

## INTRODUCTION

The conservation of wildlife species is integral to the maintenance of viable plant and animal populations and biological diversity (Finch and Ruggiero 1993). Lands administered by the SJPLC have long served an important role in supporting a variety of wildlife species that are critical to the needs and values of the human population.

The federal land management agencies and the state wildlife agencies share legal co-trustee responsibility for the protection and management of wildlife. Therefore, the SJPLC will continue to work closely and cooperatively with the Colorado Division of Wildlife in the conservation and management of wildlife resources, including its habitat, on the SJPL in order to meet the needs of a growing human population that places increasing demands on resources, and sometimes, competing values, that ultimately impact the wildlife resource.

## LEGAL AND ADMINISTRATIVE FRAMEWORK

### LAWS

- ***The National Forest Management Act of 1976:*** This act substantially amends the Forest and Rangeland Renewable Resources Planning Act of 1974. This act strengthens the references pertaining to suitability and compatibility of land areas; stresses the maintenance of productivity, as well as the need to protect and improve the quality, of soil and water resources; and seeks to avoid the permanent impairment of the productive capability of the land.
- ***The Multiple-Use Sustained-Yield Act of 1960:*** Under this act, “National forests are established and shall be used for outdoor recreation, range, timber, watershed, and wildlife and fish purposes.” The Secretary of Agriculture is authorized and directed to develop and administer the renewable surface resources of the national forests for multiple uses and sustained yield, without impairment of the productivity of the land.
- ***The Federal Land Policy and Management Act of October 21, 1976:*** This act declares that “...the public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values.” It also states that “Terms and conditions must minimize damage to scenic and aesthetic values and fish and wildlife habitat and otherwise protect the environment.”
- ***The Endangered Species act of 1973:*** This act was designed to protect critically imperiled species from extinction from due to “the consequences of economic growth and development untempered by adequate concern and conservation. Under the act, all Federal agencies are required to undertake programs for the conservation of endangered and threatened species, and were prohibited from authorizing, funding, or carrying out any action that would jeopardize a listed species or destroy or modify its “critical habitat.”

## **DESIGN CRITERIA**

Management standards, guidelines and design criteria describe the environmental protection measures that would be applied to all of the alternatives at the project level in order to protect, enhance, and, where appropriate, improve resources related to terrestrial wildlife and wildlife species. Standards, guidelines and design criteria are presented in Part 3 of Volume 2 of the DLMP/DEIS.

## **AFFECTED ENVIRONMENT**

### **EXISTING CONDITIONS AND TRENDS**

Recent habitat assessments of landscape conditions and trends on lands administered by the SJPLC have identified several major factors influencing change in forested and non-forested habitat conditions that have occurred since early Euro-American settlement. Depending upon the vegetation type examined, these factors include fire exclusion, timber harvesting, road and urban development, livestock grazing, and recreational uses associated with a rapidly growing human population. These conditions and trends have implications for wildlife species that include:

- changes in forest structure and composition that may contribute to uncharacteristic wildfire behavior in lower-elevation forest types;
- road densities that may fragment habitat, varying from a high of about 6 miles per square mile to a low of about 0.3 mile per square mile;
- competition from invasive plant species that compromises plant diversity, habitat quality, and connectivity;
- a reduction or degradation of habitats for some wildlife and plant species where human impacts have occurred, and/or where natural disturbance regimes have been altered;
- urban development and infringement into some traditionally important wildlife habitats (including big game winter range), typically at lower to moderate elevations;
- a rapidly increasing human population that places uses and demands upon the landscape that alter habitat security and contribute disturbances to wildlife species; and
- increased demand for oil and gas on certain portions of the planning area that may influence various wildlife species and their habitats.

Within the planning area, there are 14 recognized major vegetation types that provide habitat for a variety of terrestrial wildlife species. Habitat Assessments have been prepared for many of these types, and include trends over time. This information is considered the analysis and management of habitat information for wildlife species across the planning area. (These assessments are included in the planning record.) Past timber harvesting has influenced many vegetation types, as well as their associated wildlife habitat within the planning area (including clear-cuts and their associated roads in the higher elevation spruce fir type). However, in general, alterations to vegetation types have been the most significant in the lower elevations and the least significant in the higher elevations. Some loss of ecological functioning has occurred as a result of these changes. Therefore, the need for active restoration is often higher in some systems (such as in ponderosa pine), and lower in other systems (such as in higher-elevation spruce-fir and alpine tundra types where deviation from historic conditions is less). Approximately 44% of the planning area is in inventoried roadless areas (IRAs) or in designated Wilderness Areas that often overlap the spruce-fir and alpine vegetation types. IRAs and/or Wilderness Area qualities offer large areas of habitat that are relatively undisturbed by humans, and are especially valuable for many wildlife species. Large, intact wild areas are a valuable characteristic trait of the planning area, and these areas will gain in value as a wildlife resource as the population of southwestern Colorado continues to grow (and continues to convert private lands to other uses).

Population growth and associated activities, land use conversions, and lack of fire frequency in fire-dependent systems have led to changes in big game winter range quality and availability. Winter range includes much of the lower-elevation ecosystems found across the planning area, and adjacent lands under other ownership. Availability of effective winter range is considered to be a limiting factor to big game populations within southwestern Colorado.

### **Description of Available Habitats**

Within the planning area, vegetative types vary from alpine (at the highest elevations) to semi-desert shrublands and grasslands (at the lowest elevations). (Vegetation types and their associated wildlife habitat components are described in the Ecosystem Diversity section of Chapter 3; more detailed habitat information can be found in the San Juan Habitat Assessments.) In addition, physical and geological features (such as cliffs, caves, rivers, streams, waterfalls, and open water bodies) also provide important habitat features within the planning area. Based on species distribution maps for Colorado, this diversity of habitats supports approximately 193 breeding bird species, 87 mammals, 24 reptiles, and 10 amphibians (Kingery et al. 1998; Fitzgerald et al. 1994; Hammerson 1999). Additional species may also pass through the planning area during migration, and/or utilize habitats on, or near, the planning area for feeding or resting.

## **VEGETATION AND WILDLIFE SPECIES ASSOCIATIONS**

### **Alpine**

Several species utilize the alpine tundra at least seasonally, and some species depend upon alpine habitat for breeding or life-cycle requirements. Several species of voles, mice, and shrews occur in alpine tundra vegetation; other species, such as pika and yellow-bellied marmots occur where boulder fields and rocks are present. Rocky Mountain bighorn sheep and elk also utilize alpine habitats during summer; however, must migrate to lower elevations when winter begins. Alpine tundra is important breeding habitat for local bird species, such as white-tailed ptarmigan and American pipit. Alpine cirques with boulder fell fields offer the primary denning habitat for wolverines in States such as Idaho, and may do so in Colorado if the species is still extant (surviving) (Byrne and Copeland 1997). Alpine tundra in southern Colorado also provides the only known habitat for the Uncompahgre fritillary butterfly.

### **Aspen/Aspen-Conifer Forests**

Aspen is an extremely rich habitat type for many wildlife species. DeByle (1995) lists 134 species of birds and 56 species of mammals that use aspen habitat types. Amphibians such as chorus frogs are also common because of the moist environments. Typical species associated with aspen within the planning area include red-naped sapsucker, violet-green swallow, warbling vireo, elk, as well as many small mammal species. Aspen is a key component for nesting northern goshawks in much of southern Colorado (Ferland 2005). Aspen is also the preferred food source for beaver (and, where available, aspen will influence their numbers and distribution). In the latter structural stages, aspen is a key structural attribute for many primary and secondary cavity-nesters.

### **Mixed-Conifer Forests**

Mixed-conifer forests are often rich in wildlife use. This is due to the variety of elevations, moisture gradients, tree species, and other factors. Examples of associated wildlife species include Williamson's sapsucker, blue grouse, brown creeper, black bear, elk, and mule deer. In cool-moist mixed-conifer, species such as Canada lynx and hermit thrush may be present. In warm-dry moisture gradients; however, species such as pygmy nuthatch and western bluebird may be more abundant. Due to the diversity and variety of habitat features, however, no species in Colorado is restricted to the mixed-conifer forest types. Mixed-conifer forests also commonly support aspen- and grassland-associated species because these vegetation types are often found in this forest type.

### **Mountain Grasslands**

Mountain grasslands are rich in small mammal species, such as voles and shrews; and several fossorial mammals, such as marmots, badgers, and pocket gophers (which occur most frequently in grasslands or on grassland/rock edges). Mountain grasslands are especially important to native ungulates for foraging. Within the planning area, all of the big game species may utilize different elevational grasslands on a seasonal basis. The diversity and density of bird species in these grasslands vary, depending upon elevation. Many species of sparrows and other ground-nesters are represented in this vegetation type. In general, mountain grasslands do not support many species of reptiles or amphibians, except where water, cliff/rock, or other unique features are present.

### **Mountain Shrublands/Oak**

Mountain shrublands/oak habitat provides valuable food and cover for many wildlife species, and some species (such as black bears) depend heavily upon the mast crops. Fewer small rodent species utilize mountain shrubland habitats in Colorado; however, some small mammals (such as Nuttall's cottontail) may reach high densities in this habitat type. At least 24 bird species in Colorado utilize mountain shrublands. Local bird species that are closely associated with this habitat type include the green-tailed and spotted towhee, Virginia's warbler, and wild turkey.

### **Pinyon-Juniper Woodlands**

Pinyon-juniper woodlands often support a rich and diverse wildlife community. They are very important to avian species, and support the largest assemblage of nesting bird species of any upland vegetation type in the western United States. Typical bird species that utilize local pinyon-juniper habitats include the bushtit, pinyon jay, and mountain chickadee. Pinyon-juniper habitats are utilized by many big game species, at least on a seasonal basis, and may provide year-round habitat for mule deer and elk when food and water resources are available. Pinyon-juniper habitats are also frequently associated with desert bighorn sheep (when in proximity to the cliff/rock/talus habitat type). Numerous small mammal species may occupy pinyon-juniper (including deer mouse, bushy-tailed woodrat, white-footed mouse, and white-tailed jackrabbit). Large carnivores (such as mountain lions) may also frequent pinyon-juniper, especially when prey species are available. The diversity of reptile species within these woodlands is nearly as high as that encountered in semi-desert shrublands (and species such as the western rattlesnake may be most common in this habitat type). Pinyon-juniper habitats also support the highest diversity of bat species in Colorado; this is especially valuable where wetlands and riparian habitats occur. Bat species such as the fringed myotis and Yuma myotis are also known to utilize pinyon-juniper trees (and the associated cliff and rock habitat) as roosting areas. In general, amphibian species are scarce in pinyon-juniper woodlands, except where water is available.

### **Ponderosa Pine Forests**

Ponderosa pine forests support a rich and diverse wildlife community, including some habitat specialists that reach their highest densities in this vegetation type (such as Abert's squirrel, flammulated owl, pygmy nuthatch, and Williamson's sapsucker). Ponderosa pine forests are also used extensively by big game species (such as mule deer and elk) and may be particularly important as transitional habitat or winter range areas.

### **Riparian Areas and Wetlands**

In Colorado, it is estimated that at least 40% of the vertebrate species are closely associated with riparian habitats (Hoover and Wills 1984). These species include approximately 70% of the breeding birds in Colorado; as well as big game species, small mammals, furbearers, and a variety of other non-game species. Riparian areas and wetlands ecosystems within the planning area also support a high number of amphibian and reptiles. All local bat species concentrate around riparian habitats for foraging and drinking purposes; therefore, slow-water pools and open wetlands are especially important.

### **Sagebrush Shrublands**

Sagebrush shrublands represent an extremely important vegetation type to many wildlife species, especially birds. This is because many of the birds that occur in this type are sagebrush obligate species that exhibit sensitivity to habitat edges and fragmentation. Many of these species also nest on, or near, the ground beneath the shrubs, and are, therefore, vulnerable to impacts. Examples of local sagebrush shrublands obligates include sage sparrow, Brewer's sparrow, and Gunnison sage-grouse (which is a species of conservation concern in the far northwest portion of the planning area). Sagebrush shrublands also support many of the same small mammal species as mountain shrublands and pinyon-juniper woodlands. Some jackrabbit and cottontail species may reach high population densities in this habitat type. As with mountain shrublands, sagebrush shrublands can support a high diversity of reptile species, especially when interspersed with semi-desert shrublands, rock/cliff habitat, and other dry habitat types. However, amphibians are generally absent, except where water sources are present.

### **Semi-desert Shrublands/Grasslands**

Several small mammal species may occupy the semi-desert shrublands/grasslands vegetation types (including the kangaroo rat, deer mouse, Wyoming ground squirrel, and Gunnison's prairie dog). Some native ungulates also occupy semi-desert shrublands at least on a seasonal basis, with antelope and mule deer probably being the most prevalent. The diversity and density of bird species is typically low in semi-desert shrublands with typical species assemblages characterized by the horned lark, western meadowlark, and mourning dove. However, semi-desert shrublands often support specialized species such as loggerhead shrikes, and may provide important habitat for several raptors of local concern (including burrowing owl, prairie falcon, and golden eagle).

### **Spruce-Fir Forests**

Spruce-fir forest habitats are rich in mammal and bird species; however, they support relatively few reptiles or amphibians because of the higher elevations. However, one amphibian species of particular interest, the boreal toad (which has historic occurrence within the planning area) is closely associated with streams and wetlands within the spruce-fir forest type. Examples of other closely associated wildlife species include the southern red-backed vole, American marten, Canada lynx, American three-toed woodpecker, boreal owl, olive-sided flycatcher, golden-crowned kinglet, and hermit thrush. Spruce-fir forests are also important to big game, such as mule deer and elk, on a seasonal basis, and provide much of the summer range for these and other species. When geological features such as rocks and cliffs are present, spruce-fir habitat also supports species such as pika, yellow-bellied marmots, and Rocky Mountain bighorn sheep.

## **DESCRIPTION OF CATEGORIES OF SPECIES**

The categories and types of wildlife species within the planning area reflect the diversity of available habitat. Some species, such as mule deer and Rocky Mountain elk, are steeped in local culture and tradition and have long been important to the local people and communities. However, many non-game species have recently gained more recognition for the economic, aesthetic, and ecological values they provide. For example, resident and migratory bird species as a resource in the United States generate over \$85 billion in overall economic output and are enjoyed by over 46 million people (USFWS 2003a); however, they are more recognized for the ecological values they offer, in terms of insect control, pollination, and seed dispersal. Some of the wildlife species that occur within the planning area are migratory and/or wide-ranging (and can therefore utilize several habitat types), while others are more sedentary (and utilize only a single habitat or individual component within a habitat type). All species, however, contribute to, or influence, the ecological processes that maintain biodiversity within the planning area. Species Assessments have been prepared for a number of species, both at the SJPLC and the Regional level, which bring together available information at differing scales for the species in order to help assess the habitat they utilize along with management information and research needs. (This information is referenced and included in the planning record and was utilized in assessing species and habitats across the planning area.)

Table 3.10.0 lists currently available San Juan and Region 2 species and habitat assessments available for review in the planning process.



**Table 3.10.0 - SJPL and Region 2 Available Terrestrial Species and Habitat Assessments**

<b>ASSESSMENTS</b>		
<p><b><i>SJPL Habitat Assessments</i></b>                      Alpine Tundra                      Aspen                      Mixed Conifer                      Mountain Grasslands                      Pinyon-Juniper                      Ponderosa Pine                      Riparian and Wetlands                      Sagebrush                      Spruce-Fir</p>	<p><b><i>SJPL Species Assessments</i></b>  <b>BIRDS</b>                      American Bittern                      Black Swift                      Boreal Owl                      Bald Eagle                      Brown Creeper                      Chipping Sparrow                      Columbian Sharp-tailed Grouse                      Common Loon                      Dark-eyed Junco                      Ferruginous Hawk                      Flammulated Owl                      Grace's Warbler                      Greater Sandhill Crane                      Green-tailed Towhee                      Golden-crowned Kinglet                      Hairy Woodpecker                      Lewis's Woodpecker                      Lincoln's Sparrow                      Loggerhead Shrike                      Mallard Duck                      Merriam's Wild Turkey                      Mexican Spotted Owl                      Mountain Bluebird                      Northern Goshawk                      Olive-sided Flycatcher                      Peregrine Falcon                      Purple Martin                      Pygmy Nuthatch                      Red-naped Sapsucker                      Red-shafted Flicker                      Ruby-crowned Kinglet                      Spotted Towhee                      Southwestern Willow Flycatcher                      Three-toed Woodpecker                      Virginia's Warbler                      Warbling Verio                      Western Burrowing Owl                      Western Tanager                      Wilson's Warbler                      White-faced Ibis                      Yellow Warbler</p>	<p><b><i>Region 2 Species Conservation Project, Species Assessments</i></b>  <b>BIRDS</b>                      American Bittern                      American Three-toed Woodpecker                      Baird's Sparrow                      Black Swift                      Black Tern                      Brewers Sparrow                      Burrowing Owl                      Cassin's Sparrow                      Cloumbian Sharp-tailed Grouse                      Ferruginous Hawk                      Fox Sparrow                      Green-tailed Towhee                      Grasshopper Sparrow                      Long-billed Curlew                      Lewis's Woodpecker                      Lincoln's Sparrow                      Loggerhead Shrike                      Mountain Bluebird                      Northern Goshawk                      Northern Harier                      Olive-sided Flycatcher                      Pinon Jay                      Purple Martin                      Pygmy Nuthatch                      Sage Sparrow                      Short-eared Owl                      Wilson's Warbler                      White-tailed Ptarmigan                      Yellow-billed Cuckoo</p>
<p><b><i>SJPL Species Assessments</i></b>  <b>AMPHIBIANS</b>                      Boreal Toad                      Northern Leopard Frog                      Red Spotted Toad                      Western Chorus Frog                      Woodhouse Toad</p>		<p><b><i>Region 2 Species Conservation Project, Species Assessments</i></b>  <b>MAMMALS</b>                      Abert's Squirrel                      Fringed Myotis                      North American Beaver                      North American River Otter                      Pine Squirrel                      Snowshoe Hare                      Townsend's Big-eared Bat                      Rocky Mountain Bighorn Sheep</p>
<p><b><i>SJPL Species Assessments</i></b>  <b>INSECTS</b>                      Uncompahgre Fritillary Butterfly</p>		<p><b><i>Region 2 Species Conservation Project, Species Assessments</i></b>  <b>MAMMALS</b>                      Abert's Squirrel                      Fringed Myotis                      North American Beaver                      North American River Otter                      Pine Squirrel                      Snowshoe Hare                      Townsend's Big-eared Bat                      Rocky Mountain Bighorn Sheep</p>
<p><b><i>SJPL Species Assessments</i></b>  <b>MAMMALS</b>                      Abert's Squirrel                      American Black Bear                      American Marten                      Beaver                      Bushy-tailed Woodrat                      Canada Lynx                      Deer Mouse                      Dwarf Shrew                      Elk                      Mule Deer                      Montane Vole                      Northern Pocket Gopher                      Northern River Otter                      Ringtail                      Townsend's Big-eared Bat                      Wolverine</p>		<p><b><i>Region 2 Species Conservation Project, Species Assessments</i></b>  <b>INSECTS</b>                      Great Basin Silverspot Butterfly</p>
<p><b><i>Region 2 Species Conservation Project, Species Assessments</i></b>  <b>REPTILES</b>                      Smooth Green snake</p>		
<p><b><i>Region 2 Species Conservation Project, Species Assessments</i></b>  <b>AMPHIBIANS</b>                      Boreal Toad                      Northern Leopard Frog</p>		

Some of the species categories that occur within the planning area are presented below.

