

CHAPTER 16 - WILDLIFE

16.1 RESOURCE OVERVIEW

The Moab FO area is in the heart of the Colorado Plateau and has a great amount of landscape diversity. This location produces a unique combination of landforms and habitat types. This diversity of habitat in the Moab FO area is reflected in the diversity of terrestrial and aquatic life that occurs within its borders.

16.1.1 Threatened, Endangered, and Special Status (TES) Species

A total of 11 federally-listed species and 50 BLM Sensitive Species were identified as having the potential to occur within Grand and San Juan Counties (see Appendix 16-1). These include 19 mammal, 20 bird, 13 reptile and amphibian, 7 fish, and 1 invertebrate species. (It should be noted that some of the TES species listed in Appendix 16-1 may occur on lands managed by agencies or organizations other than the BLM.)

16.1.1.1 Threatened, Endangered, and Candidate Species

The U.S. Fish and Wildlife Service (USFWS) has identified the following Threatened, Endangered and Candidate species within the Moab FO area in the last ten years.

16.1.1.1.1 Bald Eagle

Utah's wintering bald eagle population is typically found near rivers, lakes, and marshes where unfrozen, open waters offer the opportunity to prey on fish and waterfowl. The Colorado and Green River corridors are well used by Utah's wintering bald eagles. The eagles begin to arrive in November and head north by March. Utah also hosts a small population of desert bald eagles that can be found in desert valleys, far from any water. These eagles feed primarily on carrion, primarily road and hunter kill. There are only four known nest sites in Utah, two of which occur on the Colorado River within the Moab FO area. Nesting bald eagles in the Moab FO return to their nesting territories in early spring. