

## **VI. Wildlife Habitats and Species**

### **A. Ponderosa Pine Habitat**

Ponderosa pine forests provide habitat for a variety of wildlife species. Species that are listed as threatened, endangered or candidates by the US Fish and Wildlife Service include the following:

#### **Mexican spotted owl (*Strix occidentalis*)**

This species of owl is located primarily within the mixed conifer and ponderosa pine forests of Mexico, Arizona and New Mexico. Populations extend into southwestern Colorado and eastern Utah. In the Front Range of Colorado, they utilize similar habitats from Canyon City to Fort Collins. In southwestern Colorado and eastern Utah, they nest within large canyons with mixed conifer and riparian forests and hunt for food on the adjacent mesas dominated by mature ponderosa pine and oak.

Suitable habitat within the IAA includes the San Miguel River, Horsefly Creek, Clay Creek, McKenzie Creek canyons and adjacent mesas of pine/oak forest. All of these canyon areas and adjacent mesas have been periodically surveyed since 1993, and no Mexican spotted owls have been located.

Management strategies for vegetation within the IAA should include the protection of existing habitat within the larger canyons from large-scale stand replacement wildfires and the promotion of mature ponderosa pine forest habitat (structural stages 4A, 4B, 4C, 5) on the adjacent mesas that would support a variety of small mammals. Management of the pine type should provide for variation between stands and tree/shrub species diversity on the landscape with a diversity of age classes and structure of ponderosa pine within the stands.

The IAA is considered to be within the range of the Mexican spotted owl. Surveys for presence of this species should continue prior to project implementation according to established protocol. Survey protocol includes four complete calling surveys of suitable habitat each year for two consecutive years.

Species that are listed as sensitive or management indicator species by the US Forest Service include the following:

#### **Northern goshawk (*Accipiter gentillis*)**

The northern goshawk is found in all continents in the Northern Hemisphere. In North America, they breed throughout Canada and the northern and western United States, south into Mexico. In Colorado they are migratory, breeding in the mountainous regions of the western half of the state. Nesting and brood rearing occurs in a variety of forest types. On the GMUG National Forest, they show a

preference for aspen and mixed aspen/conifer forest. However, nests have been located in ponderosa pine on the Uncompahgre Plateau, including the IAA.

Regardless of the habitat type, this species requires large blocks of mature forest (structural stages 4B, 4C, 5) for nesting, feeding, and raising their young. A goshawk pair will construct a large stick-nest near the top of a tall tree within the interior of a large stand of trees. Goshawks are highly territorial and tend to reuse the same nesting territory year after year, sometime reusing the same nest. Pairs typically have one or more alternate nests within the territory.

Habitat fragmentation is one of the primary impacts to northern goshawks throughout their range. Management strategies for vegetation within the IAA should provide for habitat continuity and large patch size on the landscape level. Providing a diversity of tree and shrub species and structure within the pine stands would also provide habitat for small mammals and birds that are prey for the goshawk.

Nesting goshawks are sensitive to disturbance within the vicinity of their nest tree. Repeated disturbance can lead to abandonment of the eggs or young. The current Forest Plan provides protection of active nest sites from March 1 to July 31 by prohibiting activities that would lead to abandonment of the nest within ¼ mile.

Surveys have been conducted within the IAA periodically since the mid-1980s. Nests have been documented within the ponderosa pine type, but they have only been an annual nest site, not established nesting territories. Surveys for presence of nesting goshawks should continue prior to project implementation to protect any active nests that may be present.

### **Flammulated owl (*Otus flammeolus*)**

The flammulated owl is a migratory bird of North and Central America, wintering in Central America and southern Mexico and breeding in the West from northern Mexico to British Columbia. Throughout most of their breeding range, they are highly associated with mature and old growth ponderosa pine forest habitat. In Colorado, this relationship is also very strong, but they have also been located in stands of mixed ponderosa pine and aspen. The use of aspen is thought to be a response to the presence of nest cavities in areas where they are lacking in ponderosa pine.

They usually return to Colorado in late April. Pairs typically re-mate each year, often in or near their old territories. They require a nest cavity such as an old flicker or woodpecker hole but will also nest in boxes placed in suitable habitat. A pair will typically occupy their nesting territory until the young have fledged in mid to late July. Flammulated owls feed on moths and other insects that occur in open stands of mature ponderosa pine. They roost in dense brush or clumps of trees during the day.

