

## **CHAPTER 3 – AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

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### **INTRODUCTION**

This section summarizes the existing environmental conditions found within the affected project area and potential changes that may result from implementing the alternatives. Resources associated with the natural, human, and cultural environment were studied and include the following categories:

- Earth and Water Resources
- Biological Resources
- Land Use and Recreation Resources
- Socioeconomics
- Environmental Justice
- Visual Resources
- Heritage Resources
- Air Quality and Noise

The affected environment for the proposed project is discussed as the “study area” unless a resource is known to be affected beyond the limits of the study area. The study area includes all areas within 1 mile on either side of the proposed substation site and assumed centerline of the proposed route. The affected study area includes portions of CNF lands, Arizona State Trust lands, and private lands.

### **PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIVITIES**

For the cumulative effects analysis, the impacts of the Proposed Action when added to other past, present, and reasonably foreseeable future actions were considered within the study area boundary. Depending on the resource, activities considered in this analysis may vary. Tables 3-1 and 3-2 display a general list of past, present, and reasonably foreseeable activities within the study area.

<b>TABLE 3-1 LIST OF PAST AND PRESENT ACTIONS IN THE BLUE RIDGE 69KV TRANSMISSION LINE PROJECT STUDY AREA</b>	
<b>Project Name or Action</b>	<b>Type of Activity</b>
Rural development	Ongoing development of private parcels with homes and other outbuildings
Bar T Bar and Anderson Springs Allotment Management Plans Environmental Impact Statement	Ongoing permitting and management of livestock grazing
Old Elk’s Campground	Concentrated use area for short-term car and trailer camping
Quayle Christmas Tree cutting	2,500 trees permitted to be cut over 5-year period within 26,000-acre area

**TABLE 3-2  
LIST OF REASONABLY FORESEEABLE FUTURE ACTIONS IN THE BLUE RIDGE 69KV  
TRANSMISSION LINE PROJECT STUDY AREA**

<b>Project Name or Action</b>	<b>Type of Activity</b>
Rural development	Ongoing development of private parcels with homes and other outbuildings
Jacks Canyon Sanitation and Parking Improvements	Area (approximately ¾ acre) cleared to provide additional parking; installation of 2 vault toilets

## **EARTH AND WATER RESOURCES**

### **Affected Environment**

#### **General Geology**

The proposed project falls within the Little Colorado River Basin, which is in the southern part of the Colorado Plateau physiographic province (Hart et al. 2002). The Colorado Plateau Province ranges from 4,000 to 9,000 feet above sea level and is characterized by plateaus, mesas, and deep canyons (Chronic 1983). Tectonically, the Colorado Plateau is one of the more stable physiographic provinces in the western United States (Hart et al. 2002).

In the northern portion of the study area, the proposed project crosses sandstone and siltstone of the Triassic Moenkopi Formation. These sedimentary layers dip slightly north toward the Little Colorado River. As the proposed project goes south along SR 87, Kaibab limestone can be found layered within the sandstone. Jacks Canyon, which the proposed route crosses at approximately Milepost 12, has cut through this Kaibab limestone. The east and west Sunset Mountains, located at approximately Milepost 17, are volcanic caps, which have preserved a layer of the dark red Moenkopi Formation. South of the Sunset Mountains, the Moenkopi Formation has been eroded and the Kaibab limestone remains (Chronic 1983).

#### **Soils**

The soils along the proposed route in the Winslow area are generally characterized by the Natural Resource Conservation Service as the Tours-Jocity-Navajo soil map unit (U.S. Department of Agriculture, Natural Resource Conservation Service [USDA NRCS 1994]). These soils are mostly deep and well-drained soils that were formed in mixed alluvium derived from sandstone and mudstone. As the route heads south along SR 87, it crosses a patch of soils in the Epikom-Rock Outcrop map unit at approximately Milepost 4.8 which consists of shallow and very shallow, well-drained, loamy soils over sandstone and limestone. These soils are mainly found on undulating plateaus, mesas, and buttes. From there the route then passes through approximately 5 miles of Purgatory Fine Sandy Loam and Purgatory Gravelly Fine Sandy Loam, which consists of moderately deep and shallow, well-drained soils found on hills and fan terraces. From there, the proposed route occurs on approximately 7 miles of predominantly

Epikom Complex, characterized as loamy, mixed soils developed from alluvial and eolian deposits derived from calcareous sandstone, sandy shale, and pyroclastics (USDA NRCS 1983, Kramer and Green 1999). This section includes slightly less than 1 mile of Winona-Epikom Association. The next approximately 3 miles of the proposed route consist of soils in the Rune-Disterheff Association, followed by several miles more of Epikom Complex, with patches of Winona Gravelly Loam and Winona Stony Loam. Approximately 3.5 miles of the proposed route cross Deama Gravelly Loam and Deama Stony Loam (USDA NRCS 1983). These soils may be generally described as shallow and very shallow, well-drained, loamy soils over sandstone and limestone, and are found on undulating plateaus, mesas, and buttes (USDA NRCS 1983). The portion of the proposed route on the CNF has not been classified by the NRCS. It is assumed that these portions are similar to the areas described above.

## **Water**

There are no natural perennial surface water resources in the study area. Intermittent flows occur in Jacks Canyon and other drainages in response to precipitation events. These are generally short-lived and localized in nature.

The study area falls within the Little Colorado Watershed and Arizona Department of Water Resources (ADWR 2004) Little Colorado Multi-Objective Management Area. This management area covers much of northeastern Arizona. The main drainage for the basin is the Little Colorado River. The Little Colorado River originates in the White Mountains of east-central Arizona and flows 356 miles to the Colorado River (Hart et al. 2002). The Little Colorado River Basin is bordered on the east by the Arizona-New Mexico state line, on the west by SR 89, on the north by the Arizona-Utah state line, and on the south by the Mogollon Rim (Chronic 1983).

The Little Colorado River Watershed includes an area of over 26,294 square miles in northeastern Arizona and northwestern New Mexico. Within this watershed, the proposed project falls within the Middle Little Colorado Subbasin. The Environmental Protection Agency (EPA) Section 303(d) List Fact Sheet for the Middle Little Colorado Watershed shows no total maximum daily load violations for the proposed project area (EPA 2004). Water bearing rocks in the Little Colorado River Watershed consist primarily of sandstone, limestone, and conglomerate. Groundwater in the study area is found in the C aquifer. Groundwater in the C aquifer moves north toward the Colorado River. Within the C aquifer, the Coconino Sandstone, Glorieta Sandstone, De Chelly Sandstone, and De Chelly Sandstone Member of the Cutler Foundation are the main water-bearing units (Hart et al. 2002).

## **Environmental Consequences**

### **Alternative 1 – No Action**

Under the No-Action Alternative, the current soil and water conditions associated with the project area would remain unchanged, and no impacts would occur.

### **Alternative 2 – Proposed Action**

The effects of the proposed activities will be localized, and there will be minimal effects to soil and water resources.

#### **Soils**

Impacts to earth resources from the proposed project are expected to be minimal. Soil disturbance will be kept to a minimum by using overland construction and existing access roads. Temporary disturbance at each pole location will be approximately 10 square feet. Each pulling and tensioning site will be approximately 600 square feet, and approximately 20 pulling and tensioning sites will be required. During construction and maintenance, soil erosion will be minimized by implementing standard construction erosion measures and implementation of site-specific BMPs and Mitigation Measures (as specified in Chapter 2).

#### **Effects Outside of the CNF**

Total acreage disturbed for the construction of the portion of the transmission line off of the CNF would be approximately  $\frac{1}{3}$  acre.

#### **Effects On CNF Land**

Total acreage disturbed for the construction of the portion of the transmission line on the CNF would be less than  $\frac{1}{4}$  acre. Construction of the substation would impact 2 acres. Approximately 1,300 acres of soils on the CNF will be modified by the prescribed burn. The area will be part of a maintenance program with re-entry for prescribed burning occurring every 5 to 7 years. Prescribed fire can have positive effects (nutrient flushes) and negative effects (organic material consumed, increased erosion potential, hydrophobicity, etc.) to soils. In general, the greater the fire intensity (heat and duration), the more damage to soil properties. Fire intensities for prescribed burns are generally low but can cause short-term negative impacts to soils through the loss of the protective litter and duff layer, mild hydrophobicity, and impacts on soil biotic material. Fire intensities for wildfires can vary greatly, ranging from low to extremely high. Depending on the fire intensity, wildfires can cause both short-term and long-term negative

impacts. Use of periodic managed fires can reduce the risk to soils of long-term negative impacts that occur following high-intensity wildfires.

### Water

Impacts to water resources from the Proposed Action are anticipated to be minimal both on and off of the CNF. Minimal changes in drainage patterns are expected. Potential impacts could include impacts to surface water quality during construction, due to either erosion or the accidental release of hazardous materials such as diesel fuel, gasoline, oil, hydraulic fluid, or other fluids and substances from vehicles and equipment during construction. These types of spills could flow into nearby washes and drainages or infiltrate the soil, thereby degrading surface and groundwater quality. These impacts are anticipated to be temporary and very minimal, as all hazardous waste spills will be attended to immediately. Mitigation measures for hazardous materials are summarized in Chapter 2, Table 2-1.

### **Cumulative Effects**

#### **Alternative 1 – No Action**

Implementation of Alternative 1, along with past, present, and reasonably foreseeable actions, would have minimal cumulative effects to soil and water resources.

#### **Alternative 2 – Proposed Action**

There are no other earth-moving related developments being planned in the project vicinity in the foreseeable future that would result in cumulative effects to soil and water resources. In addition, implementation of BMPs and other construction planning activities will effectively reduce the potential negative effects from construction of the Proposed Action. Therefore, implementation of Alternative 2, along with past, present, and reasonably foreseeable actions, would have minimal cumulative effects to soil and water resources.

### **BIOLOGICAL RESOURCES**

This section provides a general description of the existing environment with respect to vegetation, wildlife, and the potential for special status species in the project area. The information provided includes the results of a literature search, secondary data collection from the CNF, the Arizona Game and Fish Department (AGFD) Heritage Data Management System (AGFD 2003a), and field visits conducted on July 14, 2003 and December 15, 2004. The field visits did not include any species-specific surveys, but were performed for reconnaissance purposes. The AGFD provided a project specific list of listed and sensitive species that are known to be present within a 2-mile buffer of the project area (AGFD 2003b). Because the

Arizona branch of the United States Fish and Wildlife Service (USFWS) does not currently provide project specific information, their Internet site was consulted for listed species that could be present within the project area. According to the AGFD (2003b), there is no designated critical habitat within the project area.

## **Affected Environment**

### **Vegetation**

The proposed transmission line route would cross four different biomes (Brown et al. 1979). Beginning at the northern end of the proposed project at the existing substation in Winslow, and progressing south to the proposed Blue Ridge Substation, these biomes include Great Basin Desertscrub, Great Basin/Plains Grassland, Great Basin Conifer Woodland, and Rocky Mountain Conifer Forest. Elevations along the corridor are from 4,850 feet at the Winslow Substation up to approximately 6,680 feet at the proposed Blue Ridge Substation.

#### **Great Basin Desertscrub Biome**

The Great Basin Desertscrub Biome is present for approximately the first 4 miles south of the Winslow Substation.

Great Basin Desertscrub generally has very low species diversity. Within a given plant community, a single dominant shrub often occurs to the exclusion of other woody species (Turner 1982). Plant communities within this biome are dominated by sagebrush (*Artemisia* spp.), shadscale (*Atriplex confertifolia*), blackbrush (*Coleogyne ramosissima*), winterfat (*Krascheninnikovia lanata*), greasewood (*Sarcobatus vermiculatus*), or rabbitbrush (*Chrysothamnus* spp.). These shrubs tend to be highly branched with soft wood and evergreen leaves. Shrubs are often widely spaced, with extensive areas of bare soil (Turner 1982).

#### **Great Basin/Plains Grassland Biome**

This habitat is present from the edge of the Great Basin Desertscrub, south of the Winslow Substation, approximately 18 miles southwest to a point south of East Sunset Mountain.

Great Basin/Plains Grassland covers large areas of northern Arizona, as well as parts of southern Utah, southwestern Colorado, and northern New Mexico. This biome is typically dominated by grasses, in areas that are predominantly flat, open, and above 1,200 meters (3,940 feet) elevation (Brown 1982a). Great Basin Grassland in the region of influence of the proposed Blue Ridge transmission line is bounded at lower elevations by Great Basin Desertscrub and at higher elevations by Great Basin Conifer Woodland. Grass species that are characteristic of Great Basin/Plains Grassland include blue grama (*Bouteloua gracilis*), buffalograss (*Buchloe dactyloides*), Indian ricegrass (*Achnatherum hymenoides*), and galleta grass (*Pleuraphis jamesii*).

Shrub species that may be present include fourwing saltbush (*Atriplex canescens*), winterfat (*Krascheninnikovia lanata*), rabbitbrush (*Chrysothamnus* spp.), and snakeweed (*Gutierrezia* spp.) (Brown 1982a).

### Great Basin Conifer Woodland Biome

Great Basin Conifer Woodland is present on nearly half of the transmission line route from the south edge of the Great Basin/Plains Grassland to a point just north of the proposed Blue Ridge Substation.

Great Basin Conifer Woodland is structurally simple and tends to be present in rocky habitats with thin soil. These woodlands are characterized by unequal dominance of junipers (*Juniperus* spp.) and piñons (*Pinus* spp.). Great Basin Conifer Woodland is generally open-spaced, except at higher elevations and in less xeric sites (Brown 1982b). Other tree and shrub species typical of this community include rabbitbrush, blackbrush, shadscale, black sagebrush (*Artemisia nova*), and shrub live oak (*Quercus turbinella*). A variety of grasses may be present, including galleta (*Pleuraphis* spp.), Indian ricegrass, western wheatgrass (*Pascopyrum smithii*), and muhlys (*Muhlenbergia* spp.) (Brown 1982b).