### **Big Game/Hunted Species**

Within the planning area, big game and other hunted wildlife species, are of particular interest due to their economic and cultural importance to State and local communities.

The primary big game species that are hunted within the planning area are Rocky Mountain elk and mule deer. The planning area provides both summer and winter range, supporting the population objectives for deer and elk as established by the CDOW. Most of the summer range occurs on the USFS portion of the planning area. Most winter range occurs at lower elevations on mixed ownerships (including USFS-, BLM-, and State-administered lands, as well as private lands). To a lesser degree, moose, black bear, bighorn sheep (Rocky Mountain and desert subspecies), mountain goats, and mountain lion are also hunted as big game species. Other game species include blue grouse, wild turkey, mourning doves, band-tailed pigeon, ring-necked pheasant, cottontail (mountain and desert species), and various species of waterfowl. The pursuit of furbearers declined when most trapping became illegal in Colorado in 1996. However, legal methods of take (including live traps) are currently allowed. The pursuit of furbearers (including beaver, muskrat, bobcat, coyote, red fox, and badger) is a valued activity by a small segment of the population.

Consistent with their responsibilities for setting ungulate herd size objectives and regulating the hunting of “game” species, the CDOW tracks the status of “game” species in the state, including the SJPL. As with most of Colorado, elk numbers within the planning area have increased substantially since the early 1980s. As of 2004, the estimated post-hunt population exceeded the total long-term objective of 26,600 elk by more than 40%. Most elk utilize the large amount of summer range that is available within the planning area, and then migrate to mixed-ownership winter range at lower elevations. The current number of elk is a concern for the SJPLC and for the CDOW. This is because the herds could exceed the carrying capacity of the available winter range and/or lead to greater conflicts on private land. As with much of the western United States, however, mule deer numbers in Colorado have generally decreased since their population highs of the 1950s and 1960s (Mule Deer Working Group 2003). Within the planning area, mule deer numbers have fluctuated during the past 20 years. As of 2004, all of the deer DAUs varied from 1 to 30% below the long-term objective. However, deer numbers have risen lately and currently fluctuate at, or near, the population objective of 83,500.

### **Resident and Migratory Birds**

It is estimated that the planning area may support approximately 193 species of breeding birds, as well as additional species that utilize stop-over habitats during their annual migration. Of these 193 species, approximately 74 species are considered neotropical migrants that breed during the summer on, or near, the SJPL. Generally, these species winter south of the United States border. Most bird species are still common; however, some populations are declining. Neotropical migratory bird species are of particular concern within the planning area. This is because of the international issues associated with their conservation. The planning area contributes most heavily to species that utilize habitats such as spruce-fir, pinyon-juniper, mountain shrubland, and ponderosa pine. However, habitats that make up smaller portions of the land base, such as riparian areas and wetlands ecosystems, are also of conservation concern due to their critical importance to bird species, as well as to other wildlife groups.



Attention to specific species, or to groups of species, is an important aspect of bird conservation within the planning area. Examples include the Birds of Conservation Concern list produced by the USFWS (USFWS 2002) and the priority species and habitats identified in the Colorado Landbird Conservation Plan (Beidleman 2000). (The Birds of Conservation Concern lists were produced in order to high-light species of particular interest within large geographic areas of the United States, referred to as Bird Conservation Regions (BCRs); on the other hand, the Landbird Conservation Plan provides information for more localized bird conservation priorities.) Lands administered by the SJPLC occur within the Southern Rockies Colorado Plateau Bird Conservation Region (BCR 16), which encompasses portions of Colorado, New Mexico, Arizona, Utah, and Wyoming. The Birds of Conservation Concern list for BCR 16 involves 29 species, some of which do not occur, or would be considered accidental, within the planning area.

### **Threatened and Endangered Species**

Species that are listed as threatened or endangered under the Endangered Species Act (ESA,) or are proposed for such listing, are of particular concern to the SJPLC. This is because of their status and their need for special management attention. Federally listed species also have special legal requirements when projects occur in, or near, their habitats. The SJPLC has a long history of interagency cooperation and consultation with the USFWS, with the goal of conserving and restoring federally listed species. Federally listed species, as well as other local species of concern or interest, would remain a management priority within the planning area.

### **BLM and USFS Sensitive Species**

BLM and USFS Sensitive Species are designated by the agencies. These are species with conservation needs; therefore, management should be consistent with these needs and not contribute to listing under the provisions of ESA.

Species are generally selected as Management Indicator Species (MIS) because their population changes are believed to indicate the impacts of management activities (36 CFR 219.19(a)(1)). However, MIS can be chosen from 5 categories of species listed below:

- endangered and threatened plant and animal species identified on State and Federal lists;
- species commonly hunted, fished, or trapped;
- non-game species of special interest;
- species with special habitat needs that may be influenced significantly by planned management programs; and
- additional plant or animal species selected because their population changes are believed to indicate the impacts of management activities on other species of selected major biological communities, or on water quality.

Within the context of this planning process, MIS are used for the purpose of assessing the impacts of the alternatives on wildlife populations.

### **Exotic and/or Introduced Species**

Some non-native or exotic species are desired, and have substantial recreational value. For example, ring-necked pheasants and mountain goats are both introduced species that are desired by the State because of their contribution to hunting and wildlife-viewing opportunities. Other exotics (such as the European starling and bullfrog), however, have adverse impacts on native species because they displace those species from available habitats. Desirable non-native species, as determined between the BLM, USFS and CDOW, would continue to remain a part of the wildlife diversity objectives of the SJPLC. The SJPLC would also continue to work with the State in order to control or eliminate undesirable exotic species (including noxious weeds, fish, and invertebrates) that impact native species and their habitats.

## **SPECIFIC WILDLIFE ISSUES**

### **Roadless Areas**

Roadless areas are recognized for the high amount of biological integrity they provide within a landscape matrix that is increasingly influenced by habitat fragmentation and human disturbances (Pearson et al. 2003). From a wildlife perspective, roadless areas provide large, relatively undisturbed landscapes that are important as refugia, and to the long-term survival of many species-at-risk (USFS 2001). Once these landscapes are roaded, the habitat values often decrease as fragmentation, and associated impacts, occur (Miller et al. 1996). In the southern Rocky Mountains, roads may represent the most substantial long-term impact related to humans, and may potentially affect many of the ecological processes that create and maintain biological diversity (McGarigal et al. 2001).

Within the planning area, Inventoried Roadless Areas (IRAs) occur on approximately 604,000 acres. These IRAs make up approximately 32% of the USFS portion of the planning area, and include areas that may be impacted by roads in the future. Maintenance of these areas would continue to be important to the public and would continue to provide wildlife habitat values that are not attainable elsewhere.

### **Bighorn/Domestic Sheep Conflicts**

Both Rocky Mountain and desert bighorn sheep are classified as a big game species in Colorado. The CDOW sets and monitors their harvest levels in order to manage for healthy populations. As of 2005, there were several herds that supported an estimated 415 Rocky Mountain bighorn sheep within the planning area.

A primary issue associated with the management of bighorn sheep involves their high susceptibility to a variety of diseases and parasites, many of which have been contracted from domestic sheep (Geist 1971). For example, no studies report any bighorn sheep herds, fenced or free ranging, that have come in contact with domestic sheep and remained healthy (Martin et al. 1996). Bacteria, primarily *Pasteurella*, (and the resultant pneumonia), cause the primary disease that leads to bighorn sheep mortality in all age groups. The risk of disease transmission is impossible to eliminate when bighorn and domestic sheep occupy the same range area. This is because male bighorns are attracted to domestic ewes and/or they utilize the same foraging or watering areas. Contacts between wild and domestic sheep have frequently resulted in massive die-offs of bighorn sheep, which represents a loss of many years and costly efforts to restore the species to its former range. The loss of genetic diversity and herd memory of historical migration routes may also be irreplaceable when attempting to restore bighorns after a massive die-off.

Currently, there are no documented cases of *Pasteurella* transmittals from domestic sheep to bighorns within the planning area. There is some overlap between bighorn range and stocked sheep allotments. Many of the historic domestic sheep allotments that overlap bighorn herd ranges have been maintained as vacant allotments for at least a decade, thereby reducing the probability of disease transmittal.

### **Landscape Connectivity of Habitat Types and Highway Crossings**

Roads constitute one of the greatest impacts to landscape connectivity and maintenance of biodiversity. For example, roads can result in direct mortality and habitat loss, provide barriers to dispersal, alter behavior and habitat use, increase parasitism and predation, and present habitat modifications (including increased edge habitat and exotic species introductions) (Trombulak and Frissell 2000; McGarigal et al. 2001). In most cases, highways and primary use roads amplify these impacts due to the high amount, and to the characteristics, of traffic. The design of movement corridors or landscape linkages is accepted as a primary means of maintaining connectivity (Noss and Harris 1989; Rosenberg et al. 1997).

The primary ecological rationale for movement corridors in wildlife conservation is to increase population persistence by allowing the continued exchange of individuals among a previously connected population (Rosenberg et al. 1997). Due to the naturally fragmented nature of the southern Rocky Mountain landscapes, there are inherently important natural topographic and vegetation features that link disconnected patches of primary habitat and promote movement and habitat connectivity. Ridgelines, drainages, and saddles are examples of these features. The reintroduction of the Canada lynx to the southern Rockies in 1999 facilitated the need to identify where these inherent movement corridors are crossed by high-impact features, such as highways, so that dispersal and interchange among individuals could occur.

### **Increase in Recreation Uses**

The human population in Archuleta, Dolores, La Plata, and Montezuma Counties is indicative of the growth rate around the SJPL. From 1991 through 2000, these four counties grew at an average rate of approximately 43%. The growth rate projection for the year 2025 is 63% (U.S. Census 2000). This population growth is currently fueling a recreation boom that utilizes a proliferation of technological advances in motorized recreation, as well as a growing array of other recreational pursuits that are expanding their influence across the landscape. The growing human population, technological advances in recreational equipment, and continued increase of new forms of recreation can be expected to expand human activity into various wildlife habitats, including areas where direct human influences were previously minor or absent.

It is estimated that the planning area currently supports approximately 1.9 million visitor days per year. The visitor days include an array of summer uses, as well as several winter recreational pursuits. In both seasons, the activities involve motorized uses (ATVs and snowmobiles) and non-motorized uses (skiing and hiking). Based on the projected population growth, it is reasonable to assume that many types of recreational activities have the potential to substantially increase and expand. Some types of activities are based on personal challenges and competition, and require space, challenging terrain, and/or scenery. These and other pursuits can be expected to expand into designated Wilderness or backcountry areas that serve a vital role in terms of seclusion habitat for wildlife. The coexistence of wildlife with a growing human population that values a diversity of recreational pursuits will require continued planning and management.

### **Private Lands Conversion and Loss of Effective Winter Range**

Elk and mule deer occupy a variety of habitat types during the spring, summer, and fall seasons; however, they become concentrated on lower-elevation ranges during the winter (usually below 8,000 feet, although the upper elevation limit fluctuates depending on seasonal snow depth). Winter range areas are critical to big game. Within the planning area, the amount of winter range available is considered a limiting factor for the number of elk that summer at higher elevations (USFS 2006). Therefore, much of the winter range that elk depend upon occurs as a mosaic of land ownerships (including the SJPLC, the Southern Ute Indian Reservation, the State of Colorado, and private lands). On private land, the current rate of development and human population growth is influencing the availability of traditional winter range areas. Roads and other infrastructure have further dissected the available habitat and/or reduced habitat security. The population projection for southwestern Colorado indicates that there is a necessity to work with the public and with the CDOW in order to secure available winter range before additional development occurs, and to ensure that winter range areas within the planning area remain ecologically healthy and provide habitat security.

### **Fuels and Forest Restoration Program**

From a wildlife perspective, disturbance ecology is important because the life history patterns and responses of many terrestrial species have evolved together with particular disturbance regimes and habitats (Agee 1998; Lyon et al. 2000a). Disturbance factors such as windthrow, avalanches, insects and disease, floods, and wildfire are all important natural processes that help shape landscapes and influence wildlife species in the southern Rocky Mountains (Miller and DeMarco 2003).

The alteration of the natural fire regime through fire suppression has probably influenced every upland forest vegetation type within the planning area. The most profound alterations, however, have occurred in the lower-elevation habitat types (including ponderosa pine and warm-dry mixed-conifer stands) where species composition and structure was maintained by frequent low-severity fire events.

A primary goal of the SJPLC is to restore fire-adapted ecosystems so that they reflect their historic disturbance regime. This would be accomplished by returning fire to the landscape where fuel conditions and other factors are allowed under certain parameters approved in a prescription. In some cases, prescribed burns cannot be used as an initial management tool. This is because several fire-return intervals have been missed and the existing fuels cannot be burned within the accepted parameters. In this case, mechanical fuels reduction may be utilized as a disturbance agent until fire can be returned in a manner that reflects the low-intensity, low-severity fires that were characteristic of the reference period. In some locations, mechanical fuels reduction would be utilized instead of prescribed burns, due to human safety concerns or other factors. In upper-elevation forest vegetation types where the fire regime was characterized by mixed- or high-severity fires, the SJPLC would also utilize natural wildfires where, and when, they can be managed within acceptable conditions.

### **Gunnison Sage-grouse Conservation**

Gunnison sage-grouse currently occupy a small fraction of their historical range, and have been extirpated from much of their presumed historical distribution due to habitat conversion (Gunnison Sage-grouse Rangewide Steering Committee 2005). Although their distribution was probably always somewhat fragmented, the amount of fragmentation has greatly increased due to habitat loss. As of 2004, the total population of this species was estimated at approximately 3,200 breeding birds in 7 populations (75% of which occurred in the Gunnison Basin). The Gunnison sage-grouse remains a species of conservation interest in this planning process because 2 small populations occur on lands administered by the SJPLC and because of continued habitat and population viability concerns.

There are many threats and challenges associated with the management and continued persistence of Gunnison sage-grouse. The primary threat, however, is the permanent loss, and the associated fragmentation, of sagebrush (Gunnison Sage-grouse Rangewide Steering Committee 2005). These threats are amplified by land-ownership patterns, especially where the risk of urban expansion and/or habitat conversion is high. Currently, the majority of the occupied habitat occurs on private land; therefore, the amount of conservation benefit provided by lands administered by the SJPLC would be minimal for most subpopulations. In the Dove Creek area, for example, private lands make up roughly 87% of the occupied habitat, while BLM lands account for approximately 13%. The amount of SJPLC-administered lands is even smaller for the Miramonte and Hamilton Mesa subpopulations (where BLM lands make up approximately 2% and 4% of the occupied habitat, respectively). In the Dry Creek area; however, most (approximately 57%) of the occupied habitat occurs on BLM lands; therefore, the SJPLC may have more of a management influence on the subpopulation. As of 2004, there were no breeding leks associated with any lands administered by the SJPLC for any of the subpopulations, and all available habitat was utilized for other seasonal habitat values.

In 2005, the Gunnison Sage-grouse Rangewide Conservation Plan was completed in order to supplement the information in the local conservation plans and to provide a range-wide perspective regarding the conservation of Gunnison sage-grouse. The SJPLC is committed to assisting and participating in this plan through a formal Conservation Agreement, which was signed by both the USFS and the BLM in April 2005. Conservation efforts for the Gunnison sage-grouse within the planning area would continue through the opportunities identified in these plans and through local partnerships, as opportunities arise.

### **Riparian Areas and Wetlands Ecosystems**

Riparian areas and wetlands ecosystems associated with lakes, streams, rivers, and other water bodies are highly important habitats to numerous wildlife species, and are utilized disproportionately (more than their availability). In Colorado, it is estimated that at least 40% of the vertebrate species are closely associated with riparian habitats (Hoover and Wills 1984). These species include approximately 70% of the breeding birds in Colorado; as well as big game species, small mammals, furbearers, and a variety of other non-game species. Riparian areas and wetlands ecosystem habitats occupy only 2.1% of the planning area. Although small in acreage, the health and condition of these habitats is critical to the overall maintenance of biodiversity, especially in arid to semi-arid landscapes.

### **Beaver Management**

Within the planning area, the beaver is recognized for the important role it plays in maintaining the health and function of streams and aquatic systems. These benefits affect not only the ecological health of aquatic systems and other species of local interest, such as river otters, but also the downstream interests of people and communities. State and Federal officials estimate that beaver now occupy nearly all suitable habitat areas within the planning area, and that populations are stabilizing. The SJPLC would continue to work with State and private interests in order to ensure that beaver remain a key component of functioning aquatic and riparian systems. They would also, however, be managed, as necessary, in order to minimize conflicts with human needs and infrastructure.

### Threatened and Endangered Species

Wildlife species that are listed, or are proposed for listing, under the ESA have been, and would remain a focus of management attention within the planning area. Currently, there are four threatened and endangered (T&E) species that occur, or have habitat present, within the planning area. There are no known occurrences or habitats, available for any species proposed for Federal listing. The DLMP/DEIS alternatives would follow the recovery plans for federally listed species, adopt the Lynx Conservation Assessment and Strategy, and species conservation measures listed within the standards and guidelines section for T&E species. The T&E species under consideration in this DLMP/DEIS are listed below in Table 3.10.1.

Three of the federally listed species that occur, or have habitat present, within the planning area are listed as federally threatened; one species is listed as federally endangered. A brief description regarding the status of each species in Table 1.27.

**Table 3.10.1 – SJPL T&E Species List and Habitat Description**

SPECIES	FEDERAL LISTING CATEGORY	PRIMARY GAP HABITAT ASSOCIATION	GENERAL HABITAT AND STATUS ON THE SJPL
<b>Canada Lynx</b> ( <i>Lynx canadensis</i> )	Threatened	Spruce-Fir	Primarily inhabits high-elevation spruce-fir forests; also cool-moist mixed-conifer, high-elevation aspen mixed with spruce or cool-moist mixed-conifer, and willow-riparian adjacent to the above habitats. Closely associated with snowshoe hare as a primary prey item. The SJPL is considered part of the core habitat for the State lynx reintroduction program.
<b>Mexican Spotted Owl</b> ( <i>Strix occidentalis lucida</i> )	Threatened	Pinyon-juniper/ Mixed-Conifer	Mixed-conifer or ponderosa pine/mixed-conifer located in steep rock-walled canyons. Individuals have been documented on the SJPL; no documented reproduction to date.
<b>SW Willow Flycatcher</b> ( <i>Empidonax trailii extimus</i> )	Threatened	Riparian/ Wetland	Willow-riparian patches of at least 30x30x5-feet tall, and at least one-quarter acre or larger. Individuals have been documented on the SJPL; no documented reproduction to date.
<b>Uncompahgre Fritillary Butterfly</b> ( <i>Boloria acrocne</i> )	Endangered	Alpine	Alpine habitat above 13,000 feet with a snow willow component. Sites are generally found on north, northeast, and east aspects and represent the coolest microclimates in high alpine cirques. One small population is known to occur on the SJPL.



## **Canada Lynx**

In 2000 (March) the Canada lynx was listed as a federally threatened species under the ESA. Currently, there is no Federal recovery plan published for this species. On Federal lands, Canada lynx habitat is managed according to the Canada Lynx Conservation Agreement, which was signed by the USFS, BLM, and USFWS in the spring of 2000. Under that agreement, the land management agencies agreed to consider the recommendations contained in the Canada Lynx Conservation Assessment and Strategy (LCAS) (Ruediger et. al. 2000 and revised in 2006) in order to help guide planning activities and ESA Section 7 consultation. The LCAS includes habitat definitions; recommended analysis methods; and conservation measures, goals, objectives, standards, and guidelines intended to help provide a consistent approach to conserve Canada lynx in the conterminous United States.

The planning area represents the southern edge of the historic range of the Canada lynx. Individual lynx, or population groups, have been extremely rare or absent within the planning area, as well as within all of Colorado, since the early 1900s. In 1999, the CDOW initiated a lynx recovery program intended to augment any existing populations in the southern Rocky Mountains with transplants from Canada and Alaska. The augmentation program resulted in 218 lynx being transplanted into the San Juan Mountains between 1999 and 2006. The USFS and BLM land within the planning area contributed to the reintroduction effort and is considered part of a core area that is important to recovery of lynx in Colorado. From February 1999 to February 2005, 144 of the reintroduced lynx were detected in the planning area.

In the southern Rocky Mountains, high-elevation spruce-fir forests make up the primary habitat for the lynx, as well as for its primary prey species – the snowshoe hare. The majority of this habitat occurs on the USFS portion of the planning area.

## **Mexican Spotted Owl**

The Mexican spotted owl (MSO) is one of three subspecies of spotted owl in North America. In March 1993, the Mexican subspecies was listed as a federally threatened species under the ESA. The proposed rule to designate critical habitat for the MSO was completed by the USFWS in February 2001. That proposal included 4.6 million acres across Colorado, Utah, Arizona, and New Mexico. The 2001 proposal was considered inadequate by the courts in October 2003, and a new final rule to designate critical habitat was published in August 2004. The 2004 rule included 8.6 million acres across Federal lands in Colorado, Utah, Arizona, and New Mexico. Approximately 322,326 acres (approximately 3.7% ) of this land occurs in Colorado. The planning area was not included in the 2001 or the 2004 critical habitat designations.

In spite of extensive surveys from the late 1980s, only two verified juvenile male, one verified juvenile female, and one probable detection of an individual has occurred on the planning area, all on separate years. These detections may represent individuals that occasionally disperse and/or move to and from more suitable habitat to the south. The occurrence of MSO within the planning area appears to be irregular and uncommon, and similar to other locations in Colorado where apparently suitable habitat remains unoccupied.

In 1992, areas of potential suitable MSO habitat within the planning area were mapped. A total of 67,324 acres of habitat in 31 locations were mapped along the southern boundary of the planning area. These areas represent approximately 2% of the total acreage within the planning area. This habitat has remained stable over time because the habitat occurs mostly in rocky canyon areas that are not subject to frequent natural disturbances or management activities. Continued monitoring and maintenance of occupied habitats, if identified, would be the primary conservation measures that the SJPLC would utilize in order to aid in the recovery of this species.

### **Southwestern Willow Flycatcher**

The southwestern willow flycatcher (*Empidonax traillii extimus*) is one of four or five recognized subspecies of the willow flycatcher (Sedgewick 2001). In March 1995, the southwestern willow flycatcher (SWWF) was listed as a federally endangered species by the USFWS. The proposed rule to designate critical habitat for the SWWF was completed in October 2004. The proposal included 1,556 floodplain miles in California, Arizona, Nevada, Utah, Colorado, and New Mexico as critical habitat within the 100-year floodplain or within flood-prone areas. The proposal also identified the essential stream and lake edge habitats thought to be essential for conserving the species (USFWS 2004). There is no potential habitat within the planning area proposed as critical habitat for the southwestern willow flycatcher.

The current survey information suggests that SWWF are localized and uncommon within their probable range of *E. t. extimus* in southwestern Colorado.

In spite of extensive surveys, and suspected suitable habitat in some locations, there are no confirmed breeding populations of SWWF within the planning area.

Increasing trends in SWWF populations, and in overall riparian habitat conditions, suggest that ample unoccupied habitat is available, if the subspecies eventually begins nesting within the planning area. In summary, the current information suggests that the planning area does not measurably contribute to the recovery, or to the overall viability of the SWWF. The possibility of future individual breeding pairs, however, cannot be discounted as the recovery of the subspecies expands. Continued monitoring of potential and occupied habitats would continue to utilize the USFWS protocol. Maintenance of occupied habitats, if and when identified, would occur in order to aid in the recovery of this species.

### **Uncompahgre Fritillary Butterfly**

The Uncompahgre fritillary butterfly (UFB) was discovered in 1978, and described as a new species in 1980. In 1991, it was listed as a federally endangered species. The UFB has the smallest range of any North American butterfly, and is restricted to high elevation snow-willow habitats within a small geographical area in the San Juan Mountains and southern Sawatch Range in southwestern Colorado. Potential habitat within the planning area may occur on both BLM and USFS land.

Snow willow serves as the host plant for the eggs and larvae of the UFB,. Suitable snow willow sites, however, appear to be restricted to topographic features that occur rarely. Most of the snow willow patches within the planning area do not support the vegetative characteristics of occupied sites on neighboring forests (which may be related to soil and moisture factors).

The UFB was not known to occur within the planning area until 2004, when two of six habitat patches on adjacent USFS lands were identified as occurring east of the Continental Divide. There are no habitat threats identified for this colony (due to its remoteness), and the habitat patches are suspected to be stable. The existing data indicates that the population is persistent and that the colony currently remains one of the most extensive of the known populations (Ellingson 2003).

Since 1983, the number of known UFB colonies has increased (as more extensive surveys have been initiated). Currently, the species is known, or suspected, to occur at 12 colony sites, all of which contain various numbers of population clusters. After at least 9 years of intensive inventory, all probable locations for finding additional UFB colonies are nearly exhausted. There are no additional priority sites to survey within the planning area that may possibly support the species (although one additional site on USFS land is considered a possibility, if snow willow characteristics are adequate).

Currently, there are enough known colonies of sufficient size to down-list the UFB. However, the down-listing criteria calls for 10 stable colonies for a period of 10 years, and not enough colonies have been known for that long. There is also a need for more long-term data in order to determine population changes over time. Due to their seclusion, there are few, if any, immediate risks or management issues associated with the colonies. Continued monitoring and confidentiality of the colony locations are the primary conservation measures that would be pursued in order to aid in the recovery of this species.

### BLM and USFS Sensitive Terrestrial Wildlife Species

BLM and USFS Sensitive Terrestrial Wildlife Species are species that could become extirpated from Colorado, or from a substantial portion of their distribution, in the foreseeable future; species with small and widely dispersed populations; or species inhabiting ecological refugia or other specialized or unique habitats. The BLM and USFS Sensitive Terrestrial Wildlife Species under consideration in this DLMP/DEIS are listed in Table 3.10.2.

**Table 3.10.2 – SJPL BLM and USFS Sensitive Wildlife Species List and Habitat Association**

SPECIES	AGENCY DESIGNATED	HABITAT ASSOCIATION
<b>BIRDS</b>		
<b>American Bittern</b> <i>Botaurus lentiginosus</i>	USFS	Marsh, swamp, or bog with cattails, rushes, grasses, and sedges
<b>American peregrine falcon</b> <i>Falco peregrinus anatum</i>	BLM and USFS	Breeds on cliffs, often in association with riparian areas; regular breeder SJFO administrative unit
<b>American three-toed woodpecker</b> <i>Picoides dorsalis</i>	USFS	Mature spruce-fir forests; post-fire areas, especially stand replacement events
<b>Bald eagle</b> <i>Haliaeetus leucocephalus</i>	BLM and USFS	Lakes, reservoirs, rivers, and adjacent conifer and cottonwood riparian forest; primarily a winter visitor but also reproduces on the SJPL
<b>Black swift</b> <i>Cypseloides niger</i>	USFS	Vertical rock faces near waterfalls or in dripping caves
<b>Black Tern</b> <i>Chlidonias niger</i>	BLM	Edges of bulrush and cattail marshes; not known to occur on SJFO administrative unit; also R2 USFS sensitive but does not occur on USFS lands within SJPL
<b>Boreal owl</b> <i>Aegolius funereus</i>	USFS	Mature spruce-fir forests with high canopy closure
<b>Brewer's sparrow</b> <i>Spizella breweri</i>	USFS	Primarily sagebrush but also in mixed shrublands (rabbitbrush and greasewood)
<b>Columbian sharp-tailed grouse</b> <i>Pediocetes phasianellus columbianus</i>	USFS	Oak/serviceberry shrublands, often interspersed with sagebrush; aspen forests; irrigated pasture; recently reintroduced near Dolores, not expected for other units
<b>Ferruginous hawk</b> <i>Buteo regalis</i>	BLM and USFS	Grasslands and semi-desert shrub; not known to breed but a regular winter resident on SJFO administrative unit
<b>Flammulated owl</b> <i>Otus flammeolus</i>	USFS	Open ponderosa pine forests; dry montane conifer or aspen forests, often with dense saplings

**Table 3.10.2 – SJPL BLM and USFS Sensitive Wildlife Species List and Habitat Association (continued)**

SPECIES	AGENCY DESIGNATED	HABITAT ASSOCIATION
<b>BIRDS (continued)</b>		
<b>Gunnison sage grouse</b> <i>Centrocercus minimus</i>	BLM	Sagebrush grasslands; two small populations known to be resident on SJFO administrative unit; also R2 USFS sensitive, however, does not occur on NFS lands within SJPL
<b>Lewis' woodpecker</b> <i>Melanerpes lewis</i>	USFS	Open ponderosa pine forest, riparian, and pinyon-juniper woodlands
<b>Loggerhead shrike</b> <i>Lanius ludovicianus</i>	USFS	Lowland riparian, pinyon-juniper woodlands, semi-desert shrublands
<b>Northern goshawk</b> <i>Accipiter gentilis</i>	BLM and USFS	Ponderosa pine, aspen, mixed-conifer, and spruce-fir forests
<b>Northern harrier</b> <i>Circus cyaneus</i>	USFS	Grasslands, agricultural lands, mountain sagebrush, and marshes; requires abundant cover (same as for short-eared owl)
<b>Olive-sided flycatcher</b> <i>Contopus cooperi</i>	USFS	Snags and conifers, often on steep slopes, open stands, and natural openings
<b>Purple martin</b> <i>Progne subis</i>	USFS	Mature aspen stands near streams, springs, or ponds
<b>Short-eared owl</b> <i>Asio flammeus</i>	USFS	Open habitats, including grasslands, marsh edges, shrub-steppe, and agricultural lands; requires taller grass cover than Northern harrier
<b>Western burrowing owl</b> <i>Athene cunicularia</i>	USFS	Prairie dog colonies with vacant burrows; grasslands, shrublands, and deserts
<b>Western yellow-billed cuckoo</b> <i>Coccyzus americanus</i>	BLM and USFS	Riparian; gallery cottonwoods with dense understory
<b>White-faced Ibis</b> <i>Plegadis chihi</i>	BLM	Spring/fall migrant only; wet meadows, marsh edges, and reservoir shorelines
<b>White-tailed ptarmigan</b> <i>Lagopus leucurus</i>	USFS	Alpine tundra, especially with rock fields and willow carrs
<b>INSECTS</b>		
<b>Nokomis fritillary butterfly</b> <i>Speyeria nokomis nokomis</i>	USFS	Riparian; mostly tied to springs
<b>MAMMALS</b>		
<b>Allen's big-eared bat</b> <i>Idionycteris phyllotis</i>	BLM	Woodlands, mines, and caves
<b>American marten</b> <i>Martes americana</i>	USFS	Subalpine spruce-fir forests, alpine tundra, and montane forests
<b>Big free-tailed bat</b> <i>Nyctinomops macrotis</i>	BLM	Rocky and canyon country
<b>Fringed myotis</b> <i>Myotis thysanodes pahasapensis</i>	BLM and USFS	Pinyon-juniper and other coniferous woodlands

**Table 3.10.2 – SJPL BLM and USFS Sensitive Wildlife Species List and Habitat Association (continued)**

SPECIES	AGENCY DESIGNATED	HABITAT ASSOCIATION
<b>MAMMALS (continued)</b>		
<b>Gunnison’s prairie dog</b> <i>Cynomys gunnisoni</i>	USFS	Grasslands and semi-desert and montane shrublands
<b>North American wolverine</b> <i>Gulo gulo</i>	USFS	Rare; boreal spruce-fir forest and tundra
<b>River otter</b> <i>Lontra canadensis</i>	USFS	Stream and river riparian
<b>Rocky Mountain bighorn sheep</b> <i>Ovis canadensis canadensis</i>	USFS	Steep terrain dominated by grass, low shrubs, and rock areas
<b>Spotted bat</b> <i>Euderma maculatum</i>	BLM and USFS	Pinyon-juniper, shrub desert, and possibly riparian
<b>Townsend’s big-eared bat</b> <i>Corynorhinus townsendii</i>	BLM and USFS	Abandoned mines and caves
<b>Yuma myotis</b> <i>Myotis yumanensis</i>	BLM	Pinyon-juniper, semi-desert, and tied to riparian
<b>REPTILES</b>		
<b>Desert spiny lizard</b> <i>Sceloporus magister</i>	BLM	Shrub-covered dirt banks and sparsely vegetated rocky areas near flowing streams
<b>Longnose leopard lizard</b> <i>Gambelia wislizenii</i>	BLM	Shrublands with open ground
<b>AMPHIBIANS</b>		
<b>Boreal toad</b> <i>Bufo boreas</i>	USFS	Damp conditions; marshes, wet meadows, streams, ponds, and lakes
<b>Northern leopard frog</b> <i>Rana pipiens</i>	USFS	Water’s edge; wet meadows, banks of marshes, and ponds

**USFS Management Indicator Species (MIS)**

The terrestrial wildlife species listed in Table 3.10.3 have been selected as MIS for USFS lands within the planning area.

**Table 3.10.3 – USFS Terrestrial Wildlife MIS**

MANAGEMENT INDICATOR SPECIES	PLAN ISSUES FOR SELECTION
<b>WILDLIFE</b>	
<b>Abert's squirrel</b> <i>(Sciurus aberti)</i>	Impacts to native species and their habitat associated with changing the structure and function of ponderosa pine forests due to timber harvesting activities and fuels treatments that remove ponderosa pine trees and Gambel oak.
<b>American marten</b> <i>(Martes americana)</i>	Impacts to native species and their habitat in spruce-fir, cool-moist mixed-conifer, and aspen forests due to recreation and timber harvest activities.
<b>Mountain bluebird</b> <i>(Sialia currucoides)</i>	Impacts to native species and their habitat associated with changing the composition, structure, and function of aspen forests due to clear-cut timber harvesting activities.
<b>Elk</b> <i>(Cervus elaphus)</i>	Impacts to native species and wildlife winter range (pinyon-juniper woodlands, sagebrush shrublands, mountain shrublands, and ponderosa pine forests) due to recreation activities, fuels treatments, oil and gas development, and timber harvesting activities.

**Abert's Squirrel**

Abert's squirrel (*Sciurus aberti*) is considered well-distributed throughout the planning area, within suitable ponderosa pine habitat. The species was selected as a MIS in order to address the planning issue of impacts to native species and to their habitat associated with changing the structure and function of ponderosa pine forests (due to timber harvesting activities and fuels treatments that remove ponderosa pine trees and Gambel oak). Suitable Abert's squirrel habitat is limited to mid- and late-successional ponderosa pine forests (wildlife habitat structural stages 4A, 4B, 4C, and 5 of the ponderosa pine type). Currently, there are an estimated 230,878 acres of suitable, and 121,717 acres of optimal, Abert's squirrel habitat on USFS lands within the planning area.

Habitat analysis shows the 20-year trend for suitable Abert's squirrel habitat is stable, with a slightly downward trend in optimal habitat. Population trends for the planning area are not thought to differ from the habitat trends (which are generally stable with a possible slight downward trend).

Abert's squirrel is unique in that its life necessities are almost entirely provided by a single plant species: ponderosa pine. Preferred habitats are stands of all-aged ponderosa pine (with even-aged groups within the stands), open understories, and high canopy base levels (Patton 1975). These squirrels may also be found in Gambel oak and in pinyon-juniper forest types (frequenting such types only when they are associated with ponderosa pine). Depending upon the season, primary food sources are seeds, inner bark, terminal buds, and staminate flowers of ponderosa pine; fleshy fungi; and acorns from Gambel oak. Only foods from ponderosa pine and fleshy fungi are consumed in amounts important, from a quantitative point of view (Keith 1965). Nest trees are typically in a group of trees with interlocking crowns. Tree dominance strongly influences a squirrel's choice within a group. A nest tree located in a group of trees, with crowns interlocking or only a few feet apart, offers protection and alternate escape routes from predators.

Population limiting and controlling factors include insect and disease infestations, timber harvesting, prescribed burns, oil and gas development, and livestock grazing that impact ponderosa pine habitat. All of these facts have the potential to influence food sources and nesting availability. Other population-influencing factors include hunting and vehicle collision.