Surveys conducted by the Forest Service for the Mexican spotted owl have documented the presence of flammulated owls on virtually all areas of the Uncompahgre Plateau where there is suitable ponderosa pine habitat. The Forest also has an ongoing boreal owl nest box monitoring study that includes routes on the Plateau and Lone Cone that have been active for 10 years. Flammulated owls have utilized nest boxes on both of these routes, especially those on the Plateau. The IAA is an important habitat area for this species.

Management strategies for vegetation within the IAA should include the promotion of uneven-aged stands of mature to old growth ponderosa pine with variable densities and distribution of tree clumps and patches (structural stages 4B, 4C, 5). Structural habitat features within the mature ponderosa pine stands are also currently limiting within the IAA. Habitat capability could be greatly improved through the recruitment and retention of large-diameter snags and cull trees and by retaining patches of mature Gambel oak within and between stands of pine. Suitable nesting trees (particularly > 12" dbh) should be recruited and retained within the stands treated. Snag tree protection during prescribed burning operations should be done with adequate site preparation prior to ignition. Protection from public firewood cutting should also be implemented on the IAA. Small clones of aspen that occur within the pine type should also be evaluated for habitat quality and use by cavity nesting birds. Some clones may need to be protected by the proposed land treatments or actively managed to regenerate them if they are not going to persist.

### ***Lewis' woodpecker (Melanerpes lewis)***

The Lewis' woodpecker is strictly found in western North America. Their breeding range extends from Colorado west to the Pacific and from British Columbia, south to Arizona and New Mexico. Breeding bird surveys on the GMUG National Forest have confirmed the presence of Lewis' woodpecker on the Uncompahgre Plateau, including the IAA.

During the breeding season, Lewis' woodpeckers feed almost exclusively on emergent insects rather than on the grubs that other woodpeckers dig from trees. As woodpeckers that specialize in flycatching, they need open habitats for their foraging methods to succeed. They prefer open stands of mature ponderosa pine, burned-over areas with abundant snags and stumps, and have recently expanded into riparian and rural cottonwoods and pinyon-juniper woodlands. Populations of Lewis' woodpeckers usually show a dramatic increase following large stand-replacing fires in ponderosa pine forest such as the Burn Canyon fire of 2002. Within the IAA, they are found almost exclusively within open-grown stands of ponderosa pine and oak.

The Lewis' woodpecker has a comparatively weak skull and bill and must therefore select soft trees and snags to create nest cavities. Agents that create these conditions in ponderosa pine include bark beetle activity or wildfire. Natural cavities or previously excavated holes of other woodpeckers are also used for their nesting sites. They form permanent pair bonds and show strong nest site fidelity. Nesting

pairs form loose colonies with other nesting Lewis' woodpeckers in the same tree or clump of trees and tend to nest within the same nest hole each year.

After nesting season, when insects are no longer available, the Lewis' woodpecker does not migrate to warmer climates but moves off to different localities. At this time, their diet shifts to berries, acorns and grains that they cache in various holes and crevices in trees. During this time, they continue to roost in tree cavities near their food sources.

Management strategies for vegetation within the IAA should include the development and maintenance of open-grown stands of mature ponderosa pine and Gambel oak (structural stage 4A). Suitable nesting trees (soft snags > 12" dbh) should be recruited and retained within the stands treated. Snag tree protection during prescribed burning operations should be done with adequate site preparation prior to ignition. Protection from public firewood cutting should also be implemented on the IAA.

### **Merriam's wild turkey (*Meleagris gallopavo*)**

The Merriam's wild turkey is one of two subspecies of wild turkey in North America. The Merriam's Turkey currently occupies all the conterminous United States, southern Canada and north-central Mexico. Rio Grande turkeys are native to Kansas, Texas and Oklahoma. Both subspecies are found in the State of Colorado. The Merriam's turkey is considered to be the "native" species in Colorado and has been kept by people as early as A.D. 500. The Colorado Division of Wildlife (CDOW) introduced Rio Grande turkeys into the major river systems of the Eastern Plains in the 1930's.

Unregulated hunting, grazing and disease took a heavy toll on wild turkey populations and by the 1930s few turkeys were left in Colorado. At that time, the Colorado Division of Wildlife began reintroducing Merriam's turkeys into the state. A large effort was made to reestablish them on the Uncompahgre Plateau with transplants from game farms in Texas. Those populations have expanded and currently support a hunting season that lasts from early April to late May. The IAA provides extensive habitat for the Merriam's turkey and populations are present throughout the IAA. Turkey hunting is very popular in this area, especially during the spring season.

The Merriam's wild turkey utilizes forested habitats, primarily lower elevation conifers and Gambel oak brush fields. In the winter, flocks of turkey utilize pinyon-juniper woodland and ponderosa pine forest with Gambel oak and mixed mountain shrub, where they feed on pine seed, nuts, acorns, berries and grass seed. In the spring, they move up in elevation, following the retreating snowline. Breeding and nesting occurs primarily in the ponderosa pine forest type. Use of unforested areas or pinyon-juniper depends on the proximity to stands of tall roost trees, usually ponderosa pine or cottonwood trees. They seldom breed in pinyon-juniper unless it

adjoins high-altitude ponderosa areas. After hatching, hens and chicks remain in the ponderosa pine and move up through the Gambel oak type into the aspen forest. At this time, they feed mainly on new plant growth and insects. At the end of the summer, they tend to move back down in elevation and feed on pine seed, berries, acorns, grass seed and insects.

Management strategies for vegetation within the IAA should concentrate on the ponderosa pine and Gambel oak cover types. Within the ponderosa pine type, management should include the promotion of uneven-aged stands of mature to old growth ponderosa pine with variable densities and distribution of tree clumps and patches (structural stages 4B, 4C, 5). Within these pine stands, management objectives should include the retention of large, full-canopy roost trees and patches of mature Gambel oak. It should also provide for the retention of down logs and other shrub species in the understory that would provide shelter and/or food for turkeys.

Within the IAA, the Gambel oak type should be managed for a variety of age classes and structural stages, with most of the oak in a mature to older age class, interspersed with younger oak, meadows, pine, or other shrub species.

Merriam's wild turkeys are ground nesting birds. Prescribed burning or mechanical treatments in the ponderosa pine or Gambel oak types during the months of April and May could result in the loss of eggs and/or poults. In order to alleviate this impact, treatments within turkey nesting habitat at this time of the year should be limited to avoid mortality. Suggested mitigation is to limit spring burning to half of the project area each year.

### **Abert's squirrel (*Sciurus aberti*)**

The Abert's squirrel is restricted to the ponderosa pine forests of the Colorado Plateau and southern Rocky Mountains of Colorado, Utah, Arizona and New Mexico in the United States and the Sierra Madre Occidental of Chihuahua and Durango in Mexico. The GMUG National Forest is located well within the range of this species. Most of the known populations are found on the Uncompahgre Plateau and Naturita Division of the Uncompahgre National Forest. A small population is also found on the Gunnison National Forest near Cochetopa and North Pass. The IAA provides a significant amount of the available habitat on the GMUG National Forest.

Populations of Abert's squirrel are well established and distributed throughout the IAA. Population surveys were conducted in 2004 and 2005 using a Combined Feeding Index sampling method within 6,569 acres of representative stands in the IAA. This data indicates that overall, squirrel densities are generally low and vary with stand density. Very little or no activity is present within the 4A stands, especially where those stands consist of evenly-spaced mature trees that do not have interlocking crowns and where there is little or no understory shrub cover or tree regeneration. Squirrel densities increase in 4B and 4C stands as crown closure,

clumpiness and structure increases within the stands sampled. This data reaffirms the habitat relationships described by Patton, Keith and others conducting research in Arizona.

The Abert's squirrel is dependent upon ponderosa pine for food, cover and nest sites. Preferred habitats are composed of all-aged ponderosa pine stands with trees in even-aged groups. Abert's squirrels are active throughout the year. Their diet shifts with the seasons and availability of food. They consume the seeds, inner bark, terminal buds and staminate flowers of ponderosa pine along with Gambel oak acorns, fleshy fungi, carrion, bones and antler. The most nutritious food source is the seed of the ovulate cones, which are produced by mature trees. The availability of pine seed varies widely since cone crops vary markedly from year to year. The inner bark of subterminal twigs is a reliable source of food that is used primarily in the winter and spring of the year. Abert's squirrels seem to select certain trees (feed trees) for their quality of twig growth, apparently based on tree vigor. Fungi are the primary food source in summer and fall. Squirrels feed on a variety of mushrooms and particularly seek out hypogeous fungi found growing in association with ponderosa pine tree roots. These mycorrhizal associations are primarily associated with dense canopy stands of black jack pine with deep layers of needle duff.

Abert's squirrel nests have been studied extensively, and several relationships have been described for cover requirements for nesting. The most important components are tree density, diameter and a grouped distribution of trees. Nests are located in the upper limbs of a tree that is situated within a group of 3 to 5 trees with interlocking crowns. The group of trees is usually 11 to 24 inches dbh, and the highest densities of nests are within stands of 40 to 70% crown closure.

Management strategies for vegetation within the IAA should include the promotion of uneven-aged stands of mature to old growth ponderosa pine with variable densities and distribution of tree clumps and patches (structural stages 4B, 4C, 5). Within these pine stands, management objectives should include the retention of existing squirrel nests and nest tree groups with interlocking crowns and the attainment of even-aged groups of trees that are between 11 and 24 inches dbh. Pockets of jack pine with undisturbed needle-cast litter and mature Gambel oak should also be provided within the stand.

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

This bat is a western species, ranging from the Isthmus of Tehuantepec in Mexico north to British Columbia, Montana and Wyoming. In Colorado, they occur as scattered populations at moderate elevations on the Western Slope, along the foothills of the Front Range and mesas of southeastern Colorado. Maximum elevation of known populations is 7,500 feet. There have not been any site-specific surveys conducted within the project area to determine the presence of this species.

The fringed myotis is a species of coniferous forest and woodland at moderate elevations in Colorado. Records of occurrence are few and the species isn't common in the state but is perhaps widely distributed. Typical vegetation of their habitat includes ponderosa pine, pinyon/juniper, greasewood, saltbush and scrub oak. They roost in rock crevices, caves, mines, buildings and trees. Hibernation occurs in caves and buildings.

Breeding takes place in the fall. Ovulation, fertilization, implantation and gestation occur in the spring. Up to several hundred females congregate in nursery colonies. A single young is produced after a gestation of 50 days. Growth is rapid and most young are able to fly in 20 days.

The fringed myotis feeds on arthropods such as moths, daddy long legs and beetles. They forage along water, above shrubs and woodlands, or low over meadows, emerging to feed about 2 hours after sunset.

Management strategies for vegetation within the IAA should include the retention of snags and older trees with loose bark, lightening scars, dead tops and other defects that provide suitable roosting sites. Any potential hibernacula or nursery sites should be identified and protected from disturbance or physical modification.

## ***B. Pinyon-Juniper Woodland Habitat***

Pinyon-juniper woodlands provide habitat for some species that also utilize other cover types and for species more closely associated with or dependent upon this cover type alone. There are no species that are listed as threatened, endangered or candidates by the US Fish and Wildlife Service that are highly associated with this cover type. Species that are listed as sensitive or Management Indicator Species by the US Forest Service include the following:

### **Rocky Mountain elk (*Cervus elaphus*)**

The Rocky Mountain elk in North America are commonly called elk or wapiti, but in Europe the term elk refers to the European moose (*Alces alces*). The Rocky Mountain elk are presently recognized by most authorities as conspecific with the European red deer. Populations within North America were nearly extirpated by unregulated hunting by the late 1800's. Beginning in the early 1900s, conservation measures were implemented to restore elk populations, and elk were transplanted from the Yellowstone area to supplement remaining herds. Elk are now found in almost every state of the union.

The State of Colorado is recognized as having the largest elk population in the United States. The GMUG National Forest supports some of the largest elk populations in the state. The IAA is part of Game Management Unit 61, which is managed as a quality elk hunting unit by the Colorado Division of Wildlife. Hunting quality is managed through very limited bull elk licenses and harvest.

The Rocky Mountain elk is identified as a Management Indicator Species (MIS) on the GMUG National Forest. A species of very high economic importance, the elk is a habitat generalist utilizing all cover types on the Forest. Most of the GMUG National Forest is utilized as summer range. However, the lower elevation slopes of pinyon-juniper woodland, sagebrush, ponderosa pine and Gambel oak are important winter concentration areas on public lands. Ponderosa pine and aspen forest habitats are highly utilized for calving. Higher elevation aspen and spruce-fir forest habitats are used as summer range.

Seasonal concentration areas within the IAA are mapped and included in the project file. The current condition and use of big game winter range is a primary management concern within the IAA. Younger age classes of pinyon-juniper woodland and Gambel oak brush fields contain grasses and shrubs with higher vigor and production than older age classes. Past treatments such as chaining and seeding have matured to the point where additional treatments are needed to restore species diversity of the plant communities and improve forage production and carrying capacity. Sagebrush parks are also being overgrown by pinyon trees and declining in plant species diversity and production. As stated before, ponderosa pine forest habitat within the IAA provides winter range for elk and mule deer, especially the lower elevation, south-facing slopes above the San Miguel River.

Management strategies for vegetation within the IAA should include continued treatments within the pinyon-juniper woodland to maintain early-seral conditions on the winter range. Currently roller chopping and seeding have been successfully utilized to retreat past chained areas to reduce tree cover, regenerate browse species and reintroduce desirable herbaceous species. Similar effects could be achieved with prescribed burning and seeding. Within big game winter range areas, prescribed burning should be utilized within the ponderosa pine type to reduce tree cover and stimulate understory grass and forb production. Open-grown stands of ponderosa pine (4A) would have good potential to produce forage for elk. Some portions of the IAA may need seeding to reintroduce desirable native plant species.

All treatment areas should be properly grazed by livestock to promote the establishment of desirable understory plant communities. Areas that are not properly grazed or do not have the management flexibility to provide rest should be critically evaluated prior to implementing any land treatments. Proper grazing utilization standards must also be implemented to provide winter forage for elk. The current grazing strategy calls for 50% utilization. Most of the winter range in the IAA is utilized much more than 50%, which limits forage availability for elk during the winter.

Elk are also specified as an MIS for travel management within the Forest Plan. Elk habitat effectiveness is directly influenced by the density of open roads and motorized trails, as well as by the amount of human activity on those roads and trails. Elk habitat effectiveness is currently below Forest Plan standards within much of the IAA. The 2002 Uncompahgre National Forest Travel Management Plan includes

area-wide and route-by-route decisions that will improve elk habitat effectiveness. All motorized and mechanized travel is now restricted to designated routes. Numerous routes are identified for decommissioning to reduce open road density. There are two area closures that prohibit motorized use on big game winter range from January 1 to May 31 each year. At this point in time, the Forest Service has not implemented a majority of these closures. Implementation would have immediate and long-term benefits to habitat effectiveness within the IAA.

### **Mule deer (*Odocoileus hemionus*)**

The mule deer is a local species of concern within the IAA. Prior to 1900, it is thought that mule deer were common but not generally overabundant on the Uncompahgre Plateau. Native Americans hunted mule deer on the Plateau for generations. With settlement came additional subsistence hunting pressure and market hunting. By the early 1900s, mule deer population numbers had dramatically decreased to the point of local extinction in some areas of the state.

The deer populations did not significantly recover on the Uncompahgre Plateau until 1935 after hunting laws were passed and enforced, livestock grazing was regulated on public lands, and intensive predator control was conducted by state and federal agencies. By the 1940s and 50s, mule deer populations reached all-time highs, and public land managers became concerned about impacts to winter range. Liberal hunting seasons were implemented to reduce the deer populations in the 1950s and 60s. Due to the intensive hunting pressure for 20 years, combined with habitat degradation and over-harvest of does, deer populations declined significantly.

In the early 1970s, hunting pressure was reduced and populations slowly rebuilt their numbers into the mid-1980s. At that time, there was a severe winter that killed approximately half the deer population. Harvest levels were again reduced and, in combination with a series of mild winters, populations slowly increased. However, by the mid-1990s, mule deer populations began to decline again. Several studies were initiated to determine the cause of this decline, and many theories were tested. At the present time, researchers indicate the decline is primarily due to poor fawn survival from birth to 6 months and also possibly low fetal rates. Winter range habitat quality has a direct effect on these population factors.

As previously described for elk, seasonal concentration areas for mule deer within the IAA are mapped and included in the assessment. Mule deer winter range within the IAA is highly associated with the pinyon-juniper woodland and lower-elevation ponderosa pine and mixed Gambel oak, serviceberry and mountain mahogany.