### Rocky Mountain Conifer Forest Biome

The southern end of the proposed route enters Rocky Mountain Conifer Forest near the proposed Blue Ridge Substation. At the lower edge of the Rocky Mountain Conifer Forest Biome, ponderosa pine (*Pinus ponderosa*) is the dominant overstory plant. Mature ponderosa forests are typically open, with little understory vegetation except annual forbs, grasses, and a few woody shrubs. Gambel oak (*Quercus gambelii*) often grows where gaps are present among the ponderosa (Pase and Brown 1982). Shrubby species typical of this community include Fendler ceanothus (*Ceanothus fendleri*), smooth sumac (*Rhus glabra*), currants (*Ribes* spp.), Arizona rose (*Rosa woodsii*), elderberry (*Sambucus* spp.), and snowberries (*Symphoricarpos* spp.). Some of the forb species that commonly occur with ponderosa pine are yarrow (*Achillea millefolium*), fleabanes (*Erigeron* spp.), fernbush (*Chamaebatiaria millefolium*), elegant cinquefoil (*Potentilla concinna*), bracken fern (*Pteridium aquilinum*), New Mexico groundsel (*Packera neomexicana* var. *neomexicana*), and American deervetch (*Vicia americana*) (Pase and Brown 1982). A wide variety of grass species may be present, including pine dropseed (*Blepharoneuron tricholepis*), bromes (*Bromus* spp.), Arizona fescue (*Festuca arizonica*), prairie junegrass (*Koeleria macrantha*), muhlys, and bluegrass (*Poa* spp.) (Pase and Brown 1982).

### Noxious Weeds

The current noxious weed lists developed by the Arizona Department of Agriculture (ADA) were used as a guideline for weed species that could potentially occur within the project area (ADA 2004a, 2004b). Habitat information for invasive weed species on the ADA lists was

reviewed using Whitson et al. (2000) and Chambers and Hawking (nd). Appendix A contains plants from these lists for which there is suitable habitat available within the project area.

## **Wildlife**

Following is a summary of the wildlife that could occur within the project area. A detailed listing of vertebrate species and their associated habitat(s) may be found in Appendix A.

### Mammals

The variety of habitats that are present along the elevation gradient within the project study area provides for relatively high species diversity potential. Appendix A, Table A-1 lists 54 mammal species that could be present within the project area. Three species of ungulates are present: (1) the American elk (*Cervus elaphus*) in open ponderosa pine forest and piñon juniper woodlands in the vicinity of the proposed Blue Ridge Substation; (2) mule deer (*Odocoileus hemionus*) may occur throughout the project area; and (3) American pronghorn (*Antilocapra americana*) in the Great Basin/Plains grassland habitat. A well-established population of pronghorn is present on Anderson Mesa west of the project area. Because of the presence of these ungulate species, mountain lions (*Puma concolor*) also are likely to be present.

Canids are represented by coyote (*Canis latrans*), kit fox (*Vulpes macrotis*), and gray fox (*Urocyon cinereoargenteus*). Porcupine (*Erethizon dorsatum*) and Abert's squirrel (*Sciurus aberti*) are closely tied to the ponderosa pine forest habitat and are present at the southern end of the project area. Numerous rodent species are present in the project area. Hoffmeister (1986) lists records for many species of mammals taken in Jacks Canyon.

The presence of cliffs and crevices in Jacks and Clear Creek canyons, potential karst features in the Kaibab limestone, permanent water available at Clear Creek, coniferous forest, and riparian habitats provides suitable habitat for a variety of species of bats. Many of these bats would probably only be present in the project area during nocturnal foraging activity, but also may roost in trees along the route.

### Birds

Approximately 128 species of birds may be present in the project area (Appendix A). This diversity is a reflection of the variety of habitats represented in the four biomes present on the project. The Mexican spotted owl (*Strix occidentalis lucida*), a federally listed threatened species, is known from Jacks Canyon west of the project area. The bald eagle (*Haliaeetus leucocephalus*), a federally listed threatened species (proposed for delisting), is known in the vicinity and uses Long, Soldier Annex, and Tremaine lakes west of the project (Spaeth 2003a). The northern goshawk (*Accipiter gentilis*) and the American peregrine falcon (*Falco peregrinus*)

*anatum*), each a federal species of concern as well as Forest Service sensitive species, are known to utilize the area. These four bird species are discussed in the species accounts section below.

Some of the species characteristic of Rocky Mountain coniferous forest that are known, or would be expected to be present, are as follows:

- wild turkey (*Meleagris gallopavo*)
- Steller's jay (*Cyanocitta stelleri*)
- pygmy nuthatch (*Sitta pygmaea*)
- Western bluebird (*Sialia mexicana*)
- flammulated owl (*Otus flammeolus*)
- broad-tailed hummingbird (*Selasphorus platycercus*)
- yellow rumped and Grace's warblers (*Dendroica coronata* and *D. graciae*)
- hepatic and western tanagers (*Piranga flava* and *P. ludoviciana*)
- dark-eyed junco (*Junco hyemalis*)
- red crossbill (*Loxia curvirostra*)
- pine siskin (*Carduelis pinus*)

Bird species of the Great Basin Conifer Woodland habitat include piñon jay (*Gymnorhinus cyanocephalus*), gray flycatcher (*Empidonax wrightii*), Gray vireo (*Vireo vicinior*), black-throated gray warbler (*Dendroica nigrescens*), juniper titmouse (*Baeolophus ridgwayi*), and Scott's oriole (*Icterus parisorum*). Typical Great Basin/Plains Grassland species likely to be present include prairie falcon (*Falco mexicanus*) and western burrowing owl (*Athene cunicularia hypugaea*). Some of the species that are representative of Great Basin Desertscrub habitat that may be present within the project area include turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), common raven (*Corvus corax*), northern mockingbird (*Mimus polyglottos*), mourning dove (*Zenaida macroura*), great-horned owl (*Bubo virginianus*), Say's phoebe (*Sayornis saya*), ash-throated flycatcher (*Myiarchus cinerascens*), western kingbird (*Tyrannus verticalis*), loggerhead shrike (*Lanius ludovicianus*), Brewer's sparrow (*Spizella breweri*), horned lark (*Eremophila alpestris*), and sage sparrow (*Amphispiza belli*).

### Amphibians and Reptiles

Due to the lack of any permanent water sources within the project area, few amphibian species would be expected to occur here. However, because of their ability to aestivate during long periods of drought, the Great Plains toad (*Bufo cognatus*), red-spotted toad (*B. punctatus*), and plains and Mexican spadefoot toads (*Spea bombifrons* and *S. multiplicata*) are likely to be present.

A rather wide variety of species of reptiles are likely to be present within the area. Species that are typical of the Rocky Mountain conifer forest biome include the many-lined skink (*Eumeces multivirgatus*), ring-necked snake (*Diadophis punctatus*), Sonoran mountain kingsnake (*Lampropeltis pyromelana*), western terrestrial garter snake (*Thamnophis elegans*), and western

rattlesnake (*Crotalus viridis*). Only the plateau striped whiptail (*Cnemidophorus velox*) is representative of the Great Basin conifer woodland biome, although other species with wider habitat ranges are certainly present. The Great Plains grassland biome is typified by the presence of several species of reptiles including the lesser earless lizard (*Holbrookia maculata*), southern plateau lizard (*Sceloporus undulatus tristichus*), Great Plains skink (*Eumeces obsoletus*), coachwhip (*Masticophis flagellum*), and western rattlesnake (*Crotalus viridis*). Great Basin desertscrub habitat within the project area could host species typical of that habitat, including collared lizard (*Crotaphytus collaris*), sagebrush lizard (*Sceloporus graciosus*), common side-blotched lizard (*Uta stansburiana*), Painted Desert whiptail (*Cnemidophorus tigris septentrionalis*), western terrestrial garden snake, and western rattlesnake.

Invertebrates

None of the species of invertebrates listed as federal species of concern in the Arizona Heritage Data Management System (AGFD 2003a) should be present in the area. This absence is due primarily to the lack of suitable habitat for any of these species.

**Special Status Species**

Threatened, endangered, or other sensitive species of animals and plants that are known to be present in either Coconino or Navajo counties, Arizona, and that were reviewed for potential occurrence within the project area are listed in Table 3-3. Special status species that are known to be present, or that were determined to have a moderate or better potential for presence within the project study area are highlighted in gray in Table 3-3. These species are discussed in the species accounts section following the table.

TABLE 3-3 SPECIAL STATUS WILDLIFE AND PLANT SPECIES KNOWN FROM COCONINO OR NAVAJO COUNTIES					
Common Name	Scientific Name	Status	Habitat	Study Area Occurrence	
				Known	Potential
<b>MAMMALS</b>					
Hualapai Mexican Vole	<i>Microtus mexicanus hualpaiensis</i>	FE, WSC	Dry grassy habitats adjacent to ponderosa pine, Hualapai Mountain and Prospect Valley.	No	Low
Pale Townsend's Big-eared Bat	<i>Plecotus townsendii</i>	FSC	Roosts in mines, caves, or structures from low desert up into pines.	No	Moderate
Allen's Big-eared Bat	<i>Idionycteris phyllotis</i>	FSC	Roosts in mines, caves, and snags in mid-elevation forests.	No	Moderate
Western Small-footed Myotis	<i>Myotis leibii (ciliolabrum)</i>	FSC	Utilizes a variety of roost types, usually above 3,500 feet.	No	Moderate
Long-eared Myotis	<i>Myotis evotis</i>	FSC	Utilizes a variety of roost types in pine or spruce fir forests.	No	Moderate

**TABLE 3-3  
SPECIAL STATUS WILDLIFE AND PLANT SPECIES KNOWN  
FROM COCONINO OR NAVAJO COUNTIES**

Common Name	Scientific Name	Status	Habitat	Study Area Occurrence	
				Known	Potential
Occult Little Brown Bat	<i>Myotis lucifugus occultus</i>	FSC	Oak-pine to ponderosa elevations, usually near a water source.	No	Moderate
Fringed Myotis	<i>Myotis thysanodes</i>	FSC	Utilizes a variety of roost types, typically in oak and piñon elevations.	No	Moderate
<b>BIRDS</b>					
Bald Eagle	<i>Haliaeetus leucocephalus</i>	FT (PDL), USFSS, BEA, WSC	Lakes, riparian areas. Bald eagles have exhibited heavy use of Long, Soldier Annex, and Tremaine lakes west of the project.	Yes	
Northern Goshawk	<i>Accipiter gentilis</i>	FSC, USFSS, WSC	Mature dense forest at high elevation, usually with large old growth trees.	Yes	
Common Black Hawk	<i>Buteogallus anthracinus</i>	USFSS, WSC	Nests in cottonwoods in riparian areas.	No	Low
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	FSC, USFSS, WSC	Areas with cliffs for nesting and perching near waterbodies.	Yes	
Western Burrowing Owl	<i>Athene cunicularia hypugaea</i>	FSC	Open areas of low slope where low vegetation provides good visibility. Usually associated with colonial burrowing rodents.	No	Low
Mexican Spotted Owl	<i>Strix occidentalis lucida</i>	FT, WSC	Dense forest, coniferous and hardwood, steep-walled canyons, Jacks Canyon.	Yes	
Southwestern Willow Flycatcher	<i>Empidonax traillii extimus</i>	FE, USFSS, WSC	Willow, tamarisk thickets in riparian areas.	No	None
<b>AMPHIBIANS</b>					
Chiricahua Leopard Frog	<i>Rana chiricahuensis</i>	FT, WSC	Rocky streams with deep pools in oak and pine-oak woodlands and pine forests. Mountainous areas of southeast Arizona, southwest New Mexico, and Mexico.	No	None
Plains Leopard Frog	<i>Rana blairi</i>	WSC	Found in shallow, often muddy water of ponds, playas, and streams, from grassland to oak-pine elevations. May breed in temporary waters.	No	None
Northern Leopard Frog	<i>Rana pipiens</i>	USFSS, WSC	Usually associated with permanent water with aquatic vegetation, from grassland to high elevations.	No	None
Arizona Toad	<i>Bufo microscaphus</i>	FSC, USFSS	Rocky streams and canyons in oak-pine woodland in the Mogollon Rim area.	No	None

**TABLE 3-3  
SPECIAL STATUS WILDLIFE AND PLANT SPECIES KNOWN  
FROM COCONINO OR NAVAJO COUNTIES**

Common Name	Scientific Name	Status	Habitat	Study Area Occurrence	
				Known	Potential
<b>FISH</b>					
Apache Trout	<i>Onchorhynchus apache</i>	FT, WSC	High elevation—cold, clear streams.	No	None
Humpback Chub	<i>Gila cypha</i>	FE, WSC	Swift rocky runs, flowing pools, Little Colorado River, Colorado River (designated critical habitat).	No	None
Loach Minnow	<i>Tiaroga cobitis</i>	FT, USFSS, WSC	Bottom-feeding species that occurs in gravelly riffles in small to medium-sized streams and rivers.	No	None
Spikedace	<i>Meda fulgida</i>	FT, USFSS, WSC	Non-turbulent waters of moderate to shallow depth over substrates of finer sediments.	No	None
Razorback Sucker	<i>Xyrauchen texanus</i>	FE, USFSS, WSC	Eddies, backwaters, deeper water, over sand, mud or gravel, Colorado River (designated critical habitat), Lake Mohave, San Juan River (designated critical habitat).	No	None
Little Colorado Sucker	<i>Catostomus</i> sp. 3	FSC, USFSS, WSC	North-flowing tributaries of the Little Colorado River drainage including Clear Creek.	No	None
Little Colorado River Spinedace	<i>Lepidomeda vittata</i>	FT, USFSS, WSC	Larger pools with flowing water, over fine gravel bottoms.	No	None
<b>INVERTEBRATES</b>					
Kanab Ambersnail	<i>Oxyloma haydeni</i>	FE, USFSS	Restricted to wetlands, seeps, and springs. Only two known populations – Three Lakes, near Kanab, Utah, and Vasey’s Paradise, Grand Canyon, Arizona.	No	None
<b>PLANTS</b>					
Welsh’s Milkweed	<i>Asclepias welshii</i>	FT, HS	Semi-stabilized and actively shifting sand dunes; open, sparsely vegetated.	No	None
Sentry Milkvetch	<i>Astragalus cremnophylax</i> var. <i>cremnophylax</i>	FT, HS	Limestone cliffs at South Rim of Grand Canyon, 7,000 feet.	No	None
Gladiator Milkvetch	<i>Astragalus xiphoides</i>	FSC	Along washes or floodplains associated with sandstone and clay bluffs. Petrified Forest area west to Winslow.	No	Low
Navajo Sedge	<i>Carex specuicola</i>	FT, HS	Vertical cliffs of Navajo sandstone, seep-springs.	No	None

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SPECIAL STATUS WILDLIFE AND PLANT SPECIES KNOWN  
FROM COCONINO OR NAVAJO COUNTIES**

Common Name	Scientific Name	Status	Habitat	Study Area Occurrence	
				Known	Potential
Tusayan Rabbitbrush	<i>Chrysothamnus molestus</i>	FSC, USFSS	Found in open piñon-juniper grasslands.	No	Moderate
Heathleaf Wild-buckwheat	<i>Eriogonum ericifolium</i> var. <i>ericifolium</i>	USFSS	3,000 to 6,500 feet. Yavapai, Coconino, and Navajo counties, Arizona.	No	Low
Ripley Wild-buckwheat	<i>Eriogonum ripleyi</i>	FSC, USFSS	Tertiary lake bed sediments, or calcareous soils in creosote, or up into piñon-juniper habitat.	No	Low
Flagstaff Pennyroyal	<i>Hedeoma diffusum</i>	USFSS	Shallow soils of erosional pockets in limestone, or rock pavements of sandstone at 4,500 to 7,140 feet.	No	Moderate
Eastwood Alum Root	<i>Heuchera eastwoodiae</i>	USFSS	Shaded rock outcrops, generally between 5,000 and 6,000 feet.	No	Low
Brady Pincushion Cactus	<i>Pediocactus bradyi</i>	FE, HS	Kaibab limestone with overlying soils derived from Moenkopi shale and sandstone outcrops, Great Basin Desertscrub.	No	None
Peebles Navajo Cactus	<i>Pediocactus peeblesianus</i> var. <i>peeblesianus</i>	FE, HS	Gravelly soils of Shinarump conglomerate, sparsely scattered shrubs, 5,400 to 5,600 feet.	No	None
Siler Pincushion Cactus	<i>Pediocactus sileri</i>	FT, HS	Desert hills, transitional areas between Navajoan, Mojave, and Sagebrush deserts. 4,700 to 5,000 feet, Hurricane Cliffs, Pipe Spring, Fredonia.	No	None
Flagstaff Beardtongue	<i>Penstemon nudiflorus</i>	USFSS	Ponderosa pine forest habitat, generally 4,500 to 7,000 feet elevation.	No	Moderate
Welsh phacelia	<i>Phacelia welshii</i>	FSC	Cold desert shrub communities at 4,250 to 5,100 feet on Moenkopi Formation or black volcanic ash.	No	Low
San Francisco Peaks Groundsel	<i>Senecio franciscanus</i>	FT, HS	Talus slopes, spruce-fir or bristlecone pine forests.	No	None
Tusayan Flame Flower	<i>Talinum validulum</i>	FSC	Piñon-juniper to ponderosa pine habitat on shallow-rocky, clayey soils derived from basalt or Kaibab limestone.	No	Moderate



## Mexican Spotted Owl (*Strix occidentalis lucida*)

### Status

Federal	Threatened
Forest Service	Sensitive
State	Wildlife Species of Concern

Throughout most of their range, Mexican spotted owls are usually found in steep canyons with mature or old growth forest, generally in mixed conifer or pine-oak habitat. This is particularly true for the Mogollon Rim area, but south of the Mogollon Rim they may also be found in canyons with steep cliffs and relatively little forest habitat. They have been reported at elevations ranging from 3,700 to 9,600 feet (Ganey 1998). They are not present in the arid southwestern part of the state (Ganey 1998).

Spotted owls are nocturnal ambush hunters feeding mainly on rodents and lagomorphs (Ganey 1998; Ehrlich et al. 1988). In Arizona, Mexican spotted owls feed on woodrats, white-footed mice (*Peromyscus leucopus*), voles (*Microtus* spp.), rabbits, and pocket gophers (*Thomomys* spp.) (Ganey 1998).

Mexican spotted owls are known to be present west of the proposed Blue Ridge Transmission Line where several pairs of owls have historically been recorded in the upper reaches of Jacks Canyon west of SR 87. There are currently 22 designated territories for the Mexican spotted owl on the Mogollon Rim Ranger District (MRRD) (Spaeth 2003a). There are three known Protected Activity Areas in Jacks Canyon—CNF #040727, #040728, and #040729—(Spaeth 2003a). All nest and roost locations within these Protected Activity Areas are in the canyon proper, or very near its edge (Spaeth 2003a). Forest Service wildlife biologists performed surveys for Mexican spotted owls in areas of suitable habitat, and surveyed areas of potentially suitable owl habitat in 2003 and 2004. No Mexican spotted owls were found to be present in the project area during these two consecutive annual surveys (Spaeth 2003a, 2003b; Taylor 2004a).

### Non-Federally Listed Species

#### Pale Townsend's Big-eared Bat (*Plecotus townsendii*)

### Status

Federal	Species of Concern
Forest Service	None
State	None

The pale Townsend's big-eared bat normally roosts in mines or caves, and typically returns to the same roosts each year (Harvey et al. 1999). It is probably the bat species most frequently encountered in caves and mines in the western United States (Barbour and Davis 1969). The pale Townsend's big-eared bat is found from low desert up into coniferous forest (Hoffmeister 1986). Colonies of pale Townsend's big-eared bats usually occur in groups of about a dozen, up to a

couple of hundred bats (Barbour and Davis 1969; Nevada Bat Working Group [NBWG] 2003). Many references have stated that the pale Townsend's big-eared bat prefers moths to other prey (Barbour and Davis 1969; Harvey et al. 1999; NBWG 2003). However, other records indicate a variety of prey in their diet (Schmidly 1991).

Pale Townsend's big-eared bats evidently hibernate in Arizona and are one of the few bats that are present year-round (Hoffmeister 1986). These bats are highly sensitive to disturbance, and they will relocate within a mine or cave and eventually abandon the roost as a result of repeated disturbance (Barbour and Davis 1969; Schmidly 1991).

The pale Townsend's big-eared bat is a locally common bat species over a relatively wide elevation range, and is likely to be present within the project area. Suitable habitat elements for this species are present within the project area in the form of karst features and rocky cliffs with crevices, particularly in the Jacks Canyon and Clear Creek drainages. Other suitable roosts could exist in dead tree snags.

#### Allen's Big-eared Bat (*Idionycteris phyllotis*)

##### Status

Federal            Species of Concern

Forest Service None

State              None

Allen's big-eared bat is primarily a species of mid-elevation forests. It roosts in mines, caves, rock shelters, and large dead snags (Barbour and Davis 1969; Hoffmeister 1986). This species frequents the middle elevations for most of the year, but it may be found at lower elevations in creosote bush habitat in the winter (Harvey et al. 1999; NBWG 2003).

Suitable habitat for this species is present within the project area in the form of karst features, and rocky cliffs and crevices in the Jacks Canyon and Clear Creek drainages. The species could also utilize dead tree snags for roosting. Allen's big-eared bat would most likely occur in the Great Basin conifer woodland habitat, but could be present at lower elevations in winter.

#### Western Small-footed Myotis (*Myotis leibii* [*ciliolabrum*])

##### Status

Federal            Species of Concern

Forest Service None

State              None

The western small-footed bat roosts in a variety of habitats: crevices in rocky cliffs, holes in embankments, mines and caves, talus piles, under bark, in buildings, trees, and even under rocks on the ground (Bat Conservation International [BCI] 2002; Barbour and Davis 1969; Harvey et

al. 1999; Hoffmeister 1986; NBWG 2003). The western small-footed bat feeds on a variety of small insects. Insect prey that have been recorded are true bugs, leafhoppers, ants, moths, beetles, and flies (Barbour and Davis 1969; Harvey et al. 1999; NBWG 2003).

The western small-footed myotis could be present within the project area utilizing the rocky cliffs and crevices in the Jacks Canyon and Clear Creek drainages. Mines, karst features, and trees also could be utilized as roosts.

#### Long-eared Myotis (*Myotis evotis*)

##### Status

Federal	Species of Concern
Forest Service	None
State	None

The long-eared myotis is a bat of forested areas, from mid-elevations up to sub-alpine habitat (Barbour and Davis 1969; Harvey et al. 1999; Nowak 1994). However, if suitable roosting sites are available, they also may occur in shrublands, sage, or chaparral habitats (Harvey et al. 1999). In Arizona the long-eared myotis is found in ponderosa pine or spruce-fir forests (Hoffmeister 1986). These bats are known to seek shelter in buildings, hollow trees, under bark of trees, and in mines and caves (Barbour and Davis 1969; Harvey et al. 1999).

The long-eared myotis is most likely to be present only in the upper elevations along the project route within the Rocky Mountain conifer forest habitat, where it could utilize a variety of roost types within the ponderosa pine stands in the vicinity of the proposed Blue Ridge Substation.

#### Occult Little Brown Bat (*Myotis lucifugus occultus*)

##### Status

Federal	Species of Concern
Forest Service	None
State	None

The occult little brown bat is generally a bat of higher elevations, from the oak-pine zone up into ponderosa forest. They are sometimes encountered in riparian habitats at lower elevations (BCI 2002; Hoffmeister 1986; NBWG 2003). In Arizona, this bat is found only at higher elevations in the Mogollon Rim area of central Arizona, and on the north rim of the Grand Canyon.

The occult little brown bat roosts in buildings and other man-made structures, under bark or in hollows of dead trees, in rock outcroppings, and occasionally in mines and caves (BCI 2002; Harvey et al. 1999; Hoffmeister 1986; NBWG 2003).

The occult little brown bat seems to have a preference for foraging over water, and may require water near its roost (Harvey et al. 1999; NBWG 2003). When foraging over water, their primary prey are the adult stages of aquatic insects such as mayflies, caddisflies, mosquitoes, and midges. Away from water sources, they will forage in open meadows at the edge of, or along trails through, wooded areas. Here they are more likely to feed on moths, beetles, and other insects (BCI 2002; NBWG 2003).

The occult little brown bat could be present in the higher elevations of the project area where it could utilize a variety of roost types that are available. This species would probably be closely associated with the water available in the adjacent Clear Creek drainage, and would be unlikely to forage far from this water source.

#### Fringed Myotis (*Myotis thysanodes*)

##### Status

Federal	Species of Concern
Forest Service	None
State	None

The fringed myotis is named for the fringe of short hairs present at the posterior edge of its interfemoral membrane. The fringed myotis occurs in a wide variety of habitats from creosote bush in the low desert up into coniferous forests, but it is most common in oak or piñon woodlands (Barbour and Davis 1969; Harvey et al. 1999; NBWG 2003). It has seldom been observed in the lower desert areas, below about 2,500 feet (NBWG 2003). It roosts in mines, caves, rock crevices, trees, and buildings (Barbour and Davis 1969; Hoffmeister 1986; Schmidly 1991). Fringed myotis are widespread but uncommonly encountered bats. They will group in clusters of up to 300 bats in maternity sites in mines or caves (Barbour and Davis 1969). They feed on various insects, but seem to select small beetles and moths (Harvey et al. 1999; NBWG 2003). The fringed myotis is very sensitive to roost disturbance, and the primary threat to this species is destruction of roosting sites (NBWG 2003).

The fringed myotis is most likely to be present along the transmission line route in the Great Basin conifer woodland habitat among piñon, oak, and juniper trees. This species could utilize a variety of roosts including rock crevices in Jacks and Clear Creek canyons, mine or karst features, trees, or buildings.

#### Northern Goshawk (*Accipiter gentilis*)

##### Status

Federal	Species of Concern
Forest Service	Sensitive
State	Wildlife Species of Concern

Northern goshawks typically inhabit coniferous, deciduous, or mixed forests, often in remote locations where old growth forest with large trees is present. They also may be present at forest edges, in riparian corridors, and in aspen groves of moderate to large size (AOU 1998; Glinski 1998). In Arizona during winter, there is some movement of juvenile birds to lower elevations (Glinski 1998).

Northern goshawks in the southern portion of their range, which includes Arizona, have relatively stable populations since their prey base is generally dependable. In Arizona, the northern goshawk preys primarily on small mammals such as squirrels and rabbits, but frequently takes birds such as pigeons, doves, northern flickers (*Colaptes auratus*), and jays. In the mountains of the southeastern portion of the state they readily take Montezuma quail (*Cyrtonyx montezumae*) (Glinski 1998).

There are recent records of goshawks nesting in the vicinity of the project study area—one nest site is less than ¼ mile east of the line, north of the proposed Blue Ridge Substation (Taylor 2004c). However, field surveys for this species conducted in the project area in 2003 and 2004 by the Forest Service found that no goshawks are currently present (Spaeth 2003a; Taylor 2004a). The proposed transmission line would pass through an historic goshawk post-fledging family area. This post-fledging family area (CNF #040712) has not been occupied for several years and no goshawks were detected during monitoring in 2003 or 2004 (Spaeth 2003b; Taylor 2004a). It is suspected that this post-fledging family area may have been abandoned due to the proximity of a recently constructed housing development (Spaeth 2003b).

Rocky Mountain conifer forest habitat is present along the proposed transmission line route for approximately 3 miles north of the Blue Ridge Substation site. Construction of the right-of-way to reach the Blue Ridge Substation would require clearing of approximately 3 miles of relatively undisturbed habitat in the CNF. Potential suitable habitat for goshawks could be present in this 3-mile section where suitable large nesting trees are present.

