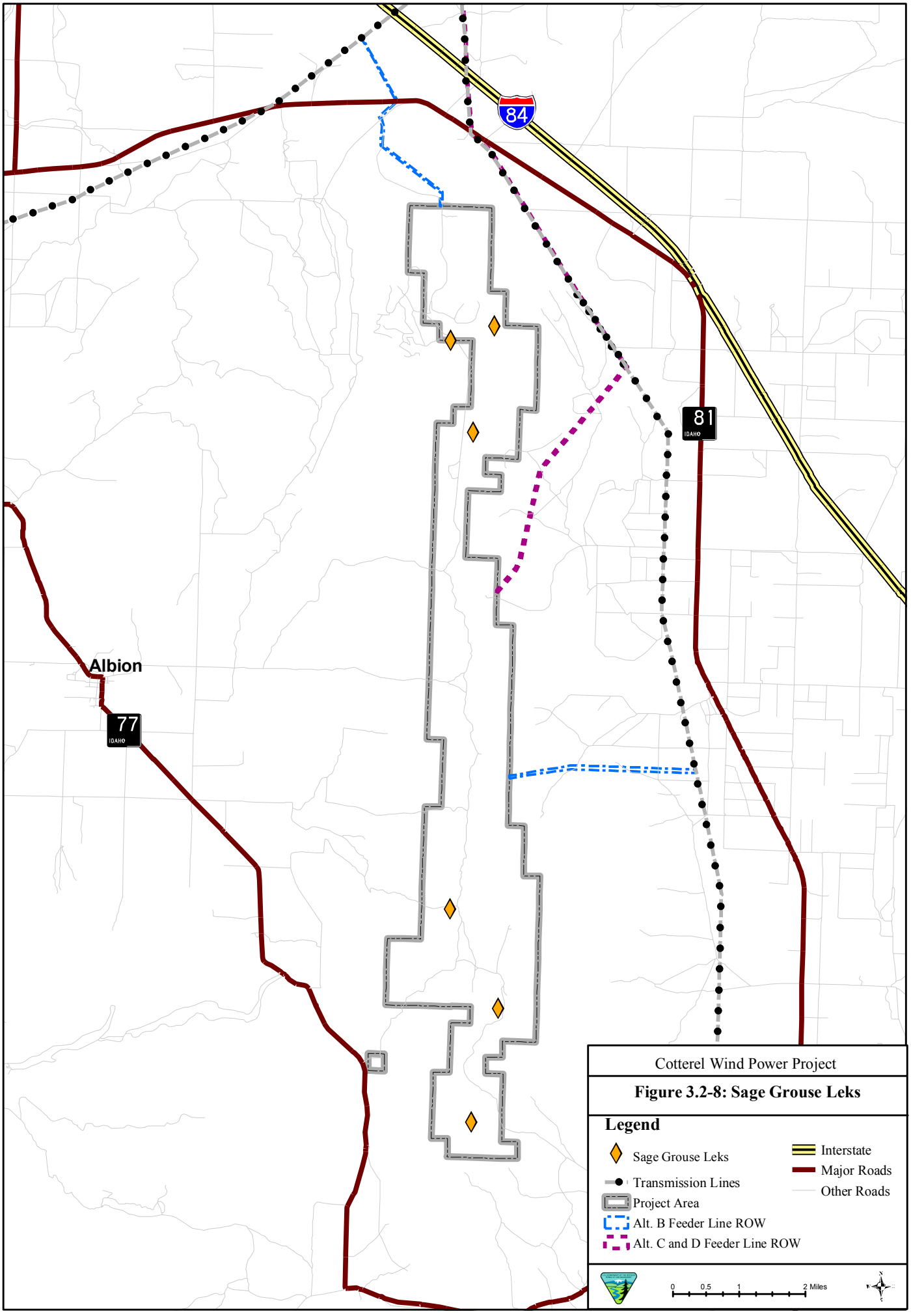
rate at 75 percent (TBR 2004). During 2004 golden eagles nested on a southeast facing slope and fledged two young (USDI BLM 2005).

The greater sage-grouse is a popular upland game bird that was once abundant throughout sagebrush habitats in the west. Its original range encompassed the western to northwestern U.S. and three provinces of southwestern Canada. Currently, the greater sage-grouse range has measurably decreased within eleven states and two Canadian provinces. Since the 1950s, the greater sage-grouse population has declined by an estimated 45 to 80 percent (Braun 1998), with about 150,000 to 200,000 breeding greater sage-grouse remaining throughout the range (Connelly and Braun 1997). Greater sage-grouse are no longer present in some western states. Core populations of greater sage-grouse have survived in several states, including Idaho, Montana, Wyoming, and Colorado, but even these populations have significantly declined. In Idaho, recent population trends show an estimated statewide decline of 40 percent from the long-term average (IDFG 1997). The average number of chicks produced per hen has declined by 40 to 50 percent in many areas (Connelly *et al.* 2004).

The success of the sage-grouse is directly dependent on, and correlates to, the health of the sagebrush shrub-steppe community. The decline of the sage-grouse is thought to be a result of: habitat loss or fragmentation from invasive species; agriculture; degradation due to fire; overgrazing; urbanization; hunting and poaching; predation; disease; weather; accidents; herbicides; and physical disturbance (Connelly *et al.* 2004).

All populations of sage-grouse have been reviewed for listing under the ESA, but the USFWS recently determined that listing was not warranted (USFWS 2005). USFWS cited that 92 percent of the known active leks (traditional sites where males and females congregate for courtship) occur in ten core populations across eight western states, and that five of these populations are large and expansive. In addition, approximately 160 million acres of sagebrush, a necessary habitat for sage-grouse, currently exists across the western landscape. In Canada, sage-grouse have been listed provincially as endangered or threatened (Aldridge 2000).

In 2003 and 2004, sage-grouse lek surveys and lek counts were conducted on Cotterel Mountain. Prior to 2003, there were four known leks on Cotterel Mountain (IDFG 2003c). Lek surveys in 2003 confirmed the existence of two additional active leks, and three potential new lek sites on Cotterel Mountain. In 2004, at least four sage-grouse leks were active on Cotterel Mountain (Figure 3.2-8). This is one less than in 2003. The sum of the maximum number of male sage-grouse observed at all leks in 2004 was 24, almost 50 percent less than the 45 observed in 2003. At this time, it is unknown if this is a biological meaningful population decrease, or the result of sampling variability and/or weather patterns.


84
81
IDAHO
77
IDAHO
Albion
Cotterel Wind Power Project
Figure 3.2-8: Sage Grouse Leks
Legend
Sage Grouse Leks
Transmission Lines
Project Area
Alt. B Feeder Line ROW
Alt. C and D Feeder Line ROW
Interstate
Major Roads
Other Roads
0
0.5
1
2 Miles

In an effort to better understand the year round use of Cotterel Mountain by sage-grouse, a radio telemetry study was initiated in March of 2004 (TREC 2005). The objective of this study was to monitor the annual movements and to identify areas used for nesting, brood-rearing, and wintering of the grouse population on Cotterel Mountain to provide pre-construction data to serve as a baseline against which to evaluate the impacts of the Proposed Project if approved, on sage-grouse. This study is proposed to continue for several years. A total of 37 sage-grouse were trapped and fitted with radio-collars. All marked sage-grouse were located on a weekly basis between March 8 and December 31 2004. The first year results of the study documented the following results:

- Overall nesting effort was high and the nest success rate was above the range-wide average.
- Some male sage-grouse left Cotterel Mountain in spring following the leking season.
- In 2004, hunters harvested 21 percent of the collared grouse, which is higher than harvest rates reported for other areas in southwest Idaho.

As data are collected in subsequent years of the study, additional information on these issues will become available.

The brewer's sparrow (BLM sensitive Type 3; G5, S5 protected nongame species) is usually found in association with sagebrush and alpine habitats. During migration and in winter, it is also found in desert scrub and creosote bush. An Idaho study found Brewer's Sparrows prefer large, living sagebrush for nesting (Gough *et al.* 1998; Karl 2000). Brewer's sparrows were observed a total 121 times during all avian surveys. Most observations of Brewer's sparrow occurred during spring and summer (TBR 2004). Brewer's sparrows could potentially nest on Cotterel Mountain.

The Cassin's finch (BLM sensitive Type 5; S5; G5) is generally found in open, montane coniferous forests at higher elevations. During migration and in winter, it's also found in deciduous woodlands, second growth, scrub, brushy areas, partially open sites with scattered trees, and occasionally in suburbs near mountains. Cassin's finch was observed a total 49 times during all avian surveys. All observations of Cassin's finch occurred during spring and fall and were evenly distributed between the two seasons (TBR 2004). Cassin's finch could potentially nest on the Cotterel Mountain.

The prairie falcon (BLM sensitive Type 3; G4; S5) is found in open situations in mountainous shrub steppe, or grasslands areas. In Idaho, it breeds in shrub steppe and dry mountainous habitat, and winters at lower elevations (Gough *et al.* 1998; Karl 2000). The prairie falcon was observed a total 42 times during all avian surveys. All observations of prairie falcon occurred during spring and summer with the majority occurring during the summer months (TBR 2004). In 2003 there were two active prairie falcon nests. Both nests were located on east facing cliffs. One nest contained two eggs and the other had two downy chicks. The success of these nesting and fledging attempts are unknown (TBR 2004).

The pinyon jay (BLM sensitive Type 5; G5; S2) is generally found in pinyon/juniper woodland, less frequently pine; in nonbreeding season, also occurs in scrub oak and sagebrush. They normally nest in juniper or pine trees, sometimes oak. They form complex social organizations and forage on ground or in foliage for pinion seeds (Ehrlich *et al.* 1988; Karl 2000). Cotterel Mountain is located at the very northern edge of the recorded pinyon jay range. The pinyon jay was observed 28 times during all avian surveys (TBR 2004). All observations occurred during the fall months. Pinyon jay could potentially nest in juniper or taller shrubs on Cotterel Mountain.

The sage thrasher (BLM sensitive Type 5; G5; S5) is found in sagebrush plains, primarily in arid or semi-arid communities. During migration and in winter, they can also be found in scrub, brush, and thickets (rarely around towns). In the northern Great Basin, it breeds and forages in tall sagebrush/bunchgrass, juniper/sagebrush/bunchgrass, aspen/sagebrush/bunchgrass and mountain mahogany/shrub communities. An Idaho study found that big sagebrush used for nesting was taller than average, had greater foliage density, and most often faced easterly (Ehrlich *et al.* 1988; Karl 2000). The sage thrasher was observed 17 times during the avian surveys (TBR 2004). All observation occurred during the fall months. Sage thrashers could potentially nest in big sagebrush on Cotterel Mountain.

The northern goshawk (BLM sensitive Type 3; G5; S4) is generally found in deciduous and coniferous forests, along forest edges, and in open woodlands. In Idaho they usually summer and nests in coniferous and aspen forests and winter in riparian and agricultural areas. Northern Goshawks have been studied extensively in the South Hills of Twin Falls County, Sawtooth Forest. They migrate mostly along ridges and coastlines and forage in cultivated regions (Gough *et al.* 1998; Karl 2000). The northern goshawk was observed 12 times during the avian surveys (TBR 2004). All observations occurred during the spring and fall months. Northern goshawks could potentially nest on Cotterel Mountain, most likely in an aspen stand.

The ferruginous hawk (BLM sensitive Type 3; G4; S3) is a grassland, pinyon/juniper or desert shrub-steppe nester and prey primarily on jackrabbits and rodents. Of the large raptors, it is second only to the red-tail hawk in habitat versatility. They generally avoid agricultural and cultivated lands (McAnnis 1990).

The Raft River Valley-Curlew National Grassland was nominated and accepted as a Globally Important Birding Area by the American Bird Conservancy. It is estimated that one percent of the global ferruginous hawk productivity occurs in this area. In addition, ferruginous hawk nesting densities in the Jim Sage-Cotterel Mountain area are one of the highest in Idaho. The BFO, United States Geological Survey (USGS), and Boise State University have conducted nesting, banding or productivity surveys annually on ferruginous hawks in the Raft River Valley for 23 of the past 27 years (USDI, BLM Wildlife Database 2005). Approximately 305 nests occur within the BFO and of those about 20 percent produce young each year. Unlike northern Utah and some other states, since 1977, the Globally Important Birding Area ferruginous hawk population has remained stable. In

recent years nesting productivity within the Jim Sage and Cotterel Mountains have been influenced by severe spring weather, human disturbance to nesting and other factors (TBR 2004).

The ferruginous hawk was observed ten times during the avian surveys (TBR 2004). All observations occurred during the spring and summer months. Ferruginous hawks have been observed most frequently during the late summer or early fall along the Cotterel Mountain eastern most ridgeline (USDI, BLM Wildlife Database 2005). In 2003, aerial nest surveys located three active nests of this species within two miles of the Proposed Project area (TBR 2004). All were in solitary junipers on relatively flat ground on the east slope of Cotterel Mountain. Only one of the three active nests was considered successful.

The loggerhead shrike (BLM sensitive Type 3, G5; S3) is generally found in open country with scattered trees and shrubs, in savannas, desert scrub and, occasionally, in open juniper woodlands. Often found on poles, wires or fence posts. It constructs bulky, cup-shaped nest in shrubs. A study in southeastern Idaho located nests in sagebrush, bitterbrush, and greasewood (Gough *et al.* 1998; Karl 2000). The loggerhead shrike was observed eight times during the avian surveys (Sharp 2004). All observations occurred during the spring months. Loggerhead shrike could potentially nest on Cotterel Mountain.

The peregrine falcon (BLM sensitive Type 3; G5; S1) is found in various open situations from tundra, moorland, steppes, and seacoasts (especially where there are suitable nesting cliffs), to mountains, open forested regions, and populated areas. In Idaho, former and current nest sites are located in both mountain and desert regions, and are generally associated with bodies of water (Gough *et al.* 1998; Karl 2000). The peregrine falcon was observed only twice during the avian surveys. All observation occurred during the fall months. No nests for this species were observed. Suitable peregrine falcon nesting habitat (high cliff faces) does occur within and adjacent to the Proposed Project area (Sharp 2004).

The Green-tailed towhee (BLM sensitive Type 5; G5; S5) is usually found in low shrubs, sometimes interspersed with trees, and avoids typical forest, other than open pinyon/juniper woodlands. It was observed 12 times during fixed-point count observations (Sharp 2004). Green-tailed towhee could potentially nest on Cotterel Mountain.

The plumbeus, or solitary, vireo (BLM sensitive Type 5) is found in northern hardwood-coniferous forests, mixed woodlands, humid montane forests, pine savannas, oak forests, aspen forests, foothill riparian forests, Gambel oak shrublands with scattered tall trees, and pinyon/juniper communities. During migration and in winter, it can also be found in a variety of forests, woodlands, scrub, and thicket habitats, but prefers forest edges and semi-open areas. It occasionally breeds in lowland riparian forests adjacent to foothills (Karl 2000; Robbins *et al.* 1966). The plumbeus vireo was observed only once during the avian surveys (Sharp 2004). The single observation of this species occurred during the summer months. The plumbeus vireo could potentially nest on Cotterel Mountain.

Sensitive Species Not Present During Surveys

The BLM has previously documented occurrences of the Columbian sharp-tailed grouse (*Tympanuchus phasianellus columbianus*) in the vicinity of Cotterel Mountain. Similarly, the IDFG has identified the Long-billed curlew (*Numenius americanus*-Type 5), Northern pygmy-owl (*Glaucidium gnoma*-Type 5), and Western burrowing owl (*Speotyto cunicularia*-Type 5) in the Cotterel Mountain vicinity, but no observations of individuals or nest sites were recorded during fixed-point counts, fall migration surveys, or intransit observations for any of these species. These species have potentially suitable habitat adjacent to the Proposed Project area, but are not likely to occur in the Proposed Project footprint area due to unsuitable available habitats and rocky soils.

There is also potential habitat within the Proposed Project area for the: Flammulated owl (*Otus flammeolus*-Type 3); Willow flycatcher (*Empidonax trailii*-Type 3); Sage sparrow (*Amphispiza belli*-Type 3), Grasshopper sparrow (*Ammodramus savannarum*-Type 3); Red-naped sapsucker (*Sphyrapicus nuchalis*-Type 5); Virginia's warbler (*Vermovora virginae*-Type 5); and Calliope hummingbird (*Stellula calliope*) Type 5. These species have not previously been recorded within the Proposed Project area, and there were no observations of individuals or nest sites recorded during fixed-point counts, fall migration surveys, or intransit observations. Habitat is present for these species, although they have not been documented within the Proposed Project area.

There is no suitable habitat present within the Proposed Project area for the American white pelican (*Pelecanus erythrorhynchos*; BLM sensitive Type 2; G3; S1) or Black tern (*Chlodonias niger*; BLM sensitive Type 3; G4; S2). It is possible that these species may migrate or use the air space above the Proposed Project area.

Mammals

The gray wolf (Federally listed Endangered/Experimental Non-Essential Population) was historically found in most of North America. In the west, they now occur only in Alaska, Canada, Idaho, Wyoming, Montana and Washington State. This species was re-introduced to Idaho in 1997 and is estimated at a current population of 500 individuals within Idaho. Suitable habitat for these wide-ranging mammals includes (1) secluded denning and rendezvous sites to raise pups; (2) a sufficient, year-round prey base of ungulates and beaver; and (3) sufficient land area that is not subject to disturbance from humans. Wolves generally prefer habitat with no roads or very low road density. Gray wolf territories are large, encompassing up to 100 to 260 square miles.

In 1994, final rules in the Federal Register made a distinction between Idaho wolves that occur north of Interstate 90 (I-90) and wolves that occur south of I-90. Gray wolves occurring north of I-90 are listed as endangered species and receive full protection in accordance with provisions of the ESA. Gray wolves occurring south of I-90 are listed as part of an experimental population, with special regulations defining their protection and management.

No gray wolves (ESA, Experimental Population) were observed during any of the surveys conducted for the Proposed Project. However, Cotterel Mountain does provide suitable habitat for the gray wolf.

Foraging opportunities include mule deer and beaver along Marsh Creek to the west and Cassia Creek to the south.

The pygmy rabbit (BLM sensitive Type 2; G4; S3) is currently petitioned for listing by the USFWS. This species typically prefers areas of tall, dense sagebrush cover with high percent woody cover, growing in deep, loose sediment (Gabler 1997). The IDFG has a historic documented occurrence in the vicinity of Cotterel Mountain along SH-77. Surveys of this historic location found no evidence of occurrence or use by pygmy rabbits. Additional historically occupied sites are located north of Albion at lower elevations. Soils over most of the Proposed Project area are shallow and rocky and therefore unsuitable for pygmy rabbits. Therefore, no further analysis on pygmy rabbits will be conducted in this Draft EIS.

The cliff chipmunk (BLM sensitive species Type 4; G5; S1) is usually found in rocky pinyon/juniper woodlands and lower elevations of pine forests. Also found in higher-elevation Douglas-fir and Mexican pine. In Idaho, it generally occurs only in pinyon/juniper stands in south-central part of state and primarily inhabits cliffs and rocky areas where it consumes a wide variety of seeds, acorns, and fruits (Streubel 2000). The cliff chipmunk was observed numerous times during surveys conducted for the Proposed Project. This species has been observed and live-trapped in selected habitats from Rock Creek, Idaho east to Weston Canyon, Idaho (USDI, BLM Wildlife Database 2005).

3.3 HISTORIC AND CULTURAL RESOURCES

Historic and cultural resources are defined as nonrenewable remains of past human activity including buildings, sites, structures, or objects, each of which may have historical, architectural, archaeological, cultural, or scientific importance. Historic and cultural resources are protected under the National Historic Preservation Act of 1966 and the Archaeological Resources Protection Act of 1979. The archaeological record of the Proposed Project area has been partially examined through surveys ethnographic materials regarding Native American populations, and historic documents pertaining to the settlement and use of the area by Euro-Americans.

3.3.1 Natural and Cultural Setting

The Proposed Project area is located within the Snake River Plain of the Great Basin. Cotterel Mountain is bordered by the Raft River Valley to the east, the Albion Mountains to the west, and the Jim Sage Mountains to the south. The Cotterel and Jim Sage Mountains are formed from Miocene rhyolite lava flows and ash-flow tuffs and as a result contain abundant sources of obsidian (Link and Phoenix 1994). The Silent City of Rocks, found in the Albion Range south of Cotterel Mountain, is an Oligocene granite pluton, weathering of which results in rounded monoliths (Link and Phoenix 1994) and an area of unique geology that has been of cultural importance throughout prehistory and history (Heritage Research Associates 1996).

Low rainfall and extreme seasonal temperatures characterize the climate in the Snake River Plain. Native vegetation in the area reflects the relatively arid climate and is characterized by the *Artemisia tridentata/Agropyron spicatum* vegetation zone (Franklin and Dyrness 1988). The principal large

mammal species of the sagebrush communities of the Snake River Plain include pronghorn antelope (*Antilocapra americana*) and mule deer (*Odocoileus hemionus*), though mountain sheep and bear are also present (Walker 1978). Smaller faunal resources found in desert areas include burrowing rodents, small birds, and occasional predators such as fox, coyote, and hawk. Along the edge of the desert in sagebrush areas kangaroo rats, chipmunks, woodrats, ground squirrels, jackrabbits, cottontails, and sagehens are typical faunal resources (Harper 1986). Many of these natural resources were of great economic importance to the Native American inhabitants of the Snake River Plain. The diverse plant and animal resources provided food, materials for shelter and clothing, and minerals for making tools and weapons.

Prehistory

A general cultural sequence has been proposed for the Snake and Salmon River areas, defined by three broad periods and sub-periods which are discussed in detail below (Butler 1986; Butler 1978) (Table 3.3-1). Results of archaeological excavations indicate the prehistory of the Upper Snake River region extends back to possibly 12,500 B.C. and document a unique region within the intermontane area that is connected to both the northwestern Plains and Great Basin culture areas (Butler 1986).

Table 3.3-1. Chronological Subdivisions of Upper Snake River Prehistory.

Cultural Period	Temporal Range	Key Sites
Key Sites: Early Big Game Hunting Period Clovis Subperiod Folsom Subperiod Plano Subperiod	 12,500 – 5800 B.C. 10,000 – 9000 B.C. 9000 – 8600 B.C. 8600 – 5800 B.C.	 Jaguar Cave; Simon Site Owl Cave; Jaguar Cave Owl Cave; Veratic Cave
Archaic Period	5800 B.C. – A.D. 500	Veratic Cave; Owl Cave; Weston Canyon Rockshelter
Late Period	A.D. 500 – 1805	Clover Creek; Givens Hot Springs; Wilson Butte Cave

The Early Big Game Hunting Period (12500 to 5800 B.C.) represents the earliest human occupation of the Upper Snake and Salmon River area and reflects the hunting of big-game animals including several species that reached extinction during the terminal phase of the Late Pleistocene or in the Early Holocene. The Early Big Game Hunting period is divided into three subperiods: Clovis, Folsom, and Plano, and several sites throughout Idaho are attributed to this period, though dated contexts are rare (Yohe and Woods 2002). Clovis culture in Idaho is not well known, but these groups are presumed to have been hunters that pursued now-extinct forms of elephant and camel, and to have lived in caves or temporary shelters. Folsom subperiod sites are better documented in the southern Idaho region, and have been documented both as isolate finds (Swanson 1961; Moe 1982; Titmus 1985) and from *in situ* deposits (Miller 1978). In general, Folsom people appear to have hunted herds of large animals, particularly bison, and lived in temporary shelters while following these herds. The

Plano subperiod is the best represented of the Early Big Game Hunting Period and is characterized by a more diverse artifact assemblage and increased occupation of rockshelters and caves (Plew 1986). Significant climatic and environmental changes coincided with the end of the Early Big Game Hunting Period and the gradual transition to the Archaic Period (5800 B.C. to A.D. 500), which is defined primarily by a change in tool technology. In the archaeological record, the transition between the two periods primarily involves the introduction of the atlatl and dart weapon system (Butler 1978; Butler 1986). The bulk of the tool kit remained unchanged, however, suggesting that the Archaic Period does not represent a major break with the preceding Early Big Game Hunting Period. Although the horse, camel, and elephant had become extinct by this time, modern forms of bison and mountain sheep had emerged and replaced the older forms in the region. In western Idaho, another feature of the Archaic Period is the Western Idaho Burial Complex, a distinctive burial pattern best known from the Braden site near Weiser, Idaho. Increased sedentism is suggested by early pit houses found at Givens Hot Springs on the Snake River, though large semi-permanent villages are not characteristic of this period (Butler 1986).

In the northern Great Basin, the Late Period (A.D. 500 to 1805) is manifested by at least two distinctive sets of cultural remains, the Northern Fremont and the Shoshonean. The Northern Fremont is a Formative Stage culture best known from Utah, while the Shoshonean culture is a continuation of the Archaic stage (Butler 1986). Though most evidence for Fremont culture is found near the Great Salt Lake, occasional deposits have been identified in the Snake River Plain. Sites that have been recognized as Fremont are often marked by Great Salt Lake gray ware pottery in association with semisubterranean housepits, manos and pestles, and small, corner-notched Rose Spring or Rosegate projectile points and are dated between A.D. 500 and 1350. Most Late Period structures in western Idaho, however, are small wikiup-sized structures, with the exception of a large semisubterranean house identified at Givens Hot Springs (Butler 1986). In general, it appears that the Fremont cultural complex was short-lived and is not clearly identified in Idaho. The pattern of hunting and gathering established throughout the Archaic Period persisted through the Late Prehistoric and into the ethnographic past, as manifested by the Shoshonean cultural complex found along the Snake River Plain.

Ethnography

At the time of historic contact, southern Idaho was the homeland of the Northern Shoshone and Bannock Indians. Sometime prior to Euro-American contact, the Northern Shoshone, who traditionally occupied southeastern Idaho, were joined by an intrusive group, the Bannock, who spoke a dialect of the Northern Paiute language. Similar social institutions developed between the two groups, so that they became known as the Shoshone-Bannock for purposes of general description (Murphy and Murphy 1986; Walker 1978).

The Northern Shoshone and Bannock occupied an area generally along the Snake River plains and the mountains to the north, though many neighboring Eastern Shoshone and Northern Paiute groups also used resources of this region (Murphy and Murphy 1986). Local groups within the Shoshone region were often identified by other Indian groups and by early settlers based on foods that were commonly

eaten, such as "Agaideka" for "salmon eaters" living along the Snake River, "Tukudeka" for "sheepeaters" found in the Sawtooth mountains, and "Kammedeka" for "jackrabbit eaters" living along Bannock Creek and the Raft River. However, this nomenclature does not refer to political divisions and resulted in confusing designations given the high mobility and seasonal exploitation of resources by all of these groups (Murphy and Murphy 1986). Northern Shoshone populations focused near the Proposed Project area are more commonly referred to as the upper Snake River or Fort Hall Shoshone, a mounted group that lived in close association with the Bannock.

The Shoshone-Bannock were generally atypical of other Great Basin cultures because of their proximity to the Great Plains, their adoption of Great Plains cultural attributes, and their location along the upper Snake River, which allowed for a more productive resource base (Walker 1978). Wealth accumulated in horses, organization into larger communities, and composite band political groupings further differentiate the Shoshone-Bannock from traditional Great Basin cultures (Walker 1978).

The Shoshone-Bannock relied heavily upon small game, birds, insects, seeds, and nuts, much like the Northern Paiute (Walker 1978), though use of the horse and the nomadic lifestyle of some Northern Shoshone groups increased access to bison on the eastern Plain. This equestrian lifestyle provided mobility for hunting large game such as bison and digging camas roots in distant areas (Walker 1978). Ecological determinants prevented adoption of an equestrian lifestyle by many native inhabitants, particularly in western Idaho, and as a result there were both mounted and unmounted Shoshone groups that occupied the Snake River Plain.

The availability of anadromous fish, together with hunting and gathering activities, dictated seasonal population shifts and village locations. While buffalo hunting was a major attribute of Northern Shoshone economy, salmon fishing constituted a principal source of subsistence for the lower Snake River Shoshone living below Shoshone Falls and in western Idaho. The Shoshone recognized several runs by the agai, or salmon, the first of which would occur in March or April (Steward 1938). Large numbers of people would temporarily gather during these runs, and the abundance of fish allowed the resource to be dried and cached for winter (Steward 1938). In eastern Idaho, the upper Snake River Shoshone and Bannock would form into a large composite group each fall to hunt buffalo toward the east, returning together to the Snake River bottomlands to pasture their horses for the winter (Steward 1938) In the spring, smaller groups would travel along the Snake River to below Shoshone Falls for salmon fishing, and south toward Bear River for hunting and collecting berries (Steward 1938). Annual trips were also made to Camas Prairie, near modern Fairfield, Idaho, to dig camas bulbs, while seeds and berries were gathered in the hills between the Prairie and the Snake River (Daugherty and Welch 1985; Murphy and Murphy 1986). The Northern Shoshone of the Snake River also collected pine nuts from northwestern Utah (Murphy and Murphy 1986). Seasonal cycles dictated resource use; typically, large game hunting and fishing occurred in spring until mid-summer when large groups traveled to the hunt bison. Large intertribal gatherings would also take place in summer. Women collected berries roots, nuts, seeds, and insects throughout the year until winter, which was a time of limited hunting and gathering (Walker 1978). This hunting and gathering subsistence pattern

of the Shoshone-Bannock, which was based on seasonal exploitation of resources and migration, appears to have persisted from prehistoric times throughout the ethnographic period.

History

First Euro-American contact is generally attributed to the Corps of Discovery, sent by President Thomas Jefferson in 1805 to discover an overland route to the Pacific Ocean. Less than a decade following the expedition, British and American fur trading posts were established throughout the Pacific Northwest. Early explorers of the Snake River Plain included Wilson Price Hunt and partner Donald McKenzie who traveled the Upper Snake River in 1811; much of their route would be explored by other expeditions and traders throughout the 1820s and would later become the Oregon Trail (Brown 1932). Various Snake River Plain expeditions were conducted between 1824-1831, headed successively by Alexander Ross, Peter Skene Ogden, and John Work of the Hudson's Bay Company, who provided primary sources on the Northern Shoshone and Bannock in their journals (Murphy and Murphy 1986).

Competition between British and American interests manifested itself in the fur trade, but by 1821, the Hudson's Bay Company dominated the fur enterprise throughout the Pacific Northwest (Galbraith 1957). One response of the Hudson's Bay Company to the increased American competition was to create a "fur desert" by annihilating as many beaver as possible in the Snake River country so as to establish a buffer between the Pacific Northwest and the Americans to the east. In spite of attempts by the Hudson's Bay Company to reduce the American presence, trappers Kelley, Wyeth, and Bonneville each led expeditions that crossed through Snake River country in the 1830s. Wyeth later returned to the area in 1834 and established Fort Hall near present-day Pocatello (Brown 1932). The fort functioned as a center of trade, where Indians could barter skins and buffalo meat for Euro-American goods such as knifes and tobacco (Franzen 1981). Fort Hall was located at a strategic position, an area still rich in beaver and at the intersection of old Indian trails from all directions that would later become emigrant routes (Brown 1932). In response to construction of Fort Hall, the Hudson's Bay Company constructed Fort Boise; competition later forced the sale of Fort Hall to the Hudson's Bay Company in 1837 (Ghent 1929). A rapid decimation of the buffalo and beaver populations led the trappers to gradually leave the Snake River country once the area no longer produced significant quantities of fur (Beal and Wells 1959[1]); by the early 1840s, the fur-trapping era drew to a close and the stage was set for the great overland migration along the Oregon Trail (Dicken and Dicken 1979). Fort Hall became an important stop along the travelers' route, as it was located approximately two-thirds of the way from Independence, Missouri to Oregon City. Hudson's Bay Company men aided the emigrants passing along the Oregon Trail and raised cattle for trade with Indians and the emigrants (Beal and Wells 1959).

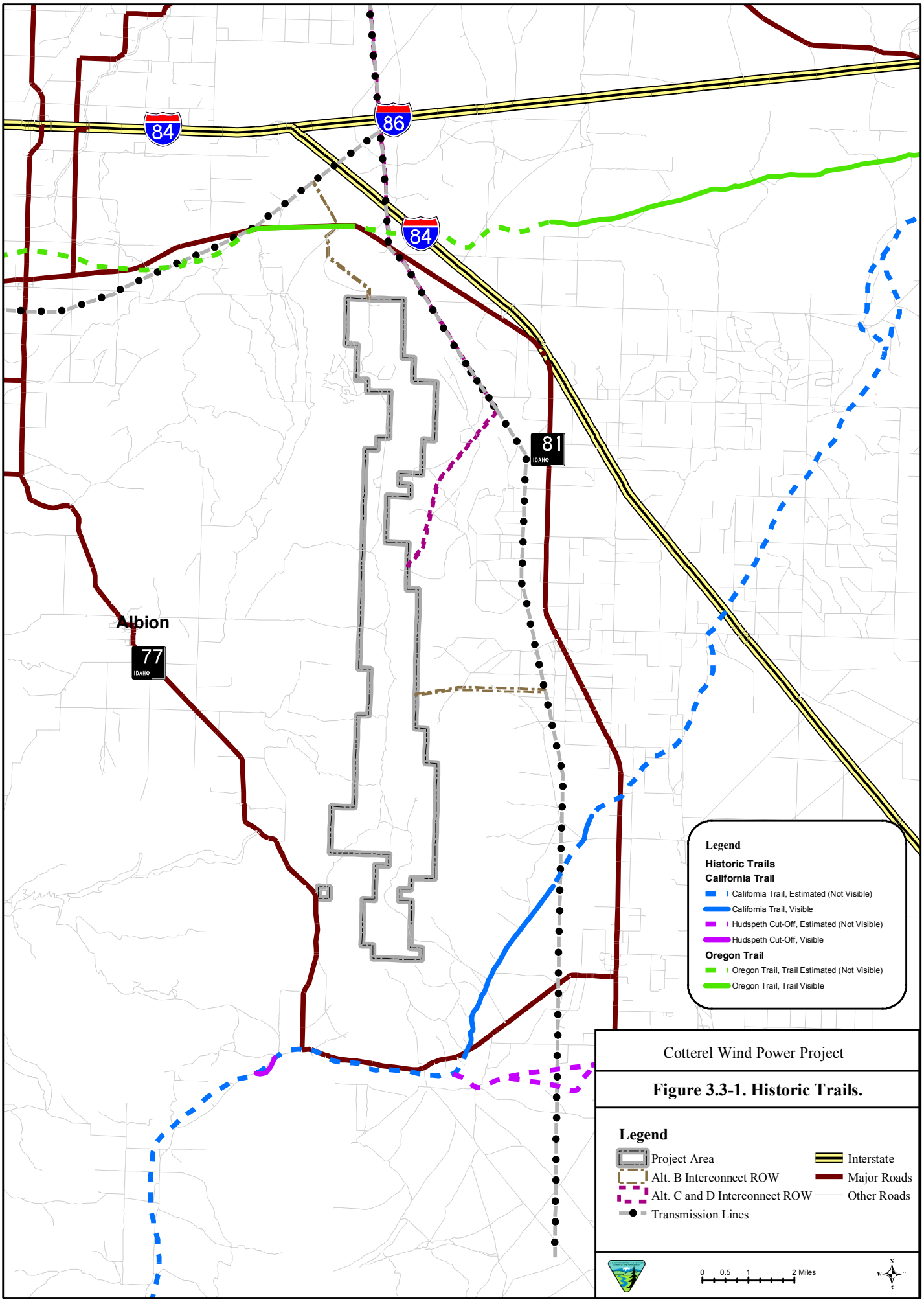
The Proposed Project area is located adjacent to the Raft River Valley, which lies immediately east of Cotterel Mountain and is situated near a historically important crossroads of the Oregon Trail. The "Parting of the Ways" or "Separation of the Trails," located on the west bank of the Raft River, was the junction where travelers had to decide whether to head south toward California or proceed west along the Snake River toward the Oregon Country (Figure 3.3-1). The California Trail route,

originally traveled in 1841 by the Bidwell party, became better traveled by the mid-1840s, and use of the name "California Trail" became commonplace after 1843. The year 1849 was a turning point, as for the first time more emigrants traveled to California than to Oregon. The gold rush to California in 1849 also resulted in the opening of Hudspeth's Cutoff from the Oregon Trail (Hope 1990). The California Trail and Hudspeth's Cutoff junctioned at Cassia Creek just north of the City of Rocks, which became an important landmark for travelers along the trail (Heritage Research Associates 1996). The effects of the Oregon Trail usage on Native Americans in the region was considerable in terms of use of natural resources, primarily forage and firewood fuel, by the emigrants. An estimated 240,000 emigrants with 1.5 million animals traveled through the territory of the Fort Hall Indians during the great migration (Madsen 1980). Subsequently, hostilities between Native Americans and new emigrants increased. A number of massacres and ambushes, led by both Native Americans and military cavalry, occurred near the Raft River Valley throughout the 1800s (Sudweeks 1941).

The Idaho area remained largely unsettled by Euro-Americans, however, until the discovery of gold. By the early 1860s, a number of gold discoveries had occurred in the areas of the Salmon and Boise rivers, sparking a mining boom that lasted for several decades. Mineral mining in southeastern Idaho did not take hold until the 1870s, when mining areas were developed at Cariboo Mountain, at Bonanza Bar at the mouth of the Raft River, and at Black Pine (Franzen 1981).

Concomitant to the 1860s gold rush was the establishment of farming and ranching, including along the Raft River Valley, as demand by miners for cattle increased. The earliest settlements in southeastern Idaho were established by Mormon pioneers traveling north from Salt Lake City and were based on agriculture and ranching rather than mining (Franzen 1981). By the early 1860s, the mail and stage lines were established between Brigham City, Utah, and Boise, and preceded Mormon pioneer settlement of the Raft River Valley (Franzen 1981). The "Boise-Kelton Road" was the primary transportation corridor connecting the new settlements with Utah. Later known as the "Albion to Conner's Corner Road", this transportation corridor went through the community of Sweetzer and south of Cotterel Mountain along current SH-77.

The increased Euro-American settlement and subsequent disruption of traditional Native American lifeways resulted in periodic skirmishes in southern Idaho that culminated in the Bannock War of 1878 and the Sheepeater War of 1878-1879 (Murphy and Murphy 1986). The process of placing the Native Americans onto reservations in this region began in the 1860s and the Fort Hall Reservation was set aside in 1867. Encroachment by white settlers resulted in a series of cessions throughout the nineteenth and early twentieth centuries that reduced the original size of the reservation considerably (Murphy and Murphy 1986; Ruby and Brown 1992).


84
86
84
81
IDAHO
Albion
77
IDAHO
Legend
Historic Trails
California Trail
California Trail, Estimated (Not Visible)
California Trail, Visible
Hudspeth Cut-Off, Estimated (Not Visible)
Hudspeth Cut-Off, Visible
Oregon Trail
Oregon Trail, Trail Estimated (Not Visible)
Oregon Trail, Trail Visible
Cotterel Wind Power Project
Figure 3.3-1. Historic Trails.
Legend
Project Area
Alt. B Interconnect ROW
Alt. C and D Interconnect ROW
Transmission Lines
Interstate
Major Roads
Other Roads
0 0.5 1 2 Miles

Several small towns near Cotterel Mountain, including Albion, Oakley, Elba, and Malta, were first permanently settled in the 1870s and led to the creation of Cassia County in 1879, which had a population of 2,500 by 1885 (Bancroft 1890). By 1890, Cassia County produced wheat, oats, barley, and potatoes and grazed large herds. Improvements in transportation and irrigation systems precipitated an agriculturally based economy. The Oregon Short Line Railroad Company, later absorbed by the Union Pacific Railroad, began construction in 1881-1884 through southern Idaho. Spur branches were built throughout southern Idaho, including the Minidoka and Southwestern Railroad in 1904, which headed west toward Burley from Minidoka, and a spur line between Burley and Oakley (Beal 1962). Many towns sprung up along the railroad, including Burley, which was not settled until 1905 but succeeded Albion as the county seat of Cassia County by 1918. The Northern Utah Railroad attempted construction of a railroad grade that would have connected the Burley vicinity with Kelton, Utah in the early 1900s. Also referred to as the "Salt Lake and Idaho Railroad (SL&I)," this line was never completed and the project was abandoned near Idahome; portions of the grade are present along the northern Proposed Project area.

Improvements in irrigation via canal construction and the Minidoka Dam construction, which began in the early 1900s as a Reclamation Act project, allowed further economic development and settlement. Native vegetation was replaced by irrigated croplands for grains, sugar beets, potatoes, and alfalfa, and resulted in a disruption of the natural hydrologic system (Franzen 1981). By the twentieth century, public land was set aside as a response to the environmental disturbances caused by overgrazing and deforestation, and resulted in land management by federal agencies such as the BLM and Forest Service (Franzen 1981). To date, Cassia County retains its agricultural economy; sugar beet plants, potato processing plants, dairy farms, and wood product processing plants continue to contribute to regional development.

Literature Review and Records Search

The archaeological record has been partially examined through field survey, background research, and consultation with Native American groups. A literature review and record search was completed for the Proposed Project area at the Idaho State Historic Preservation Office in Boise, and at the BLM field office in Burley, and indicates that the Cotterel Mountain area has been subjected to few cultural resource surveys. No large-scale inventories had been undertaken within the Proposed Project corridor along higher elevations of the ridgeline, though several small-scale cultural resource surveys were conducted by the BLM along scattered portions of the mountain. Other surveys were linear in nature and were conducted for pipeline, fiber optic cable line, and transportation projects, but these inventories were limited to lower elevations along the valley floor. The previous surveys identified a total of five sites in or adjacent to the Proposed Project area of potential effects (APE), including: 10CA298, a lithic scatter; 10CA862, the Oregon National Historic Trail; 10CA864, the SL&I Railroad Grade; 10CA629, an unnamed historic trail remnant; and 10CA961, the Conner's Corner to Albion Stage Road.

Survey Findings

Archaeological survey of the Proposed Project APE is required to assist in implementing Sections 106 and 110 of the National Historic Preservation Act, procedures of the Advisory Council on Historic Preservation (36 CFR 800), and BLM policy requiring inventory and evaluation of cultural resources within potential impact areas. Section 106 requires that, prior to any action, federal agencies identify cultural resources potentially affected by the action, which may qualify as eligible to the National Register of Historic Places (NRHP). If eligible resources are identified, federal agencies must take prudent and feasible measures to avoid or reduce adverse impacts and provide the Advisory Council on Historic Preservation an opportunity to comment on these measures. Under NRHP criteria, archaeological sites are generally recognized as eligible based on research potential.

The cultural resources inventory and evaluation activities resulted in the identification of 21 archaeological sites and 61 isolated finds in or adjacent to the Proposed Project APE, in addition to the five previously recorded sites. To date, a total of 26 sites are identified in the Proposed Project corridor and are subject to consideration of construction impacts. Both prehistoric and historic themes are represented by the cultural materials. Twenty sites are defined by prehistoric lithic scatters, two by historic can scatters, and four as linear historic transportation corridors. Table 3.3-2 provides a summary of archaeological sites within the Proposed Project APE and their recommended eligibility status for the NRHP.

The inventory focused on an approximately 14-mile long, 400-foot wide (ca. 680 acre) linear corridor along the highest elevations of the ridgeline where the wind turbines and secondary access roads would be constructed, where the majority of the Proposed Project impacts would occur. The current inventory does not address one of the two proposed transmission interconnect lines because the exact location of this facility has not been determined. The corridors will be inventoried and evaluated prior to completion of the Final EIS. However, information from the completed ridgeline inventory and the record search provides estimates for the density and type of cultural resources that can be expected along the currently non-surveyed portions of the Proposed Project APE.

The sites and isolates identified during survey reflect multiple periods of use of the Cotterel Mountain ridge throughout prehistory, and more limited use in the historic past. Based on survey, the quantity and type of isolates and sites are indicative of transitory use for hunting, migration, and/or spiritual quests. Of the 61 newly recorded isolates, six are historic and 55 are prehistoric artifacts consisting of lithic debitage, bifacially-worked stone tools, or cores. A single cairn was encountered. Prehistoric site types range from very small lithic scatters exhibiting limited complexity to larger scatters containing considerable variation in material and tool types. No evidence was found for extensive habitation but this was not expected given the scarcity of permanent water sources as well as the mountainous terrain. Resource-rich regions along the Raft River and Snake River would have been conducive to more permanent occupation, and prehistoric use of the ridge would likely have been seasonal due to the high elevation and annual snowfall. Based on diagnostic tools noted during survey, the recorded sites and isolates address the theme of prehistoric use from at least the Mid-

Archaic through the Late Prehistoric periods; while it is likely that the area has a considerably older human history, no older sites were identified.

Table 3.3-2. NHRP Eligibility For Sites Within the Proposed Project Area.

Site Number	Site Type	NRHP Eligibility Recommendation
10CA298	Lithic Scatter	Potentially Eligible
10CA629	Historic Trail	Ineligible
10CA862	Oregon Trail	Listed
10CA864	SL&I Railroad Grade	Potentially Eligible
10CA961	Albion Stage Road	Potentially Eligible
CM-S-1	Lithic Scatter	Ineligible
CM-S-2	Lithic Scatter	Potentially Eligible
CM-S-3	Lithic Scatter	Potentially Eligible
CM-S-4	Lithic Scatter	Potentially Eligible
CM-S-5	Lithic Scatter	Ineligible
CM-S-6/8	Lithic Scatter	Potentially Eligible
CM-S-7	Lithic Scatter	Ineligible
CM-S-9	Lithic Scatter	Ineligible
CM-S-10	Lithic Scatter	Potentially Eligible
CM-S-11	Lithic Scatter	Ineligible
CM-S-12	Lithic Scatter	Ineligible
CM-S-13	Lithic Scatter	Ineligible
CM-S-14	Lithic Scatter	Ineligible
CM-S-15	Lithic Scatter	Ineligible
CM-S-16	Tin Can Scatter	Ineligible
CM-S-17	Lithic Scatter	Ineligible
CM-S-18	Lithic Scatter	Ineligible
CM-S-19	Tin Can Scatter	Ineligible
CM-S-20	Lithic Scatter	Ineligible
CM-S-21	Lithic Scatter	Potentially Eligible
CM-S-22	Lithic Scatter	Ineligible

Evidence for historic use of the area is more limited but includes six archaeological resources and six isolated finds. Historic sites include transportation corridors located along the valley floor: 10CA864, the “SL&I Railroad Grade,” and site 10CA862, the Oregon National Historic Trail, both located along the valley floor at the northern end of the Proposed Project area where the extant gravel road accesses SH-81; site 10CA629, an historic trail segment located on the valley floor within approximately 0.25 miles of the proposed northern transmission line connection; and site 10CA961, the “Conners Corner to Albion Stage Road”, located where the extant gravel road accesses the southern portion of Cotterel Mountain from SH-77. Historic sites CM-S-16 and CM-S-19 are both small historic tin can scatters that were identified during survey of higher elevations along the ridgeline. The isolates recorded include assorted tin cans, an enamelware pail, and a horseshoe. The recorded historic sites and isolates likely represent the themes of transitory ranching or hunting activity dating from the late-nineteenth to mid-twentieth century.

Based on apparent integrity of the recorded resources and identified research potential, NRHP eligibility was assessed for sites within the Proposed Project area. Of the previously and newly recorded sites, only one, 10CA862, the Oregon National Historic Trail, is listed on the NRHP. Four prehistoric sites defined by lithic scatters, CM-S-2, CM-S-3, CM-S-6/8, and CM-S-21, and the historic Conner's Corner to Albion Stage Road (10CA961), are recommended as eligible for the NRHP. Thirteen prehistoric sites (CM-S-1, -5, -7, -9, -11, -12, -13, -14, -15, -17, -18, –20, and –22) and three historic sites (10CA629, CM-S-16, and CM-S-19) are recommended as ineligible for nomination to the NRHP based on lack of integrity and/or information potential. Three prehistoric sites (10CA298, CM-S-4 and CM-S-10) and one historic site, the SL&I Railroad Grade (10CA961), remain unevaluated due to insufficient data.

3.4 AMERICAN INDIAN CONCERNS

3.4.1 Treaty Rights

American Indian concerns are identified through consultation as directed by the Fort Bridger Treaty of 1868, the Ruby Valley Treaty, Executive Order 13007 (Sacred Sites Act) and Executive Order 13175 (Government-to-Government Consultation).

Shoshone-Bannock treaty rights are those rights reserved or retained by the Shoshone-Bannock Tribes as stated in the 1868 Ft. Bridger Treaty. Specifically, "they shall have the right to hunt on the unoccupied lands of the U.S. so long as game may be found thereon, and so long as peace subsists among the whites and Indians on the borders of the hunting districts." Later interpretations of these rights include any right not specifically extinguished by the treaty, such as gathering, fishing, collecting plants, and collecting materials important to both the secular and sacred well being of tribal members.

Shoshone-Paiute: Although the Duck Valley Reservation of the Shoshone-Paiute was established by Executive Order in 1877, the Shoshone-Paiute understand that they retain the aboriginal rights as a consequence of the Ruby Valley Treaty and the failure of the U. S. Government to ratify either the Boise Treaty, Bruneau Treaty, or the Long Tom Treaty. The Ruby Valley Treaty neither ceded land nor extinguished rights held by the Shoshone-Paiute.

During scoping consultation, the Shoshone-Bannock and Shoshone-Paiute expressed concern about how the Proposed Project would affect their rights on Cotterel Mountain. Both tribes stated that Cotterel Mountain is still important to them and had some specific concerns about access, wildlife, and the preservation of their rights. Specifically, the Shoshone-Bannock mentioned traditional rabbit hunting grounds to the east of Cotterel Mountain in the Raft River Valley. Specific resources in the Proposed Project area were not addressed.

Government-to-Government consultation will continue and conclude when the terms of Executive Order 13175 are fulfilled.

3.4.2 Trust Responsibility

The BLM has a trust responsibility to the Tribes to acknowledge and preserve the Tribes treaty rights for present and future generations and should address concerns identified by the Tribes regarding the environment, natural and other resource identified as treaty rights on land which BLM manages.

3.4.3 Traditional Cultural Places and Use Areas

Information concerning Traditional Cultural Places and Use Areas is considered highly sensitive by Tribal members. Locations and uses are carefully guarded by Tribal members and would be similarly treated within the confines of government to government consultation.

The BLM has initiated Native American consultation. The BLM and tribal representatives from the Fort Hall Reservation participated in a visit to the Proposed Project area. Consulted parties expressed some knowledge of past use of the Cotterel Mountain area, with the exception of general use of the ridge as a transportation corridor. No specific concerns about culturally sensitive areas in the Proposed Project area were presented during initial consultation. Consultation will be on going during the course of the Proposed Project.

3.4.4 Sacred Sites

No specific sacred sites were identified during initial consultations. It was noted that ridges and mountaintops had a special interest to the Tribes to identify special places, significant events, and group identities. Any such sites would require the application of Executive Order 13007.

3.5 SOCIOECONOMICS

This report describes the existing social and economic conditions in the Proposed Project area, and analyzes the socioeconomic impacts that would be attributable to construction and operation of the Proposed Project under each alternative. Socioeconomic issues analyzed here include: labor force, employment, and income; population and housing, including property values; taxes; social values; and environmental justice issues. The study area for this analysis is Cassia County and Minidoka County combined. The Proposed Project would be located entirely within Cassia County. Local purchases and tax benefits attributable to the construction contract, and the permanent increase in property values attributable to the Proposed Project would result in economic benefits to both Cassia County and Minidoka County.

3.5.1 Existing Conditions

Sources of information for the existing conditions include the Idaho Department of Labor (IDOL); local cities, counties, school districts, public services agencies, real estate professionals, newspapers, and economic development associations; the U.S. Census Bureau; private research findings (for travel impact data and property value information); the Idaho Department of Commerce; the Idaho State Tax Commission; the Census of Agriculture; and the U.S. Department of Labor. Estimated and projected economic data were collected for past, current and future conditions. For all economic

variables, data are presented for the most current year for which that type of data was available. Existing conditions are the same for all build alternatives.

3.5.2 Regional Economy and Community

Background

The Proposed Project would be located in Cassia County, beginning south of where I-84 meets Interstate 86 (I-86) and extending south (Figure 1.0-1). Cassia County is a rural county surrounded by Twin Falls, Jerome, Minidoka, Blaine, Power and Oneida counties in Idaho; Elko County in Nevada; and Box Elder County in Utah. Cassia County is most closely linked economically with Minidoka County to the north. The two-county area is called the Mini-Cassia area.

The Mini-Cassia economy was built around agricultural industries, such as livestock (beef and dairy cattle, sheep) and crop production (sugar beets, grains, potatoes, alfalfa, and beans) (Cassia County History 2003). In 2002, Cassia County ranked first among all counties in the state for value of agricultural products sold, second for value of livestock and poultry, and third for value of crops. The same year, Minidoka County ranked second for value of crops, eighth for value of agricultural products sold, and twelfth for value of livestock and poultry (Minidoka County Information 2004). For value of sales in 2002, Cassia County dropped to second (from first rank in 1997) for cattle and calves. In 2002 it ranked third in the grains, oilseeds, dry beans, and dry peas category; and the other crops and hay category. In 2002, Minidoka County ranked first for sheep and goats, and second for the category of vegetables, melons, potatoes, and sweet potatoes (NASS 2003, 1997).

Today, the Mini-Cassia area economy continues to be centered on agricultural industries such as food processing. Both counties have higher average unemployment rates compared to other southern Idaho counties, in part due to seasonal layoffs typical of the food processing industry. The area has experienced business closures and layoffs in recent years, including: the closure of the original J.R. Simplot potato plant in Heyburn, which resulted in over 600 lost jobs in 2004 (Idaho Statesman 2003); the closure of a Kmart in Burley; and layoffs at other potato plants (Anderson 2003; Idaho Statesman 2003). The retail job losses at Kmart may be countered by an expansion of 200 jobs at the Burley Wal-Mart by mid-2004 (Anderson 2003). On Cotterel Mountain, there are two grazing allotments with 12 permittees within the Proposed Project area (Idaho Watersheds Project 1999).

Labor Force and Employment

In 2003, the Mini-Cassia area labor force of 19,644 workers was 2.8 percent of the State of Idaho labor force. During the period 1980 to 2003, employment in the Mini-Cassia area generally grew slower than total Idaho employment, except for Cassia County employment between 2000 and 2003, which grew at a rate similar to the state rate (Table 3.5-1).

Employment in Minidoka County grew slower than Cassia County's employment from 1980 to 2003. The relatively slower rates are typical of the rural south-central Idaho counties (IDOL 2003c).

Between 1995 and 2003, the annual average unemployment rate for Cassia County was highest in 1995, 1997 and 1998 at 7.1 percent, while the same measure for Minidoka County was highest in 1995 and 1997 at 8.5 percent (IDOL 2003c).

In 2003, unemployment was 6.6 percent in Cassia County and 8.3 percent in Minidoka County. The Mini-Cassia area had more unemployed residents compared to the State of Idaho as a whole, which had 5.4 percent unemployed residents in 2003. The J.R. Simplot plant closure is reflected in the July 2004 unemployment rate in Minidoka County of 9.3 percent (Rogers 2004). The U.S. government has designated both Cassia County and Minidoka counties as Federal Labor Surplus Areas[1] (Rogers 2004).

Table 3.5-1. Labor Force and Employment for Cassia County, Minidoka County and the State of Idaho.

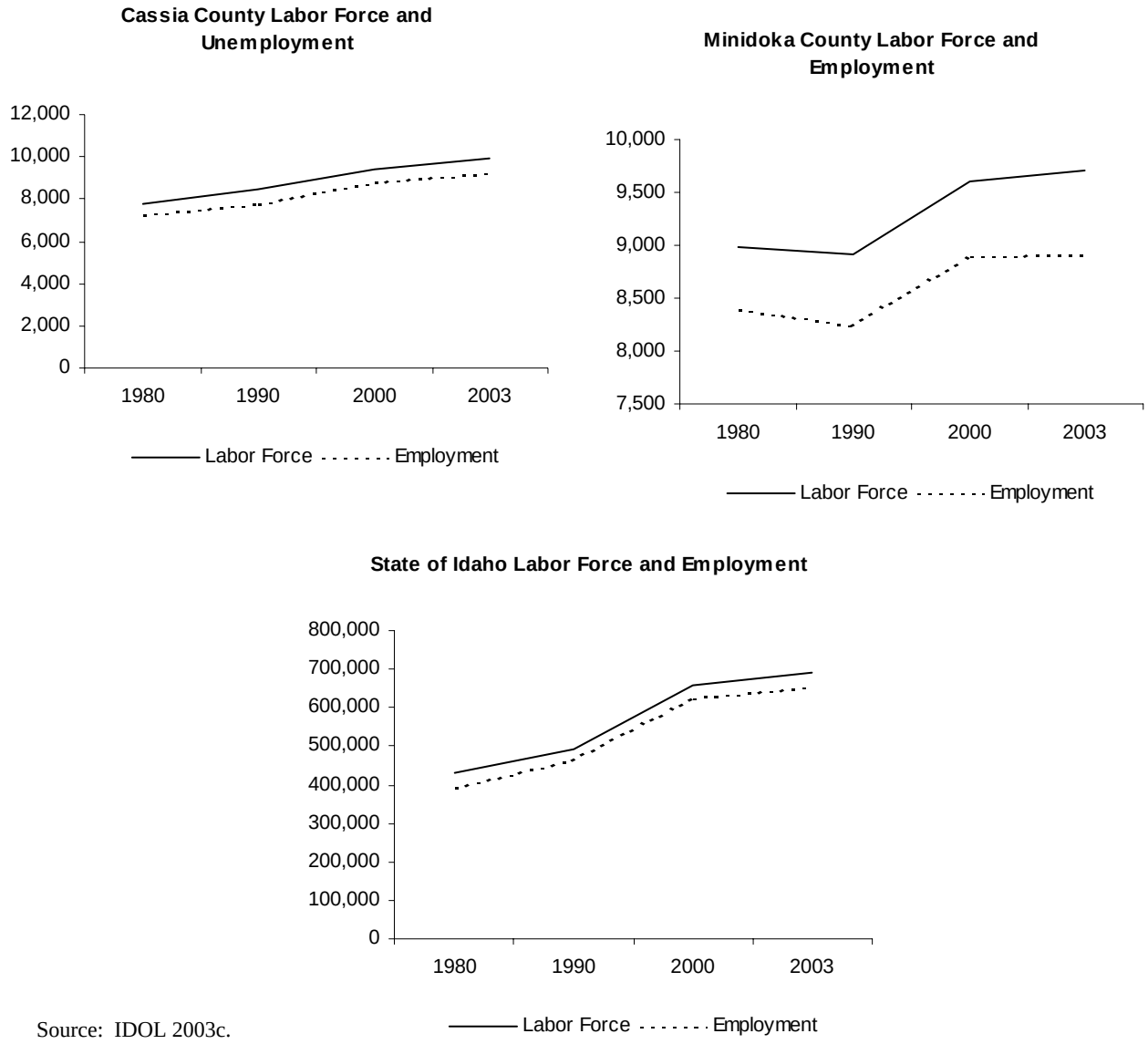
	Labor Force	Employment	Unemployment Rate
Cassia County 1980	7,744	7,267	6.2
Cassia County 1990	8,423	7,775	7.7
Cassia County 2000	9,430	8,840	6.3
Cassia County 2003	9,935	9,276	6.6
AARG, 1980-1990	0.8%	0.7%	-
AARG, 1990-2000	1.1%	1.3%	-
AARG, 2000-2003	1.8%	1.6%	-
Minidoka County 1980	8,981	8,401	6.5
Minidoka County 1990	8,914	8,240	7.5
Minidoka County 2000	9,596	8,899	7.3
Minidoka County 2003	9,709	8,907	8.3
AARG, 1980-1990	-0.1%	-0.2%	-
AARG, 1990-2000	0.7%	0.8%	-
AARG, 2000-2003	0.4%	0.0%	-
State of Idaho 1980	429,010	394,993	7.9
State of Idaho 1990	492,613	463,472	5.9
State of Idaho 2000	656,778	624,806	4.9
State of Idaho 2003	692,552	655,104	5.4
AARG, 1980-1990	1.4%	1.6%	-
AARG, 1990-2000	2.9%	3.0%	-
AARG, 2000-2003	1.8%	1.6%	-

Notes: AARG = Average Annual Rate of Growth.
Source: IDOL 2003c.

Employment level trends closely follow labor force trends in both Cassia County and in the State of Idaho (IDOL 2003c). However, for Minidoka County, the labor force trend shows an increase in recent years when compared to the employment level trend (Figure 3.5-1). This indicates an increase in the unemployment rate in recent years for Minidoka County.

[1] A county designated a federal Labor Surplus Area has an average unemployment rate of at least 20 percent above the average unemployment rate for all states during the previous two calendar years (USDOL 2003).

Figure 3.5-1. Labor Force and Employment Trends for Cassia County, Minidoka County, and the State of Idaho.



Source: IDOL 2003c.

Industry

Important industries in the Mini-Cassia area include food processing (Ore-Ida and McCain, both potato processors), manufacturing (Boise Cascade Corporation, a manufacturer of cardboard boxes), machinery manufacturing, milk processors, feed mills, commercial livestock feed lots, and gravel and cement processors (Cassia County History 2003).

Most jobs in Cassia County are in retail trade (25%); manufacturing (19%); and agriculture, forestry, fishing and hunting (19%).[2] Most Minidoka County jobs are in manufacturing (30%) and agriculture, forestry, fishing and hunting (22%). In comparison, jobs in the State of Idaho as a whole are in general more balanced among different industries, with the most jobs in retail trade (16%) and manufacturing (14%) (Table 3.5-2; IDOL 2003b).

Table 3.5-2. Industry Share of Employment, 2002 for Cassia County, Minidoka County and the State of Idaho.

	State of Idaho	Cassia County	Minidoka County
Agriculture, forestry, fishing and hunting	4%	19%	22%
Mining	0%	2%	0%
Utilities	0%	1%	1%
Construction	8%	7%	4%
Manufacturing	14%	19%	30%
Wholesale trade	5%	7%	13%
Retail trade	16%	25%	8%
Transportation and warehousing	3%	7%	5%
Information	2%	2%	3%
Finance and insurance	4%	4%	1%
Real estate and rental and leasing	1%	1%	0%
Professional and technical services	6%	3%	2%
Management of companies and enterprises	2%	0%	0%
Administrative and waste services	7%	0%	0%
Educational services	1%	0%	0%
Health care and social assistance	11%	0%	0%
Arts, entertainment, and recreation	2%	0%	0%
Accommodation and food services	10%	0%	8%
Other services, except public administration	3%	3%	3%
Unclassified	0%	0%	0%
TOTAL	100%	100%	100%

Notes:
ND = Data not disclosed.
N/A = Data not available.
Source: IDOL 2003b.

[2] Employment in Table 3.5-2 represents jobs within Cassia County or Minidoka County as opposed to residents of Cassia County or Minidoka County who are employed. Table 3.5-1 represents Cassia County and Minidoka County residents who are employed. The difference between these estimates is the number of residents who commute in or out of the respective counties for work.

Table 3.5-3 shows the projected growth by industry for the period 2000 to 2010 in South Central Idaho. The highest rates of projected growth are expected to be in: agriculture, forestry and fishing (7.3%); construction (3.4%); and services (3.1%). Within the construction category, the expected annual growth rates by subcategory are: 3.2 percent for general building contractors, 0.7 percent for heavy construction, and 4.0 percent for special trade contractors. These rates are similar to rates for the State of Idaho as a whole. The growth rate of the electric, gas, and sanitary services industry is expected to grow 0.1 percent faster than in the state as a whole (IDOL 2003d).

Table 3.5-3. Projected Job Growth by Industry 2000-2010 for South Central Idaho Compared to the State of Idaho.

Industry	Estimated Employment 2000	Projected Employment 2010	Annual Average Rate of Projected Growth	Annual Average Rate of Projected Growth, Idaho
Agriculture, Forestry, and Fishing, Total	1,712	2,970	7.3%	3.1%
Mining, Total	156	180	1.5%	-2.5%
Construction, Total	4,723	6,315	3.4%	3.3%
General building contractors	1,450	1,907	3.2%	3.2%
Heavy construction, except building	536	576	0.7%	0.8%
Special trade contractors	2,737	3,832	4.0%	4.0%
Manufacturing, Total	8,595	9,163	0.7%	1.7%
Transportation and Public Utilities	4,250	5,059	1.9%	1.6%
Transportation, Total	3,089	3,744	2.1%	1.7%
Communications	476	565	1.9%	1.8%
Electric, gas, and sanitary services	685	750	0.9%	0.8%
Communications and Utilities, Total	1,161	1,315	1.3%	1.4%
Wholesale and Retail Trade, Total	17,952	22,462	2.5%	2.5%
Finance, Insurance, and Real Estate, Total	2,242	2,775	2.4%	2.6%
Services, Total	18,405	24,155	3.1%	2.9%
TOTAL	58,035	73,079	2.6%	2.6%

Source: IDOL 2003d.

Tourism and Recreation

Most jobs in the tourism and recreation industry are in retail trade, services, or local government, three industries with notable representation in the Mini-Cassia Area. Tourism and recreation resources in the county include public land for hunting, fishing, hiking, climbing, camping, horseback riding, bicycling, and scenic viewing. The Snake River is located north of the Proposed Project area, dividing Cassia County and Minidoka County, and provides boating, boat racing, water skiing, and fishing opportunities. Pomerelle Mountain Resort on Mt. Harrison, west of the Proposed Project area, provides snow skiing and snowmobiling areas. It is located to the southwest of the Proposed Project area and serves all of southeast Idaho. The City of Rocks National Reserve, Cache Peak, and

Independence Peak are hiking and climbing areas located southwest of the Proposed Project area. A section of the Sawtooth National Forest including Mt. Harrison and Lake Cleveland is located in Cassia County (Cassia County History 2003).

The City of Burley has a golf course, and parks with softball, swimming, tennis, soccer and boating facilities. Private facilities in Burley also include a golf course, bowling, health club, and racquetball facilities. Other towns in Cassia County also have parks and softball facilities. Other tourist attractions in Burley include the Cassia County Museum and the Cassia County Fair and Rodeo.

Recreational activities that take place at Cotterel Mountain and near the Proposed Project area include dispersed hiking, hunting, wildlife viewing, OHV riding, and hang-gliding. Public access to Cotterel Mountain is limited, especially on upper roads. No designated or maintained hiking trails exist in the Proposed Project area. Picnic areas accessible in dry weather include a small picnic area west of the radio tower at Coe Creek, and McClendon Springs, which is an improved picnic site with wildlife and plant viewing opportunities. McClendon Springs is located on the east side of Cotterel Mountain near Malta, and is maintained by BLM. This area has riparian habitat for migratory songbirds because livestock are fenced out of this location, which increases opportunities for wildlife watching (Idaho Watersheds Project 1999).

In 1997, travel and tourism spending in south central Idaho[3] was approximately $135 million and was associated with 2,122 jobs (Dean Runyan Associates 2003). The Mini-Cassia portion of this economic impact was $36.4 million in spending and 550 jobs. These travel and tourism jobs represented three percent of the total jobs in the Mini-Cassia area that year.

Income

Median household income in Cassia County was $33,322 in 1999, representing 88 percent of the State of Idaho median household income, and 94 percent of the median household income of South Central Idaho as a whole. The median household income of Minidoka County of $32,021 in 1999 represented 85 percent of the State of Idaho and 90 percent of South Central Idaho median household income for the same year (Census 2000d). Per capita personal income in Cassia County was $22,121 and $17,823 in Minidoka County in 2001 (IDOL 2003a), compared to $24,506 in the State of Idaho as a whole. The relatively lower income levels can be typical of a rural area that has not had recent strong economic growth.

Table 3.5-4 shows annual covered wages and percentage of total wages by industry in 2000 for Cassia County, Minidoka County, and the State of Idaho. The industries with percentages of total wages over 15 percent in Cassia County were manufacturing (23%), retail trade (20%) and agriculture, forestry, fishing and hunting (16%). In Minidoka County, the manufacturing industry represents 42 percent of wages, and agriculture, forestry, fishing and hunting represents 17 percent of wages. Manufacturing

[3] Dean Runyan Associates (Dean Runyan Associates 2003) included Cassia, Gooding, Jerome, Lincoln, Minidoka, and Twin Falls counties in "south central Idaho" for the purpose of their estimates.

wages are relatively higher than retail trade wages as shown by comparing the industry share to wages by industry.

Table 3.5-4. Annual Covered Wages and Percentage of Total Wages, 2002 ($1,000s) for Cassia County, Minidoka County and the State of Idaho.

	State of Idaho	% of Total	Cassia County	% of Total	Minidoka County	% of Total
Agriculture, forestry, fishing and hunting	438,450	3%	21,317	16%	23,384	17%
Mining	70,349	1%	3,195	2%	---	0%
Utilities	131,452	1%	1,701	1%	2,186	2%
Construction	1,132,450	9%	12,621	9%	5,828	4%
Manufacturing	2,478,592	19%	30,144	23%	57,787	42%
Wholesale trade	861,499	7%	9,186	7%	17,856	13%
Retail trade	1,488,232	12%	26,287	20%	9,040	7%
Transportation and warehousing	421,525	3%	11,347	8%	5,919	4%
Information	305,019	2%	3,604	3%	3,416	2%
Finance and insurance	653,383	5%	6,695	5%	1,783	1%
Real Estate and rental and leasing	139,113	1%	620	0%	431	0%
Professional and technical services	1,210,010	9%	3,585	3%	2,039	1%
Management of companies and enterprises	480,620	4%	(ND)	0%	(ND)	0%
Administrative and waste services	590,804	5%	(ND)	0%	(ND)	0%
Educational services	106,860	1%	(ND)	0%	(ND)	0%
Health care and social assistance	1,515,284	12%	(ND)	0%	(ND)	0%
Arts, entertainment, and recreation	135,843	1%	(ND)	0%	207	0%
Accommodation and food services	474,066	4%	(ND)	0%	4,449	3%
Other services, except public administration	287,383	2%	3,228	2%	2,300	2%
Unclassified	8,816	0%	N/A	0%	25	0%
Total	12,929,750	100%	133,530	100%	136,650	100%

ND = Not disclosed by BLS.
N/A = Data not available.
Source: IDOL 2003b.

3.5.3 Population, Housing and Property Values

Population

Table 3.5-5 and Figure 3.5-2 show the population trends in Cassia County, Minidoka County and the State of Idaho. In 2002, Cassia County had a population of 21,720 and Minidoka County had a population of 19,465; together representing three percent of the State of Idaho population (IDOL 2003a). In recent years, the population of the Mini-Cassia area has grown more slowly than the population of the state. From 1980 to 2001, the population of Cassia County grew between 0.1 and 1.5 percent per year, while the total population of the state grew between 0.6 and 3.2 percent per year (IDOL 2003a; Cassia County 2003a). From 1980 to 2001, the population of Minidoka County has been decreasing, except during the early 1990s (IDOL 2003a; Table 3.5-5). Population decreases in the Mini-Cassia area may be caused by the high unemployment rate and relatively slow economic growth.

Figure 3.5-2. Annual Average Rates of Population Growth in Cassia County, Minidoka County and the State of Idaho

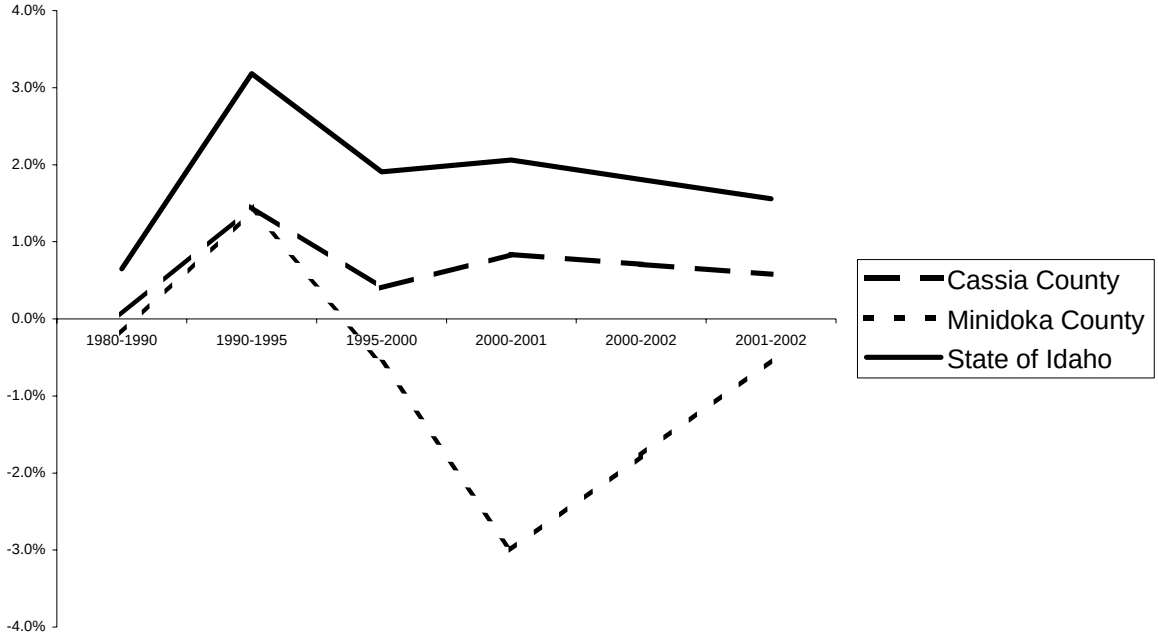


Table 3.5-5. Population Trends in Cassia County, Minidoka County and the State of Idaho.

	Cassia County	Minidoka County	Idaho	Mini-Cassia Percent of State Population
Population				
1980	19,427	19,718	943,935	4%
1990	19,532	19,361	1,006,734	4%
1995	20,996	20,759	1,177,322	4%
2000	21,416	20,174	1,293,953	3%
2001	21,595	19,569	1,320,585	3%
2002	21,720	19,465	1,341,131	3%
Annual Average Rates of Population Growth				
AARG, 1980-1990	0.1%	-0.2%	0.6%	N/A
AARG, 1990-1995	1.5%	1.4%	3.2%	N/A
AARG, 1995-2000	0.4%	-0.6%	1.9%	N/A
AARG, 2000-2001	0.8%	-3.0%	2.1%	N/A
AARG, 2000-2002	0.7%	-1.8%	1.8%	N/A
AARG, 2001-2002	0.6%	-0.5%	1.6%	N/A

AARG = Annual average rate of growth
N/A = Data not available.
Source: IDOL 2003a

Forecasts of county-level population in the State of Idaho were not available at the time this report was written. However, the U.S. Census predicted in 2000 that the State of Idaho would grow by approximately two percent per year (on average) between 2000 and 2015, and by approximately one percent per year between 2015 and 2025 (Census 2000e). These rates are consistent with and slightly lower than recent rates as shown in Table 3.5-5.

Cities closest to the Proposed Project area with populations over 20,000 are Twin Falls (61 miles to the west), home to 34,469 residents, and Pocatello (82 miles to the northeast), home to 51,466 residents (Census 2000c). Other large cities in the region include American Falls (57 miles to the northeast), and Boise (178 miles to the northwest). Smaller cities and their distances from the Proposed Project area are: Oakley, 20 miles; Heyburn, 16 miles; Burley, 15 miles; Rupert, 14 miles; Declo, 8 miles; Albion, 5 miles; and Malta, 4 miles. Unincorporated communities and their distances from the Proposed Project area are: Marion, 22 miles; Basin, 17 miles; Springdale, 13 miles; and Elba, 6 miles.

The cities closest to the Proposed Project area are Malta, located 4 miles east of the ridgeline along SH-81 and Albion, located 5 miles west of the ridgeline along SH-77. Albion (population 262) has approximately one block of commercial development that includes: a gas station/general store, a saloon, a restaurant/café, a bank, a bed and breakfast, an inn, and public facilities such as city offices, a fire department, a grange hall, and an elementary school. A few residential streets are located south and east of the commercial block. Other homes are located in unincorporated Cassia County, on roads leading away from Albion. Albion also has some historic structures. Malta (population 177) consists of approximately ten square blocks of residential uses, along with two motels, two restaurants, a high school, an elementary school, a junior high school, a post office, a fuel depot and store, a gift shop, a gas station, and a grocery store. Similar to Albion, homes are located along roads leading away from Malta, outside of the city limits.

The largest city within 50 miles of the Proposed Project area is Burley, with 9,074 residents (Idaho Department of Commerce 2003a). It is located 15 miles northwest of the Proposed Project area. Burley is the county seat, the largest city in Cassia County, and the home of 42 percent of the county population. The unincorporated Cassia County area is home to over half the county population (Table 3.5-6; Idaho Department of Commerce 2003a). Cities in Cassia County had near-zero percent population growth between 1980 and 2000. Only the unincorporated area and the City of Declo had annual average growth rates in population greater than zero, for both 5-year periods 1990 to 1995, and 1995 to 2000.

Table 3.5-6. Population Distribution in Cassia County.

	Albion	Burley	Declo	Malta	Oakley	Unincorporated Area
1980	286	8525	276	196	663	9,481
1990	305	8420	279	171	635	9,722
2000	262	9316	338	177	668	10,655
2002	264	9375	339	178	669	10,895
% of County in 2002	1.2%	43.2%	1.6%	0.8%	3.1%	50.2%

Source: Idaho Department of Commerce 2003a.

Cities in Minidoka County include Acequia, Heyburn, Minidoka, Paul and Rupert. The largest cities are Rupert, with 5,402 residents, and Heyburn, with 2,805 residents. Over half the residents of Minidoka County live in the unincorporated area (Table 3.5-7).

Table 3.5-7. Population Distribution in Minidoka County.

	Acequia	Heyburn	Minidoka	Paul	Rupert	Unincorporated Area
1980	100	2,889	101	940	5,476	10,212
1990	106	2,714	67	901	5,455	10,118
2000	144	2,899	129	998	5,645	10,359
2002	139	2,805	123	971	5,402	10,025
% of County in 2002	0.7%	14.4%	0.6%	5.0%	27.8%	51.5%

Source: Idaho Department of Commerce 2003a.

No known residences are located within 2 miles of the Proposed Project area. The closest house to the Proposed Project area is approximately 2.5 miles from the proposed west string. Approximately 80 homes exist along SH-77 or SH-81, outside of the towns of Albion and Malta, but within view of the Proposed Project.

3.5.4 Housing and Property Values

Units, Vacancy and Types of Housing

The Mini-Cassia area had approximately 15,360 housing units in 2000, representing three percent of total housing units in the State of Idaho. Mini-Cassia area housing units were seven to ten percent vacant that year, compared to 11 percent for the State of Idaho as a whole, indicating a slightly tighter real estate market when compared to the state average. Although the Mini-Cassia area is generally healthier (in terms of fewer vacant units) than other areas in the State of Idaho, the vacancy rate in the area is on par with the national average of nine percent. In 2000, 68 percent of the total housing units in the Mini-Cassia area were owner-occupied, and 90 percent of housing units were built prior to 1988. New development has not been common in recent years in the Mini-Cassia area.

The breakdown of housing units by type in 2000 (Table 3.5-8) indicates that 72 percent of the units in Cassia County were single-family, and approximately 17 percent were mobile homes, boats, RVs or

other types of housing units. In Minidoka County, 78 percent of units were single-family and 12 percent were mobile homes, boats, RVs or other types of housing units. Compared to the State of Idaho, the Mini-Cassia area has more mobile homes and single family homes relative to multi-family homes. However, more mobile homes are vacant in the Mini-Cassia area when compared to the state.

Table 3.5-8. Housing Types and Characteristics, 2000 in Cassia County, Minidoka County and the State of Idaho.

	Total Units	% of Total	Vacant Units	% of Total	Owner Occ'd. Units	% of Total	Renter Occ'd. Units	% of Total
Cassia County	7,862	---	802	---	5,125	---	1,935	---
Single family	5,690	72%	438	55%	4,195	82%	1,057	55%
Multi-family	837	11%	143	18%	107	2%	587	30%
Mobile homes	1,275	16%	199	25%	785	15%	291	15%
Other (RVs, boats, etc.)	60	1%	22	3%	38	1%	0	0%
Minidoka County	7,498	---	525	---	5,360	---	1,613	---
Single family	5,861	78%	278	53%	4,666	87%	917	57%
Multi-family	693	9%	141	27%	49	1%	503	31%
Mobile homes	934	12%	106	20%	642	12%	186	12%
Other (RVs, boats, etc.)	10	0%	0	0%	3	0%	7	0%
State of Idaho	527,824	---	58,179	---	339,913	---	129,732	---
Single family	369,924	70%	35,493	61%	285,977	84%	48,454	37%
Multi-family	91,004	17%	12,328	21%	10,838	3%	67,838	52%
Mobile homes	64,163	12%	8,852	15%	42,081	12%	13,230	10%
Other (RVs, boats, etc.)	2,733	1%	1,506	3%	1,017	0%	210	0%

Source: Census 2000f.

Housing Values and Rents

The median value of housing in Minidoka County was $74,600 (Census 2000f) in 2000; this is 30 percent lower than the median value of housing for Idaho as a whole. The median value of housing in Cassia County was $53,100 (Census 2000f) in 2000; this is 22 percent lower than the median value of housing for Idaho as a whole (Table 3.5-9).

Table 3.5-9. Median Housing Values in Cassia County, Minidoka County and the State of Idaho in 2000.

Area	Median Housing Value, 1990	Median Housing Value, 2000	Percentage Increase, 1990 to 2000
Minidoka County	$41,500	$74,600	79.8%
Cassia County	$46,000	$83,100	80.7%
State of Idaho	$58,000	$106,300	83.3%

Source: Census 2000f.

Median rent in Cassia County doubled to $403 per month between 1990 and 2000. Minidoka County median rent also doubled to $394 in 2000. The median rent was $413 in 2000 throughout the State of

Idaho (Census 2000d). The lower housing values and rents in the Mini-Cassia area suggest a relaxed housing market in contrast to the relatively low vacancy rate.

On Friday June 6, 2003, eight single-family homes, one manufactured home, and parcels for manufactured homes were listed for sale in the South Idaho Press. Four of the eight single family homes were listed with prices that ranged from $51,000 to $75,000.[4] Locations for three of the single-family homes were listed as one in Burley and two in Heyburn. The paper also listed over twelve apartments for rent ranging from $250 to $425 per month. Over 17 homes were listed for rent in Rupert, Heyburn, Burley, Paul, and Declo from $325 to $650. Prices and locations were not included in all listings (South Idaho Press 2003).

According to local real estate agents, new construction in the Mini-Cassia area included homes priced from $160,000 to $185,000 for 1,500 to 1,800 square feet for single-family homes, and custom-built single-family homes priced up to $500,000 (McCall 2003; Anderson 2003). Custom-built homes are typically under construction outside of Burley, while lower-priced new homes ranging in price from $85,000 to $100,000 are under construction within Burley city limits. The housing market in the Mini-Cassia area is generally stable and steady, with few highs and lows, and has been this way for several decades. In the future, local agents expect the market to remain steady, and for more homes in the $75,000 to $85,000 range to enter the market (McCall 2003; Anderson 2003). In 2000, 90 percent of existing housing units in the Mini-Cassia area were built prior to 1988.

Temporary Lodging

At least 972 lodging rooms in hotels or motels exist within 60 miles of the Proposed Project area (Table 3.5-10). Assuming a summer vacancy rate of 15 percent on average (weekends and weekdays), approximately 150 rooms would be available at one time.

Campgrounds and RV parks near the Proposed Project area include:

- Heyburn Riverside RV Park in Heyburn;
- Willow Bay Recreation Area, and Indian Springs Swimming and RV in American Falls;
- KOA Campground in Jerome;
- Budget RV Park in Pocatello; and
- Central Idaho 4-H Camp, Oregon Trails Campgrounds Center, Curry Trailer Park, and Nat Soo Pah Hot Springs and RV in Twin Falls (Idaho Lodging 2003).

[4] The other four listings did not include price.

Table 3.5-10. Temporary Lodging Near the Proposed Project Area.

Name and Location	City/Town	Miles from Albion, Idaho	No. of Rooms
Marsh Creek Inn	Albion	5	12
Best Western Burley Inn & Convention Ctr.	Burley	18	126
Budget Motel of Burley	Burley	18	139
East Park Motel	Burley	18	12
Lampliter Motel	Burley	18	16
Evergreen Motel	Burley	18	13
Parish Motel	Burley	18	15
Powers Motel	Burley	18	23
Starlite Motel & Taxi	Burley	18	9
Super 8	Heyburn	20	68
Tops Motel	Heyburn	20	16
Flamingo Lodge Motel	Rupert	18	15
Hillview	American Falls	57	33
Amber Inn Motel	Eden	44	25
AmeriTel Inn	Twin Falls	57	118
Best Western Apollo Motor Inn	Twin Falls	57	50
Capri Motel	Twin Falls	57	23
Comfort Inn	Twin Falls	57	52
El Rancho Motel	Twin Falls	57	14
Holiday Motel	Twin Falls	57	18
Holiday Inn Express	Twin Falls	57	59
Monterey Motor Inn	Twin Falls	57	28
Motel 6	Twin Falls	57	132
Red Lion Canyon Springs	Twin Falls	57	112
Shilo Inn - Twin Falls	Twin Falls	57	128
Super 7 Motel	Twin Falls	57	40
Super 8 Motel Twin Falls	Twin Falls	57	93
Twin Falls Motel	Twin Falls	57	8
Weston Inn	Twin Falls	57	97
Estimated Number of Rooms Within 60 miles			972

Source: URS 2003.

3.5.5 Public Finance and Fiscal Conditions

The State of Idaho collects property tax, sales tax, and personal and corporate income tax from its residents. The Idaho State Tax Commission collects the income and sales taxes, and counties collect property taxes. The taxing of property within Cassia County funds county operations. Taxes that would apply directly to Proposed Project construction and operation include property and sales taxes.

Property Tax

Cassia County would benefit from tax revenue attributable to the Proposed Project because the Proposed Project site is within the County. Tax impacts are discussed in Chapter 4, Environmental Consequences.

The 2002-2003 budget for Cassia County was $11.4 million (Cassia County 2003a). Of this amount, $2.9 million (25%) was from annual property tax revenue. Almost half of property tax revenue was allocated to the Justice Fund (i.e., law enforcement needs), while approximately one-fifth was allocated to the Current Expense Fund (Table 3.5-11). Other funds each received less than ten percent of tax revenue.

The 2003 average property tax rates for the State of Idaho were 1.67 percent for urban areas, and 1.17 percent for rural areas. For Cassia County, the urban area average rate was 1.56 percent, slightly lower than the state urban average rate, while the Cassia County rural rate average was 1.17 percent, which was the same as the state rural average rate (Holland 2003).

Table 3.5-11. Cassia County Distribution of Property Tax Revenue from the 2002-2003 Adopted Budget.

Fund	Amount	Percent of Total
Justice Fund	$1,407,350	48.9%
Current Expense Fund	$614,580	21.4%
Jail Bond	$250,000	8.7%
Indigent Fund	$186,760	6.5%
Junior College Fund	$129,560	4.5%
Weed and Pest Fund	$82,000	2.8%
Re Evaluation	$66,250	2.3%
Ambulance Services Fund	$58,000	2.0%
Fair Exhibits	$57,000	2.0%
Co. Roads (Unorg.) Fund	$16,480	0.6%
Historical Society	$10,400	0.4%
Total	$2,878,380	100.0%

Source: Cassia County 2003a.

Table 3.5-12 shows the Cassia County taxable assessed value in 2001 was $210.8 million (Cassia County 2003b). The Proposed Project is located within Tax Code Areas 16 and 17 (ITC 2003a), which are taxed at 1.2 percent.

Over half of the tax revenue collected from Tax Code Areas 16 and 17 funds Cassia Joint School District No. 151, which serves most of Cassia County and portions of Oneida and Twin Falls counties (Table 3.5-12). Cassia Joint School District includes 16 schools and over 5,000 students (Cassia Joint School District 2003). The property tax revenues represent 21 percent of total funding for school operations. Remaining funding is provided by state tax revenues (65%) and federal funds (14%) (Cassia Joint School District 2003).