The current condition and use of big game winter range is a primary management concern within the IAA. Younger age classes of pinyon-juniper woodland and Gambel oak brush fields contain grasses and shrubs with higher vigor and production than older age classes. Past treatments such as chaining and seeding have matured to the point where additional treatments are needed to restore species diversity of the

plant communities, improve forage production and improve carrying capacity. Sagebrush parks are also being overgrown by pinyon trees and declining in plant species diversity and production. Ponderosa pine forest habitat within the IAA also provides winter range for elk and mule deer, especially the lower elevation, south-facing slopes above the San Miguel River.

Management strategies for vegetation within the IAA should include continued treatments within the pinyon-juniper woodland to maintain early-seral conditions on the winter range. Currently, rollerchopping and seeding have been successfully utilized to retreat past chained areas to reduce tree cover, regenerate browse species, and reintroduce desirable herbaceous species. Similar effects could be achieved with prescribed burning and seeding.

Within big game winter range areas, prescribed burning should be utilized within the ponderosa pine and mixed shrub type to reduce tree cover and stimulate understory production and browse regeneration. Some portions of the IAA may need seeding to reintroduce desirable native plant species.

All treatment areas must be properly grazed by livestock to promote the establishment of desirable understory plant communities. Areas that are not properly grazed or do not have the management flexibility to provide rest should be critically evaluated prior to implementing any land treatments.

### *C. Sagebrush Habitat*

Sagebrush provides habitat for some species that also utilize other cover types and for species more closely associated with or dependent upon this cover type alone. There are no species that are listed as threatened, endangered or candidates by the US Fish and Wildlife Service that are highly associated with this cover type. Species that are listed as sensitive or Management Indicator Species by the US Forest Service include the following:

#### **Brewer's sparrow (*Spizella breweri*)**

The distribution of the Brewer's sparrow is roughly correlated to the North American range of big sagebrush. The winter range of Brewer's sparrows spans from Death Valley to west-central Texas and south through western Mexico to Jalisco and Guanajuato. Immediately north of this, their sagebrush summer range reaches into three western provinces of Canada. In Colorado, they are concentrated in the state's greatest sagebrush counties: Moffat, Rio Blanco, Jackson and Gunnison. Colorado Breeding Bird Atlas records document the presence of this species in Montrose County as well. There are no site-specific records of Brewer's sparrows within the IAA.

The Brewer's sparrow is a sagebrush obligate species. Habitat characteristics correlated with dense populations include a dominance of stands of moderate-

density big sagebrush of mid-height, with high forb cover, low grass cover, and some horizontal diversity. In this sagebrush community, Brewer's sparrows feed in the foliage of the shrubs.

Brewer's sparrows start to arrive in mid-April with full numbers at the end of the month. Prolific singing occurs until pair bonding, then singing decreases. Depending on weather conditions, they begin nesting late (mid-May to late June) and nest only once each season. The female lays 3-5 eggs in a ground nest. Incubation takes 16-17 days, and young fledge in 21-24 days.

Vegetation treatments and road decommissioning within the IAA could affect populations of this species. Inventory is needed to determine the condition of sagebrush communities and their potential as habitat for this species. Site-specific inventories should be completed prior to project implementation to locate unknown populations.

### **Sage sparrow (*Amphispiza belli*)**

Sage sparrows winter in the southwestern United States and adjacent Mexico, in creosote bush and saltbrush habitats. They breed in the Great Basin, from the Columbia and Snake rivers to southern Nevada, east to the Continental Divide and Four Corners. Records from the Colorado Breeding Bird Atlas show that sage sparrows occur on the western edge of the State and in the San Luis Valley. It indicates that sage sparrows do not nest as high as their obligate plant, sagebrush, grows. Extensive sagebrush in Middle Park, North Park, the Roan Plateau and upper Glade Park does not support breeding populations. Breeding bird surveys on the GMUG National Forest document their occurrence in sagebrush plant communities. There are no site-specific records of this species within the IAA.

The sage sparrow is a sagebrush obligate species, selecting only sizeable low-elevation stands of big sagebrush or mixed sagebrush and greasewood. Atlas records reveal that high-country sagebrush and plains sandsage, plentiful in Colorado, do not make suitable nesting habitat, nor do sagebrush parks of 30 acres or less. Inventory is needed to determine the species composition and condition of sagebrush communities and their potential as habitat for this species.