#### American Peregrine Falcon (*Falco peregrinus anatum*)

##### Status

Federal            Species of Concern

Forest Service Sensitive

State              Wildlife Species of Concern

In Arizona the peregrine falcon occurs statewide as a migrant, transient, and/or wintering species (Wheeler 2003), but only the *anatum* subspecies breeds in Arizona (AGFD 1996). Their increased population in the Grand Canyon in the last 20 years may have greatly reduced the presence of the American kestrel (*Falco sparverius*) there (Glinski 1998). Nesting territories utilized by peregrines in the Grand Canyon may be in full utilization, and it is thought that this may explain the decline in the number of American kestrels there over the last 20 years (Glinski 1998). Summer records include sightings of juveniles northeast of Yuma in 1978 and near Parker in 1979 and of an adult in 1982 near Palo Verde (Rosenberg et al. 1991).

Peregrines usually inhabit open wetlands near cliffs, but also occur in mountainous regions where cliffs and canyons provide nesting habitat. They also live in cities with tall buildings or bridges (NGS 2002; Wheeler 2003). They nest throughout Arizona, even at some distance from water (Monson and Phillips 1981). Their diet is primarily comprised of birds, which they catch in mid-air (Phillips et al. 1964). They eat doves and pigeons, but also waterfowl, shorebirds, and passerines (Ehrlich et al. 1992). However, in the lower latitudes of their range they may take various species of bats (Wheeler 2003).

Suitable nesting habitat is not present in the immediate vicinity of the project, so it is unlikely the species nest there. Peregrine falcons are likely to be present within the project area at any time, but would be more likely during migration in spring (March-April) or fall (September-October) (Glinski 1998). There are two known peregrine aeries in the Clear Creek drainage east of the project. One of these aeries is approximately 2 miles from the project area. Peregrines using these aeries could forage in the project area (Spaeth 2003b). No impacts would occur to the Clear Creek aeries as a result of construction or operation of the transmission line. No nesting habitat for this species is present within the construction right-of-way.

Peregrines could be injured or killed by collision with power line wires. Electrocutions of peregrines associated with transmission lines are known but uncommon (Avian Power Line Interaction Committee [APLIC] 1996).

#### Tusayan Rabbitbrush (*Chrysothamnus molestus*)

##### Status

Federal	Species of Concern
Forest Service	Sensitive
State	None

Tusayan rabbitbrush is a perennial woody shrub of the composite family. Rabbitbrush species are of little forage value, but have been used by Native Americans for basketry, dyes, and in the construction of windbreaks (Kearney and Peebles 1960). Tusayan rabbitbrush is confined to 21 remaining populations on the Coconino Plateau of northern Arizona. It prefers a limestone-derived soil substrate in piñon-juniper woodland and associated grasslands and shrublands, generally above 5,500 feet elevation (Kearney and Peebles 1960; Missouri Botanical Garden [MBG] 2004; USFWS 1995).

Tusayan rabbitbrush could be present within the project area in piñon-juniper habitat in the Great Basin conifer woodland or in associated grassland habitats within upper elevations of the Great Basin/Plains Grassland Biome. Spot checks for this species in the vicinity of the project area were performed by the Forest Service/MRRD and none of the plants were found (Taylor 2004b).

Flagstaff Pennyroyal (*Hedeoma diffusum*)

Status

Federal           None  
Forest Service Sensitive  
State               None

Flagstaff pennyroyal is a low, herbaceous perennial plant that forms circular mats to 10 inches in diameter that produces numerous lateral shoots. The plants have an odor of turpentine and produce blue five-petaled flowers between May and August (September) (AGFD 2003c; ARPC 2001; Kearney and Peebles 1960). The plants prefer shallow limestone-derived soils, and are often found in solution pockets of limestone bedrock, or in bedrock cracks or at the edges of boulders in ponderosa pine or juniper forest between 4,500 and 7,140 feet in elevation (AGFD 2003c; ARPC 2001).

This species is recorded from Coconino and Yavapai counties, but is primarily found in the vicinity of Flagstaff. Flagstaff pennyroyal could be present within the project area on limestone-derived soils in the juniper or ponderosa habitats.

Flagstaff Beardtongue (*Penstemon nudiflorus*)

Status

Federal           None  
Forest Service Sensitive  
State               None

Flagstaff beardtongue is recorded south of the Colorado River in Coconino, Mohave, and Yavapai counties. Plants are found on dry slopes in ponderosa pine forests from 4,500 to 7,000 feet in elevation (Kearney and Peebles 1960; Rickett 1970). The plants have thick bluish-green leaves and produce lavender flowers, up to an inch or more in length, between June and August.

Suitable habitat for the Flagstaff beardtongue is present within the project area as dry ponderosa forest, and this species could be present.

Tusayan Flame Flower (*Talinum validulum*)

Status

Federal           Species of Concern  
Forest Service None  
State               None

Tusayan flame flower is a low succulent perennial with woody stems. The branches that are produced annually tend to grow horizontally. The plants have small-diameter succulent leaves up

to 1½ inches in length that are round in cross-section. The leaves eventually turn reddish, and this is the derivation of the common name for the plant. Flowers that are white to pale pink are generally produced between August and September in response to the summer rains, but the plants may also bloom in May (AGFD 2002).

The Tusayan flame flower is known primarily from areas just south of the Colorado River at the south rim of the Grand Canyon, and from several locations in south-central Coconino and northern Yavapai counties. Although these locations are at least 40 miles west of the project area, there is a historical record from the CNF, and suitable habitat for the species is present. The Tusayan flame flower could occur within the project corridor (AGFD 2002). Spot checks for this species in the vicinity of the project area were performed by the Forest Service/MRRD and none of the plants were found (Taylor 2004b).

### Management Indicator Species

Based on habitat types that will be crossed by the transmission line route, there are nine Forest Service designated Management Indicator Species (MIS) that could be found within the project area. These species are Abert squirrel (*Sciurus aberti*), American elk (*Cervus elaphus*), mule deer (*Odocoileus hemionus*), pronghorn (*Antilocapra americana*), northern goshawk (*Accipiter gentilis*), wild turkey (*Meleagris gallopavo*), hairy woodpecker (*Picoides villosus*), juniper titmouse (*Baeolophus ridgwayi*), and pygmy nuthatch (*Sitta pygmaea*). Table 3-4 lists the species, their associated habitat, forest-wide habitat trends and population trends for MIS species that could be present in habitats crossed by the transmission line. Further information on MIS species in relation to the Proposed Action is included in the project record [PR 14].

<b>Management Area</b>	<b>Species</b>	<b>Habitat</b>	<b>Forest-wide Habitat Trends</b>	<b>Forest-wide Population Trends</b>
MA 3 Ponderosa Pine/Mixed Conifer <40% Slope	Abert Squirrel	Early seral ponderosa pine	increasing	inconclusive
MA 3	Northern Goshawk	Late seral ponderosa pine	declining	inconclusive
MA 3	Pygmy Nuthatch	Late seral ponderosa pine	declining	stable
MA 3	Wild Turkey	Late seral ponderosa pine	declining	stable
MA 3, MA 7 Piñon-juniper Woodland <40% Slopes	American Elk	Early seral ponderosa pine, and mixed conifer	increasing	declining
MA 3	Hairy woodpecker	Snag component	ponderosa snags declining; mixed conifer snags increasing	stable-to-slightly increasing

**TABLE 3-4  
CNF MANAGEMENT INDICATOR SPECIES**

<b>Management Area</b>	<b>Species</b>	<b>Habitat</b>	<b>Forest-wide Habitat Trends</b>	<b>Forest-wide Population Trends</b>
MA 7	Mule deer	Early seral piñon-juniper	declining	declining
MA 7	Juniper titmouse	Late seral and snag component of piñon-juniper	declining	stable-to-declining
MA 10 Grassland and Sparse Piñon-juniper	Pronghorn	Early and late seral grassland	stable	declining
MA Management Area				

**Environmental Consequences**

**Alternative 1 – No Action**

Implementation of the No-Action Alternative will result in the project area remaining in its current condition and will result in no impacts to vegetation or wildlife. No federally listed threatened, endangered, Forest Service sensitive species, migratory birds, or MIS will be affected.

**Alternative 2 – Proposed Action**

As a result of the proximity and ease of access to the right-of-way from SR 87 or existing roads for most of the project’s length, disturbance to plants and wildlife is anticipated to be minimal. The use of existing access, combined with mitigation measures, will minimize clearing and loss of vegetation along the majority of the proposed transmission line route.

**Vegetation**

The potential for the introduction of nonnative or invasive plant species may exist as construction vehicles enter the project area. In addition, soil disturbance associated with right-of-way construction may provide suitable habitat for undesirable species such as Russian thistle (*Salsola iberica*). Mitigation measures to address these potential impacts would be followed as described in Chapter 2, including cleaning equipment before entering public land, and implementation of a weed control program.

## Effects outside of the CNF

Great Basin desertscrub and Great Basin/Plains grassland habitats would receive only selective clearing for pole sites, and approximately 8 acres for the construction laydown yards. Impacts in these areas would be minimal.

## Effects On CNF Land

The primary area of vegetation disturbance would be on CNF land where the right-of-way, two construction laydown yards, and substation site would be cleared. The CNF land also would be prescription burned in the forested portions of the route and around Bly Pit as an urban interface mitigation measure for wildfires.

The exact centerline of the Proposed Action was determined through collaboration with the Forest Service, APS, and EPG, and was chosen to best implement transmission line design criteria and to mitigate effects to large diameter trees. The centerline alignment of the route was adjusted and sited to avoid large pockets of ponderosa pine to the extent feasible. This will mitigate and minimize the number of large diameter trees cleared from the right-of-way and substation site.

This segment of the project affects approximately 8 miles (39 acres) of Great Basin Conifer Woodland and 3 miles (15 acres) of Rocky Mountain Conifer Forest habitats. Primarily associated with concerns about potential impacts to bald eagles utilizing the forest, EPG biologists, in coordination with CNF staff, surveyed the proposed right-of-way on CNF lands for ponderosa pines +16-inch diameter at breast height (dbh) located within the 40-foot-wide project right-of-way. The survey was conducted from the substation site to the meadow just south of Quayle Hill. Beyond this point there were no ponderosa, and the habitat was entirely piñon-juniper with a few Gambel oaks present. A cumulative total (all age classes combined) of approximately 2,598 live ponderosa trees within the right-of-way were recorded.

A visual survey for ponderosa +16-inch dbh within proximity, but located outside of the right-of-way, also was conducted. The estimate for live ponderosa +16-inch dbh within this area was 1,120 trees, of which an estimated 25 percent were 24-inch dbh or greater. In addition, an estimated 119 large snags were within the same area, almost all of which were 24-inch dbh or larger.

Approximately 165 live ponderosa trees (+16-inch dbh) were located within the 40-foot-wide right-of-way. Additionally, 8 large ponderosa snags were identified, 6 of which were within the right-of-way, and 2 that were immediately adjacent to the right-of-way. Based on an approximate area of 25 acres surveyed, the 165 ponderosa equate to approximately 6.5 ponderosa per acre (31.4 trees per mile) for the +16-inch dbh size class. Approximately 10 to 15 percent of the trees in this size class were 24-inch dbh or larger. Approximately 6 percent of the total ponderosa within the right-of-way were in the 16-inch and larger size class.

Removal of these trees would not greatly affect ponderosa habitat in the project vicinity primarily because the acreage represents such a small portion of such habitat present both adjacent to the right-of-way and on a forest-wide scale. As the right-of-way approaches Quayle Hill from the south, ponderosa density decreases and a more open-park habitat is evident. The overall effects of the removal of ponderosa along this portion of the line would be a less significant change to the existing condition than the effects to the ponderosa forest further south near the substation site. The narrow width of the right-of-way should preclude any significant effects to wildlife movements across this 40-foot swath. Removal of the eight snags could eliminate some potential roosting habitat for bats and birds. The removal of trees along the right-of-way could increase useable edge habitat for foraging bats and other animals that use such habitat.

A prescribed burn of the substation site area, lands between SR 87 and the right-of-way corridor on CNF lands, and lands adjacent to and surrounding the Bly Pit just west of SR 87 will be conducted to reduce the fuel loads in the urban interface zone and introduce periodic fire burns to control large fires. Threats from wildfire in this area are low. Observed dead fuel loads on average are less than 5 tons per acre (CNF 2004). Surface fuels are very discontinuous and would not carry fire. The only continuous fire potential is where there is continuous ponderosa pine needle-cast which is in the drainage that the transmission line will follow. Fire would carry through crowns of trees under only the most extreme conditions. Low ground fires will be used where needed to reduce dead/down fuel loadings to less than an average of 5 tons per acre. The predominant wind in the project area is from the southwest, and the CNF proposes to focus their burn effort south and west of the power line, beginning at the east edge of the proposed burn and progressing to the west. Broadcast burning is tentatively scheduled for the fall of 2005 (CNF 2004). Approximately 1,300 acres will be burned during this operation. Prescribed burns are required for long-term maintenance and will be repeated every 5 to 7 years. It is anticipated that the effects of future prescribed burns will be the same as stated above.

## Wildlife

### Effects Outside of the CNF

Lands outside of the CNF are primarily in Great Basin/Plains grassland habitat, with a small area near the forest boundary being ecotonal with the piñon-juniper habitat to the north. There are a couple of miles of Great Basin desertscrub habitat near the north end of the line at the Winslow Substation.

Impacts on these lands would include loss of cover and forage for wildlife where clearing or crushing of vegetation along the right-of-way would occur at pole placement, and wire splicing and tensioning sites. Vegetation removal could provide opportunity for invasive plant species to colonize these areas and compete with native vegetation. Many species of invasive plants are not useable forage for native animals. Vegetation removal could impact invertebrate species that are used as prey by wildlife, primarily by species of birds and bats. Removal of vegetation could also exacerbate erosion potential along the right-of-way.

Small mammals in burrows and vegetation and bird nests and eggs on the ground or in vegetation could be killed by construction traffic and vegetation removal. The presence of the transmission line would be attractive to perching birds and would present some potential electrocution and collision hazard, particularly for raptors. The narrow width of the right-of-way is a very small portion (approximately 136 acres) of these habitats available in the area and would not significantly affect available habitats or individual plant or animal species to a significant degree. The entire acreage within the right-of-way would not be disturbed, with the greatest impacts occurring at pole placement sites.