Table 3.5-12. Property Tax Rates in Tax Code Areas 16 and 17.

Taxing District	Tax Code Area 16 Rate	Tax Code Area 17 Rate
School Dist. 151	0.644%	0.644%
County	0.315%	0.315%
Raft River Hwy	0.194%	0.194%
Flood District 15	0.043%	0.043%
Raft River Fire	0.014%	0.014%
Valley Vu Cemetery	0.007%	0.000%
TOTAL	1.218%	1.211%

Source: Cassia County 2003b.

Retail Sales Tax

Retail sales in Cassia County in 1997 accounted for $193 million (Cassia County 2003b). This represented 1.7 percent of total retail sales in the State of Idaho, and resulted in a ranking of 15 out of 44 counties in the State of Idaho (Census 1997). From 1993 to 2002, retail sales in Cassia County grew at rates ranging from four to 11 percent per year, and represented one percent of the total retail sales in the State of Idaho (Idaho Department of Commerce 2003b).

Sales taxes apply to the sale, rental, or lease of tangible personal property, and some services. The Idaho sales tax rate was increased from five to six percent on May 1, 2003 (Poplar 2003). Based on $193 million in retail sales in 1997 in Cassia County (Cassia County 2003b), sales tax revenue collected that year would have been approximately $9.7 million.

Social Values

Rural communities tend to be characterized by social and lifestyle patterns that are distinct from their metropolitan counterparts. Smaller rural communities are often characterized by a high level of what social scientists call social cohesiveness. Cohesiveness refers to the forces or attractions that hold members of a community together, and is based on the quality of social life within the community, and an important emphasis on a sense of place and togetherness. An impact that may decrease the attractiveness of the community itself, or the desirability of associating with, or identifying with the community may have a detrimental effect on the level of cohesion and the corresponding sense of community (Finsterbusch 1980). Social values in the Mini-Cassia area are likely rooted in a strong social cohesiveness, along with a high regard for agriculture and its related industries. In addition, the Mini-Cassia area contains vast open spaces with remote, mountainous terrain. Residents also likely value these natural settings and the recreational opportunities afforded by them.

3.5.6 Environmental Justice

Executive Order 12898 (1998) requires that federal agencies address high and disproportionate environmental impacts on minority and low-income populations ("environmental justice" impacts) attributable to projects proposed on federal land. Environmental justice impacts would result if potentially high and adverse environmental impacts attributable to the Proposed Project would fall

disproportionately on minority or low-income populations. The first step of an environmental justice analysis involves screening the Proposed Project area to determine if environmental justice populations exist in the area. The second step (addressed in Chapter 4) is to determine whether Proposed Project impacts would be high, and if they would disproportionately affect any environmental justice populations.

Minority Populations

The U.S. Census classifies 21 percent of the population of Cassia County and 28 percent of the population in Minidoka County as a racial minority, compared to 17 percent in the South Central Idaho region[5,6] (Census 2000a). The State of Idaho as a whole was 12 percent minority in 2000. The Mini-Cassia area population was 24 percent minority on average and more racially diverse than South Central Idaho and the state as a whole (Table 3.5-13).

Census blocks are the smallest geographic units used in compiling the decennial U.S. Census. The decennial census has always reported population by state and county, and in the latter half of the twentieth century added the concepts of the census tract, the block group, and the census block to its spatial subdivision of the nation. The census block, normally used only in urbanized areas, is an actual physical block or other spatial unit within the census tract. The census block *group* combines, on average, about four census blocks to comprise approximately 1,500 persons and normally represents a residential subdivision or other reasonable geographic entity. The populations of these spatial units can vary widely, and may even have a population of zero (Census 1994).

The Proposed Project area is located within five designated census blocks within Census Tract 9501 (Table 3.5-13). Two of the five census blocks have no population. The remaining three census blocks contain a combined population of 48, of which 4 residents are listed as minority residents (Census 2000a). These four minority residents live within census block 2000, which covers the northern end of the proposed turbine strings.

[5] Minority populations include Hispanic, Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, & other non-white races.

[6] This report uses the definition for the South Central Region of Idaho used by the IDOL. The South Central Region of Idaho includes the counties of Cassia, Minidoka, Blaine, Camas, Gooding, Jerome, Lincoln, and Twin Falls.

Table 3.5-13. Minority Populations in the South Central Region of Idaho.

Geographic Area	Population	Minority Population[(a)]	Percentage of Total
Census Tract 9501 and Census Block 2000	20	4	20%
Census Tract 9501 and Census Block 2014	0	0	N/A
Census Tract 9501 and Census Block 2015	2	0	0%
Census Tract 9501 and Census Block 2245	0	0	N/A
Census Tract 9501 and Census Block 2246	26	0	0%
Cassia County	21,416	4434	21%
Minidoka County	20,174	5,622	28%
Mini-Cassia area	41,590	10,056	24%
Blaine County	18,991	2,460	13%
Camas County	991	81	8%
Gooding County	14,155	2,782	20%
Jerome County	18,342	3,551	19%
Lincoln County	4,044	669	17%
Twin Falls County	64,284	7,894	12%
South Central Idaho[(b)]	162,397	27,493	17%
State of Idaho	1,293,953	154,662	12%

Note:

(a) Minority populations include Hispanic, Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, and other non-white races.

(b) This report uses the definition for the South Central Region of Idaho used by the IDOL. The South Central Region of Idaho includes the counties of Cassia, Minidoka, Blaine, Camas, Gooding, Jerome, Lincoln, and Twin Falls.

Source: Census 2000a.

Low Income Populations

Fourteen percent of Cassia County residents and 15 percent of Minidoka County residents lived below the poverty level in 1999 (Table 3.5-14). In comparison, 13 percent of residents in South Central Idaho lived below the poverty level, and 12 percent of Idaho residents lived below the poverty level in 1999 (Census 2000b). That year, the Mini-Cassia area had slightly more residents living in poverty (14%, on average) when compared to South Central Idaho and the State of Idaho.

In census block group 2 within census tract 9501 (which surrounds the Proposed Project), relatively fewer residents live below the poverty level (10%, Table 3.5-14).

Table 3.5-14. Populations Living Below Poverty Level, 1999 in the South Central Region of Idaho.

Geographic Area	Population for Whom Poverty Status Is Determined	Population Living Below Poverty Level	Percentage of Total
CT 9501 CBG 2	1,280	134	10%
Cassia County	21,109	2,875	14%
Minidoka County	19,992	2,960	15%
Mini-Cassia area	41,101	5,835	14%
Blaine County	18,868	1,469	8%
Camas County	985	82	8%
Gooding County	13,916	1,922	14%
Jerome County	18,235	2,526	14%
Lincoln County	3,995	522	13%
Twin Falls County	63,123	8,038	13%
South Central Idaho[(a)]	160,223	20,394	13%
State of Idaho	1,263,205	148,732	12%

Notes:

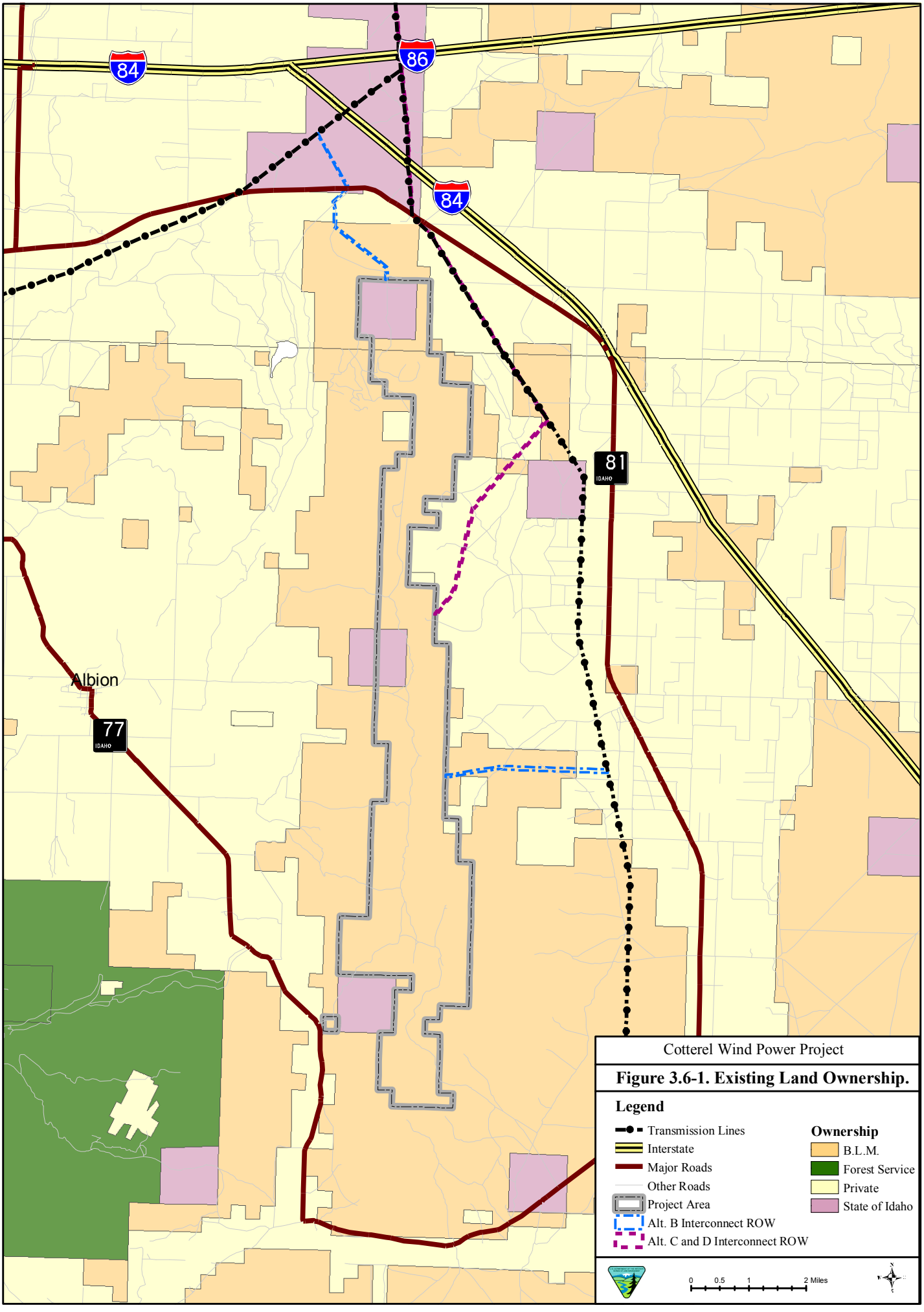
(a) This report uses the definition for the South Central Region of Idaho used by the IDOL. The South Central Region of Idaho includes the counties of Cassia, Minidoka, Blaine, Camas, Gooding, Jerome, Lincoln, and Twin Falls.

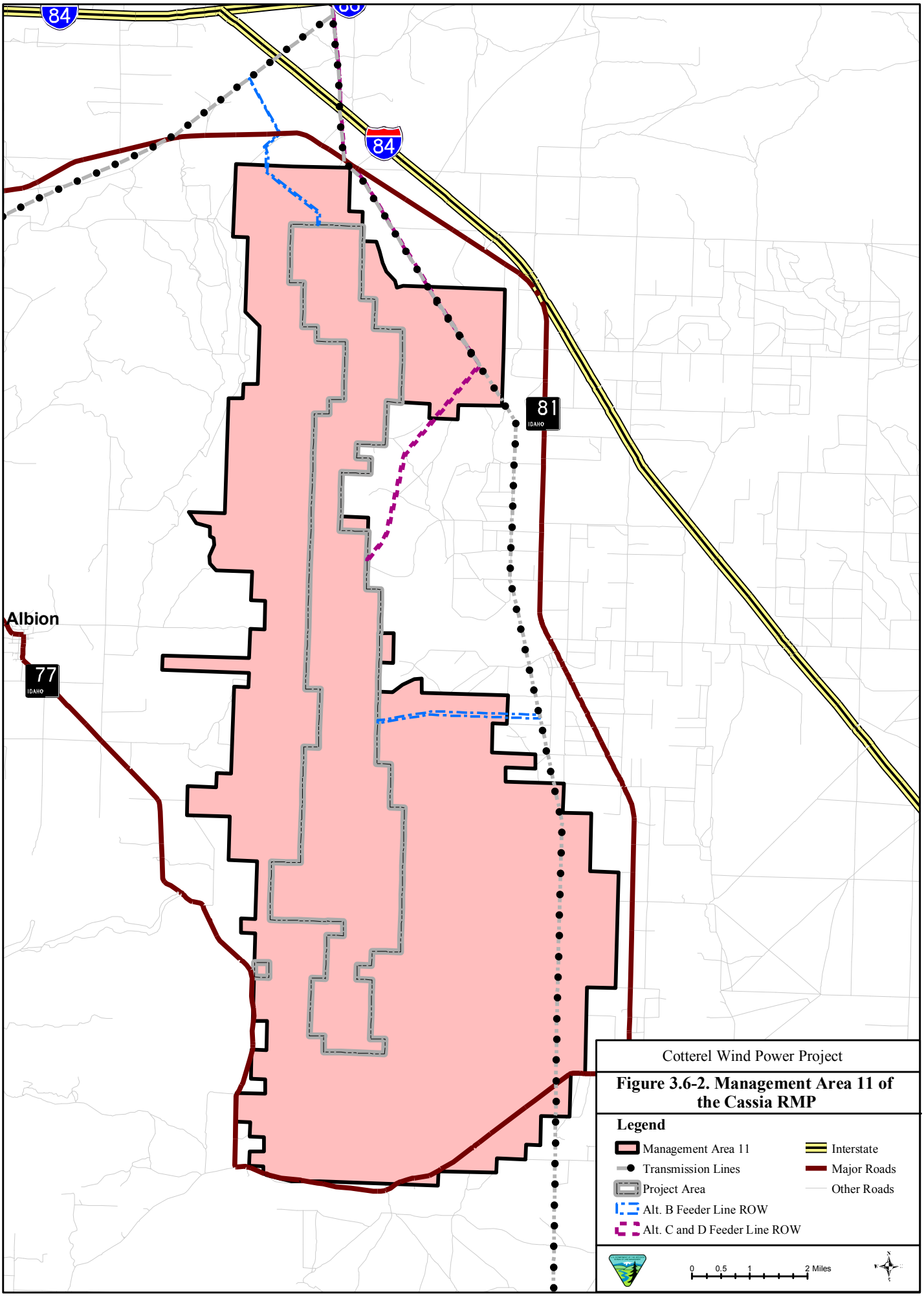
Source: Census 2000b.

3.6 LANDS AND REALTY

The Proposed Project area is within public lands managed by the BLM BFO. These lands are managed in accordance with the Cassia Resource Management Plan (Cassia RMP) (USDI, BLM 1985a; Figure 3.6-1). They are part of Management Area 11, Cotterel Mountain, within the Cassia RMP (Figure 3.6-2). Major land uses include livestock grazing, wildlife habitat, recreation, utility distribution, and communication facilities locations.

Management goals for the Proposed Project area include expanding dispersed recreation opportunities, providing for livestock grazing, and transferring certain lands from federal ownership (USDI, BLM 1985a). Prominent land uses around the Proposed Project area include: rural community commercial use that is zoned for the cities of Malta and Albion; commercial recreational use at the Pomerelle Mountain Resort; and agricultural uses such as farming, grazing, and confined animal operations.


84
86
84
81
IDAHO
Albion
77
IDAHO
Cotterel Wind Power Project
Figure 3.6-1. Existing Land Ownership.
Legend
Transmission Lines
Interstate
Major Roads
Other Roads
Project Area
Alt. B Interconnect ROW
Alt. C and D Interconnect ROW
Ownership
B.L.M.
Forest Service
Private
State of Idaho
0
0.5
1
2 Miles


84
84
81
IDAHO
Albion
77
IDAHO
Cotterel Wind Power Project
Figure 3.6-2. Management Area 11 of the Cassia RMP
Legend
Management Area 11
Transmission Lines
Project Area
Alt. B Feeder Line ROW
Alt. C and D Feeder Line ROW
Interstate
Major Roads
Other Roads
0
0.5
1
2 Miles

Currently there are approximately 320 existing rights-of-way (ROW) within the Cassia RMP area. These include: highways and access roads; electric power transmission and distribution lines; fiber optic cables; telephone lines; water, natural gas, and liquid petroleum pipelines; ditches and canals; communications facilities; and various types of project area ROW. Within the Proposed Project area, there are approximately 15 ROW and special uses.

3.6.1 Land Status

The lands within the Proposed Project area are predominantly public lands managed by the BLM, in addition to a small percentage of state land. Public, state, and private lands surround the Proposed Project area. The City of Albion is located about five miles to the west of Cotterel Mountain, and the City of Malta is located about four miles to the east.

3.6.2 Existing Land Use

A primitive road extends along the Cotterel Mountain ridge top providing access to the entire mountain. Public access to the top of the mountain is available from the north, southwest and southeast. Several feeder roads and trails provide additional access down lateral ridges and drainages, but large areas of Cotterel Mountain remain roadless. Hunting, sightseeing, OHV use, and winter recreation pursuits are common in the area. The area is a Special Resource Management Area. There are two grazing allotments (North Cotterel #5001 and South Cotterel #5002) located within the Proposed Project area. These areas are discussed below and detailed in Section 3.8 Livestock Grazing. Although the Proposed Project area is open to mineral entry, no mineral or mining claims exist.