Sage sparrows begin to return to Colorado in February and reach full numbers in mid-April. Unusual among songbirds, they arrive to the nesting territory in pairs. Males with mates defend larger territories than unpaired males. Courtship continues into early June, followed by nest building and egg laying. A cup-nest is built around the mid-section of a sagebrush plant.

Vegetation treatments and road decommissioning within the IAA could affect populations of this species. Site-specific inventories should be completed prior to project implementation to determine the presence of this species.

**Columbian sharp-tailed grouse (*Tympanuchus phasianellus columbianus*)**

The Rocky Mountain Region of the Forest Service currently lists the Columbian sharp-tailed grouse as a sensitive species. The Columbian sharp-tailed grouse is one of two subspecies of sharp-tailed grouse that occurs in Colorado. The other subspecies is the plains sharp-tail (*T. p. jamesii*).

Prior to 1880, plentiful sharp-tails occupied northern Colorado as well as several other states north and west to British Columbia. The Columbian subspecies now occurs only in isolated pockets across its former range. They once occurred across the Western Slope. In the 1930s, they were classified as “numerous” on the Uncompahgre Plateau. Today they inhabit only a few spots in four Western Slope counties, a sharp reduction from the historic range. Routt and Moffat counties have the most birds. Mesa and Montrose counties have fewer birds. Colorado Division of Wildlife (CDOW) records indicate there were historic lek sites near the Cold Springs area on the north end of the Plateau and in the Howard’s Flat area on the southern end of the Plateau, adjacent to the IAA. Currently, the Columbian sharp-tailed grouse is believed to be extirpated from the Uncompahgre Plateau.

Researchers consistently write about shrubs and brush as the dominant habitat component for sharp-tail grouse. For the Columbian subspecies, all Breeding Bird Atlas records specify sagebrush, with one record placing it in mountain sagebrush. The isolation of the remaining pockets of Columbian sharp-tailed grouse across the continent led to a 1995 proposal to list this subspecies as a threatened species. At that time, the US Fish and Wildlife Service made the determination that listing was warranted but precluded from listing due to higher priority listings. The CDOW maintains a limited hunting season on Columbian sharp-tailed grouse.

Management strategies for vegetation within the IAA should recognize the potential for suitable habitat for this species and maintain suitable habitats within sagebrush plant communities. Biological evaluations should include an analysis of potential effects to habitat for this species as long as it remains on the Regional Forester’s sensitive species list.

**Gunnison sage grouse (*Centrocercus minimus*)**

The Gunnison sage grouse is a Forest Service sensitive species. In 2006, the species was under review by the US Fish and Wildlife Service for listing as a threatened species. It was not listed as a threatened species but still remains a sensitive species for the GMUG Forest.

The Gunnison sage grouse is a species of sage grouse native to North America. This species is limited to southwestern Colorado and eastern Utah. A total of five distinct populations of Gunnison sage grouse are recognized within the range of this species, based on their geographic locations. The Gunnison Basin has the largest population, followed by the San Miguel Basin population. The other three populations are very small in comparison. Studies indicate these populations do not

interact naturally. Some efforts have been made to capture and relocate birds from the larger populations to enhance genetic diversity and expand their range.

The San Miguel Basin population utilizes sagebrush habitats from Dry Creek Basin east to Beaver Mesa and Iron Springs Mesa. The Iron Springs Mesa lek was recently discovered by the CDOW while doing lek counts. This lek is immediately adjacent to the IAA. Birds from this lek are likely using the sagebrush parks within the IAA on Iron Springs Mesa, McKenzie Creek, North Creek and Sanborn Park. All of this sagebrush habitat is mapped as suitable sage grouse habitat in the local San Miguel Basin Sage Grouse Conservation Plan and the state's Gunnison Sage Grouse Rangeland Conservation Plan.