### **American Marten**

The American marten (*Martes americana*) is considered well-distributed throughout the planning area, within suitable habitat. The species was selected as a MIS in order to address the planning issue of impacts to native species and their habitat in spruce-fir, cool-moist mixed-conifer, and aspen forests (due to recreation and timber harvesting activities). Suitable habitat is considered mid- and late-successional spruce-fir and cool-moist mixed-conifer habitats (habitat structural stages 4A, 4B, 4C, and 5). Spruce-fir forest types would be considered primary habitat for this species. Currently there are an estimated 604,228 acres of suitable habitat for American marten on USFS lands within the planning area. Habitat trends are considered slightly upward, with stable to slightly upward population trends.

American marten prefer mesic (a habitat with moderate or well-balanced supply of moisture) forest conditions and forest stands with xeric (drier) conditions with structure near the ground. Marten appear prefer overhead cover, and they usually avoid extensive use of open areas, particularly in winter. Within the planning area, habitat for the marten occurs at the mid- to upper-elevation zones. Complex physical structure, especially when near the ground, appears to be an important component of marten habitat. These structures offer protection from predation, thermal microenvironments, and subnivean (under the snow layer) prey habitat during winter.

The stable prey species for the marten in the southern portion of its range is the western subspecies of the southern red-backed vole (*Clertrionomys gapperi*). Therefore, habitat components that favor the southern red-backed vole would also be considered important attributes of marten habitat. In the western mountains the southern red-backed vole are considered to be most abundant in mesic, late-successional, coniferous forests. Another potentially important component of marten habitat is the squirrel midden (the storage area where squirrels store their food). These structures provide natal and maternal dens and also serve as access to the subnivean space during winter. Red squirrels and snowshoe hare are also prey species of the marten. Other prey includes insects, birds, bird eggs, and fish. Marten will also take carrion when available, especially during the winter. During the late summer and fall, soft mast is consumed. ("Soft mast" describes seeds that are covered with fleshy fruit, as in apples and berries. Mast may also include seeds and fruits of all other plants such as grasses, herbs (forbs), pines, hardwoods, and fungi.)

Changes in small-mammal prey can influence the carrying capacity of marten habitat. Food shortages have the greatest impact on females and juveniles (due to their high energy requirements). Other population influences may include geographic isolation, low population densities, low reproductive potential, predation, competing predators, parasites and disease, weather, and trapping. Influential management activities may include timber management; as well as recreation, livestock grazing, and fire management.

### **Mountain Bluebird**

The mountain bluebird (*Sialia currucoides*) is considered well-distributed throughout the planning area, within suitable habitat. The species was selected as a MIS in order to address the planning issue of impacts to native species and their habitat associated with changing the composition, structure, and function of aspen forests (due to clear-cut timber harvesting activities). Nesting habitat is generally a subset of foraging habitat. The bluebird utilizes spruce-fir, mixed-conifer, ponderosa pine, aspen, and pinyon-juniper vegetation types. Nesting habitat is found within structural stages 4A, 4B, 4C, and 5. Foraging habitat also includes structural stages 1, 2, 3A, 3B, and 3C. Within the planning area, foraging and nesting habitats are essentially stable, with less than a 3% change over a 20-year period. Population trends are also considered stable for USFS lands within the planning area. It is estimated that approximately 93,693 acres of suitable breeding habitat, and approximately 257,949 acres of suitable foraging habitat, currently occur across USFS lands within the planning area.

Mountain bluebird breeding habitats include grasslands; sagebrush next to open, coniferous forests (especially ponderosa pine and pinyon-juniper); aspen forests; spruce-fir adjacent to mountain parks; spruce-fir clear-cut harvest areas; Gambel oak; and mountain shrub. There are two primary components of mountain bluebird habitat: tree cavities for nesting and open habitats for capturing prey on, or near, the ground.

Adult bluebirds are foraging generalists. They feed on a variety of invertebrates and berries, especially juniper berries during winter. Insect prey is captured on the ground after being pounced upon from an elevated observation perch, a technique named “ground-sallying.” Therefore, the density of ground and low-shrub vegetation is an important factor when determining bluebird foraging access. Bluebirds will also occasionally take insects out of the air by hovering or hawking over grasslands or forest openings. In pinyon-juniper woodlands, bluebirds are thought to provide an important role in juniper seed dispersal. This is due to their frequent use of juniper berries as a winter food source.

Bluebirds are obligate, secondary-cavity nesters because they are not capable of constructing their own nesting cavities. Rather, they use cavities, generally in large-diameter (more than 16 inches diameter at breast height (dbh)) trees, that have been excavated by other cavity-constructing species, such as hairy woodpeckers. Within the planning area, bluebird nests are most often found in pinyon-juniper, ponderosa pine, spruce-fir, and aspen habitats. Bluebirds appear to prefer snags in conifer habitats; however, they frequently use live trees with heartwood decay in aspen habitats. Most bluebird nests within the planning area are near the edges of meadows, parks, or other forest openings, or in stands with very open canopies.

Species limiting and controlling factors include nest site availability, food availability, perch sites, fire, weather, competition for nest sites, and mortality from tower collisions. Land management actions that could influence populations include timber harvesting, fire management, fuelwood cutting, and livestock grazing.

## **Elk**

The elk (*Cervus elaphus*) is considered well-distributed throughout the planning area within, suitable habitats. The species was selected as a MIS in order to address the planning issue of impacts to native species and wildlife winter range (pinyon-juniper woodlands, sagebrush shrublands, mountain shrublands, and ponderosa pine forests) due to recreation and travel-management activities, fuels treatments, oil and gas development, livestock grazing, and timber harvesting. Elk are considered generalists. They utilize a variety of vegetation types (including aspen, cool-moist and warm-dry mixed-conifer, mountain grassland, mountain shrubland, sagebrush pinyon-juniper, ponderosa pine, and spruce-fir). Cover-to-forage ratios are utilized in determining suitability of habitat, with the optimum being 60:40. Currently, there are an estimated 471,234 acres of suitable summer, and an estimated 1,571,617 acres of suitable winter, habitat distributed across USFS lands within the planning area. Summer habitat trends are currently considered stable, and winter habitats are in an upward trend. Elk population trends have increased from 1982 to the mid-1990s, where they peaked. Numbers are currently down from the mid-1990s, but the trend is considered stable. No correlation is noted between habitat trends and population trends over time. CDOW population management through hunting has the greatest influence on population trends.

As generalist feeders, elk are both grazers and browsers. In the northern and central Rocky Mountains, grasses and shrubs compose most of the winter diet for elk, (with the former becoming of primary importance in the spring months). Forbs become increasingly important in late spring and summer, and grasses are again dominant in the fall. Forbs tend to be favored on drier sites, but browse is preferred in most mesic areas (including aspen stands, willow communities, and moist meadows).

Elk tend to inhabit higher elevations during spring and summer, and then migrate to lower elevations for winter range. However, some elk herds are relatively sedentary. Migrating elk typically follow the melting snowpack upslope in spring; fall migrations are tied to weather and forage availability. Snow depth of about 40 cm triggers elk movement to winter ranges. Although elk can move through snow over a meter deep, this condition forces the animals to plow through snow in single file and change leaders as they tire. During winter, elk form large mixed herds on favored winter range.

Calving grounds are carefully selected by the cows, and are generally in locations where cover, forage, and water are in juxtaposition. In western Colorado, most females calve within 200 meters of water. Females with calves isolate themselves from the herd for the first 2 to 3 weeks. Once the calves are large enough, females with young rejoin the herd (Fitzgerald et al. 1994).

Population controlling and limiting factors include predation, hunting, parasites and disease, foraging competition, availability of winter habitat, and disturbance during critical life functions. Influential management activities may include timber harvesting, fire management, oil and gas development, livestock grazing, and recreation and travel management.

## ENVIRONMENTAL CONSEQUENCES

This analysis discloses the anticipated environmental consequences related to the implementation of the alternatives on terrestrial wildlife species. The format of this analysis is based on species groups that occur within the planning area, and the various resource program areas that may influence them.

The goal of the alternatives is to provide ecological conditions that support a diversity of native and desired non-native terrestrial wildlife species over the long term, and that promote the recovery of federally listed species. The SJPLC would provide for the range of habitat requirements for species by managing for objectives that result in the desired conditions outlined in the DLMP/DEIS.

The strategy of the alternatives, each of which addresses the strategy at different levels, is to provide conditions (within the lands capability) that would support the full compliment of native and desired non-native terrestrial wildlife species within the planning area. Guidance provided in the desired conditions, objectives, standards, and guidelines components of the DLMP/DEIS would contribute toward recovery and delisting of T&E and proposed species. This guidance would also contribute toward the prevention of BLM and USFS Sensitive Species trending toward listing.

Implementation of the preferred alternative, and consistent monitoring of outcomes for habitat and species, may provide the impetus toward the desired conditions. Monitoring would provide an evaluation of this approach, and would help to identify needs for possible LMP amendments, or other changes in management practices. Scientific efforts to track changing conditions in key areas, and for specific species, would continue to be an important step in accomplishing objectives and achieving desired conditions for the wildlife program. Alternative implementation would involve close coordination with the CDOW and the USFWS. Cooperation with CDOW is critical; however, partnerships with local, State, Native American tribal, and other federal agencies, as well as with interested organizations and individuals, would help the SJPLC better manage for wildlife. Such partnerships would also serve as an important means to achieve desired conditions and accomplish multiple objectives.

## **IMPACTS OF SPECIES GROUPS**

### **Habitat Trends**

Most, if not all, of the habitats within the planning area have been utilized by humans for centuries. However, dramatic changes to habitat did not occur until after Euro-American settlers arrived in the late 1800s. In general, the amount of change that occurred after the settlement, or reference, period is greatest in the low to moderate habitat types, and decreases as the elevational gradient increases. Usually low-elevation habitats, such as ponderosa pine, riparian areas and wetland ecosystems, and grasslands, underwent the greatest change. This is because they offered highly valued and accessible resources (including water, forage, and lumber), while higher-elevation systems (such as alpine tundra and spruce-fir) remained relatively unaltered. Low-elevation habitats have also been subject to more substantial change due to alterations in natural disturbance factors (including wildfire or floods).

Within the planning area, the current condition and trend of habitats has important implications when considering habitat improvement and restoration priorities. However, the condition and trend of the habitats on private land must also be considered in relation to overall wildlife conservation and biodiversity goals. For example, ownership patterns become more fragmented at lower elevations within the planning area (because of the interspersed private land and in-holdings). Historically, much of this land was utilized by big game species as seasonal winter range. Other wildlife species also migrated to lower elevations during the winter period and/or utilized lower elevation habitats for dispersal or migration routes. For some species (including the Gunnison sage-grouse and the mountain sharp-tailed grouse), lands under other ownerships play a key role in their persistence within the planning area. Low-elevation habitats, both on and off the SJPL, continue to be vital to the over-winter survival and population objectives of some big game species (including Rocky Mountain elk). (See the Analysis of the Management Situation for further detail on habitat trend across the planning area). This analysis discloses the anticipated environmental consequences of the proposed alternatives on terrestrial wildlife species. The format of this analysis is based on species groups that occur within the planning area, as well as the various resource program areas that may influence those groups.

### **SPECIES CATEGORIES AND PROGRAM AREA**

The species groups included in this section are analyzed relative to the program areas that may influence those groups. Some programs, such as air resources and the terrestrial wildlife program, are not included in the analysis because they would result in little to no ground disturbance; therefore, they would not be expected to measurably influence these species groups. The program areas and environmental consequences discussed for each alternative may vary for each species group.

The guidance included in the DLMP/DEIS, relative to the desired conditions, objectives, and standards and guidelines, would apply to each species group. This guidance would assist in minimizing impacts, to various degrees, for each species group, and is expected to provide the ecological components necessary in order to support sustainable populations of all terrestrial wildlife species that occur within the planning area.

## Amphibians and Reptiles

**Impacts Related to Influential Program Areas** - Some program activities that may influence amphibian and reptile populations would continue to be addressed in activity planning and management. These program areas include livestock grazing, recreation travel, timber resources, fire and fuels, and solid and fluid minerals. Influences from these programs may vary, depending upon their location and proximity to amphibian and reptile breeding and foraging habitats. The following are examples of program activities that may present concerns during project design.

- Timber harvesting may directly impact amphibians, if it occurs in the vicinity of riparian areas and wetland ecosystems that function as breeding habitats.
- Solid-minerals programs may impact amphibians or reptiles, if they occur in, or near, stream areas or other riparian breeding habitats and areas used for breeding and foraging by reptiles.
- Acid-rock drainage that has historically been associated with solid-minerals extraction in some drainage areas. (Currently, programs are underway to alleviate acidity problems and restore water quality, where possible.)
- Fluid-minerals programs may impact amphibians through accidental spills of chemicals, saline water, or petroleum at the well site, or through fragmentation or crushing in relation to access roads.
- Livestock grazing that occurs within riparian areas, or that influences upland habitat components.

Standards, guidelines, and design criteria (including the Watershed Conservation Practices Handbook (Region 2 Supplement); the Boreal Toad Conservation Plan and Agreement (2001); the Conservation Agreement signed by the R2 Regional Forester (3/29/2001) and the U.S. BLM State Director (3/26/2001); Rangeland Standards and Guides; and Travel Management Standards and Guidelines) would be applied at the project and activity levels in order to address these program concerns.

**DLMP/DEIS Alternatives:** All of the alternatives may have potential negative, and positive, influence on amphibians and reptiles. The alternatives that would emphasize more ground-disturbing activity in or near primary habitat areas for amphibians (including riparian areas and wetlands ecosystems) and upland reptile habitat may carry greater potential impact to these species groups. LMP components (including desired conditions, objectives, design criteria, and standards and guidelines) would apply to all of the alternatives. These components, which would allow for the formulation and implementation of mitigation, stipulations, and/or other conservation measures for the species (as need, on a site-specific basis) may reduce the impacts to acceptable levels.

There would be no difference in projected outputs between alternatives for some widespread programs that may influence amphibians and reptiles. For example, the projected outputs for fire and fuels, water/fish programs, and solid minerals would be similar under all of the alternatives. However, Alternative D would propose a slight increase in acreage available for timber harvesting and fluid minerals, as well as a substantial increase in acreage suitable for summer motorized travel and an increase in livestock grazing. Alternative D would also increase the amount of land area available for active management activities that could impact amphibian and reptile habitat, if the activity was not controlled and monitored, as intended.

Under all of the alternatives, potential impacts may be limited by the implementation of LMP components (as described above). However, the potential for impacts and the need for control and monitoring for amphibians, reptiles, and their habitat, may be greatest under Alternative D. This is because it would have the greatest amount of outputs that may potentially negatively impact species habitat. Alternative C would have the least number of outputs that could potentially impact species habitat. Potential negative impacts from outputs to amphibian and reptilian habitat may be similar under Alternatives A and B (where the output levels fall between the levels for Alternatives D and C). Implementation of LMP components under each alternative is expected to maintain sustainable populations across the planning area.

## **Birds**

**Impacts Related to Influential Program Areas** - Potential influences on bird species that may occur within the planning area are addressed through current project and activity management. Management standards and guidelines have also been updated, and design criteria would be applied in order to address these concerns. Potential impacts associated with different species groups and alternatives that are addressed in project and activity analysis and design are described below.

**Cavity Nesters:** The potential direct and indirect impacts related to multiple-use programs on bird species dependent on tree cavities for nesting, or standing dead trees for their primary foraging substrate, may be widespread across the planning area. They may be of minor to moderate levels, depending upon the degree of public access, primary habitat type, topographical position, and bird species' natural history requirements. In general, potential impacts to snag-dependent birds may be limited primarily to those program areas that cause, directly or indirectly, or facilitate the loss of standing snags (especially those snags greater than about 16-inch dbh). Project design criteria and desired conditions would protect and maintain standing snags, especially large-diameter snags. In general, Alternative C may result in the least impacts on habitat components for snag-dependent birds, followed by Alternatives B, A, and D, respectively. This is based on the relative output amounts for Alternatives that may reduce snag habitat.

Examples of program areas that have the potential to result in the loss of standing snags, or indirectly facilitate the loss of snags, include recreation travel, timber resources, fire and fuels, and solid and fluid minerals. Other activities, such as watershed/fisheries improvements, livestock grazing, and invasive plant species treatments, might also indirectly influence the distribution and/or abundance of standing snags. However, the impacts related to these other activities are expected to be site-specific in nature, and may only impact small numbers of snags in limited areas. They may, therefore, result in no impacts on population sustainability of snag-dependent birds across the planning area.

Recreation travel projects that would develop new access, or substantially improve existing access, to areas that typically have higher densities of large-diameter standing snag (including riparian areas and ridge top), may indirectly facilitate increased losses of snags from personal use firewood gathering, thereby degrading habitat value for snag-dependent birds. Restricting off-road travel to designated routes across the SJPL would likely protect existing snags, especially those large-diameter snags near roads, by reducing the number of snags accessible to cutting for personal use firewood.



Timber harvesting may result in the greatest direct and indirect impacts to habitats for snag-dependent birds, when compared to other agency program areas. Annually, based on the experienced budget level, approximately 2,165 to 3,750 acres (depending upon the alternative) may be managed for timber production within the 10- to 15-year life of the LMP. Prescribed burns may be used to treat understory and slash. (Prescribed burns are frequently used as follow-up treatments in ponderosa pine and warm-dry mixed-conifer stands, and often result in the loss of soft snags from embers catching in the crowns of large-diameter standing pine snags). Some areas within the planning area are considered to have snag densities well below levels necessary to sustain populations of snag-dependent birds. As a result, the Pagosa and Mancos-Dolores Ranger Districts have implemented bans on cutting large-diameter ponderosa pine snags for personal use firewood. For snag-dependent birds associated with ponderosa pine stands, Alternatives A, B, and C would have the least outputs, which may adversely impact the snag component. Alternative D would have the most outputs. Across all habitat types, Alternative C would have the least outputs, which may, in turn, negatively impact snag-dependent birds, followed by Alternatives B, A, and D, respectively. Project design criteria and desired conditions would be the same under all of the alternatives, and would be intended to protect and maintain large-diameter snags and increase recruitment of replacement snags.

Fire and fuels reduction projects usually result in slight declines in snag densities within project areas (due to requirements to remove snags for the safety of forest workers, and due to a loss of soft snags to flying embers). Prescribed burns may also create snags from trees killed by the fire. These snags, however, are usually much smaller in diameter than the soft snags lost during the burn and, therefore, the net habitat value for snag and cavity-dependent birds generally declines following prescribed burns. Most prescribed burns and mechanical fuels reduction treatments would occur in ponderosa pine and warm-dry mixed-conifer habitats. For this reason, fuel treatment project impacts to snag-dependent birds would depend, primarily, upon maintaining and creating large-diameter ponderosa pine and Douglas-fir snags. Over the long term (more than 30 years), fuel treatment projects may result in higher rates of recruitment of large-diameter snags. This is because project design criteria and plan desired conditions would favor the retention of large-diameter trees, and would favor the restoration of ecosystem function (including disturbance processes, such as natural fire). Because all of the alternatives would not likely affect the acreage of fuel treatment projects, there may be little difference between the alternatives in impacts to snag-dependent birds from fuel treatment projects.