Agriculture/Rangelands

The Proposed Project area is located within two grazing allotments: North Cotterel (#5001) and South Cotterel (#5002). The North Cotterel allotment consists of approximately 9,981 acres of public land; 1,280 acres of state land, and 320 acres of private land. Permitted use on the North Cotterel allotment is 1,428 animal unit months (AUM). An AUM, as defined by the Cassia RMP, is the amount of forage needed by 1-cow, 1-horse, 5-sheep, 5.3-deer, or 9.4-antelope for one month (approximately 800 lbs. dry weight). Of the 1,428 AUMs, 37 are designated for horse use and 1,389 AUMs are for livestock. Livestock grazing begins May 1 and ends December 27. The number of livestock and timing of grazing in the North Cotterel allotment can fluctuate; however, livestock use has generally occurred from June 1 to July 31 during the past several years (Shaw 2004). The Cassia RMP identified the opportunity to increase the permitted use in the North Cotterel allotment by 275 AUMs pending the completion of proposed land treatments.

The South Cotterel allotment consists of 30,007 acres of public land, 640 acres of state land, and 120 acres of private land. Permitted use on the Cotterel South allotment is 3,242 AUMs, which are all designated for cattle use. Livestock use in the allotment begins on May 1 and ends November 30. More than 100 range improvements are located in both the North and South Cotterel allotments. These improvements include water development, fences, cattle guards, and vegetation treatments.

Utility Distribution and Commercial Use

The area is open to energy resource exploration, mining, and ROW under the current restriction prescribed by the Cassia RMP.

Rights-of-Way and Special Use Permits

The following are current existing ROW and special use permit holders (permit number in parentheses).

- State of Idaho Communications Site (IDI-016817)
- Bonneville Power Administration Communications Site (IDI-016828)
- Bureau of Reclamation Communications Site (IDI-16460)
- Fisher Broadcasting Company Communications Site (IDI-012066)
- Raft River Electric/ATC Communications Site and Access Road (IDI-29847)
- Federal Aviation Administration Communications Site and Access Road (IDI-013642)
- Moo View Cow Palace Communications Site and Access Road (IDI-32796)
- ATC Communications Buried Telephone Cable (IDI-5128)
- Raft River Electric Company Buried Power Distribution Line (IDI-4446)
- Windland, Inc. Meteorological Data Collection (IDI-33675)
- Chevron Pipeline Company Buried Liquid Petroleum Pipeline (IDI-0602)
- Raft River Electric Company Overhead Power Transmission Line (IDI-014294)
- State Land Easement to the U.S. for a Buried Stockwater Pipeline and Storage Facility (IDI-29653)
- Private Land Easement to the U.S. for an Access Road (IDI-31422)
- Numerous range improvements including a water station and water storage facility on the north end of the Proposed Project area

Tribal Land Use

No tribal deeded or reservation lands are present in the Proposed Project area. However, the Shoshone-Bannock Tribes continue to maintain historical hunting and gathering rights within the Proposed Project area in accordance with the Fort Bridger Treaty Act of 1868.

3.6.3 Planned Land Use

Management direction is outlined in the Cassia RMP. It includes continuation of fire management, livestock grazing, use of motorized vehicles with restrictions, recreation, and wildlife habitat management. Activity Plans that have been initiated or planned for implementation include: Allotment Management Plans; a Recreation Area Management Plan; a Limited Suppression Fire Plan; a Watershed Management Plan; and a Habitat Management Plan.

Presently the Cassia RMP limits ROW to existing facilities and localities (Page 40 Section D). It also recommends managing the area to maintain scenic quality and open space. The BLM evaluated the

Proposed Project in relation to the current restrictions in the Cassia RMP and determined that it is not consistent with the plan. Because of several factors including, but not limited to, the fact that wind energy development was not considered in 1985 when the Cassia RMP was completed, the relationship of the Proposed Project to the President's Energy Policy, and the growing demand for electric power in the region, BLM has proposed to amend the plan to allow ROW for wind energy developments in the Cotterel Mountain Management Area. Land Use Plans such as the Cassia RMP can be amended in accordance with BLM regulations (43 CFR 1600), and the National Environmental Policy Act process, as detailed in the Council on Environmental Quality regulations, which guide the preparation of plan amendments (40 CFR 1500). The plan amendment process is tailored to the anticipated level of public controversy and potential for significant impacts. For this proposal, an assessment for consistency with the existing Cassia RMP was completed by the BLM as stated above. The proposed plan amendment will be assessed by alternative in Chapters 2 and 4 of this document to determine the impact on existing resource objectives. A summary of the proposed amendment based on this assessment is provided below.

3.6.4 Rights-of-Way

Current Plan Objective:

Limit ROW to existing facilities and localities.

Proposed Amendment:

The proposed amendment would lift the ROW restriction on Management Area 11 of the Cassia RMP to the extent that wind energy development would be permitted. It would also change the Cassia RMP objective of managing the area to maintain scenic quality and open space. No other developments would be allowed.

These aspects of the Cassia RMP would be amended through the interdisciplinary and public participatory National Environmental Policy Act process in conjunction with BLM resource program-specific guidance.

3.7 RECREATION

The region of south-central Idaho is typically rural in nature. Sparse populations and open space characterize the landscape, with large areas under agricultural production. Desert mountain ranges, caves, rugged lava flows, forested terrain, and large expanses of valley land and rolling mountains make it a unique area in Idaho providing opportunities for a variety of recreational uses. Much of the area is federal land that helps to satisfy the growing public demand for outdoor recreation. The Pomerelle Mountain Resort is located about nine miles west of the Proposed Project area and provides winter recreation in the form of skiing and snowmobiling. The City of Rocks National Reserve, a popular camping, hiking, rock climbing, and historical area is located about 24 miles southwest of the Proposed Project area. The recreational uses of Cotterel Mountain include hunting, OHV use, picnicking, hiking, and some dispersed camping. The public lands associated with Cotterel

Mountain are mandated by the Cassia RMP to provide for multiple uses, including a diverse choice of recreation opportunities.

3.7.1 Recreation Opportunities

The physical environment often determines where, when, and what types of recreational activities occur. Landscape attributes that enhance opportunities for recreation and attract visitors to public land include desert badlands, mountains, canyons, lava features, grasslands, and wooded environments. The Proposed Project area provides opportunities for a number of recreational activities including: sightseeing, wildlife viewing, hiking, picnicking, horseback riding, upland game bird and big game hunting, OHV riding, mountain biking, and camping. Visitor use numbers (dispersed) for the Cotterel Mountain area have been approximately 7,500 individuals for each fiscal year since 2000 (Thompson 2004). Wheeled vehicle use has been limited to existing roads and trails. There are currently no plans to construct any new trails for the area.

The Proposed Project area is designated a Special Resource Management Area. These areas are described in the BLM Land Use Manual-Section 1601 as administrative units established to direct recreation program priorities, including the allocation of funding and personnel, to those areas where a commitment has been made to provide specific recreation activity and experience opportunities on a sustained yield basis (USDI BLM 2000).

The Recreational Opportunities Spectrum (ROS) for the Proposed Project area is semiprimitive motorized. The ROS provides a management tool for inventory, planning, and administration of outdoor recreation resources on public land. The BLM often uses the ROS as a framework for defining the environment present for outdoor recreation opportunities. The ROS recognizes that people differ in their needs and the experience they desire and that the resource base is not uniform. The ROS allows managers to characterize all possible combinations of recreational opportunities and resources and arrange combinations of activities, setting, and experience along a continuum. The ROS establishes management objectives for recreational activities into six classes, ranging from essentially natural low-use areas (resource-dependent recreational opportunities) to highly developed, intensive use areas (facility/vehicle-dependent recreation opportunities). The six classes are identified as primitive, semiprimitive nonmotorized, semiprimitive motorized, roaded natural, rural, and urban. Once these opportunities have been defined, managers are able to determine which opportunities should be provided and are able to assess the impacts of other resource actions on the recreation resource.

3.7.2 Hunting

Hunting in the area (Management Unit #55) consists mainly of upland game birds, deer, and mountain lion. The IDFG manages hunts within the Proposed Project area. IDFG hunting data from 1990 to 2003 indicates that the area receives moderate use (IDFG 2003b).

3.7.3 Camping

Two developed recreation sites are located on Cotterel Mountain. The Coe Creek picnic site is located at the head of Coe Creek within the Proposed Project area. McClendon Spring Campground is located on the lower east side of Cotterel Mountain, outside of the Proposed Project area. These recreational sites have been upgraded and are considered developed, but use is minimal. Total yearly visits to these sites are estimated to be 700 individuals for Coe Creek, and 1,500 individuals for McClendon Springs.

3.7.4 Off-highway Vehicle Use

OHV use occurs throughout BLM lands in Southern Idaho and can be characterized as either a method of transportation or as recreation use. In the transportation category, OHVs are used to transport people to remote areas for activities such as hunting. In the recreation category, OHVs are often used for touring, sightseeing, family outings, hill climbing, and various competitive events.

OHV use on BLM land has increased substantially in recent years. Current regulation and policy require that BLM manage public land for OHV use by designating areas as open, limited, or closed. The Cassia RMP states that the Proposed Project area is open to snowmobiles, but wheeled vehicle use is limited to existing roads and trails.

3.8 LIVESTOCK GRAZING

The grazing history of the Proposed Project area is similar to that of much of the northwest U.S. prior to the mid-twentieth century. Ranchers throughout southern Idaho and northern Utah have used intermixed private, state, and public lands to support cattle, sheep, and horses. The communities surrounding Cotterel Mountain have a rich history of sheep grazing, but due to changing markets, changes in vegetation, irrigation, and loss of area to development, there is a greater emphasis now on cattle.

In the Proposed Project area, the federal grazing program was initiated with the implementation of the Taylor Grazing Act in 1934, administered by the Grazing Service and the Division of Grazing. The program has since been administered by the BLM and is currently managed by the BFO under the Cassia RMP. The guidelines specific to rangeland management are summarized below:

- Provide allocation of available forage among domestic livestock, and wildlife;
- Reserve sufficient vegetation for maintaining plant health, soil stabilization, wildlife cover, and other non-consumptive uses; and
- Range improvements, grazing systems, and other range management practices would be considered in conjunction with livestock management on allotments.

3.8.1 Livestock use of Grazing Allotments

The Proposed Project area, approximately 11,500 acres, lies within two BLM-administered allotments: North Cotterel and South Cotterel (Table 3.8-1 and Table 3.8-2). Thirty-nine percent

(4,400 acres) of the Proposed Project area is within the North Cotterel allotment. Areas in the allotment are not suitable for livestock grazing due largely to steep slopes and water availability. Currently, the majority of the livestock use is within and adjacent to the Proposed Project area, with the northern portion of the allotment receiving a larger portion of the use due to water availability. The average stocking rate for the North Cotterel allotment is seven acres per AUM; therefore, about 629 AUMs are located within the Proposed Project area boundaries.

Table 3.8-1. Current Grazing Permits in the Proposed Project Area.

Name	Number of livestock/type	Dates of grazing	Percent public land	AUMs
North Cotterel Allotment #5001				
Jeff and Tamara Chatburn	243 cattle	5/20-7/19	80	389
	9 horses	5/20-9/24	100	38
Six S Ranch	377 cattle	5/20-7/31	100	904
	9 cattle	5/20-12/27	100	65
Brigham Young University	5 cattle	4/16 – 10/15	100	30
South Cotterel Allotment #5002				
Helen Anderson	70 cattle	5/01-6/08	100	90
	44 cattle	5/01-9/13	100	197
Blackjack Ranch	5 cattle	5/01-10/12	100	27
Albert Cottle	7 cattle	3/25-4/30	100	9
	8 cattle	2/01-2/28	100	7
Grant Clark	27 cattle	5/01-9/15	100	122
D & K Cattle Co.	41 cattle	5/01-11/30	100	288
Larry and Darlene Kincade	50 cattle	5/01-11/06	100	312
Hank Higley	164 cattle	5/01-9/15	93	692
Ramona Sears	37 cattle	5/01-6/15	100	56
	17 cattle	5/01-9/15	100	77
	1 cattle	5/01-5/31	100	1
Wallace Sears Jr.	8 cattle	5/01-9/30	100	40
Ward Livestock Inc	350 cattle	5/01-5/31	100	357
	130 cattle	5/01-9/30	100	654
	67 cattle	10/1-11/14	100	99
	224 cattle	11/15-12/14	100	221

Table 3.8-2. Grazing Allotment Distribution in the Proposed Project Area.

	Total Acres	Total AUMs
North Cotterel	12163	1680
South Cotterel	30767	3802

Ninety-one percent of the permitted use (AUMs) on the North Cotterel Allotment is from cattle, and occurs from May 20 to July 31. Horse use (3% of the permitted use) occurs from May 20 to

September 24. The remaining use is from cattle (ten head) that are authorized to graze from May 20 to December 27. During recent years approximately 68 percent of the permitted use has not been activated. The remaining 32 percent (both horses and cattle) has been used form mid-May to mid-July.

On the North Cotterel allotment, there are three developed springs, two catchments, and a pipeline system that are fed by a well, which supplies livestock drinking water within the allotment area are found within the Proposed Project. Due to limited water availability, a rotational grazing system is not feasible. However, when adequate water is available, the livestock permittees rotate grazing between the north and south portions of the allotment.

Three ranching operations are permitted to graze livestock on the North Cotterel allotment; however, only two of the three permittees have livestock near or in the Proposed Project area. The third permittee uses the portion of the allotment located on the flats east of Cotterel Mountain. Table 3.8-1 lists the grazing permittees authorized to use the North Cotterel allotment.

Ten ranching operations are permitted to graze livestock on the South Cotterel allotment. Of these ten, nine are authorized for livestock use within the Proposed Project area. The remaining operator uses only the lower elevation pastures in the South Cotterel allotment.

Twenty-one percent (6,490 acres) of the South Cotterel allotment lies within the Proposed Project area. The allotment is divided into eleven pastures. Three of these pastures are located on Cotterel Mountain (mountain pastures) and the remaining eight are on the flats east of Cotterel Mountain (east flats pastures). The Proposed Project area lies within the mountain pasture, specifically the summit pasture. The average stocking rate in the mountain pasture is six acres per AUM; therefore, about 1,082 AUMs are located within the Proposed Project area boundary. Incorporated into the Proposed Project area is the proposed Raft River power line route, which passes through the Coe Creek mountain pasture and the allotment #8 pasture.

A rest-rotation grazing system is implemented on both the upper and lower pastures. Cattle are scheduled to move into the mountain pastures from June 1 to 15 and remain there until about September 30. Annually, livestock grazes two of the mountain pastures and the third is rested. Livestock are in each of the grazed pastures for approximately forty-six days. The lower eight pastures are also managed using a rest-rotation grazing system with two pastures rested annually.

Livestock water in the Summit, Coe Creek, and Allotment #8 pastures are supplied by numerous developed and undeveloped springs found throughout the Proposed Project area (Figure 3.1-2). Coe Creek provides another source of water for livestock in the Coe Creek pasture. Pasture and allotment division fences run across, or are adjacent to, the Proposed Project area.

3.8.2 Rangeland Conditions

Monitoring data is important in evaluating the effects of livestock grazing to identify sites of concentrated use and impact. In addition, key forage species including: bluebunch wheatgrass;

Sandberg's bluegrass; crested and intermediate wheatgrass; as well as invasive species (cheatgrass, juniper, etc.) are monitored to examine short-term and long-term effects on range condition and trend. These range conditions are evaluated based on their departure from Ecological Reference Areas, as stated in the Idaho Standards for Rangeland Health-43 1480, in order to assess if the ecological processes are functioning within a normal range of variability. Range conditions on Cotterel Mountain have not recently been assessed and are not current. Historic range conditions show a slight to moderate dissimilarity with the Ecological Reference Areas. The primary factors affecting ecosystem functionality are decreased amounts of litter, increased bare-ground, and the introduction of invasive species.

3.8.3 Rangeland Improvements

Under the guidance of the Cassia RMP, these allotments, located in Management area 11, are to be managed according to specific objectives created to improve rangelands and provide sustained forage for livestock and wildlife (USDI, BLM 1985). Objectives specific to the North and South Cotterel allotments include:

- Expand dispersed recreation opportunities on approximately 18,000 acres south of the communication facility.
- Manage the area to maintain scenic quality and open spaces.
- Improve 31, 212 acres of poor and fair condition rangeland to good.
- Provide 5,278 acres of forage for livestock.
- Provide forage for the following mule deer by season of use: 403 spring; 403 summer; 403 fall; 563 winter.
- Provide yearlong forage for 127 antelope.
- Maintain or improve 6,414 acres of critical deer winter range and 703 acres of sage-grouse brood-rearing habitat.
- Protect nesting ferruginous hawks from human disturbance.
- Control surface disturbing activities on 5,677 acres having soils with high erosion potential.
- Transfer 440 acres out of federal ownership: 280 acres via private exchange and 160 acres via sale or other disposal method.

Boundary fences and water developments were constructed by permittees and the BLM in the Proposed Project area from 1950 to present. Under the Cassia RMP, permittees are responsible for maintenance of these improvements as assigned.

A rangeland health assessment/evaluation was completed for the South Cotterel allotment in 2004. Vegetation in the Proposed Project area consisted primarily of native plant communities with some exotic species present. In general, the assessment described the range as being healthy, with less than four percent of the range marginally healthy. The assessment described the majority of the range as exhibiting good plant diversity, plant production, and seedling recruitment. Encroaching juniper and

decadent sagebrush are contributing factors in those areas showing marginal rangeland health. A determination as to compliance with the Idaho Standards and Guidelines for Rangeland Health is pending. A rangeland health assessment was also completed for the North Cotterel allotment in 2004, but the written evaluation and determination are pending.

3.8.4 Wildhorses

No wildhorses or burros are found in or managed for in the Proposed Project area.

3.9 VISUAL RESOURCES

3.9.1 Visual Resource Management System

In order for the BLM to meet its responsibility to maintain the scenic values of the public lands, they use a Visual Resource Management (VRM) system. This system defines the levels of scenic value, and provides a way to describe and evaluate landscapes (USDI, BLM 1986a; USDI, BLM 1986b). Different levels of scenic values require different levels of management. For example, management of an area with high scenic value might be focused on preserving the existing character of the landscape. In contrast, management of an area with little scenic value might allow for major modifications to the landscape. Determining how an area should be managed first requires an assessment of the scenic value of the area.