Placement of the transmission line on lands outside of the CNF will occur adjacent to SR 87, which because of pre-existing disturbance of the highway, will reduce many potential effects of the placement of the line in those areas. Because of the proximity of the highway to the new transmission line there would be no increase in human access to the area.

### Effects On CNF Land

Clearing and prescribed burning activities would impact available forage, nesting, and protective cover provided by vegetation and timber resources. Direct impacts to animals present on the access roads, right-of-way, or in occupied burrows in these areas during construction of the transmission line could occur from construction equipment or vehicles traveling or operating in these areas. Short-term and temporary noise from clearing operations (chainsaw, chipper, etc.) may disturb animals, slash on the ground may temporarily impede their movement, smoke may annoy them and make it difficult to use some of their primary senses, and their ability to forage and find food will be temporarily affected.

After completion of the construction phase of the project, the right-of-way will be maintained for protection of the line and access for maintenance activities. Vegetation within the right-of-way will be kept low to prevent fire damage to the line. Adjacent snags that could fall into the line would periodically be removed as trees die off from natural causes. The character of the right-of-way would remain as an open swath of approximately 40-foot width, with vegetation kept low primarily to forbs and grasses. The width of the right-of-way does not open up the forest enough to be of great benefit to elk, but it will provide edge foraging habitat for some bat, bird, and ungulate species.

## Special Status Species

### Federally Listed Species

#### Bald Eagle (*Haliaeetus leucocephalus*)

Bald eagle use of the proposed transmission line route is expected to occur at low levels during winter. There have been occasional sightings of bald eagles perched along SR 87 (Spaeth 2003a), which the proposed transmission line parallels for most of its length. Bald eagles are most likely

to be found in the vicinity of the proposed transmission line during migration. At this time, the eagles are not necessarily found near rivers or large bodies of water, and their diet may expand to include small mammals and carrion. It is possible that a bald eagle could be found anywhere along the length of the proposed transmission line, but it is unlikely that an eagle would remain in this vicinity for a significant length of time.

There are currently no known bald eagle roosts along the transmission line route. However, because bald eagles are occasionally present in the area during winter, there is the potential for bald eagles to establish roosts within the project area.

When bald eagles are in the vicinity of the proposed transmission line, there would be a possibility of collision with lines or electrocution. Because of the low density of bald eagles, the probability of collision or electrocution is believed to be very small. Construction and operation of the proposed transmission line should not have any impact on breeding bald eagles.

### Effects On CNF Land

Generally, bald eagles utilize 24-inch diameter and larger ponderosa pines for perch and roost sites, and 16- to 24-inch size class ponderosa pines represent recruitment trees for future use by bald eagles (Taylor 2004c). Approximately 173 ponderosa pines larger than 16-inch diameter would be removed within the right-of-way. Ten to fifteen percent of these trees (17 to 26 trees) are 24 inches in diameter or larger. The removal of these trees should not have a significant effect on available potential perch and roost trees for bald eagles along the transmission line route. Substantial numbers of ponderosa in both of the larger size classes would remain within view of the transmission line route through ponderosa habitat, and will continue to be available for bald eagles now and for the foreseeable future. Right-of-way clearing and prescribed burning will benefit bald eagles by reducing the risk of crown-replacing wildfires that degrade roosting and foraging habitat.

Construction of the transmission line may occur during any month of the year and there is the potential for disturbance of roosting bald eagles if they are present along the project alignment during construction performed in winter. Construction activities conducted during the wintering bald eagle season can disturb eagles causing them to leave their roosts during periods when they are normally quiescent, such as early morning, late afternoon, or during inclement weather. The contractor plans to use a helicopter to set poles, and this would disturb any bald eagles present in the area. To minimize potential disturbance impacts to bald eagles within ponderosa pine habitat, construction activities involving the use of heavy equipment or having the potential to disturb roosting eagles would operate between the hours of 0900 and 1600 each day in the area between the Blue Ridge Substation and Quayle Hill during the wintering bald eagle season (October 15 through April 1). Construction activities which will be restricted include helicopter flights, controlled burning, clearing, tree cutting or skidding, vegetation chipping and broadcasting, drilling, material transport, pole fanning and setting, conductor installation, line pulling and tensioning, grading, fence installation, concrete foundation installation (for substation), and the use of large machinery such as bulldozers, front-end loaders, drill rigs, or anything larger than a

1 ton pickup. To the extent possible, construction activities (including helicopter use) within this portion of the project area will be conducted outside of the wintering bald eagle season.

### Mexican Spotted Owl (*Strix occidentalis lucida*)

The primary threats to spotted owls are habitat destruction and fragmentation related to human activities, particularly timber harvest (Ehrlich et al. 1988). Habitat fragmentation is of particular concern for the Mexican spotted owl population on the Mogollon Rim since this area contains the largest contiguously occupied Mexican spotted owl habitat in Arizona, and these populations may be critical in supplying juvenile owls to smaller and more isolated regional owl populations (Ganey 1998).

### Effects Outside of the CNF

There is no Mexican spotted owl habitat outside of the CNF portion of the project area.

### Effects On CNF Land

Mexican spotted owls are known to prefer steep-walled canyons of mature or old growth forest, and the areas of Jacks Canyon west of the project area where they have been recorded fit this habitat description. Mexican spotted owl roost and nest sites within the three Protected Activity Areas in Jacks Canyon are either in the canyon proper, or very near its edge (Spaeth 2003a), and would not be impacted by construction or operation of the proposed transmission line. Critical habitat for the Mexican spotted owl is designated west of SR 87, and would not be affected by the construction or operation of the transmission line. The proposed transmission line would not affect Mexican spotted owls utilizing habitat in the Clear Creek drainage because of the distance of separation and lack of preferred habitat between Clear Creek and the transmission line route. No Mexican spotted owls were detected in the project area during surveys performed by the CNF in 2003 or 2004 (Spaeth 2003b; Taylor 2004a). Due to a lack of preferred habitat for the Mexican spotted owl within the proposed transmission line right-of-way on the CNF, clearing and prescribed burning of this area should have no effect on the Mexican spotted owl or its habitat.

### Non-Federally Listed Species

#### Mammals

Six species of bats that are considered species of concern by the USFWS and that could be present within the project area are pale Townsend's big-eared bat, Allen's big-eared bat, western small-footed myotis, long-eared myotis, occult little brown bat, and fringed myotis. Caves, open karst features, or abandoned mines are not known to be present within the project right-of-way.

Consequently, there should be no impact to such potential roost sites. Because presence of bats within the right-of-way would be primarily associated with nocturnal foraging activities, no impacts to individual bats should occur due to the placement of the transmission line.

### Effects On CNF Land

Impacts to some of these species could include loss of potential roost trees. Species of insects that are consumed by bats could be adversely impacted by removal of vegetation during selective clearing of the right-of-way. Some potential roost trees that could be utilized by bats could be among those that will be removed within the right-of-way, but these represent only about 15 percent of such trees available within the immediate vicinity of the line.

The following special status species are known within the project area only on Forest Service lands.

#### Northern Goshawk (*Accipiter gentilis*)

The single greatest threat to the northern goshawk is the loss of old growth forest, primarily as a result of logging (Wheeler 2003). Numbers of northern goshawks appear to be declining in Arizona (Glinski 1998).

There are recent records of goshawks nesting in the vicinity of the proposed Blue Ridge Substation. However, field surveys for this species conducted in the project area in 2003 and 2004 by the CNF did not find goshawks (Spaeth 2003a; Taylor 2004c). The proposed transmission line would pass through a known goshawk post-fledging family area. This post-fledging family area (CNF #040712) has not been occupied for several years and no goshawks were detected during monitoring in 2003 or 2004. It is suspected that this post-fledging family area may have been abandoned due to the proximity of a recently constructed housing development (Spaeth 2003b).

Northern goshawks tend to prefer more remote areas, and the proximity of SR 87 and recent home development just south of the proposed Blue Ridge Substation may inhibit their use of the area of the proposed transmission line route. However, while they prefer mature forest, they often use tracts of forest that are fragmented, utilizing forest edges for hunting (Wheeler 2003). The clearing and prescribed burning of the right-of-way could add forest edge hunting habitat that would be attractive to this species, as well as help develop a mosaic of various vegetative successional stages and habitat for a diverse range of prey species.

Construction of the right-of-way to reach the Blue Ridge Substation would require clearing and prescribed burning of approximately 3 miles of relatively undisturbed ponderosa pine habitat in the CNF. In Arizona, the northern goshawk prefers open mature stands of ponderosa pine that provide a high canopy cover for foraging (Snyder and Snyder 1998). Potential suitable habitat for goshawks is present in this 3-mile section, with suitable large nesting trees present. Removal

of trees and other vegetation could adversely impact prey of the northern goshawk but would increase prey visibility. Northern goshawks do not use power poles along well-traveled roads for perches (Wheeler 2003), and even away from roadways, they probably prefer natural perches such as trees. Records of electrocution of Northern goshawks are rare (APLIC 1996).

#### American Peregrine Falcon (*Falco peregrinus anatum*)

Potential impacts to the American peregrine falcon could include loss of prey habitat and trees used as perches. Electrocution or collisions with wires on the completed transmission line are possible, but electrocution of American peregrine falcons is uncommon (APLIC 1996). Two aeries are known to be present in the Clear Creek drainage south of the project, but these sites would not be directly impacted by this project. No cliffs that could be used as aeries by this species are present within the right-of-way. Peregrines could use the power poles as perching sites. The clearing and prescribed burning of the right-of-way could help develop a mosaic of various vegetative successional stages and habitat for a diverse range of prey species.

#### Tusayan Rabbitbrush (*Chrysothamnus molestus*)

Potential impacts to the Tusayan rabbitbrush from the proposed project could include disturbance to habitat and removal of any existing plants along the right-of-way. Spot checks for this species performed by Forest Service wildlife biologists were negative (Taylor 2004b).

#### Flagstaff Pennyroyal (*Hedeoma diffusum*)

Potential impacts to the Flagstaff pennyroyal from the proposed project could include disturbance to habitat and crushing of any existing plants within the right-of-way. Protection of limestone outcrop habitat would help minimize impacts to this and other limestone preferring plant species (AGFD 2003c). Because this species is closely associated with limestone bedrock habitats, which are not easily impacted by rubber-tired construction traffic, it is unlikely that the Flagstaff pennyroyal would be affected by invasive plant species that colonize disturbed ground habitats.

#### Flagstaff Beardtongue (*Penstemon nudiflorus*)

Potential impacts to the Flagstaff beardtongue from the proposed project could include disturbance to habitat and crushing of any existing plants within the right-of-way. Areas of disturbed ground could provide potential habitat for invasive plant species that could compete with the Flagstaff beardtongue.

## Tusayan Flame Flower (*Talinum validulum*)

Potential impacts to the Tusayan flame flower from the proposed project could include disturbance to habitat and crushing of any existing plants within the right-of-way. The Tusayan flame flower is evidently not sensitive to disturbance based on observations of its persistence along hiking trails (AGFD 2002). Spot checks for this species performed by the Forest Service were negative (Taylor 2004b). Prescribed burning may benefit this plant by creating openings and additional habitat. Ground disturbing activities could provide habitat for invasive plant species that could compete with the Tusayan flame flower for resources.

## Management Indicator Species

Based on habitat types that will be crossed by the transmission line route, there are nine Forest Service designated MIS that could potentially be affected by construction of the transmission line. Impacts to each of the habitats represented by MIS would affect considerably less than one percent of these habitat types when considered on a forest-wide scale. None of the CNF MIS or their habitats would be significantly impacted by the construction or operation of the Blue Ridge Transmission Line.

### Abert Squirrel

Based on the 40-foot project right-of-way width, approximately 15 acres of ponderosa forest would be affected by the Blue Ridge Project. On a forest-wide scale this represents a small fraction of 1 percent of existing ponderosa habitat. This amount would not cause a change in the forest-wide habitat or population trend of the Abert squirrel.

### American Elk

The Blue Ridge Project will impact approximately 15 acres of ponderosa forest. On a forest-wide scale this represents a small fraction of 1 percent of existing ponderosa habitat. Elk have shown a positive response to habitat change resulting from heavy thinning of trees, which opens up the forest, but because the removal of ponderosa trees in the project right-of-way is along a narrow width (40 feet), there should be no significant affect on elk habitat. The narrow swath should not affect elk movement or significantly affect available forage. There would be no impacts to forest-wide elk population trends or habitat resulting from the construction or operation of the Blue Ridge Transmission Line.

### Mule Deer

There are approximately 39 acres of piñon-juniper habitat that would be affected by Alternative 2. On a forest-wide scale this represents a small fraction of 1 percent of existing piñon-juniper

habitat. There would be some loss of forage for mule deer resulting from clearing of vegetation along the right-of-way, but the quantity of forage lost when compared with that available on a forest-wide scale is insignificant. There would be no change in forest-wide habitat or population trends.

### Pronghorn

The project would affect about 80 acres of grassland habitats, but suitability of habitat for pronghorn within this area varies from small parcels of a few acres up to much larger contiguous areas hundreds of acres in size, depending on encroachment of trees (USDA 2002). Only about 3 or 4 acres of grassland habitat within the right-of-way that is suitable for pronghorn occurs on CNF lands. Removal of juniper trees along the right-of-way would increase visibility for pronghorn and increase forage diversity and nutritive value. However, while the overall effects of the project on pronghorn would be positive, the small acreage involved would make the impacts insignificant on a forest-wide scale, with the affected acreage being considerably less than 1 percent of the total grassland habitat on forest lands. A 1,300-acre prescribed burn associated with this project would not impact areas of grassland habitat and would have no effects on pronghorn. There would be no change in forest-wide pronghorn habitat or population trends.

### Northern Goshawk

The removal of large ponderosa trees that could be used by northern goshawks is contained within a linear corridor constituting about 15 acres of land, which is considerably less than 1 percent of ponderosa habitat present on the forest. Because northern goshawks prey on species that use a variety of habitat types, a continuous flow of habitat structural changes is beneficial to these birds (USDA 2002). Impacts to the northern goshawk habitat resulting from the construction and operation of the transmission line are considered insignificant on a forest-wide scale. There would be no change in forest-wide habitat or population trends.