Most fluid-minerals development would be likely to occur in the ponderosa pine, pinyon-juniper, and warm-dry mixed-conifer habitat types. Fluid-minerals development may slightly reduce habitat quality for snag-dependent birds during the life of the LMP, and the level of impact may be minor to moderate (depending upon habitat type, past management history, and extent of public access, both before and after project development).

**DLMP/DEIS Alternatives:** Each alternative would have outputs that may negatively impact the snag component for cavity-nesting species. Generally, Alternative D would have the greatest number of outputs that may reduce the snag component. Alternative C would have the least number of identified outputs. Alternatives A and B would have similar levels of identified outputs. Implementation of LMP components (as described above) designed to protect and maintain important habitat characteristics of the snag component are expected to maintain sustainable populations across the planning area under all of the alternatives.

**Migratory Birds:** Within the planning area, approximately 350 bird species are known to occur, are thought likely to occur, or have habitat within the planning area (and/or may use the SJPL at some time during the year). Not all species occur within the planning area every year, or during every season (nesting, migration, and wintering seasons). Some birds (including Williamson's sapsucker and northern goshawk) nest and forage in a variety of habitat types. Other species (including golden eagle and prairie falcon) nest in one habitat type (e.g., rock cliffs), but usually forage in other habitat types (e.g., grassland). Also, some species that breed within the planning area (including the black-throated gray warbler and cordilleran flycatcher) leave in late summer for remote wintering areas in Central and South America. Other species (including the dusky grouse and pinyon jay) are found within the planning area throughout the year. Finally, some species (including the black swift and American dipper) are habitat specialists associated primarily with distinct and/or rare habitat conditions. Other species (including the red-tailed hawk and American robin) are habitat generalists that occur in a variety of habitats, and across most elevations within the planning area. Due to the large number of migratory bird species, and to the broad range of habitats and seasons of occurrence of migratory birds within the planning area, all of the alternatives may, in some way, impacts habitat capability for migratory birds.

In general, the amount of habitat likely to be altered under the alternatives is expected to be small, when compared to the amount of habitat currently available within the planning area. For this reason, and for most species, the impacts of direct habitat alteration on migratory birds may be generally small, and not sufficient to result in population-level impacts, or in changes in species distribution. Impacts to species would vary under all of the alternatives. Impacts are likely to occur on breeding, foraging, or wintering habitats (or some combination of all habitats) depending upon bird species and season. For every action carried out under any alternative, some bird species may benefit from habitat alterations, some species may not be impacted, and some bird species may be negatively impacted. The level of impact to migratory birds would differ depending on factors such as primary habitat association, habitat generalist or specialist, and season of species occurrence.

Key groups of migratory bird species are those listed under the ESA, species designated as game species (both upland and waterfowl), or species of conservation concern (including the Gunnison sage-grouse and Columbian sharp-tailed grouse). Program areas that may have the greatest potential influence on key bird groups include timber resources, recreation travel, fire and fuels, livestock grazing, and mineral development.

Smaller program areas (including watershed/fisheries improvements, wildlife habitat improvements, and invasive plant species programs) may influence multiple migratory bird species. Impacts, however may be small and localized. Most negatively impacts to migratory bird habitat from the smaller programs may be relatively short in duration and small in scale (and may provide potential long-term habitat improvement benefits for other migratory bird species.)

The planning area provides large amounts of high-quality habitat, when compared to adjacent land owners. These habitats are critical for maintaining populations and distributing migratory bird species. Both timber and fire and fuels programs may be highly influential on habitats for migratory birds in some key groups (including the snag-dependent species discussed above). Long-term habitat impacts may be both positive and negative, depending upon the project type, habitat affected, previous management history, bird species involved, and other factors. Other influential program areas that may have the potential to greatly alter habitat value for migratory birds include recreation travel, livestock grazing, and solid- and fluid-mineral development.

The great variability in migratory bird species, key habitat components upon which migratory birds depend for habitat effectiveness, and the variety of season of use and/or presence within the planning area, indicates that all alternatives may result in positive, neutral, and negative impacts to some migratory birds. This would depend upon the bird species impacted, the scope and scale of the project, and other factors. The degree and direction of impact may vary, depending upon factors such as application of project design criteria, the season of year projects are implemented, and general habitat type. Similar to other groups, such as mammals, alternatives that would emphasize ground-disturbing activities in program areas that occur in primary migratory bird habitats may carry a greater risk of causing higher and more negative impacts to more bird species. Projects would implement LMP direction (including forest structural stage and canopy cover objectives, snag and downed-log retention standards and guidelines, timing limitations close to key nesting areas, such as cliffs and caves), which may effectively minimize impacts to migratory birds related to the alternatives.

**DLMP/DEIS Alternatives:** Impacts to migratory bird habitats are expected to be similar across all of the alternatives for those program areas that have similar expected annual outputs (such as fire and fuels treatments). In general, the impacts of LMP implementation are likely to have the greatest number of outputs, which may change habitat components for raptors under Alternative D, the least outputs under Alternative C, and similar outputs under Alternatives A and B. Depending upon the species group, influences on migratory birds may be expected to vary in intensity, and over time. Each alternative, to varying degrees, is expected to be guided by HRV for available habitats across the planning area. Implementation of LMP components (as described above) is expected to sustain populations across the planning area under each of the alternatives.

**Raptors:** The potential impacts of the alternatives in relation to raptors would be primarily associated with disturbance and/or habitat alteration at, or near, nest sites or roosts, and winter concentration areas. Habitat alteration usually involves the loss of large standing snags that project above the surrounding forest canopy (super-canopy trees), along the forest edges that provide favored hunting perches, or the loss of atypical mature trees that provide sites for support of large and bulky stick nests. Under all of the alternatives, project design criteria and desired conditions would protect and maintain large-diameter snags, and increase recruitment of replacement snags. Examples of program areas that may result in the loss of large-diameter snags include recreation travel, timber resources, fire and fuels, and solid and fluid minerals.

Some raptor species are especially sensitive to disturbance, and may suffer reduced productivity or abandon nests in response to human activity within distances of ¼- to ½-mile of nest sites. The level of disturbance-related impacts would depend upon the raptor species involved, and on site-specific conditions (including topographic screening, forest vegetation type and density, cliff structure, and road and trail access). Raptor nesting sites tend to be used regularly and predictably for many years; therefore, protecting raptor nesting sites would continue to involve the application of timing restrictions and buffer distances around specific sites in order to prevent recreation disturbance during key nesting seasons and locations. The CDOW has developed species-specific recommendations for timing restrictions and buffer distances around raptor nesting and winter roost sites (Craig 2002). These recommendations have been adopted by the SJPLC, with some minor changes due to local conditions and site-specific knowledge. With the application of project design criteria and mitigation measures, the impacts related to management activities in all project areas may be limited in scope, and small in scale and, therefore, they may not result in widespread raptor population impacts. The criteria would include fluid mineral leasing stipulations; Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors (CDOW 2002); Management Recommendations for the Northern Goshawk in the Southwestern United States (Reynolds et al. 1992); Flammulated, boreal, and great gray owls in the United States: A technical conservation assessment (Hayward and Verner 1994); and Recovery Plan for Mexican Spotted Owls (USFWS 1995).

**DLMP/DEIS Alternatives:** Impacts to raptor species habitats are expected to be similar across all of the alternatives for those program areas that have similar expected annual outputs, such as fire and fuels treatments. In general, the impacts of LMP implementation are likely to have the greatest number of outputs, which may change habitat components for raptors under Alternative D, the least outputs under Alternative C, and similar outputs under Alternatives A and B. The implementation of LMP components (as described above) to maintain raptor habitat effectiveness would maintain sustainable populations across the planning area under each of the alternatives.

## **Mammals**

**Impacts Related to Influential Program Areas** - There are numerous mammal species that utilize various habitats within the planning area. Generally, the mammals are categorized as species groups, such as furbearers and carnivores, big game species, small- to medium-sized mammals, and specialized mammal groups (including bats). Some species, such as the deer mouse and black bear, are generalist species that occur in a variety of habitats while others, such as the southern red-backed vole and American marten, are associated primarily with distinct habitat types and/or vegetative successional stages. Specialized species (such as bats) may only reproduce in rare or unique habitat features (such as caves, rock crevices, and/or specific age classes of snags). The vast differences in life history and habitat requirements suggest that many mammals may be influenced by habitat conditions and/or by human activities (as addressed in the alternatives). A variety of impacts, however, may be expected on the mammal group as a whole. Potential influences on all mammal species that occur within the planning area are currently addressed through project and activity planning management. Standards and guidelines have been updated, and design criteria would be applied in order to address these concerns.

In relation to the planning process, the key species groups evaluated for environmental consequences involve demand species (including big game) and other groups of interest (including furbearers, carnivores, and bats). Where applicable, discussions concerning small mammals and/or other species are also evaluated. Program areas that may have the greatest potential influence on most of the mammal groups include timber resources, recreation travel, fire and fuels, livestock grazing and, depending upon location, both solid and fluid minerals. As with amphibians, smaller program areas, such as watershed/fisheries improvements and invasive plant species treatments, may also influence mammals at a smaller and more local scale. The wildlife program also anticipates completing approximately 500 acres (except under Alternative D) of terrestrial habitat improvement per year. This may influence several species, depending upon the type of habitat and species group targeted. Depending upon location and timing, all of these habitat improvement programs may result in potential short-term impacts, but have long-term habitat improvement benefits.

Within the planning area, the most popular big game species are Rocky Mountain elk and mule deer. Moose, mountain goat, and Rocky Mountain and desert bighorn sheep are pursued to a lesser degree, but are also of high economic and social value. The CDOW is responsible for managing the State's big game and other wildlife populations; however, lands in public ownership are critical for providing the habitat necessary in order to achieve many of the wildlife population goals. Both the timber and fire and fuels programs may impact elk and mule deer habitat, and may result in both positive and negative impacts, depending upon scale, location, time since treatment, and other factors. Other programs that may be influential include recreation travel, livestock grazing, and solid and fluid minerals. However, potential impacts on public lands may be nullified, or exacerbated, by the current trends associated with human development and land-ownership patterns in southwestern Colorado. Presently, the human population is growing, and many ranches and other undeveloped private land that provided historic wildlife habitat are being developed into residential subdivisions. This growth pattern would primarily impact elk and mule deer that traditionally winter at lower elevations; however, other big game species may also experience impacts as other human activities (including from recreation, traffic, and infrastructure) also increase. The human population expansion on private lands may also place additional pressure on public lands to support deer and elk populations that utilize a limited amount of available winter range.

Due to their high economic and aesthetic values, Bighorn sheep are important to the planning area, the State of Colorado, and to the public. A primary issue involved with the management of bighorn sheep involves their susceptibility to a variety of diseases and parasites when they come in contact with domestic sheep. Currently, there are no documented cases of disease transmittals from domestic sheep to bighorns within the planning area. However, the SJPLC would continue to stock active domestic sheep allotments; therefore, the risk of disease transmission would remain when bighorn and domestic sheep occupy the same range area. Decisions associated with the livestock grazing program will continue to be especially important to bighorn sheep within the planning area. Design criteria would be the same for all of the alternative, and would address these issues in order to minimize the potential for disease transmission.

Recreation travel, and the fire and fuels program could also be influential depending upon location. In localized areas, solid and fluid minerals could directly or indirectly impact bighorn sheep habitat.

Carnivores and furbearers constitute another group of mammals that are of public interest, and that could be influenced by various program areas and management activities. This group contains a wide variety of species that inhabit water bodies, stream and riverine systems, grasslands, and various coniferous forest and other vegetative systems. Species of local interest include beaver, river otter, mink, badger, skunk, muskrat, ring-tailed cat, raccoon, coyote, black bear, mountain lion, bobcat, Canada lynx, American marten, red fox, gray fox, and weasel species. The furbearer and carnivore group includes one federally listed species – the Canada lynx – as well as several species that have been most likely extirpated from the planning area (including grizzly bears, wolves, black-footed ferret, and, perhaps, the wolverine). Most furbearers and carnivores are of high economic and aesthetic value to the public, and of high ecological value. This is due to their role in the food chain, and their place as keystone species in maintaining other ecological functions (such as beaver and their ecological value to wetlands and riparian systems). Many carnivores and furbearers are wide-ranging species that utilize topographic features and vegetative conditions as habitat and movement corridors, and can, therefore, be influenced by factors that impact landscape connectivity. Timber resources management may result in some of the greatest impacts on carnivores and furbearers. However, all program areas can be influential due to the wide variety of species and habitats utilized.



Bats are a unique group of mammals; they can be influenced by a variety of program areas. Currently, there are at least 16 species of bats that occur on, or near, the planning area boundary, in nearly every ecological zone available. Structures and habitat types that are especially important to most bat species include caves, mines, rock outcroppings and crevices, snags, old buildings, water sources, and riparian zones.

Within the planning area, the variability of species types and habitats used by mammals suggests that all of the alternatives have the potential to negatively and positively impact mammals. As with other species groups, those alternatives that would emphasize more ground-disturbing activity in program areas that occur in, or near, primary habitat areas for mammals may carry a greater potential for impact. The potential for influential impacts and disturbances would vary widely among species. However, activities that occur within, or around, active breeding or young-rearing areas would most likely have a greater impact on a wider variety of species. The LMP components (including desired conditions, objectives, and standards and guidelines, as described above) would reduce potential impacts to acceptable levels. These components would allow for the formulation and implementation of mitigation, stipulations, and/or other conservation measures, as needed, on a site-specific basis, in order to reduce impacts to mammals. In general, the distribution of habitat components and habitat diversity across the planning area would be guided by land capability and HRV. The habitats would vary somewhat in distribution, depending upon output implementation under the alternatives.

Implementation of LMP components resulting in landscape linkage zone development, forest structural stage and canopy cover management, snag and downed woody retention, and denning site protection would also benefit mammal species.

***DLMP/DEIS Alternatives:*** Potential impacts to mammals are expected to be similar under all of the alternatives for some influential program areas because the outputs would be similar. However, the potential for impact, as well as the need for control and monitoring, for some mammal species and their habitat may be greatest under Alternative D; the least under Alternative C; and similar between Alternatives A and B. The differences would be due to the slight acreage increase in potential outputs under Alternative D (in relation to the number of acres available for timber harvesting, the available livestock AUMs, the fluid-minerals development; and the substantial increase in acres suitable for summer motorized travel). Alternative D would also have a larger amount of land area available for active management activities that may, in turn, impact habitats, movement, and disturbance, if the activity is not controlled and monitored as intended.

## **Invertebrates**

***Impacts Related to Influential Program Areas*** - The primary invertebrate species of conservation concern within the planning area include the Uncompahgre fritillary butterfly and the Nokomis fritillary butterfly. The Uncompahgre fritillary butterfly (UFB) is a federally endangered species that occurs in select high alpine habitats, and is only known to occur in one small site within the planning area. Other small potential habitat areas may exist; however, after at least 9 years of intensive inventory, all probable locations for finding additional colonies are nearly exhausted.

The Nokomis fritillary butterfly is a distinct species in the genus *Speyeria* that has been documented as occurring within the planning area. It is primarily associated with moist meadows and riparian areas where its host plant – *Viola nephrophylla* – is available on which to lay eggs. The eggs over-winter, with flight generally occurring from late July through mid-September. Nectar sources primarily involve thistle species.



The potential impacts related to program areas on the Nokomis fritillary butterfly are expected to be similar to those described previously for fish and amphibians. Project activities that may impact riparian areas, springs/seeps, and streamside zones are especially important to consider. This is because these areas provide habitat for the host plant and for the development of young and eggs. Potentially influential program areas include livestock grazing, recreation travel, timber resources, fire and fuels, and both solid and fluid minerals. Programs such as watershed/fisheries improvements and invasive plant species treatments may also pose short-term risks of impact, while, at the same time, offering long-term habitat improvement benefits.

Other than possible illegal collections, there are few activities that would potentially impact any UFB colonies, or their habitats, under any of the alternatives. (Additional discussion on the UFB is provided in the Terrestrial Wildlife T, E, and C section of this analysis.) Design criteria are expected to minimize and mitigate potential impacts to UFB populations that result from resource management. These design criteria would be the same under all of the alternatives.

All alternatives would have potential influences on the Nokomis fritillary butterfly. The alternatives that emphasize more ground-disturbing activity in those program areas in, or near, riparian areas that support the host plant *Viola nephrophylla* may carry a greater potential for impact to this species. LMP components (desired conditions, objectives, and design criteria) are intended to reduce potential impacts to acceptable levels. These components would allow for the formulation and implementation of mitigation, contract stipulations, and/or other conservation measures for the species, as needed, on a site-specific basis. Livestock grazing is an example of a program area that may benefit from these considerations. This is because grazing is widespread in riparian areas and may occur prior to the young taking the first flight from the host plant.

**DLMP/DEIS Alternatives:** Potential impacts to the Nokomis fritillary butterfly are expected to be similar under all of the alternatives because the outputs are similar in several influential program areas. However, the risk of impact, and need for LMP components, may be greatest under in Alternative D; the least under Alternative C; and similar between Alternatives A and B. The differences would be primarily due to the increase in acreage suitable for summer motorized travel,. Under Alternative D, however, the slight increase in acreage available for timber harvesting and fluid-minerals development may also pose some potential for impact. Alternative D would also increase the amount of land area available for active management activities that could influence habitats, movement, and disturbance. Design criteria would be the same under all of the 1 alternatives, and would provide for sustainable populations under each of the alternatives.

### **Cumulative Impacts Related to Influential Program Areas on General Species Groups**

Actions taken to implement any of the alternatives, along with historic, current, and foreseeable future activities undertaken by the SJPLC or other entities, may result in combined or cumulative impacts on terrestrial wildlife and wildlife species. However, all of the alternatives would be limited by the LMP components, and would be supported by laws, regulations, and policies.

Currently, the human population on and around the planning area is projected to grow exponentially. This trend in human growth may result in increased fragmentation and the loss of habitat on private lands that surround, and occur within, the planning area. The trend in human population growth may also result in an increased demand for goods and services from the public lands. These increases would place additional pressures on the public lands to supply the various types of habitat, and seclusion, required by the variety of wildlife species that utilize the planning area. The high amount of recreational use occurring, and expanding, into previously secluded habitat within the planning area would most likely continue to increase over time as the human population expands. LMP components have been developed through consideration of these facts and influences, and it is anticipated that all cumulative impacts may be mitigated by the flexible nature of the final approved LMP. Therefore, no alternative is expected to result in cumulative impacts to any wildlife species within the planning area.