Assessing scenic values and determining visual impacts can be a subjective process. To increase objectivity and consistency, the VRM system describes and evaluates landscapes by using the basic design elements of form, line, color, and texture. This same system can also be used to describe proposed actions. Projects that repeat these design elements are usually in harmony with their surroundings, and those that do not create contrast. By adjusting project designs so that the elements are repeated, visual impacts can be minimized. The VRM system provides a way to identify and evaluate scenic values. It also provides a way to analyze potential visual impacts and apply visual design techniques to ensure that surface-disturbing activities are in harmony with their surroundings. Basically, the VRM system consists of two stages: inventory classification and management classification (USDI, BLM 1986b). The VRM Inventory stage is summarized below, followed by the management classification for the Cotterel Mountain area. The analysis is presented in Chapter 4, Environmental Consequences.

3.9.2 Visual Resource Inventory

The Visual Resource Management Inventory involves identifying the visual resources of an area and assigning them to one of four classes using the BLM visual resource inventory process (USDI, BLM 1986a). The process involves rating the visual appeal of a tract of land, measuring public concern for scenic quality, and determining whether the tract of land is visible from travel routes or observation points. The VRM Inventory Class for an area is determined by using a classification matrix that ranks scenic quality, visual sensitivity, and distance zones (Table 3.9-1). Inventory classes provide a basis for considering visual values in the RMP process, but they do not establish management direction and shouldn't be used as a basis for constraining surface disturbing activities. Visual values are

considered throughout the RMP process, and the visual resources are then assigned to VRM classes with the following established objectives.

Table 3.9.1. Existing VRM Inventory Ratings for the Proposed Project Area.

Scenic Quality Rating Unit	Scenic Quality (raw score)	Visual Sensitivity	Distance Zone	Classification
Unit 202	C = Low (5)	Low-Moderate	Foreground/ middleground	Class IV
Unit 220	B = Moderate (12)	High	Foreground/ middleground	Class II
Unit 243	B = Moderate (12)	Moderate	Background	Class IV
Unit 244	B = Moderate (15)	Moderate	Background	Class IV
Unit 245	C = Low (9)	Low	Foreground/ middleground	Class IV

VRM Class I Objective: To preserve the existing character of the landscape. The level of change to the characteristic landscape should be very low and must not attract attention.

VRM Class II Objective: To retain the existing character of the landscape. The level of change to the characteristic landscape should be low.

VRM Class III Objective: To partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate.

VRM Class IV Objective: To provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high.

Scenic Quality is a measure of the visual appeal of a tract of land. In the visual resource inventory process, public lands are give an A, B, or C rating based on the apparent scenic quality that is determined using seven key factors: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications. During the rating process, each key factor is ranked on a comparative basis with similar features within the area. As an example, within the key factor of landform, prominent cliffs with high, vertical relief would receive a score of 5, while a flat valley bottom would receive a score of 1. Within the defined sensitivity level-rating unit, the rankings of each factor are summed. A, B, or C ratings for scenic quality are assigned as follows:

A = 19 or more;
B = 12-18; and
C = 11 or less.

Visual Sensitivity is a measure of public concern for scenic quality. Public lands are assigned high, medium, or low sensitivity levels for each Scenic Quality Rating Units (SQRU; described below) by analyzing various indicators of public concern, such as: type of users, amount of use, public interest, adjacent land uses, and special areas such as wilderness.

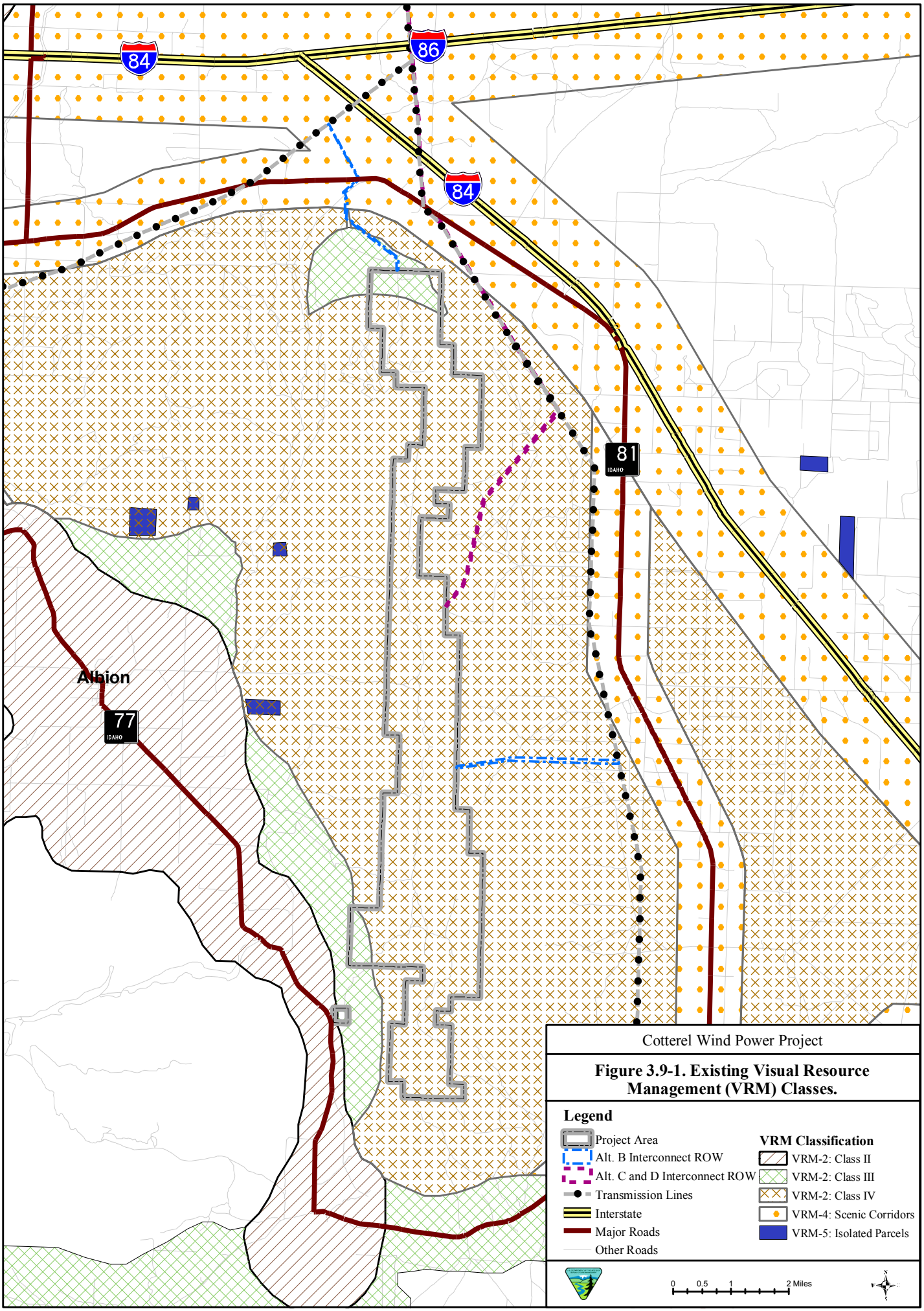
Scenic Quality Rating Units. A planning area is subdivided into map area units called SQRU for visual resource rating purposes. SQRU are delineated on a basis of: like physiographic characteristics; similar visual patterns, texture, color, variety, etc.; and areas which have similar impacts from man-made modifications. The size of SQRU may vary from several thousand acres to 100 or less acres, depending on the homogeneity of the landscape features, and the detail desired in the inventory. Normally, more detailed attention would be given to highly scenic areas or areas of known high sensitivity. Within a planning area, each SQRU is assigned a unique map number.

Distance Zone. Landscapes are subdivided into three distance zones based on relative visibility from travel routes or observation points. The three zones are: foreground-middleground, background, and seldom seen. The foreground-middleground zone includes areas seen from highways, rivers, or other viewing locations that are less than three to five miles away. The background zone is beyond the foreground-middleground zone, but usually less than 15 miles away. The seldom-seen zone includes areas not seen as foreground-middleground or background (i.e., hidden from view).

3.9.3 Management Class Rating for the Cotterel Mountain Area

Management Classes differ from inventory classes in that management classes are assigned through the RMP. Although visual values must be considered throughout the RMP process, the assignment of visual management classes is ultimately based on the management decisions made in the Cassia RMP. For example, an area deemed highly scenic that warrants special management attention may be designated as a scenic Area of Critical Environmental Concern and classified as VRM Class I. Figure 3.9-1 shows the Existing VRM Classes for the Proposed Project area.

All of the Proposed Project area (including access roads) is within the Cassia RMP Management Area 11, which includes VRM Class II, III, and IV. The objective for visual resources within Management 11 is to "manage the area to maintain scenic quality and open space" (USDI, BLM 1986a; USDI, BLM 1986b). All of the proposed turbine strings would fall within VRM Class IV. About one mile of existing access road from the south would pass through VRM Class III. Less than one-tenth of a mile of existing access road from the south would pass through VRM Class II. About 1.5 miles of proposed access road from the north would pass through VRM Class III (Figure 3.9-1). Table 3.9-1 lists the VRM ratings as identified in the Cassia RMP for the proposed turbine string areas, the existing access road, and the proposed access road.


84
86
84
81
IDAHO
Albion
77
IDAHO
Cotterel Wind Power Project
Figure 3.9-1. Existing Visual Resource Management (VRM) Classes.
Legend
Project Area
Alt. B Interconnect ROW
Alt. C and D Interconnect ROW
Transmission Lines
Interstate
Major Roads
Other Roads
VRM Classification
VRM-2: Class II
VRM-2: Class III
VRM-2: Class IV
VRM-4: Scenic Corridors
VRM-5: Isolated Parcels
0
0.5
1
2 Miles

3.10 HAZARDOUS MATERIALS

A hazardous wastes and materials evaluation was conducted to help identify potential issues located within a one-mile vicinity of the Proposed Project area. Information was gathered from federal and state environmental databases through Environmental FirstSearch Technology Corporation. This information was reviewed to evaluate whether activities within or adjacent to the proposed study area have the potential to impact environmental conditions within the Proposed Project area (FirstSearch 2003). There are eight sites located within a one-mile radius of the proposed study area: six underground storage tanks; one leaking underground storage tank; and one Comprehensive Environmental Response Compensation and Liability Act (CERCLA) Information System No Further Remedial Action Planned, Archived Site. The archive designation indicates that, to the best of EPA knowledge, assessment at the site has been completed, and that EPA has determined no further steps will be taken to list this site on the National Priorities List. Each of the eight sites is designated as closed, site cleanup completed, or No Further Remedial Action Planned. A site review of the Proposed Project area was found to be free of obvious environmental degradation within the scope of the hazardous substances and petroleum products identified in the CERCLA.

3.11 FIRE MANAGEMENT

The Proposed Project area is located within the Albion Fire Management Unit (FMU) in the BLM Twin Falls District. The terrain of the Proposed Project area is mountainous with mostly contiguous parcels of BLM managed lands along the ridge tops. Table 3.11-1 illustrates the Fire Management Priority Rankings for the Albion FMU. Communities considered at risk from wildfire that are near the Proposed Project area include Albion, Conner, and Elba. Due to the proximity of the wildland urban interface and key wildlife habitat in the Proposed Project area, all fire management priorities are ranked as high. Wildland fire use is considered not appropriate anywhere within the Albion FMU.

Table 3.11-1. Albion FMU Fire Management Priority Ranking

Suppression	High
Fuels Treatments	High
ESR	High
Community Assistance/ Protection	High

Fires are an intricate component of the development and maintenance of natural plant communities in the western U.S. (Brown 2000). Fire exclusion activities, grazing, and agriculture on public lands from the early 1900s to the present have caused fine fuels to accumulated to higher levels than would have been present with more frequent fires, resulting in more severe fires that burn hotter, and have greater impacts on: soil stability and structure; hydrological function; biotic integrity; and overall community dynamics and functionality (Keeley *et al*. 1999).

This movement away from natural fire regimes has created a need for increased fire management. The National Wildland Fire Plan defines and designates agencies nationally to work together using a cohesive strategy for establishing past conditions, identifying current departure, and recommending

future strategies for achieving desired outcomes. Information from the Cassia RMP and Southern Idaho Fire Management Plan have been used to formulate and define alternatives directly related to the Proposed Project area.

Fire History

Fire plays an essential ecological role in the regeneration and maintenance of a diverse mosaic of healthy cover types across ecosystems. Historically (prior to 1900), the area landscape would have been dominated by vegetation characteristic of Fire Regime Condition Class 1 (FRCC 1; USDI 2004b).

From 1984 to 2003, 290 fires burned 145,233 acres of BLM managed land in the Albion FMU. The Proposed Project area is located in the southern part of the FMU where an increased number of fires are human caused; however, these fires are generally small due to suppression response. Fires caused from lightning strikes are also common. Average fire size on BLM lands within the FMU is 501 acres. A tendency for large, repeated wildland fires is increasing in the FMU.

Fire Ecology

A mosaic of three vegetation cover types dominates the Proposed Project area; mountain shrub, mid-elevation shrub steppe, and juniper, pinyon/juniper mix. Each vegetation type has a corresponding fuel model (FM) that can be used to predict fire behavior. Fuel models in the Proposed Project area are predominantly FM 2, FM 5, and FM 6. Wildfires in the Proposed Project would be carried by one or more of these FMs. Juniper and mid-elevation shrub covertypes typically fall under Historic Fire Regime II (up to 35 years, stand replacement) while the mountain shrub covertype falls under Historic Fire Regime III (35 to 100 years, mixed severity).

Fuel Model 2 - Timber (Grass and Understory):
Fire spread is primarily through the fine herbaceous fuels, either curing or dead. These are surface fires where the herbaceous material, in addition to litter and dead-down stemwood from the open shrub or timber overstory, contribute to the fire intensity. Open shrub lands and pine stands or scrub oak stands that cover one-third to two-thirds of the area may generally fit this model; such stands may include clumps of fuel that generate higher intensities and that may produce firebrands. Some pinyon/juniper may be in this model.

Fuel Model 5 - Brush (2 feet):
Fire is generally carried in the surface fuels that are made up of litter cast by the shrubs and the grasses or forbs in the understory. The fires are generally not very intense because surface fuel loads are light, the shrubs are young with little dead material, and the foliage contains little volatile material. Usually shrubs are short and almost totally cover the area.

Fuel Model 6 - Dormant Brush, Hardwood Slash:
Fire carries through the shrub layer where the foliage is more flammable than FM 5, but this requires moderate winds, greater than eight miles per hour at mid-flame height. Fire can drop to the ground at low wind speeds or at openings in the stand. The shrubs are older, but not as tall as the shrubs types of FM 4, nor do they contain as much fuel as FM 4. This model covers a broad range of shrub conditions. Fuel situations to be considered include intermediate stands of chamise, chaparral, oak brush, low pocosin, Alaskan spruce taiga, and shrub tundra. Even hardwood slash that has cured can be considered. Pinyon/juniper shrublands may be represented but may over-predict rate of spread except at high winds, like 20 miles per hour at the 20-foot level.

Fire Regime Condition Class 3 (FRCC3) dominates the Proposed Project area with small pockets of FRCC2 interspersed.

Fire Regime Condition Class 2 (FRCC2):
Fire regimes on these lands have been moderately altered from their historical range by either increased or decreased fire frequency. A moderate risk of losing key ecosystem components has been identified in these lands. To restore their historical fire regimes, these lands may require some level of restoration as through prescribed fire, mechanical or chemical treatments, and the subsequent reintroduction of native plants.

Fire Regime Condition Class 3 (FRCC3):
These lands have been significantly altered from their historical range. Because fire regimes have been extensively altered, the risk of losing key ecosystem components from fire is high. Consequently, these lands verge on the greatest risk of ecological collapse. To restore their historical fire regimes before prescribed fire can be utilized to manage fuel or obtain other desired benefits these lands may require multiple mechanical or chemical restoration treatments, or reseeding.

Fire Management

The Cassia RMP states that maximum suppression efforts on 18,000 acres south of the Federal Aviation Administration (FAA) communication site are needed to protect resource values and recreational facilities and opportunities. Limited suppression efforts and prescribed burns would be allowed on the 22,967 acres north of the FAA communications tower, in coordination with Clean Air Act regulations.

Wildfires will be aggressively suppressed in the Albion FMU and the full range of Appropriate Management Response is allowed. Fires in the Proposed Project area will be suppressed at less than 500 acres per ignition 90 percent of the time. No more than 80,000 acres of the entire FMU would be allowed to burn (prescribed fire and unplanned wildfire) over a ten-year period, of which 30,000 acres are projected wildland fire acres. Fire would be suppressed using the least amount of surface disturbance necessary. Public lands and resources affected by fire would be rehabilitated in accordance with multiple uses identified in the affected area, subject to available funding. Goals and objectives associated with fire management include allowing fire to resume a more natural ecological

role on BLM lands, reducing fire suppression costs, reducing the number of acres damaged by severe wildfires, and increasing public safety from wildfires. Short-term goals are to reduce hazardous fuels through various treatment methods (mechanical, chemical and prescribed fire) and to re-introduce fire into the ecosystem.

Fire Mitigation Considerations: Emphasis should be focused on prevention, detection, and rapid suppression response and techniques that would reduce unwanted ignitions and threats to life, property, and natural and cultural resources.

Fire Suppression Considerations: Virtually all wildland fires would be actively suppressed except where Wildland Fire Use is determined to achieve resource objectives and where such an activity would not decrease public safety.

Fuel Treatment Considerations: Non-fire treatments are employed. Prescribed fire is allowed everywhere except where specifically excluded in the Cassia RMP. Pile burning of mechanically removed vegetation is acceptable.