The Gunnison sage grouse is a sagebrush obligate species. Sagebrush habitat within the IAA is likely used for nesting and brood rearing. Sightings have been made within the IAA. Nesting habitat consists of moderate to dense canopy sagebrush with a dense understory of tall grass stubble to provide cover. After leaving the nest, the hen will move her chicks to areas of sagebrush interspersed with grassy, wet meadows. The sagebrush provides cover, and the meadows provide forbs and insects for food. As the chicks mature, they continue feeding on insects, seed and green grass or forbs. As winter approaches, they migrate to winter ranges with tall sagebrush. In this area, the winter range is west of the IAA in Dry Creek Basin, Hamilton Mesa and Miramonte Reservoir.

As with the other sagebrush species, an inventory is needed to determine the species composition and condition of sagebrush communities and their potential as habitat for this species. Additional inventory is also needed to determine sage grouse use in this area. Livestock grazing utilization studies should also be conducted to determine the effects of current grazing practices on understory vegetation cover. No treatments should be done that would affect sagebrush cover until this inventory is completed.

Grass meadows within the sagebrush type should also be examined for plant species composition, cover and livestock grazing use. Any water developments in the area that are associated with these sagebrush/meadow complexes should also be evaluated for their effect on the meadow system and considered for modification if necessary.



## *D. Aquatic Resources*

### **Colorado River Cutthroat Trout (*Oncorhynchus clarki pleuriticus*)**

Within the Uncompahgre Plateau assessment area, conservation populations of Colorado River cutthroat trout (CRCT) reside only within certain tributaries of the East Fork of Dry Fork Creek. Several other streams within the Uncompahgre Plateau that contain cutthroat trout populations that have not been designated as conservation populations include tributary streams of Dominguez, Escalante, Roubideau, Dry, Spring, Tabeguache and Horsefly creeks. Though CRCT recovery sites have not been formally identified on the Uncompahgre Plateau, these streams represent some of the better opportunities for successful translocation of CRCT. Horsefly Creek forms the northern boundary of the IAA. The presence of nonnative trout has likely influenced the distribution, abundance and/or genetic purity in nearly every fish-bearing stream on the Uncompahgre Plateau.

Severe drought conditions can have significant impacts to localized populations, potentially causing populations of CRCT and other trout species to become locally extinct in headwater areas. Many small streams may have natural or man-made barriers to fish migration, which could limit the ability of trout to re-colonize headwater streams. Local water depletions could magnify this problem when key flows needed for dispersal are removed from the hydrograph for domestic or agricultural use. However, water developments such as stock ponds and impoundments and water conveyance systems have likely benefited many amphibian species by providing additional sources of perennial water needed during low flow conditions.

Impacts from poor road design to salmonid species have been well documented in the Pacific Northwest (Furniss et al 1991). Primary factors that can potentially affect fish habitat in the IAA are surface erosion and increased runoff during storm events. Sediment delivery to a number of streams has been observed on many native surface roads and at stream crossings throughout the Uncompahgre Plateau. Excessive sediment loads can impact the survival of fish following spawning activities and affect macro-invertebrate densities that are the primary food sources for trout species. Areas where the stream is adjacent to the road have the greatest risk of impacting fish habitat and causing downstream impacts.

## *E. Plant Species of Concern*

### **Wetherhill Milkvetch (*Astragalus wetherillii*)**

The Wetherhill milkvetch is a Forest Service Region 2 sensitive species.

This species is found within the States of Utah and Colorado. In Colorado, it is known to occur in Moffat, Garfield, Mesa, Montrose, Ouray and San Miguel Counties. There are 49 records in the Colorado Natural Heritage Program's (CNHP) database from Colorado public lands, only 27 of those have been counted. More populations

have been discovered recently during BLM landscape assessments, indicating this species may be more widespread than originally documented. There have not been any site-specific surveys conducted within the IAA to determine the presence of this species.

Its habitat includes canyon benches and talus under cliffs in stony or sandy soils derived from shale or sandstone. The known site on the Norwood District is on a rocky east-facing slope above a creek bed. Most of the habitats in CNHP's database are disturbed, with "barren soil" mentioned often. The species is apparently resistant/resilient to disturbance at moderate to severe levels. The habitats occupied by this species are not narrowly specific.

Vegetation treatments and road decommissioning within the IAA could affect populations of this species. Site-specific inventories should be completed prior to project implementation to locate unknown populations. The best mitigation will be to avoid any populations that are located. Mechanical treatments conducted in the fall or winter when the ground is frozen will minimize soil disturbance and potential impacts to habitat for this species.