## **Threatened and Endangered Terrestrial Wildlife Species**

### ***Federally listed TE&C Terrestrial Wildlife Species:***

- Canada lynx (Threatened) – *Lynx canadensis*
- Mexican spotted owl (Threatened) – *Strix occidentalis lucida*
- Southwestern willow flycatcher (Endangered) – *Empidonax traillii extimus*
- Uncompahgre fritillary butterfly (Endangered) – *Boloria acrocynema*

The list was developed for the BLM and USFS lands within the planning area; however, it also includes Canyon of the Ancients National Monument (outside the planning area) and has received concurrence from the USFWS on October 16, 2006. Consultation for this planning process would occur with USFWS through a biological assessment (BA). The DLMP/DEIS, and associated planning documents, do not provide site- and project-specific analysis. Instead, they provide the guidance for planning and implementing projects to move the land base toward meeting and maintaining desired future conditions. Guidance is included for the federally listed and candidate species and their habitat. Much of the direction concerning these species is incorporated by reference from existing legislation, policy, agreements, and conservation plans. This includes species recovery plans, which are subject to change over time due to new scientific information. This would result in a better understanding of management for the species. The final approved LMP is meant to be a dynamic document, and will adopt the most recent version or management framework agreed to with the USFWS for management of these species.

Terrestrial wildlife components would be the same under all of the alternatives. These components would include mitigation, stipulation, and conservation measures. (LMP components are listed under Terrestrial Wildlife in Volume 2, Part 1, Vision and Terrestrial Wildlife.) For the listed species, actions associated with the implementation of the approved alternative may impact the species and/or its habitat. With adoption of LMP components (as described above), including mitigation, stipulation, and conservation measures for the species, the proposed actions of all alternatives may not adversely impact the species. Separate site- and project-specific NEPA analysis would occur as projects are proposed for implementation.

## Canada Lynx

### Impacts Related to Influential Program Areas

Actions that may impact Canada lynx (*Lynx canadensis*) populations and habitat include timber management; fire management; recreation; livestock grazing; utility corridors; and residential, commercial, and agricultural developments (including housing, ski areas, and large resorts). These actions may influence one or more of the primary habitat needs of the species.

Most of the identified general risk factors are applicable to lynx populations that occur within the planning area. Identical management direction for lynx is provided for under all of the alternatives. The DLMP/DEIS incorporates, by reference, the Conservation Assessment and Strategy (LCAS 2000) and all associated standards and guidelines. The LCAS is the primary guidance document for lynx. The publication "Ecology and Conservation of Lynx in the United States" (1999) provides the scientific information for the LCAS. The draft Southern Rockies Lynx Amendment (January 2004) and draft statewide Resource Management Plan Amendment (February 2005) provide proposed guidance information. The amendments are expected to be finalized in late-2007.

All of the conservation measures described in the DLMP/DEIS for the Canada lynx are included in the LCAS (which the BLM and USFS have signed as cooperating agencies). The DLMP/DEIS is permissive in that it allows for, but generally does not authorize or implement, specific actions. The biological assessment (BA) documents the impacts of USFS land and resource management plans, and BLM resource management plans on Canada lynx, and would provide guidance for planning and implementation of actions that may impact lynx and/or its habitat. As such, specific actions conducted under current LMPs and/or RMPS may result in a level of adverse impacts to individual lynx. By incorporating the LCAS standards and guidelines, the October 2000 biological opinion concludes that "in most cases [actions] would not adversely affect lynx and, therefore, no take would be anticipated in most instances."

### Impacts Related to Timber Management

Annually, based on the experienced budget level, approximately 2,165 to 3,750 acres (depending on the alternative) may be managed for timber within the 10- to 15-year life of the final LMP. This acreage would include activities that may occur within and outside of mapped lynx habitat. Outputs within the cool-moist mixed-conifer, aspen, and spruce fir types range from 440 to 1,000 acres annually. Actions within these habitat types would include clear-cut within the aspen type, as well as individual tree group selection, improvement cuts, shelterwood, and other partial-cut harvesting methods within other forest types (which generally remove 30% or less of the existing overstory). Prescribed burns may be used to treat slash. These treatments may result in various influences to lynx habitat. For example, some treatments may be expected to improve denning, dispersal, and foraging habitat, while others may result in negative short-term impacts that render suitable habitat temporarily unsuitable. Other treatments may have no impacts on Canada lynx because mapped habitat would not be entered. Many of these treatments may have mid- to long-term (20 to 100 year) impacts. Timber management activities may also involve the construction of roads, which may, in turn, result in additional disturbance. These activities may also result in increases in recreational activities (including snowmobiling). This may result in additional snow compaction, possibly increasing competition from coyotes and other competitors.

### **Impacts Related to Recreation Management**

Historically, ski area development has resulted in impacts to lynx habitat (including modifications of denning, foraging, and dispersal habitat, and increased disturbance). Occasional lynx reports are received from the ski areas, as lynx utilize portions of these developments. Snowmobiling, cross-country skiing, and snowshoeing on lynx habitat results in compacted snow conditions, especially in early winter. This allows lynx competitors (including coyote) to gain an advantage in accessing scarce prey resources. The alternatives provide for a range of over-snow travel suitability, from no change under Alternative B, to an overall decrease under Alternative C; to an even greater increase under Alternatives A and D. Most of the areas outside of the designated Wilderness would allow for winter motorized use on established routes. The location and eventual density of all roads and trails is not specifically known at this time (a travel management analysis and decision is planned for completion after the DLMP/DEIS is finalized). However, the Management Areas (MAs) that allow off-route winter motorized use may result in more disturbance and snow compaction than MAs that allow winter motorized use on established routes only. Recreational developments, such as campgrounds, may have minor impacts on lynx habitat and habitat use. These developments are usually small in acreage; therefore, actual impacts to habitat may be minor. These developments may also result in greater disturbance to individual lynx that may use the surrounding habitat; however, this disturbance is expected to be minimal.

### **Impacts Related to Livestock Management**

Livestock grazing occasionally occurs in some lynx habitat; however, most grazing occurs in non-preferable habitats (including open grassland and shrubland). Livestock grazing that occurs within lynx habitat has the potential to influence habitats used by snowshoe hare (by possibly reducing the shrub component or the regeneration of aspen).

### **Impacts Related to Transportation Systems**

The DLMP/DEIS analyzes suitability within MAs for winter and summer motorized travel (see Chapter 2). The alternatives would provide for a range of over-snow travel, ranging from no change under Alternative B; to an overall decrease under Alternative C; to an increase under Alternatives A and D. Most of the areas outside of designated Wilderness would allow for winter motorized use on established routes. The location and eventual density of all roads and trails is not specifically known at this time (a travel management analysis and decision will occur between 2006 and 2009); however, MAs that would allow off-route winter motorized may result in more disturbance and snow compaction than would MAs that restrict winter motorized use on established routes only. Information regarding the impacts of summer motorized travel on lynx is largely anecdotal. Lynx have been known to travel along forest roads if adequate vegetation provides screening cover; however, roads provide increased opportunity for accidental road kills, as well as increased vulnerability to hunters and trappers. Trapping lynx is no longer legal in Colorado; however, lynx are still occasionally shot or trapped. Roads and trails also may provide travelways for competitors (because they may be used for winter motorized use and result in additional snow compaction).

### **Impacts Related to Fire and Fuels Management**

Mechanical treatment, prescribed burns, and wildland use fire may continue to occur. Alternatives A, B, and C may implement approximately 8,000 to 68,000 acres of fuels treatments within the 10- to 15-year life of the LMP. This number may increase by an additional 600 acres under Alternative D. Prescribed natural fires (i.e., Wildland Fire Use/WFU) may also range from 1 to 30,000 acres annually under all of the alternatives in primary lynx habitats (including aspen, cool-moist mixed-conifer and spruce- fir). The anticipated influence of WFU on lynx habitats may involve short- to mid-term reductions in denning habitat (due to the removal of dead and down woody material). This may also result in a temporary reduction in suitable snowshoe hare habitat. In most areas, WFU may promote the regeneration of snowshoe hare habitat over time. Since large-scale wildfires would most likely not be allowed to continue; therefore, most of the woody vegetation and some of the dead and down woody material would probably remain. Varying burn intensities may be expected. In general, WFU may have greater influences on snowshoe hare and lynx habitat suitability when fire intensity and scale is allowed to be higher. In these cases, the influences on habitat suitability and prey species may last longer, and unsuitable habitat conditions may vary from short- to long-term.

### **Impacts Related to Other Activities/Cumulative Effects**

Other proposed activities that may impact lynx include Special Use Permits and oil and gas lease developments. These activities are usually small in scope, or are expected to have minor influences on lynx habitat. This is because the location of possible deposits under the RFD do not generally coincide with lynx habitat. However, these types of activities may still result in occasional disturbance to lynx, and may also influence habitat conditions (due to the roads that may be associated with these developments). Roads also may also result in additional winter motorized use and increases in snow compaction.

The Canada Lynx Conservation Assessment and Strategy (Ruediger et al. 2000, revised 2006) was developed in order to provide management direction for the Canada lynx throughout its range within the coterminous United States, including the planning area. The LCAS is incorporated into the development of the DLMP/DEIS, and was utilized during the development of LMP components (including desired conditions, objectives and standards and guidelines for design criteria). The final approved LMP would provide direction for maintaining the quality and quantity of lynx habitat, in order to contribute to the expansion and eventual maintenance of a sustaining population of lynx in the southern Rocky Mountains. This direction would address the potential impacts of vegetation management, travel, recreation, and other activities that may impact lynx within the planning area through the establishment of Lynx Analysis Units (LAU). LMP components would maintain the quality and quantity of habitat for the lynx within the planning area by meeting or exceeding the habitat thresholds associated with the LAUs, limiting snow compaction, and minimizing disturbances.

It is expected that the habitat trend for Canada lynx would remain stable during the time frame associated with the final LMP; however, it may slightly vary under each of the alternative. This variation would be primarily due to differences in timber harvesting activities for each alternative. However, it may also be influenced by unpredictable disturbance events such as high-intensity wildfire or insect epidemics. All of the alternatives are expected to remain well within the 30% threshold allowed in each LAU. In general, Alternative D may have the possibility of impacting more suitable lynx habitat than would Alternatives A, B, and C. Suitable lynx habitat is expected to equal or exceed 70% for each LAU, and to provide ample habitat for meeting the population objectives, and the eventual recovery, of this species.

The cumulative impacts resulting from numerous historic, current, and future activities that may occur on various land ownerships within the southern Rocky Mountains may impact the Canada lynx, and may contribute, positively or adversely, toward its recovery in the state of Colorado. Land management activities that occur on USFS-administered lands within the planning area would be especially important to the lynx. This is because the majority of suitable habitat occurs on USFS-administered lands. However, some activities, features, and/or trends that occur on other land ownerships may also impact the Canada lynx within the greater Southern Rocky Mountains. These may include highways, commercial and residential development, expansion of recreational activities, and other uses that are closely tied to human population growth. All of these cumulative actions/activities may negatively impact lynx and/or lynx habitat; however, the SJPLC would continue to meet the goals and objectives of the LCAS and provide suitable habitat for the Canada lynx. This is expected to result in stable, or increasing, populations throughout the region, including within the planning area.

### **Summary**

Actions associated with all of the alternatives may have influences on the Canada lynx and/or its habitat. The LMP components (including desired conditions, objectives, and design criteria) would include mitigation, stipulation, and conservation measures that would continue to meet, or exceed, the management direction in the LCAS. Therefore all of the alternatives May Affect, But Will Not Likely Adversely Affect, the Canada lynx. Separate site- and project-specific NEPA analysis would occur as projects are proposed for implementation.

### **Southwestern Willow Flycatcher**

#### **Impacts Related to Influential Program Areas**

Potential risk factors associated with the alternatives in relation to the Southwestern Willow Flycatcher (SWWF) would primarily be limited to activities that may occur near, or influence, willow-riparian systems. These may include agricultural activities, water diversions and impoundments, urban development, livestock grazing, and recreational activities (including off-road vehicles, camping, and other recreational uses). These factors may influence the amount and distribution of riparian vegetation that may, in turn, provide breeding habitat for the SWWF (Tibbetts et al. 1994; Marshall and Stoleson 2000). Activities that occur near SWWF habitat are of concern because they may increase the potential for injury or mortality, loss and degradation of habitats, nest parasitism, and disturbance resulting from human activity.

#### **Impacts Related to Habitat Loss and Degradation**

Management activities that occur within, or adjacent to, riparian areas and wetland ecosystems may result in a direct loss or degradation of potential habitat. Fragmentation of forested habitats within the vicinity of riparian systems may also influence nest productivity (due to increased nest parasitism of neotropical migratory birds by the brown-headed cowbird) (Robinson et al. 1993). The application of the SJPLC conservation measures would avoid any direct habitat loss of riparian willow systems. Parasitism of SWWFs by brown-headed cowbirds has not been documented in the planning area, and is currently not considered a local management concern.

#### **Impacts Related to Human Disturbance**

SWWFs could be displaced from habitat in areas of human activity. The extent of potential displacement would depend upon the spatial and temporal scale of the activity, and upon the response of individuals to each type of disturbance. Displacement can have detrimental effects to the breeding success of SWWFs. The committed conservation measures would minimize the potential for disturbance in occupied habitat (by avoiding direct habitat losses and minimizing the indirect impacts of associated activities that may occur within, or adjacent to, occupied habitat).



### **Impacts Related to Other Activities/Cumulative Effects**

Actions taken to implement any of the alternatives, along with historic, current, and foreseeable future activities undertaken by the SJPLC or other entities, may result in combined or cumulative impacts to the SWWF within the planning area. However, all of the alternatives would be limited by the LMP components designed, in part, to compensate for the potential impacts on land of other ownership and to minimize impacts on Federal lands. The LMP components are intended to assist in the recovery of species through maintaining and improving habitat in order to support the eventual delisting of the species. LMP components (including desired conditions, objectives, standards and guidelines, and design criteria) would include conservation measures for SWWF (as well as reference to other existing laws, regulations, and policies that apply to listed species, which would, in turn, allow for the periodic review and adjustment of the LMP, as needed, and as new information becomes available).

Currently, the human population on and around the SJPL is projected to grow exponentially. This trend in human growth will result in increased fragmentation and loss of habitat on private lands that surround and occur within the SJPL. The trend in human population growth will also result in an increased demand for goods and services from the public lands. These increases will place additional pressures on the public lands to supply the various types of habitat and seclusion required by the SWWF that utilize the SJPL. The high amount of recreational use occurring and expanding into previously secluded habitat on the SJPL will most likely continue to increase over time as the human population expands. The Plan components have been developed through considerations of these facts and influences, and it is anticipated that all cumulative effects can be absorbed by the Plan components and flexibility of the Plan itself. Therefore, no alternative is expected to result in cumulative effects to SWWF utilize the SJPL.

### **Summary**

Actions associated with all of the alternatives may have influences on the SWWF and/or its habitat. The LMP components (including desired conditions, objectives, and design criteria) would include mitigation, stipulation, and conservation measures that would continue to meet or exceed management considerations and the recovery objectives associated with the SWWF. It is therefore determined that all of the alternatives May Affect, But Will Not Likely Adversely Affect, SWWF. Separate site- and project-specific NEPA analysis would occur as projects are proposed for implementation.

### **Mexican Spotted Owl**

#### **Impacts Related to Influential Program Areas**

Mexican spotted owls (MSO) in Colorado, and within the vicinity of the planning area, are closely associated with steep, rocky canyons that contain mature to late successional stands of mixed-conifer forest. Management activities that may influence these types of habitat are primarily associated with vegetation management and recreation. High-intensity wildfire would be a concern in occupied or potential habitat when the species was listed. The potential influence of high-intensity wildfire is also a concern within the planning area, due to historic fire suppression and past management history.

Certain types of recreation may affect MSO due to disturbance of nesting, roosting, and foraging habitat. Camping, hiking, rock-climbing, and wildlife viewing are examples of activities that may have the highest potential for impacting MSO in the planning area. However, development of new recreation facilities, or expansion of existing facilities (including campgrounds and trails), may also alter MSO habitat and/or increase the amount of disturbance associated with recreation. Other activities, such as livestock grazing, are not expected to have measurable influences on MSO habitat because grazing occurs infrequently in the steep canyon bottoms utilized by the species. However, indirect influences on prey species may occur in adjacent upland areas where grazing occurs. All of the alternatives would include standards and guidelines designed to maintain or achieve satisfactory range conditions that should have minimal influences on prey species richness or composition.

The committed conservation measures would address the maintenance and protection of existing, and potential, MSO habitat (including direction for timber management, fire management, and human disturbances). It is possible that prescribed burn activities may occur within, or adjacent to, canyon habitats in order to decrease the potential for high-intensity wildfire (which may have greater long-term impacts on MSO habitat). Prescribed burns, as well as other fuels and timber management activities, may result in temporary impacts to individual spotted owls, if they occur within, or adjacent to, occupied habitat. These potential temporary impacts are expected to have minimal influence on the continued use of planning area lands by the Mexican spotted owl.

### **Impacts Related to Other Activities/Cumulative Effects**

Actions taken to implement any of the alternatives, along with historic, current, and foreseeable future activities undertaken by the SJPLC or other entities, may result in combined or cumulative impacts to MSO using the planning area. However, all of the alternatives would be limited by the LMP components designed, in part, to compensate for the potential impacts on lands under other ownership and to minimize impacts on Federal lands. LMP components are intended to assist in the recovery of species through maintaining and improving habitat in order to support the eventual delisting of the species. LMP components (including desired conditions, objectives, standards and guidelines, and design criteria) would include conservation measures for Mexican spotted owl (as well as reference to other existing laws, regulations, and policies that apply to listed species, which would, in turn, allow for periodic review and adjustment of the final approved LMP, as needed, and as new information becomes available).

Currently, the human population on and around the SJPL is projected to grow exponentially. This trend in human growth will result in increased fragmentation and loss of habitat on private lands that surround and occur within the SJPL. The trend in human population growth will also result in an increased demand for goods and services from the public lands. These increases will place additional pressures on the public lands to supply the various types of habitat and seclusion required by the Mexican spotted owl that utilize the SJPL. The high amount of recreational use occurring and expanding into previously secluded habitat on the SJPL will most likely continue to increase over time as the human population expands. The Plan components have been developed through considerations of these facts and influences, and it is anticipated that all cumulative effects can be absorbed by the Plan components and flexibility of the Plan itself. Therefore, no alternative is expected to result in cumulative effects to Mexican spotted owl utilize the SJPL.