### Wild Turkey

There are about 15 acres of late seral stage ponderosa habitat that would be affected by construction of the Blue Ridge Transmission Line. This represents a small fraction of 1 percent of this habitat available on a forest-wide scale. One of the primary habitat elements critical for wild turkeys is available cover. Encroachment of trees into more open areas improves overall habitat for turkeys by providing cover corridors that allow turkeys to forage over larger areas, and this may result in increases of turkey populations. Removal of trees and other vegetation would negatively impact the wild turkey, but the small percentage of habitat that this constitutes on a forest-wide scale would result in the impacts being insignificant to this species. There would be no change in forest-wide habitat or population trends.

### Hairy Woodpecker

The removal of snags from the project right-of-way would deplete some habitat of the hairy woodpecker. However, the number of snags that would be removed for the project is a small fraction of what is available on the forest. There would be no change in forest-wide habitat or population trends.

### Juniper Titmouse

There are about 39 acres of piñon-juniper habitat that would be affected by the project. On a forest-wide scale this represents a small fraction of 1 percent of existing piñon-juniper habitat. Removal of piñon-juniper trees within the project right-of-way may include the removal of some dead snags of sufficient size to support the juniper titmouse, but the amount of lost habitat would be considered insignificant on a forest-wide scale. There would be no change in forest-wide habitat or population trends.

### Pygmy Nuthatch

There are about 15 acres of late seral stage ponderosa habitat that would be affected by construction of the transmission line. This represents a small fraction of 1 percent of this habitat available on a forest-wide scale. Removal of larger ponderosa trees within the project right-of-way could impact individual pygmy nuthatches or their habitat, but there would be no impacts to this species on a forest-wide scale resulting from the construction or operation of the Blue Ridge transmission line.

## **Cumulative Effects**

### **Alternative 1 – No Action**

Implementation of Alternative 1, along with past, present, and reasonably foreseeable actions, would have no cumulative effects to vegetation, wildlife, and invasive or any sensitive species.

### **Alternative 2 - Proposed Action**

Other vegetation clearing related developments (such as new residential subdivisions) being planned in the project vicinity in the foreseeable future would result in cumulative effects to the vegetation communities in the area or to wildlife species. Cumulative effects would include an overall net decrease in vegetative structure and biomass with a concomitant decrease in habitat available to wildlife species that utilize ponderosa pine and associated understory shrubby species. No other similar projects in the project vicinity area are planned that would cumulatively affect the spread of invasive plants.

## **LAND USE AND RECREATION RESOURCES**

The land use and recreation resources inventory identified existing, planned, and officially designated uses within the study area based on the review and interpretation of existing maps, documents, and field reconnaissance. Federal, state, county, and local agencies were contacted to obtain and/or confirm specific land use and recreation data.

### **Affected Environment**

#### **Land Ownership and Jurisdiction**

The study area is located north of the Mogollon Rim in north-central Arizona across parts of Coconino and Navajo counties. The study area includes CNF system land, Arizona State Trust land, land leased to the Hopi Tribe, and private land. The majority of the study area is an area of “checkerboard” ownership, consisting of sections of State Trust land adjacent to sections of private land. Many of the State Trust land south of I-40 within 5 miles of Winslow are leased to the Hopi Tribe. Additionally, a large portion of the remaining State Trust land within the study area has been proposed for conveyance to the Hopi Tribe at some point in the future.

Other than the portion of the route that passes through the city of Winslow, the proposed route would be located on unincorporated land and national forest (CNF) land. Private land in the study area outside of the city of Winslow is under the jurisdiction of either Coconino County or Navajo County.

The remainder of the study area includes land under the jurisdiction of the CNF and parcels of private land inside the forest boundary. Home sites on private land inholdings within the CNF range from a few scattered houses to formal residential developments. The Blue Ridge area has been experiencing population growth for the past several years in the development of vacation homes. Land jurisdiction for the study area is presented on Figure 1-1.

#### **Existing Land Use**

The following categories of existing land use were identified and mapped based on information from aerial photography, existing maps, and general plans, and verified through field reconnaissance.

##### **Residential**

The majority of the study area has either no residences or dispersed rural residences, including a few ranches along SR 87. Rural residential areas also occur on the outskirts of the city of Winslow. In Winslow, residential areas range from low- to medium-density with some multi-family residential near the substation.

The community of Blue Ridge is comprised of several low- to medium-density residential subdivisions. The only subdivision within the project study area is the Mogollon Ranch development. In general, the majority of residences in the Blue Ridge area serve as vacation homes. The area has been experiencing population growth in recent years and is expected to increase in density and approach build out in the near future.

### Commercial

Commercial use in the study area is located in Winslow, and generally includes retail and service establishments. La Posada Hotel is a historic hotel situated adjacent to the railway in downtown Winslow. There are no commercial uses within the project area within the CNF.

### Industrial

Industrial land uses within the study area are generally located within the city of Winslow around the Winslow-Lindbergh Regional Airport and adjacent to SR 87.

The Bly Pit disposal area is located on Forest Service land near the proposed substation site.

### Range Resources

The primary land use across much of the study area is grazing and ranching. Ranching operations that have grazing leases on State Trust land within the study area include the Hopi Tribe, Clear Creek Cattle Company, Bar T Bar Ranch, Inc., Flying M Ranch, Big 5, Inc., and F Bar Cattle Company.

On CNF land within the study area, there is one grazing allotment, the Bar T Bar allotment. The Bar T Bar Ranch, Inc. is the sole permittee. The permit allows up to 16,050 head months per year. Grazing is allowed April through November, although the pastures are mostly used only during June through September.

### Public

Public land uses within the study area include government facilities, educational facilities, churches, fire stations, and a prison. These facilities are primarily located in Winslow. Government facilities located within the study area include city of Winslow, county, and state offices. Educational facilities include one community college and a high school in Winslow.

The Arizona Department of Corrections operates a state prison south of Winslow on the west side of SR 87. The prison has an operating capacity of 1,802 inmates, and is one of the largest employers in the area.

There are no public facilities located within the project area on CNF lands.

### Transportation

The study area encompasses a mix of federal, state, county, and private roadways, and a railroad. Primary highways in the study area include I-40, SR 87, and SR 99. Historic Route 66 passes through downtown Winslow, where it is also known as Second Street. Numerous paved and unpaved roads provide access to residences. Regularly maintained and non-maintained Forest Service roads, which provide access to CNF land, also are present within the study area. Part of the proposed route parallels FS Roads 319E, 319F, and 615. FS Road 69, also known as Chavez Pass Road, meets SR 87 in the southern portion of the study area. The Burlington Northern Santa Fe railroad line is the main rail line between Chicago and Los Angeles, roughly paralleling I-40.

ADOT is planning for some minor improvements along SR 87. Projects include adding a turning lane at Milepost 304.6 (Enchanted Lane), adding new lanes and making improvements to Ruby Wash bridge at Milepost 341.6, and making improvements to Lower Colorado River Bridge at Milepost 344.6. ADOT also is planning to reconstruct a turnback on Route 66 in Winslow (Business 40 Milepost 251.9). Coconino County is planning to relocate a turning lane to the Clear Creek Pines subdivision, SR 87 Milepost 301.3. All of these projects are still in the planning stages, and no construction dates have been set at this time (Yazzie 2004).

There are no known future plans for any additional federal, state, county or private roadways within the project area on CNF lands.

### Air Facilities

One public airport, the Winslow-Lindbergh Regional Airport, is located within the study area. There are no private airstrips located within the study area.

There are no air facilities within the project area on CNF lands.

### Utilities

Several existing power lines were identified within the study area, all of which are owned and operated by APS. A 21kV line originating in Payson currently provides power to the Blue Ridge community. A 69kV power line enters the study area from the northeast and connects to the Winslow Substation. From the Winslow Substation, a 69kV line with a 12.5kV underbuild runs east, generally along the Fourth Street alignment. Distribution lines (12.5kV) are located throughout Winslow to serve local customers.

Telephone lines are owned and operated by US West Communications. Other utilities identified within the study area include natural gas pipelines owned and operated by Citizens Utilities Company.

There are no other existing powerlines or utilities within the project area on CNF lands.

## **Future Land Use**

Future land use was mapped based on information contained in existing planning documents and correspondence with staff and officials representing state, county, and municipal agencies. General plan information was the primary basis of this analysis and represents guidelines for development until specific development plans are proposed.

### Coconino National Forest

The CNF Plan provides an in-depth description of current and future management directions and emphases for 19 Management Areas within the CNF. Management Areas identified within the study area include Management Area 3 (ponderosa pine and mixed conifer less than 40 percent slopes), Management Area 7 (piñon-juniper less than 40 percent slopes), and Management Area 10 (grassland and sparse piñon-juniper above the rim). For Management Area 3, the emphasis includes a combination of multiple uses including a sustained yield of timber and firewood production, wildlife habitat, livestock grazing, high quality water, and dispersed recreation. For Management Area 7, the management emphasis includes firewood production, watershed condition, wildlife habitat, and livestock grazing. For Management Area 10, the emphasis includes range management, watershed condition, and wildlife habitat. Other resources are managed to improve outputs and quality. Additionally, an emphasis is placed on prescribed burning to achieve management objectives (CNF Plan 1987).

### City of Winslow

The land use plan within the city of Winslow's General Plan (2002) designates a range of land uses for the land included in the study area. Most of the proposed route crosses areas designated for rural residential and low-density residential use. North of Route 66, the proposed route traverses commercial use areas, and crosses a small portion of a mixed-use zone surrounding the Winslow Substation.

The General Plan calls for enhancing infill and commercial development opportunities in the city center and gateway areas. As such, the city has designated several growth areas to encourage a fusion of public and private investment. Four of these growth areas fall partially within the study area. One growth area is the Airport Commerce Park area on the west side of SR 87, south of Route 66. The city hopes that this area will attract industrial and related office development, with additional industrial use planned for the surrounding areas. Another growth area is the southeast

neighborhoods area to the east of SR 87 and south of the railroad; additional housing developments are envisioned for this area. A third growth area is the employment campus area on the north side of I-40, adjacent to the Little Colorado River. This area is targeted as a full employment campus. Lastly, a fourth growth area, the downtown vision area, is along historic Route 66 through the center of town, where it is hoped that mixed-use developments will take advantage of the tourism opportunities and the potential for pedestrian-oriented scale.

Other land uses assigned to portions of the study area within the city of Winslow include rural residential (south of SR 99), low-density residential (north of SR 99), medium-density residential, commercial, mixed use, and industrial. Industrial land uses are planned for the west side of SR 87 and an area along the east side of SR 87, north of SR 99. Within the large industrial zone on the west side of SR 87 is an area designated as Commerce Park. The commerce park category allows for industrial uses in enclosed structures with a limited number of related office and retail commercial uses (City of Winslow 2002).

### Navajo County

The Navajo County Comprehensive Plan (2004) discusses the future land uses envisioned for areas of the county outside of Native American reservations and not covered in other approved plans as “character areas.” These character areas list zoning districts but are not to be considered as regulatory. Within the study area, there are two character areas. Surrounding the city of Winslow is a community village character area, which is intended “to provide large areas with higher-density residential development with a mix of related commercial, industrial and institutional uses extending from highway corridors and highway intersections” (Navajo County 2004b). South of this area along SR 87 to the Coconino County border is a range land character area. The range land character area’s purpose is to allow cattle ranching, farming, and other traditional Navajo County agricultural uses.

### Coconino County

Coconino County’s Comprehensive Plan (2003) emphasizes ways to incorporate conservation of natural resources into the comprehensive planning framework. While the plan does not designate land uses, it does seek to direct development to occur in areas that can be readily served by existing infrastructure such as roads and utilities, and to protect open space and the rural character of remote areas. The plan states that ranching and grazing activity occur across virtually all of the federal and state land in the county, excluding National Park Service lands. Noting that ranches occupy over 70 percent of the private land of the county, and that this land can be valuable habitat for wildlife, the county is working on ways to preserve working ranches and unfragmented landscapes. The plan also states that the county acknowledges the importance of allowing sufficient infrastructure to support economic development, and thus is working toward ways to accommodate new utility infrastructure in existing corridors, mitigate impacts, and educate residents about ways the utilities serve the greater community need.

There are no new developments approved or pending approval within the study area.

## **Parks and Recreation**

Recreational uses on CNF land within the study area are primarily of a dispersed nature, including off-highway vehicle use, hiking, wildlife viewing, camping, hunting, mountain biking, backcountry skiing, and horseback riding. There is one Group Reservation Site, the Elks' Picnic Area, available for picnicking or camping by reservation. The site is located on the western side of SR 87, approximately 1 mile south of Chavez Pass Road (T15N, R12E, Section 8). Jacks Canyon Trailhead provides access to popular climbing routes in Jacks Canyon (T16N, R12E, Section 22). Considered a Concentrated Use Area, the trailhead has a parking area and port-a-potty and allows overnight camping.

Hunting is allowed on the CNF and State Trust land. The study area crosses portions of two AGFD's Game Management Units—Unit 5A and Unit 5B. Game species include antelope, black bear, deer, elk, Merriam's turkey, mountain lion, band-tailed pigeon, and tree squirrel. Hunting seasons vary by species, but generally occur between the months of August through January.

The Recreation Opportunity Spectrum (ROS) is a land classification system that categorizes Forest Service land into six classes. Each ROS classification is defined by its setting, natural and developed, and by the probable recreational experiences and activities that it affords (CNF Plan 1987). In the Forest Service planning process, ROS classifications are used to help set recreational themes within each of the Forest Service's Management Areas. Listed below are the ROS classes crossed by the proposed project.

- Roded natural – primarily associated with SR 87
- Semi-Primitive Motorized – includes the other CNF lands within study area

Portions of two inventoried roadless areas are located within the study area, but are not crossed by the proposed project. On the west side of SR 87, separated by Forest Service Road 69/Chavez Pass Road, are Lower Jacks Canyon to the north and Jacks Canyon to the south.

## **Environmental Consequences**

### **Alternative 1 - No Action**

No impacts on existing or planned land uses, or recreation opportunities, will result through implementation of the No-Action Alternative. Under this alternative the transmission line and substation would not be constructed and the land use and recreation resources of the area would remain unchanged.