### **Summary**

Management actions associated with all of the alternatives may have influences on the MSO and/or its habitat. The LMP components (including desired conditions, objectives, and design criteria) would include mitigation, stipulation, and conservation measures that would continue to meet or exceed management considerations and recovery objectives associated with the Mexican spotted owl. It is therefore determined that all of the alternatives May Affect, But Will Not Likely Adversely Affect., the MSO. Separate site- and project-specific NEPA analysis would occur as projects are proposed for implementation.

## **Uncompahgre Fritillary Butterfly**

### **Impacts Related to Influential Program Areas**

There are few management actions associated with the alternatives that may result in impacts to the Uncompahgre fritillary butterfly (UFB) or its primary habitat. This is because the species is restricted to higher-elevation alpine habitats that are often inaccessible. In some locations, however, it is possible that recreational activities and/or livestock grazing may influence the species and/or its habitat. Access to colony areas may also increase the risk of illegal collection by butterfly enthusiasts. Management activities that occur in occupied UFB habitat may decrease the amount of larval and adult host/forage plants, and possibly kill some individuals.

The DLMP/DEIS standards and guidelines adopt the Uncompahgre Fritillary Butterfly Recovery Plan (1994), and the USFWS, BLM, and USFS interagency agreement to conserve the species. The SJPLC would also continue to participate in, and adopt the relevant findings from, the annual field report, as well as from the interagency recovery team (in order to further management and conservation of the species). Butterfly surveys would be conducted before proposed actions are implemented in suitable habitat, and actions that would negatively impact known habitat or populations would be avoided. In areas of occupied habitat, regulations that prohibit collecting will be implemented and enforced by the agencies.

### **Impacts Related to Other Activities/Cumulative Effects**

Actions taken to implement any of the alternatives, along with historic, current, and foreseeable future activities undertaken by the SJPLC or other entities, may result in combined or cumulative impacts to UFB that use the planning area. However, all alternatives would be limited by LMP components designed, in part, to compensate for the potential impacts to lands under other ownership and to minimize impacts to Federal lands. LMP components are intended to assist in the recovery of species through maintaining and improving habitat in order to support the eventual delisting of the species. LMP components (including desired conditions, objectives, standards and guidelines, and design criteria) would include conservation measures for UFB (as well as reference to other existing laws, regulations, and policies that applies to listed species, which would, in turn, allow for periodic review and adjustment of the final approved LMP, as needed, and as new information becomes available).

Currently, the human population on and around the SJPL is projected to grow exponentially. This trend in human growth will result in increased fragmentation and loss of habitat on private lands that surround and occur within the SJPL. The trend in human population growth will also result in an increased demand for goods and services from the public lands. These increases will place additional pressures on the public lands to supply the various types of habitat and seclusion required by the UFB that utilize the SJPL. The high amount of recreational use occurring and expanding into previously secluded habitat on the SJPL will most likely continue to increase over time as the human population expands. The Plan components have been developed through considerations of these facts and influences, and it is anticipated that all cumulative effects can be absorbed by the Plan components and flexibility of the Plan itself. Therefore, no alternative is expected to result in cumulative effects to UFB utilize the SJPL.

### **Summary**

Actions associated with all of the alternatives may result in minimal influences to the UFB and/or its habitat. The LMP components (including desired conditions, objectives, and design criteria) include mitigation, stipulation, and conservation measures that would continue to meet or exceed management considerations and recovery objectives associated with the UFB. SJPLC direction would require the maintenance of any populations or habitat that the UFB may occupy within the planning area; therefore, all of the alternatives May Affect, But Will Not Likely Adversely Affect,, the UFB. Separate site- and project-specific NEPA analysis will occur if any activities are proposed in or near potential UFB habitat.

## **BLM and USFS Terrestrial Wildlife Sensitive Species**

BLM and USFS terrestrial wildlife Sensitive Species for the planning area are noted in Table 3.10.2. These include 11 mammal, 23 bird, 2 amphibian, 2 reptile, and 1 insect species from the BLM State, and USFS Region 2 lists (which have habitat within the planning area on designated agency lands). (See Appendix T for a detailed analysis of the species.)

The DLMP/DEIS, and associated planning documents, do not provide site- and project-specific analysis. Instead, they provide the guidance for planning and implementing projects designed to move the land base toward meeting and maintaining desired future conditions. Guidance is included for the BLM and USFS Sensitive Species and their habitat. Much of the direction concerning these species is incorporated by reference from existing legislation, policy, agreements, and conservation plans (including the Colorado Comprehensive Wildlife Plan). This direction is subject to change over time due to new scientific information, which results in a better understanding of management for the species or from changes in authorities under legislation or policy. Volume 2, Part 3, Design Criteria, lists the design criteria, standards and guidelines, conservation measures, and other existing direction that apply to terrestrial wildlife species within the planning area. These measures would be the same under all of the alternatives. The final approved LMP is meant to be a dynamic document, and would adopt the most recent version or management framework agreed upon by the agencies. (See Appendix T, for details on the Sensitive Species found in the Biological Evaluation.)

Table 3.10.3. summarizes findings for the individual species analysis for the USFS and BLM Sensitive Species. Separate site- and project-specific NEPA analysis would occur as projects are proposed for implementation.

**Table 3.10.4 – Summary of Findings for SJPL BLM and USFS Sensitive Wildlife Species**

SPECIES	Agency Designated	Determination
<b>BIRDS</b>		
American Bittern <i>Botaurus lentiginosus</i>	USFS	NI
American peregrine falcon <i>Falco peregrinus anatum</i>	BLM and USFS	MAII
American three-toed woodpecker <i>Picoides dorsalis</i>	USFS	MAII
Bald eagle <i>Haliaeetus leucocephalus</i>	BLM and USFS	MAII
Black swift <i>Cypseloides niger</i>	USFS	NI
Black Tern <i>Chlidonias niger</i>	BLM	NI
Boreal owl <i>Aegolius funereus</i>	USFS	MAII
Brewer's sparrow <i>Spizella breweri</i>	USFS	MAII
Columbian sharp-tailed grouse <i>Pediacetes phasianellus columbianus</i>	USFS	MAII
Ferruginous hawk <i>Buteo regalis</i>	BLM and USFS	NI
Flammulated owl <i>Otus flammeolus</i>	USFS	MAII
Gunnison sage grouse <i>Centrocercus minimus</i>	BLM	MAII
Lewis' woodpecker <i>Melanerpes lewis</i>	USFS	MAII
Loggerhead shrike <i>Lanius ludovicianus</i>	USFS	NI
Northern goshawk <i>Accipiter gentilis</i>	BLM and USFS	MAII
Northern harrier <i>Circus cyaneus</i>	USFS	MAII
Olive-sided flycatcher <i>Contopus cooperi</i>	USFS	MAII
Purple martin <i>Progne subis</i>	USFS	MAII
Short-eared owl <i>Asio flammeus</i>	USFS	NI
Western burrowing owl <i>Athene cunicularia</i>	USFS	NI

SPECIES	Agency Designated	Determination
<b>BIRDS, continued</b>		
Western yellow-billed cuckoo <i>Coccyzus americanus</i>	BLM and USFS	NI
White-faced Ibis <i>Plegadis chihi</i>	BLM	NI
White-tailed ptarmigan <i>Lagopus leucurus</i>	USFS	MAII
<b>INSECTS</b>		
Nokomis fritillary butterfly <i>Speyeria nokomis nokomis</i>	USFS	MAII
<b>MAMMALS</b>		
Allen's big-eared bat <i>Idionycteris phyllotis</i>	BLM	NI
American marten <i>Martes americana</i>	USFS	MAII
Big free-tailed bat <i>Nyctinomops macrotis</i>	BLM	MAII
Fringed myotis <i>Myotis thysanodes pahasapensis</i>	BLM and USFS	MAII
Gunnison's prairie dog <i>Cynomys gunnisoni</i>	USFS	MAII
North American wolverine <i>Gulo gulo</i>	USFS	MAII
River otter <i>Lontra canadensis</i>	USFS	MAII
Rocky Mountain bighorn sheep <i>Ovis canadensis canadensis</i>	USFS	MAII
Spotted bat <i>Euderma maculatum</i>	BLM and USFS	MAII
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	BLM and USFS	MAII
Yuma myotis <i>Myotis yumanensis</i>	BLM	MAII
<b>REPTILES</b>		
Desert spiny lizard <i>Sceloporus magister</i>	BLM	MAII
Longnose leopard lizard <i>Gambelia wislizenii</i>	BLM	MAII
<b>AMPHIBIANS</b>		
Boreal toad <i>Bufo boreas</i>	USFS	MAII
Northern leopard frog <i>Rana pipiens</i>	USFS	MAII

## **USFS Terrestrial Wildlife Management Indicator Species**

National forests are managed under a Land Management Plan (LMP) that establishes the overall management direction, including that intended to maintain healthy populations of fish and wildlife species. Management Indicator Species (MIS) are part of a coordinated program with other parts of the LMP that play a role in meeting NFMA requirements for biodiversity. The LMP establishes goals, objectives, standards, guidelines, and monitoring requirements that are specific to MIS. At the LMP level, MIS are established and utilized in order to help compare alternatives. Actions are proposed in conformance with the LMP in order to implement the outlined management, and to maintain or achieve resource conditions that meet LMP goal and objectives. Each action proposed by the agency, or project proponent, should be analyzed in a manner that discloses its potential impacts to MIS, and evaluates its consistency with the management direction contained in the LMP. Except for the cumulative impacts analysis, the concept of MIS does not apply beyond USFS lands. The regulatory requirement to conduct such assessments does not apply to actions occurring on BLM land.

In general, the analysis uses wildlife population and habitat as the primary indicator of MIS trends. There are a variety of acceptable analysis data sources for monitoring populations and habitat trends of MIS (including population estimates by State wildlife agencies, informed judgment of the USFS Wildlife Biologist, habitat inventory assessments, resource information system, and activity/program reviews).

The DLMP/DEIS, and associated planning documents, do not provide site- and project-specific analysis. Instead, they provide the guidance for planning and implementing projects designed to move the land base toward meeting and maintaining desired future conditions. Guidance is included for MIS and their habitat. Much of the direction concerning MIS species is incorporated by reference from existing legislation and policy. This is subject to change over time due to new scientific information (resulting in a better understanding of management for the species) or from changes in authorities under legislation or policy. For USFS MIS, actions associated with the alternatives may adversely impact species individuals. With the adoption of LMP components (including desired conditions, objectives, and design criteria) that include mitigation, stipulation, and conservation measures for the species, the proposed actions of all alternatives would not likely result in a change to habitat or population trends across USFS lands within the planning area. Separate site- and project-specific NEPA analysis would occur as projects are proposed for implementation.

## **Abert's Squirrel**

### **Impacts Related to Influential Program Areas**

Abert's squirrel is considered well-distributed throughout the planning area in suitable ponderosa pine habitat. Habitat analysis shows the 20-year trend for suitable Abert's squirrel habitat is stable, with a slight downward trend in optimal habitat. Population trends for the planning area are not thought to differ from the habitat trends, being generally stable with a possible slight downward trend.

Most of the general risk factors identified for Abert's squirrel would be specifically tied to activities that may occur within ponderosa pine habitat in the planning area. Activities that may influence Abert's squirrel populations and habitat include timber management, fire and fuels management (including prescribed burns, fire suppression, and understory mastication), oil and gas development, and livestock grazing. Other natural factors, such as insects and disease, may also impact the suitability of foraging and nesting trees.

All of the alternatives would provide identical management direction for Abert's squirrel (including desired conditions, objectives, and standards and guidelines). This direction is expected to help maintain healthy habitat conditions and well-distributed populations of Abert's squirrel throughout the ponderosa pine cover type within the planning area.



### **Impacts Related to Timber Management**

Annually, based on the experienced budget level, approximately 1,300 to 2,000 acres (depending on the alternative) may be managed for timber in ponderosa pine within the 10- to 15-year life of the final approved LMP. These treatments would include approximately 900 to 1,500 acres of restoration harvesting in order to restore stand conditions toward HRV, and approximately 400 to 500 acres of partial-cut harvesting. (Partial-cut harvest refers primarily to silvicultural treatments that involve individual tree and group selection, improvement cuts, shelterwood, and other partial-cut harvests that generally remove 30%, or less, of the existing overstory. All of the alternatives may also annually implement approximately 2,000 acres of restoration, which would be specifically intended to support wildlife populations, such as Abert's squirrel. All of these activities would generally overlap mapped habitat for Abert's squirrel.

### **Impacts Related to Fire and Fuels Management**

Ponderosa pine systems would be a primary emphasis for fire and fuels activities. This is because of past fire-suppression and timber harvesting activities that have moved some stands away from the HRV in terms of stand structure and composition. Annually, approximately 4,000 acres of prescribed burns may be implemented under all of the alternatives in order to help restore historic stand conditions. In conjunction with timber treatments, approximately 2,500 to 2,700 acres of understory mastication of Gambel oak (oakbrush) may occur, depending upon the alternatives. Prescribed burns may have temporary negative impacts on Abert's squirrel populations; however, it may result in long-term restoration benefits for the species. Fire suppression would continue to occur in most ponderosa pine stands (because they are generally low-elevation systems where Wildland Fire Use is not practical).

### **Impacts Related to Oil and Gas Development**

Within the planning area, between approximately 1,517,000 and 2,137,411 acres are available for oil and gas leasing, depending upon the alternative. In the 10- to 15-year life of the approved LMP, approximately 167 additional wells may be developed. Some of these may occur within mapped habitat for Abert's squirrel. This is because most fluid-minerals development occurs in low-elevation habitats, such as pinyon-juniper and ponderosa pine. Varying amounts of Abert's squirrel habitat and food source would be impacted under each of the alternatives, based upon site-specific locations and habitat values. Influences may involve removal of trees and other vegetation, road construction and use, and indirect disturbances to habitat. Overall, however, these impacts may be negligible (because individual wells, and other facilities development, generally involve about 1 to 3 acres of area). Roads may impact individuals of the species; however, they are not expected to influence the overall population of Abert's squirrel. Road closures, and other site-specific mitigation measures, would accompany all leases in order to minimize impacts, to the extent possible.

Oil and gas development activities, including construction of production facilities, may displace individual Abert's squirrels (temporarily or permanently); however, they should not impact populations. The size, duration, and timing of the activity, as well as the tolerance of the individual, would be variables in determining whether or not displacement is temporary or permanent for individuals.

### **Impacts Related to Livestock Grazing**

Within the planning area, livestock grazing is a widespread program activity in suitable rangelands, with an average of approximately 115,242 cattle and 11,437 sheep AUMs occurring on USFS-administered lands. Most sheep grazing does not overlap Abert's squirrel habitat. However, cattle grazing frequently occurs in Abert's squirrel habitat (because ponderosa pine stands and suitable rangelands often overlap). In a general sense, livestock grazing may have indirect impacts on Abert's squirrel, if the activity influences the regenerative capabilities of ponderosa pine stands, truffle production, and/or the fine fuels needed to promote restoration projects using prescribed burns. However, there are few, if any, measurable cause and effect relationships between livestock grazing and the maintenance of Abert's squirrel habitat and effects are expected to be negligible.

### **Summary**

Actions associated with all alternatives may have influences on Abert's squirrel and/or its habitat. However, the projected outputs under all of the alternatives conform to the provisions described in DLMP/DIES. The LMP components (including desired conditions, objectives, and standards and guidelines) would include mitigation, stipulation, and conservation measures that would, in turn, provide for sustaining populations of Abert's squirrels. All of the alternatives would also include specific actions designed to restore and improve habitat conditions for Abert's squirrel. The actions, together with the other restoration activities targeted within ponderosa pine stands, are expected to have a positive influence on the overall habitat and population trends of Abert's squirrel across the planning area. Separate site- and project-specific NEPA analysis, including MIS analysis, would occur as projects are proposed for implementation.

### **American Marten**

#### **Impacts Related to Influential Program Areas**

American marten are considered well-distributed throughout the planning area, within suitable habitat. Habitat trends are considered slightly upward with stable to slightly upward population trends (American Marten Species Assessment, SJPL). Actions that may impact American marten populations and habitat include timber management; fire management; recreation; livestock grazing; utility corridors; and residential, commercial, and agricultural developments (including housing, ski areas, and large resorts). These actions may influence one or more of the primary habitat needs of the species.

Within the planning area, most of the identified general risk factors are applicable to marten populations. All of the alternative would provide identical management direction for the marten. This direction would include desired conditions, objectives, and standards and guidelines (as well as direction incorporated by reference). The Plan revision allows for, but generally does not authorize or implement, specific actions. The analysis documents the impacts of National Forest Land managements of the Land Use Plan on American marten, and would provide additional guidance for planning and implementation of actions that may impact the marten and/or its habitat.

### **Impacts Related to Timber Management**

Suitable habitat for American marten involves the spruce-fir and cool-moist mixed-conifer cover types. Based on the experienced budget level, approximately 40 to 400 acres annually (depending upon the alternative) may be managed for timber within spruce-fir and cool-moist mixed-conifer forests during the 10- to 15-year life of the approved LMP. Actions within these habitat types would include partial-cut, individual tree group selection, improvement cuts, shelterwood, and other partial-cut harvesting methods within other forest types (which generally remove 30%, or less, of the existing overstory). Prescribed burns may be used in order to treat slash. These treatments may have various influences on marten habitat. For example, some treatments may be expected to improve breeding, dispersal, and foraging habitat, while other treatments may result in negative short-term impacts that may render suitable habitat temporarily unsuitable. The more intensive treatments may have mid- to long-term (20 to 100 years) impacts, depending upon the amount of cover removed. Timber management activities may also involve the construction of roads, which may, in turn, result in additional disturbance and possibly increase recreational activities (including snowmobiling). This may result in additional disturbance within foraging habitats.

### **Impacts Related to Recreation Management**

Historically, ski area development has had resulted in impacts to marten habitat (including modifications of breeding, foraging, and dispersal habitat, as well as overall increased disturbance). Snowmobiling, cross-country skiing, and snowshoeing in marten habitat may result in additional disturbances to foraging behaviors that may, in turn, reduce the opportunity for successful foraging during a critical time of year. The alternatives would provide for a range of over-snow travel suitability, ranging from no change under Alternative C, to an overall decrease under Alternative B, to greater increases under Alternatives A and D. Most of the areas outside of designated Wilderness Areas would allow for winter motorized use on established routes. The location, and eventual density, of all roads and trails is not specifically known at this time (a travel management analysis and decision is planned for completion after the LMP revision process is finalized). The MAs that would allow off-route winter motorized use may result in more disturbance than MAs that would only allow winter motorized use on established routes. Recreational developments (including campgrounds) may have minor impacts on marten habitat and habitat use. These developments are usually small in acreage; therefore, actual impacts to habitat may be minor. These developments may also result in greater disturbance to individual marten that may use the surrounding habitat; however, this disturbance is expected to be minimal.

### **Impacts Related to Livestock Management**

Livestock grazing occasionally occurs in some marten habitat; however, most grazing occurs in non-preferable habitats (including open grassland and shrubland). Sheep grazing may occasionally occur along the edges of marten habitat where the tree line borders the subalpine zone. The potential impacts related to grazing on martens and/or their habitat are expected to be minimal. This is because there is very little overlap between grazing areas and suitable marten habitat.

### **Impacts Related to Travel Management**

With regard to winter and summer motorized travel, suitability is discussed in relation to Management Areas (see Chapter 2). The alternatives provide for a range of over-snow travel, ranging from no change under Alternative B, to an overall decrease under Alternative C, to increases under Alternatives A and D. Most of the areas outside of designated Wilderness Areas would allow for winter motorized use on established routes. The location, and eventual density, of all roads and trails is not specifically known at this time (a travel management analysis and decision will occur between 2006 and 2009); however, MAs that would allow off-route winter motorized may result in more disturbance than would MAs that restricted winter motorized use to established routes only. Information regarding the impacts of summer motorized travel on marten is largely anecdotal. Marten have been known to travel along forest roads, if adequate vegetation provides screening cover (marten usually avoid forest openings); however, roads provide increased opportunity for accidental road kills. The trapping of marten is not currently legal in Colorado; however, trapping is currently under review by the State. Marten are still occasionally illegally shot or trapped.

### **Impacts Related to Fire and Fuels Management**

Generally, mechanical fuels treatments and prescribed burns are not performed within spruce-fir and cool-moist mixed-conifer types; and are, therefore, not predicted to occur as an output. However, WFU may be used, if fire starts can be maintained within prescription parameters. Under all of the alternatives, WFUs may range from 1 to 30,000 acres annually in primary marten habitats. The anticipated impacts related to WFU to marten habitats may involve short- to mid-term reductions in breeding habitat (due to the removal of forest cover and dead and down woody material). This may, in turn, result in a temporary reduction in suitable foraging habitat. Over time, WFU is expected to promote the regeneration of breeding and foraging habitat. Large-scale wildfires would most likely not be allowed to continue; therefore, ample late-successional forest vegetation and down woody material is expected to be available to martens within the more than 600,000 acres of suitable habitat that occurs within the planning area. Varying burn intensities may be expected as the result of WFU. In general, WFU may be expected to result in greater influences on marten habitat suitability when fire intensity and scale is allowed to be higher. In these cases, the influences on habitat suitability and prey species may last longer and unsuitable habitat conditions may vary from short- to long-term impacts.

### **Impacts Related to other Activities**

Other proposed management activities within the planning area include Special Use Permits and oil and gas lease developments. These activities would usually be small in scope, or are expected to result in minor impacts on marten habitat. (For example, oil and gas development generally does not occur in higher-elevation forest types that supply suitable marten habitat). Special Use Permits, such as for private land access and/or ski area operations, may result in site-specific disturbances to marten, and may also influence habitat conditions if roads or clearings are associated. Roads may also result in additional winter motorized use that may, in turn, result in greater disturbances within suitable habitat.

Under all of the alternatives, the habitat trend for American marten is expected to remain stable during the timeframe associated with the final approved LMP. Due to the decrease, over time, in timber harvesting activities within the spruce-fir and cool-moist mixed-conifer cover types (as well as to the large amount of late successional suitable habitat available), a stable to increasing population is expected. Natural disturbance events (including high-intensity wildfire or insect epidemics) may result in impacts to marten habitat; however, these cannot be predicted at this time. Suitable marten habitat is expected to remain well-distributed and to provide for persistent and viable populations of this species.

## Summary

Actions associated with all of the alternatives may have influences on the American marten and/or its habitat. However, all outputs under all alternatives would conform to provisions described in DLMP/DEIS. LMP components (including desired conditions, objectives, and standards and guidelines) would include mitigation, stipulation, and conservation measures that would provide for populations of American marten. Overall habitat and population trends are expected to remain stable, or to slightly increase, across the planning area in association with the actions described under all of the alternatives. Separate site- and project-specific NEPA analysis, including MIS analysis, would occur as projects are proposed for implementation.

## Elk

### Impacts Related to Influential Program Areas

Elk are a generalist species that occur in a variety of habitat types across the planning area on the SJNF. They are considered well-distributed throughout the planning area, within suitable habitats that vary by season. Habitat analysis shows the 20-year trend for summer range is stable, with an upward condition trend on winter ranges. Population trends have increased from the lows experienced during the 1980s. Currently, the elk population is considered stable. Elk populations would be primarily influenced by the hunting seasons (based on objectives established by the CDOW).

On the SJNF within the planning area, Elk have ample summer range that provides forage, thermal and hiding cover, and calving grounds. During the winter months; however, elk become concentrated on winter ranges that overlap other management activities and are increasingly being influenced by human development pressures and uses adjacent to SJPLC-administered lands. Thus, the general risk factors identified for elk are primarily tied to activities and influences associated with low-elevation habitats (including pinyon-juniper and ponderosa pine). These activities may include timber management, fire and fuels management, oil and gas development, recreation, travel management, and livestock grazing. Other factors, such as insects and disease, may also influence the suitability of thermal cover on winter ranges.

Under all of the alternatives, management direction for elk is identical. This direction (including desired conditions, objectives, and standards and guidelines) would include direction incorporated by reference. This direction is intended to help maintain healthy winter range habitat conditions that support the population objectives established by the CDOW.

### Impacts Related to Timber Management

Timber management activities that may overlap elk winter range are primarily associated with the ponderosa pine cover type. Annually, based on the experienced budget level, approximately 1,300 to 2,000 acres (depending upon the alternative) may be managed for timber in ponderosa pine within the 10- to 15-year life of the final approved LMP. These treatments would include approximately 900 to 1,500 acres of restoration harvesting designed to restore stand conditions toward HRV, and approximately 400 to 500 acres of partial-cut harvesting. (Partial-cut harvest refers primarily to silvicultural treatments that involve individual tree and group selection, improvement cuts, shelterwood, and other partial-cut harvests that generally remove 30%, or less, of the existing overstory). All of the alternatives may also implement approximately 2,000 acres of restoration specifically intended to support wildlife populations, such as Abert's squirrel, on an annual basis. All of these activities would generally overlap mapped elk winter range, and are expected to maintain and improve the forage base needed to support desired elk populations.

### **Impacts Related to Fire and Fuels Management**

Fire and fuels management activities that may overlap elk winter range involve the ponderosa pine, pinyon-juniper, and mixed-shrubland cover types. Ponderosa pine systems would be a primary focus for fire activities. This is because past fire suppression and timber-harvesting activities have moved some stands away from the HRV, in terms of stand structure and composition. Under all of the alternatives, approximately 4,000 acres of prescribed burns fire may be implemented annually in order to help restore historic stand conditions. In conjunction with timber treatments, approximately 2,500 to 2,700 acres of understory mastication of Gambel oak (oakbrush) may occur, depending upon the alternative. In pinyon-juniper habitats, only mastication (e.g., crushing/ clearing) is predicted to occur as an output. This may involve 1,000 to 1,100 acres, depending upon the alternative. In mixed-shrublands outside of ponderosa pine, approximately 1,500 to 1,600 acres of mastication may occur, depending upon the alternative. Under all of the alternatives, in all habitat types that overlap elk winter range, an additional 2,000 acres of big game winter habitat restoration is planned. Prescribed burns may have short-term negative influences to elk; however, this activity is expected to provide benefits to the forage base within a few years after treatment. In addition, all mastication activities may provide forage benefits to elk winter range (because this activity would promote the growth of important forage plants). All of the fire and fuels activities that overlap elk winter range may result in long-term restoration benefits for the species.

### **Impacts Related to Oil and Gas Development**

Within the planning area, between approximately 1,517,000 and 2,137,411 acres would be available for oil and gas leasing, in the SJPL, depending upon the alternative. In the 10- to 15-year implementation life of the LMP, approximately 167 additional wells may be developed. Some of these may occur within mapped elk winter range. This is because most fluid-minerals development occurs in low-elevation habitats (including pinyon-juniper and ponderosa pine). When well pads are cleared, oil and gas development may be expected to result in direct impacts to elk habitat. These impacts would vary under each of the alternatives, based on site-specific locations and habitat values, and would generally involve approximately 1 to 3 acres per development. Direct and indirect influences to elk winter range may be expected from road construction and use, and may involve indirect disturbances to habitat. When they overlay traditional habitat use areas, roads, and the human activity associated with their use, may impact individual groups of wintering elk. Road closures would be a site-specific mitigation measure that accompanies all leases in order to minimize impacts, to the extent possible.

### **Impacts Related to Livestock Grazing**

Within the planning area, livestock grazing is a widespread program activity in suitable rangelands, with approximately 115,242 cattle and 11,437 sheep AUMs occurring on USFS lands. Most sheep grazing does not overlap elk winter range. However, cattle grazing occurs seasonally on many elk winter range areas. The potential for negative interactions between elk and cattle would most likely be minimal, due to the differences in season of use. When grazing is used as a management tool in order to restore grassland health, cattle may result in positive influences to on elk winter range. However, negative influences on elk winter range may also occur if summer or fall grazing is unmanaged and/or excessive. Under all of the alternatives, objectives, standards, and guidelines would be in place in order to manage livestock grazing in a manner that promotes healthy winter range areas, and maintains the winter forage area required to support wintering elk populations.

### **Impacts Related to Recreation and Travel Management**

Elk and mule deer occupy a variety of habitat types during the spring, summer and fall seasons; however, they become concentrated on lower-elevation ranges during the winter. These areas primarily occur below 8,000 feet (although the upper elevation limit fluctuates, depending upon seasonal snow depth). Healthy undisturbed winter range areas are critical in meeting big game population objectives.



The human population within the counties that surround the planning area (Archuleta, Dolores, La Plata, and Montezuma) grew at an average rate of approximately 43% from 1990 to 2000, and is projected to grow at a rate of approximately 63% by the year 2025 (U.S. Census 2000). This population growth is currently fueling a recreation boom that includes motorized recreation, as well as a growing array of other recreational pursuits that are expanding their influence across the landscape. It is estimated that the planning area currently supports approximately 1.9 million visitor days per year. These include an array of summer uses, as well as several winter recreational pursuits. In both seasons, these activities involve motorized uses (including ATVs/OHVs and snowmobiles) and non-motorized uses (including skiing and hiking). Based on the projected population growth, it is reasonable to assume that many types of recreational activities have the potential to substantially increase and expand. The co-existence of wildlife with a growing human population that values a diversity of recreational pursuits would require continued planning and management.

Within the planning area, the amount of winter range available would be considered a limiting factor for the number of elk that summer at higher elevations. Therefore, much of the winter range that elk depend upon occurs under a mosaic of land ownerships that includes private landowners. On private land, however, the current rate of development and human population growth is influencing the availability of traditional winter range areas. Roads, and other infrastructure, have further dissected the available habitat and/or reduced habitat security. The USFS and the BLM have mechanisms in place designed to control the amount of recreational activity that occurs on winter range areas. However, foot travel, domestic dogs, and other potential disturbances are still increasing in traditional winter range areas on National Forest, as well as on private lands, due to the adjacent increase of residential developments.

Within the planning area, winter range areas are generally closed to motor vehicles during the period of use by big game animals (which is December 1 through March 31). The alternatives provides for a range of over-snow travel, ranging from no change under Alternative B, to an overall decrease under Alternative C, to increases under Alternatives A and D. The location and eventual density of all roads and trails is not specifically known at this time (a travel management analysis and decisions will occur between 2006 and 2009); however, MAs that would allow off-route winter motorized may result in more disturbance than would MAs that restrict winter motorized use to established routes. Some designated routes and/or trails on USFS-administered lands would most likely intersect elk winter range areas or pass near such areas. These potential disturbances (which will be addressed in the upcoming Travel Management Plan) would indicate a need for continued coordination between the SJPLC, the CDOW, and private landowners.

### **Summary**

Actions associated with all of the alternatives result in impacts to elk winter range. However, the projected outputs under all of the alternatives would conform to the provisions described in the DLMP/DEIS. LMP components (including desired conditions, objectives, standards and guidelines, and design criteria) would include mitigation, stipulation, and conservation measures that would provide for healthy winter range areas designed to support desired elk populations. All alternatives would also include specific actions designed to restore and improve winter habitat conditions for elk. Under all of the alternatives, no change is expected in the current stable summer habitat and upward winter habitat trends across the Forest; however, the alternatives may influence the rate of change to habitat. No change is expected to the currently stable population trend for elk from managements across the Forest. No correlation is noted between habitat trends and population trends over time. CDOW population management, through hunting, may have the greatest influence on population trends. Separate site- and project-specific NEPA analysis, including MIS analysis, would occur as projects are proposed for implementation in elk winter range.

## **Mountain Bluebird**

### **Impacts Related to Influential Program Areas**

The mountain bluebird is considered well-distributed throughout the planning area, within various habitat types. They are a secondary cavity nester, nesting primarily in suitable cavities in ponderosa pine and aspen. The current information suggests that mountain bluebird populations have increased in Colorado (as well as throughout their entire range). Recent habitat modeling and density-estimate evaluations suggest that the current population of mountain bluebird on the San Juan National Forest has increased by approximately 2.4% over the past 20-year period, and can, therefore be considered stable or slightly increasing.

The identified risk factors for mountain bluebird would involve management activities within and influences to, aspen habitat. Activities that may influence mountain bluebird populations and habitat in aspen include timber management and livestock grazing. Other natural factors (including insects and disease) may also influence the suitability of foraging and nesting trees. Firewood cutting may also be an influence, where aspen is a desired firewood tree.

The Plan revision allows for, but generally does not authorize or implement specific actions. All of the alternatives would provide identical management direction for the mountain bluebird. This direction (including desired conditions, objectives, standards and guidelines and design criteria) would include direction incorporated by reference. This direction would be primarily related to the maintenance of suitable nesting trees (snags), and would be expected to help maintain suitable habitat conditions and well-distributed populations of mountain bluebird throughout the planning area.

### **Impacts Related to Timber Management**

Annually, based on the experienced budget level, approximately 400 to 600 acres (depending up on the alternative) may be managed for timber in aspen habitat within the 10- to 15-year implementation-life of the LMP on National Forest lands. Primarily, these timber treatments would involve clear-cut silvicultural prescriptions. Clear-cut prescriptions are commonly used in aspen stands, and are generally beneficial to regenerating older diseased stands. However, clear-cut harvests may also influence cavity-nesting bird species. This is because of influences on the snag component. All of the alternatives would likely result in site-specific impacts on mountain bluebird nest trees. However, on National Forest System lands within the planning area, approximately 300,000 acres of aspen occurs, and the minimal amount of treated is expected to result in negligible influences on mountain bluebird populations or habitat.

### **Impacts Related to Livestock Grazing**

Within the planning area, livestock grazing is a widespread program activity in suitable rangelands, with approximately 115,242 cattle and 11,437 sheep AUMs occurring on the USFS-administered lands. Most sheep grazing occurs in high-elevation alpine systems and does not overlap mountain bluebird habitat within aspen. However, cattle grazing may occur in aspen stands, and could, therefore, indirectly impact mountain bluebird habitat. Livestock grazing might result in indirect impacts to mountain bluebird if the activity influences the regenerative capabilities of the aspen stands, especially after treatment, when the young shoots are growing. Standards, guidelines, and monitoring programs would be in place in order to minimize these impacts, and to correct them if they represent a management problem.

## Summary

Some of the actions associated with all of the alternatives may have influences to the mountain bluebird and/or its habitat. However, the projected outputs under all of the alternatives would conform to the provisions described in the DLMP/DEIS. LMP components (including desired conditions, objectives, standards and guidelines, and design criteria) would include mitigation, stipulation, and conservation measures that would provide for viable populations of mountain bluebird. The management actions that may occur in aspen stands will most likely have short- to mid-term impacts on individual mountain bluebirds. However, long-term restoration benefits are expected from the regeneration of selected older stands. No change to the current stable population, foraging, and breeding habitat trends is expected across the Forest under any of the alternatives. Separate site- and project-specific NEPA analysis, including MIS analysis, would occur as projects are proposed for implementation.

## Cumulative Impacts Related to Influential Program Areas on Management Indicator Species (MIS)

Actions taken to implement any of the alternatives, along with historic, current, and foreseeable future activities undertaken by the SJNF or other entities, may result in combined or cumulative impacts to the MIS selected by the SJPLC. However, all alternatives would be limited by LMP components designed, in part to compensate for the potential impacts to lands under ownerships, and are intended to provide a high assurance of maintaining well-distributed sustaining populations of all native and desired non-native wildlife species. LMP components that address MIS and wildlife diversity are also founded in law, federal regulation, and policy that allows for periodic reviews and adjustments of the LMP, as needed, (and as new information becomes available).

Currently, the human population on and around the planning area is projected to grow exponentially. This trend in human growth, and the associated demands for goods and services across all land ownerships, may be one of the largest challenges to maintaining the integrity of wildlife habitats and populations in southwestern Colorado. For spruce-fir associated species, such as the American marten, cumulative impacts associated with other land ownerships may include increased habitat fragmentation (due to highway infrastructure improvements and increased traffic volume). Increased development around ski areas, as well as expanding recreational pursuits, may also influence MIS species. However, the majority of spruce-fir forest occurs on public lands, including within backcountry and Wilderness that is expected to provide large expanses of intact high-quality habitat for these species. Expanses of summer range for elk are also expected to remain available in the spruce-fir and mixed-conifer forests within the planning area.

For MIS associated with ponderosa pine (including Abert's squirrel), much of the existing suitable habitat occurs on public lands. This is due to past impacts on habitats under other land ownerships. Potential cumulative impacts to these species are expected to be minimized by an increased focus on restoration activities within ponderosa pine systems that should provide increased suitable habitat. Aspen-associated species (including the mountain bluebird) may also find improved habitat conditions in the future for these reasons. In relation to elk, human population pressures, and associated residential development, would place additional pressures on the public lands to supply high-quality undisturbed winter habitat. However, LMP components have been developed through consideration of these facts and influences, and it is anticipated that all cumulative impacts may be minimized by working collaboratively with the CDOW and other landowners. Therefore, no alternative is expected to result in cumulative impacts to any MIS that uses the planning area. Mechanisms are in place to monitor and use adaptive management principles in order to help alleviate any unanticipated impacts that need to be addressed singularly or cumulatively.