## **Alternative 2 - Proposed Action**

Impacts to land uses and recreation resources under this alternative are anticipated to be minimal. Existing access and overland travel will be used during project construction. No new access roads will be developed and existing access will not be upgraded.

### Effects Outside of the CNF

This alternative rebuilds portions of an existing transmission line in Winslow for approximately 1.5 miles, and then follows existing linear features such as a flood control levee and SR 87 to reach the CNF boundary. Two residences south of Winslow, and adjacent to SR 87, will be affected by the project. In particular, right-of-way will need to be acquired from these residences.

### Effects On CNF Land

A majority of the route on Forest Service lands parallels FR 319E, 319F, and 615. The Proposed Action will not modify the ROS classifications for the area. No planned land uses would be affected by this alternative. Prescribed burning and vegetation clearing could result in temporary access restrictions. These are anticipated to be localized to the affected area and short-term (a few days) in duration. Long-term impacts will be minimal.

## **Cumulative Effects**

### **Alternative 1 - No Action**

Implementation of Alternative 1, along with past, present, and reasonably foreseeable actions, would have minimal cumulative effects to land use and recreation resources.

### **Alternative 2 - Proposed Action**

Implementation of Alternative 2, along with past, present, and reasonably foreseeable actions, would have minimal cumulative effects to land use and recreation resources.

## **SOCIOECONOMICS**

This section describes the demographic, economic, and fiscal characteristics of the study area as well as the social and economic changes that could result from the proposed project. From a socioeconomic perspective, the primary effects associated with transmission line and substation construction include (1) potentially affected economic activities associated with right-of-way

issues; (2) potential disturbance to existing access; and (3) potential impacts to nearby communities, particularly during construction (i.e., influx of construction personnel).

**Affected Environment**

The primary influences on the regional economy are tourism, ranching, real estate, and recreation. In 2003, principal employment sectors in Coconino County were government; leisure and hospitality services; trade, transportation, and utilities; and education and health services. Principal employment sectors in Navajo County in 2002 included government; trade; services; and transportation, communication, and utilities. Local economic and employment activity within the study area occurs predominantly in Winslow, with some government employment on the CNF and some ranching activity on state and private land. Principal economic activities in Winslow generally include transportation, tourism, manufacturing, trade, and retail businesses. Significant employment sectors for Winslow include government; trade, transportation, and utilities; educational and health services; and leisure and hospitality.

Population statistics for the state of Arizona, Coconino and Navajo counties, Winslow, and the Blue Ridge area are summarized in Table 3-5.

<b>Location</b>	<b>1990</b>	<b>2000</b>	<b>2003</b>	<b>% Change 1990-2003</b>	<b>2010 (projected)</b>
Arizona	3,665,228	5,130,632	5,629,870	54	6,145,108
Coconino County	96,591	116,320	125,420	30	147,352
Navajo County	77,658	97,470	103,790	34	99,979
Winslow	8,190	9,520	9,475	16	12,249
Blue Ridge area	-	-	1,307*	-	2,297*
Source: Arizona Department of Economic Security 2003, 2004a, 2004b; U.S. Census Bureau 2000					
*APS estimate.					

**Environmental Consequences**

**Alternative 1 – No Action**

For the No-Action Alternative, impacts are anticipated to be associated with problems related to reliability and marginal voltage levels for customers in the Blue Ridge area, as described in the discussion on purpose and need in Chapter 1. Under a no-action scenario it is expected that outages will occur more frequently as the system is overloaded. This may be a particular problem in either summer or winter months when electricity use peaks. The reliability of electric service would continue to deteriorate, voltage levels would become unacceptable, and curtailment of electricity to some customers would be necessary during peak loading periods. A recent 15-hour outage was experienced during the Thanksgiving holiday weekend in November 2004. Outages also occurred over the Christmas and New Year’s holiday weekends in December 2004. While

implementation of this action may curtail new residential development it also would result in marginal and unreliable electrical service to existing customers. There would be no new revenues collected by the counties.

## **Alternative 2 – Proposed Action**

In general, the effects of transmission lines and substations on existing social structures and economic activities are relatively small. Social and economic issues associated with the construction of such facilities include potential effects from the influx of construction workers, disruption of land-based economic activities (i.e., grazing), and right-of-way compensation. Impacts related to construction are typically minimal due to the small size and short-term workforce characteristics of transmission line and substation construction. APS estimates that approximately six personnel will be required for three months during substation construction. Approximately 8 to 14 personnel over the course of 8 months will be required for construction of the transmission line and substation.

### Effects Outside of the CNF

The demand for temporary accommodations during construction would depend on the workers' place of residence. Given the relatively small size of the workforce, it is expected that existing facilities should be adequate to provide temporary accommodations. Local communities would benefit from purchases by construction workers during the construction phase of the project. However, since the construction workforce associated with this project is expected to be relatively small and mobile, the impact of these expenditures to the study area economy is expected to be minimal and would not materially alter the overall trends of the regional economy.

Other social and economic impacts include short-term disruptions of access to residential and commercial uses primarily located near SR 87 and the southeastern Winslow area near the intersection of Route 66 and Transcon Lane. The primary concern associated with these enterprises is access for customers, employees, and supply deliveries. Mitigation to allow access to nearby residences and commercial enterprises during business hours would reduce this impact. During construction, it is not expected that commercial ventures would experience any loss in revenues as a result of potential disruptions of ingress and egress.

Potential long-term impacts include acquisition of additional right-of-way. All properties acquired for right-of-way purposes would be in accordance with applicable federal, state, and local laws and regulations. Property owners would be reimbursed according to fair market value of the property. Land value and improvements on properties needed for right-of-way would be assessed on a case-by-case basis. In addition to payments to private property owners for right-of-way leases or in-fee purchases, Arizona State Land Department (ASLD) would receive right-of-way payments on state land, and distribute part of these revenues to Coconino and Navajo counties.

There would be no impact to electric utility rates or increase in rates from the proposed project. The project would be funded through APS' capital improvement program, so local customers would not absorb costs.

Revenues to local taxing jurisdictions may be generated through local sales taxes on purchases made by construction personnel during the construction phase of the project. However, these revenues are generally small and transitory.

### Effects On CNF Land

The Forest Service would receive right-of-way payments for the portion of the route that crosses CNF lands, and distribute part of these revenues to Coconino County.

### Cumulative Effects

#### **Alternative 1 – No Action**

Implementation of Alternative 1, along with past, present, and reasonably foreseeable actions, would reduce development in the Blue Ridge area, and would continue to effect existing customers in Blue Ridge as a result of ongoing problems related to reliability and marginal voltage levels.

#### **Alternative 2 – Proposed Action**

The proposed project will result in positive economic impacts that are directly related to the Proposed Action. Locally, there would be increased revenues associated with right-of-way lease agreements and purchases of goods and services during the construction phase of the project. Positive, long-term socioeconomic impacts also will be associated with mitigating current problems related to inadequate reliability and marginal voltage levels for existing and potential customers in the Blue Ridge area. Finally, the proposed project will accommodate future electrical needs within the project area.

## **ENVIRONMENTAL JUSTICE**

### Affected Environment

During the scoping process, the Forest Service considered whether the Proposed Action in this geographic area would potentially affect any low income, minority populations or Indian tribes. A scoping letter was sent to the potentially affected Native American tribes asking for input [PR 15]. A portion of the Proposed Action crosses land currently leased by the Hopi Tribe from the State Trust land, as well as State Trust land slated to be conveyed to the Hopi Tribe at some

point in the future. The Hopi Tribe actively participated in the planning of the project by providing comments and review on the proposed alignment of the transmission line, cultural resources, and biological resources.

### **Environmental Consequences**

Social, economic, and environmental impacts of the project were considered and it was determined that none of the alternatives considered in this analysis would have a negative impact on any minority population in the immediate area or region at large.

## **VISUAL RESOURCES**

### **Affected Environment**

The project lies within the Flagstaff and Navajo character types, and is typical of landscapes within those types (Forest Service 1989). The project area on the CNF is characterized by coniferous forest, while the State Trust and private land north of the CNF are characterized by open to sparse vegetation with bare soil and bare rock common. Piñon-juniper woodland dominates the area between the Sunset Mountains and Quayle Hill.

Cultural modifications in the study area include but are not limited to the communities of Winslow and Blue Ridge. Dispersed residential areas occur along SR 87, south of Winslow, and in the Blue Ridge area. Other modifications include travel routes such as I-40, Route 66, SR 87, and SR 99. Telephone lines and 12kV distribution lines are present in the Winslow area.

The visual resources inventory addressed the existing visual conditions, scenic quality of the landscape, sensitive viewpoints, and Forest Service visual quality objectives (VQOs). A visual contrast analysis was conducted to determine vegetation contrast, landform contrast, and structure contrast that could potentially result from the project. These components were combined to determine potential visual impacts. In addition, mitigation measures were recommended to reduce the impacts on visual resources where possible.

The proposed project crosses approximately 11 miles of land administered by the CNF and approximately 28 miles of state and private land. Visual resources on the CNF are managed by the Forest Service Visual Management System (VMS) (1974), which served as a basis for this inventory and impact assessment. Field reviews of the project area were conducted between July 2003 and October 2004. The following sections describe components of the visual resource inventory.

## **VQOs**

VQOs are assigned to lands within national forests based on public and agency concern for the scenic quality of these landscapes. The classifications range from preservation to maximum modification. CNF land within the project study area includes retention, partial retention, modification, and maximum modification. Retention and partial retention land are associated with the SR 87 travel route corridor.

## **Variety Classes**

Variety classes are used by the Forest Service to describe natural landscapes within national forest boundaries. The classes are categorized into three levels—A, B, and C. CNF land within the project study area includes Class B and C landscapes along the SR 87 travel route corridor. No Class A landscapes were identified within the study area.

## **Viewpoints and Visual Sensitivity Levels**

Viewpoints were identified by using the land use data gathered during field inventories and with input from the forest landscape architect. Visual sensitivity reflects the degree of public concern for change in landforms, vegetation, water, color, cultural or man-made features in the surrounding landscapes. Visual sensitivity levels are classified as high or moderate, based on the viewers concern for change, volume of use, public and agency concerns, public expectations, influence of adjacent land uses, and viewing duration.

The primary viewpoint in the study area is SR 87, which was assigned a moderate-high level of sensitivity. Other sensitive viewpoints included residences in Winslow, along with highway viewers on Route 66, SR 99, and I-40. A September 11 memorial located at Transcon Lane also was included. Moderate sensitivity was assigned to these viewpoints.

## **Distance Zones and Visibility Thresholds**

The VMS outlines how visible landscape elements are perceived at varying distances and defines these zones as:

- Foreground – 0 to ½ mile
- Middleground – ½ mile up to 4 miles
- Background – over 4 miles

A visibility analysis of the proposed 65-foot-tall transmission line poles as viewed from SR 87 was conducted [PR 16]. The visibility runs were developed using digital elevation models only, and do not take into account existing vegetation conditions (as directed by the Forest Plan).

## **Environmental Consequences**

### **Alternative 1 - No Action**

No changes in the current visual quality of the project area will immediately result from the No-Action Alternative.

### **Alternative 2 - Proposed Action**

#### **Effects Outside of the CNF**

Portions of the proposed route located in Winslow would involve rebuilding and double circuiting existing 69kV transmission lines, and underbuilding 12kV distribution lines. Low impacts are expected to occur to residential, commercial, and highway viewers on I-40 and Route 66 for these rebuild segments of the proposed route as a result of weak project contrast within foreground views.

Portions of the route in Winslow that involve a new overhead 69kV transmission line will include moderate contrast within foreground views for highway viewers on Route 66, SR 99, and SR 87, along with residential viewers and the September 11 Memorial located at Transcon Lane. Impacts to viewers for these segments of the route are anticipated to be moderate.

The portion of the route between SR 99 and the CNF boundary would be located 5 feet outside of the ADOT right-of-way along the east side of SR 87. Primary views along this portion of the highway are to the west towards the San Francisco Peaks. The transmission line would be sited on the east side of the highway. As a result of moderate contrast and foreground views, impacts to viewers for this segment of the route are anticipated to be moderate.

#### **Effects On CNF Land**

On the CNF, the Proposed Action would include two areas of high visibility within the SR 87 VQO retention zone—the substation site itself and at the Old Elks Picnic Ground area located in Section 8, T15N, R12E. The visibility of the remainder of the route within the VQO retention zone varies between low to moderate visibility (based on a visibility analysis to determine seen and unseen areas with topography only, as though no trees were present – a Forest Service policy that recognizes the somewhat temporal nature of vegetation). If vegetation was not available to screen highway viewers from the proposed project within the VQO retention zone then mitigation such as vegetation screening (planting of trees and shrubs) would be required to comply with VQO retention objectives. The adjacent forest canopy, assuming it stays largely intact over time, will greatly reduce the visibility of the transmission line and substation. The relation of the transmission line south of Quayle Hill and the substation site to the SR 87 alignment minimizes the duration of focal views of the project for motorists. Efforts to reduce the visual effects of the transmission line include using self-weathering steel poles. Mitigation

for the substation site includes using colored slats in the chain link fence surrounding the substation site to reduce visual effects. As a result of the mitigation measures and existing vegetation, the Proposed Action would be effectively screened in the VQO retention zone from highway viewers on SR 87 and result in low impacts, and the proposed project would comply with VQO retention objectives.

The portion of the route within a VQO partial retention zone (northeast of Quayle Hill) would be moderately visible based on the visibility analysis. As a result of the foreground views from the highway (approximately ¼ mile away) and the existing vegetation conditions of piñon-juniper woodlands, the presence of the transmission line would result in moderate impacts to highway viewers on SR 87, and the project would comply with VQO partial retention objectives.

### **Cumulative Effects**

#### **Alternative 1 – No Action**

Implementation of Alternative 1, along with past, present, and reasonably foreseeable actions, would have minimal cumulative effects to visual resources.

#### **Alternative 2 – Proposed Action**

Implementation of the proposed project may have direct and long-term adverse visual effects to visual resources. The construction of the proposed route will introduce a vertical and horizontal feature (e.g., transmission line) adjacent to SR 87 and on the CNF. Cumulative effects could result if additional man-made features are added to the viewing area.

### **HERITAGE RESOURCES**

A cultural resource study consisting of a detailed Class I record review and an intensive Class III pedestrian survey was conducted in support of the Proposed Action. This study was undertaken to support the preparation of the EA, the Forest Service's Compliance with the National Historic Preservation Act, ASLD compliance with the Arizona State Historic Preservation Act, and compliance with the Hopi Tribe's Protocol and Ordinance 26. In addition, the Hopi Cultural Preservation Office (HCPO) conducted an ethnographic study of the Hopi Traditional Cultural Properties for the project.

### **Affected Environment**

A Class I survey was conducted to determine previously identified recorded sites and historic features in the project study area. The survey involved a review of records maintained by the following institutions:

- Arizona State Historic Preservation Office (SHPO)
- National Register of Historic Places (NRHP)
- Arizona State Register of Historic Places
- Museum of Northern Arizona
- Coconino National Forest Supervisor's Office
- Bureau of Land Management Public Records Office
- AZSITE (<http://azsite.asu.edu/azsiteweb/>)

The detailed Class I records review identified 11 previously recorded sites and historic features within or immediately adjacent to the area of potential effect (APE). The sites generally consisted of prehistoric artifact scatters, historic travelways, and an abandoned ranger station.

An intensive Class III pedestrian survey for the Proposed Action's right-of-way corridor, construction laydown areas, access roads, and substation site identified 26 newly recorded sites, 65 isolated artifacts, 12 isolated features, 82 isolated artifact scatters, and revisited 11 previously recorded sites and historic features. The sites consisted of prehistoric artifact and lithic scatters, a prehistoric agricultural area, an historic homestead, and an historic stock tank. In addition, one place of cultural importance to the Hopi was identified within the proposed project APE.

The following sites are recommended not eligible for listing on the NRHP:

- AZ O:4:14 (ASM) – Newly Recorded – ASLD
- AZ P:1:30 (ASM) – Newly Recorded – ASLD
- AZ P:1:31 (ASM) – Newly Recorded – ASLD
- AZ P:1:32 (ASM) – Newly Recorded – ASLD
- AZ P:1:35 (ASM) – Newly Recorded – ASLD
- AZ P:1:36 (ASM) – Newly Recorded – ASLD
- AZ P:1:38 (ASM) – Newly Recorded – ASLD
- AR-03-04-07-1475 – Newly Recorded – CNF, Mogollon Rim Ranger District
- EPG Site 14 – Newly Recorded – Private Hopi land
- EPG Site 15 – Newly Recorded – Private Hopi land
- AZ P:1:42 (ASM) – Newly Recorded – ASLD

The following sites are recommended eligible for listing on the NRHP:

- AZ O:4:15 (ASM) – Newly Recorded – ASLD
- AZ P:1:29 (ASM) – Newly Recorded – ASLD
- AZ P:1:28 (ASM) – Previously Recorded – ASLD
- AZ P:1:27 (ASM) – Previously Recorded – ASLD
- Palatkwapi Trail – Previously Recorded – ASLD
- AR-03-04-07-1216 – Newly Recorded – CNF, Mogollon Rim Ranger District
- AR-03-04-07-1217 – Newly Recorded – CNF, Mogollon Rim Ranger District
- AR-03-04-07-1470 – Newly Recorded – CNF, Mogollon Rim Ranger District
- AR-03-04-07-1471 – Newly Recorded – CNF, Mogollon Rim Ranger District

- AR-03-04-07-1472 – Newly Recorded – CNF, Mogollon Rim Ranger District
- AR-03-04-07-1473 – Newly Recorded – CNF, Mogollon Rim Ranger District
- AR-03-04-07-1474 – Newly Recorded – CNF, Mogollon Rim Ranger District
- AR-03-04-07-1476 – Newly Recorded – CNF, Mogollon Rim Ranger District
- AR-03-04-07-1477 – Newly Recorded – CNF, Mogollon Rim Ranger District
- AR-03-04-07-1478 – Newly Recorded – CNF, Mogollon Rim Ranger District
- AR-03-04-07-1479 – Newly Recorded – CNF, Mogollon Rim Ranger District
- AR-03-04-07-440 – Previously Recorded – CNF, Mogollon Rim Ranger District
- AR-03-04-07-933 – Previously Recorded – CNF, Mogollon Rim Ranger District
- AR-03-04-07-985 – Previously Recorded – CNF, Mogollon Rim Ranger District
- AR-03-04-07-1012 – Previously Recorded – CNF, Mogollon Rim Ranger District
- EPG Site 11 – Newly Recorded – Private Hopi land
- EPG Site 13 – Newly Recorded – Private Hopi land
- AZ AA:6:63 (ASM) – Previously Recorded – Private land
- AZ I:15:156 (ASM) – Previously Recorded – Private land
- AZ I:14:334 (ASM) – Previously Recorded – Private land

The ethnographic study conducted by the HCPO identified one place of cultural importance in the project area, which is located within the proposed project's APE on land managed by the Hopi Tribe. For reasons of confidentiality, specific information concerning this location is not presented here. Although the NRHP eligibility of this location is undetermined at this time, it will be treated as if it were eligible for listing. HCPO staff conducted a field visit with EPG staff to examine the site locations and to discuss avoidance options. The ethnographic study also mentioned the potential impact helicopter construction may have on golden eagle breeding and fledging behavior in the region.

## **Environmental Consequences**

### **Alternative 1 – No Action**

There are 25 NRHP-eligible archaeological sites/historic structures and one place of cultural importance to the Hopi within the project area. Fifteen of the 25 NRHP-eligible archaeological sites/historic structures are located on CNF lands. No impacts to cultural resources will result from implementation of Alternative 1.

### **Alternative 2 – Proposed Action**

Direct impacts to all the recommended eligible sites can be avoided through mitigation measures such as strategic placement of pole locations, the use of existing access roads without upgrading them for construction purposes, and the use of helicopters to position poles. Through avoidance of the sites, the Proposed Action should have no effect to historic properties.

## Effects On CNF Land

As stated above, no impacts would occur to heritage resources located on CNF lands.

## Monitoring and Mitigation Measures

Archaeological avoidance monitoring has been recommended for the Proposed Action. Avoidance monitoring consists of observing those ground-disturbing activities that occur in close proximity to but outside of archaeological site boundaries to help avoid any indirect effects to eligible sites as a result of construction. This also would involve barricading eligible sites prior to construction and archaeological monitoring of all ground-disturbing activities that are scheduled to be conducted within 100 feet of an archaeological site to be avoided. Given the large number of sites located in the project area, full-time avoidance monitoring is recommended for this portion of the project whenever construction is occurring.

If human remains or funerary objects are discovered during construction of the proposed project on state or private land, all work in the area should cease and the findings reported to the director of the Arizona State Museum in accordance with Arizona Revised Statutes § 41-844 and § 41-865.

In addition, a member of the HCPO will be employed to conduct cultural resource avoidance monitoring for those portions of the project located on Hopi and state land. This would involve barricading eligible sites and the archaeological monitoring for all ground-disturbing activities that are scheduled to be conducted within 100 feet of the archaeological sites to be avoided. In consultation with the HCPO it was agreed that this monitor also will administer a defined construction avoidance area to protect a location of cultural importance as identified by the ethnographic study, as well as other similar sites that are located near the proposed right-of-way.

In consultation with the HCPO it was agreed that helicopter construction methods would not be utilized from January through the end of April within 1 mile of the Sunset Mountains to avoid potential disturbance to golden eagles. Conventional ground construction methods would occur and pose no additional disturbance to golden eagles given the proposed project will be located adjacent to the SR 87 right-of-way.

If human remains or funerary objects are discovered during construction of the proposed project on Hopi land, all work in the area should cease and the finding reported to the HCPO.

If human remains or funerary objects are discovered during construction of the proposed project on federal land, all work in the area should cease, all reasonable efforts be made to protect the remains and any associated items, and the finding reported to the CNF archaeologist in accordance with legislation put forth by the Native American Graves Protection and Repatriation Act.

## **Cumulative Effects**

### **Alternative 1 – No Action**

Implementation of Alternative 1, along with past, present, and reasonably foreseeable actions, would have no cumulative effects to heritage resources.

### **Alternative 2 – Proposed Action**

Implementation of Alternative 2, along with past, present, and reasonably foreseeable actions, would have minimal cumulative effects to heritage resources because all sites would be avoided.

## **AIR QUALITY AND NOISE**

### **Affected Environment**

#### **Air Quality**

Air quality in the project area is generally good to excellent. The existing air quality condition is a result of the relatively low population density and lack of pollution sources in the area. Air pollution in the local area is typically a result of airborne particulate matter (i.e., dust). All of the land involved with the alternatives are designated as Class II areas, pursuant to the provisions of the federal Prevention of Significant Deterioration program, codified at 40 CFR 51.166 and 40 CFR 52.21, along with the corresponding Arizona regulations, codified at A.A.C. R18-2-406. Most areas within the United States are designated as Class II, wherein standard pollution control requirements apply. Certain areas are given special protection from air quality degradation through the use of more stringent requirements. These areas are designated as Class I areas and include some (but not necessarily all) national parks, monuments, and wilderness areas and certain tribal lands. Stationary major sources must demonstrate, via the new source review permitting process, that impacts on air quality within Class I areas will not exceed specified “increments” of degradation. Since the Proposed Action does not include any stationary major sources of regulated air pollutants, the provisions of the Prevention of Significant Deterioration program do not apply.

The Class I areas nearest to the project study area include the following:

- Petrified Forest National Park (approximately 50 miles east of Winslow)
- Mazatzal Wilderness Area (approximately 30 miles southwest of Blue Ridge)

## **Noise**

Existing levels of noise in the vicinity of the project area are generally a function of the local human population and existing land use activity. Wind, meteorological conditions, physiography, human habitation, vehicles, and other sources cumulatively determine the noise character of any given area. Land uses along the proposed route are predominantly forested and grazing lands, with residences primarily located in the Winslow area. The closest residential subdivision to the substation site, Mogollon Ranch, is located more than 1 mile to the east.

## **Environmental Consequences**

### **Alternative 1 – No Action**

Under the No-Action Alternative, no construction would occur on the project, and no impacts to air quality and noise resources would result from the alternative.

### **Alternative 2 – Proposed Action**

Short-term and temporary air quality impacts would result from construction-related activities including fugitive dust and exhaust emissions from construction equipment. Exhaust constituents resulting from the use of gasoline- and diesel-powered construction equipment will consist primarily of carbon monoxide, nitrogen oxide, hydrocarbons, and sulfur dioxide. The Proposed Action will not generate any air pollutants after completion of construction activities.

Impacts on air quality resulting from the Proposed Action will be short term, generally limited to periods of prescribed burning and construction, and are not expected to exceed air quality standards. Due to the relatively short duration of construction activities, air pollutant emissions are temporary and will be dispersed relatively quickly. Long-term impacts resulting from the Proposed Action are not anticipated.

Methods to control short-term pollution (i.e., fugitive dust) generated as a result of construction could include limiting the amount of traffic and vehicle speeds on dirt roads during construction and by watering or another appropriate dust-abatement measure. Construction equipment and vehicles used during construction can be properly maintained to minimize exhaust emissions.

Noise levels resulting from the Proposed Action would be almost exclusively related to construction-related activities. Construction activities associated with the transmission line and substation would result in a temporary increase in noise levels during daytime hours and may cause impacts (annoyance) to people in the immediate vicinity of the project. Increased noise levels associated with construction activities may range from approximately 80 to 90 decibels (dB) within 50 feet of the activity. Assuming exposure to sensitive human populations, sound levels in this range are considered to be substantial. The extent of the noise impacts is not only a

function of noise levels, but also the density of population exposed to the noise and the duration of exposure.

For purposes of comparison, the sound level associated with a tracked bulldozer at a range of 50 feet would be equal to 89 dB; the sound level associated with a water truck within a distance of 50 feet is equal to 88 dB; and a pick-up truck is equal to a sound level of 80 dB within 50 feet.

The National Academy of Sciences (1977) defines a short-term, temporary noise impact as a change in the acoustical or vibrational environment that occurs for less than six months. The construction period associated with the Proposed Action will be staggered over an eight-month period for the entire project, with no more than two to three months in one particular area. It is expected that sound levels would vary substantially during periods of construction, and would be dependent on the specific construction activity.

Various measures would be implemented to mitigate noise impacts during construction activities. For example, levels of noise would be reduced to low to none during periods when the greatest nuisance is perceived, typically during nighttime hours.

### Effects On CNF Land

In addition to the effects discussed above, impacts from the prescribed burning will include smoke and airborne particles, and will negatively affect the airshed on a short-term basis. Some of these impacts can be mitigated through timing of the burn and scheduling the burn to be completed during periods of favorable atmospheric conditions. Impacts will be greatest on the day of ignition with decreasing impacts lasting 2 to 4 days following a single day's ignition, and up to two weeks following multiple-day ignitions.

Operation of the substation and transmission line will generate an indiscernible amount of electrical noise. The closest residence to the substation site is located over 1 mile away to the east with forested conditions. Impacts from the substation site are expected to be negligible.

### Cumulative Effects

#### **Alternative 1 – No Action**

Air quality and noise impacts may occur as a result of other proposed developments, such as residential construction, within the project area. Implementation of the No-Action Alternative, along with past, present and reasonably foreseeable actions, would have minimal cumulative effects on air quality and noise resources.

## **Alternative 2 – Proposed Action**

Air quality and noise impacts may occur as a result of other proposed developments, such as residential construction, within the project area. However, the incremental effects that result from the Proposed Action's short-term impacts will have minimal cumulative impacts. Cumulative impacts on air and noise resources as a result of the Proposed Action are expected to be directly related to the short-term and temporary periods of prescribed burning and construction. Implementation of Alternative 2, along with past, present and reasonably foreseeable actions, would have minimal cumulative effects on air quality and noise resources.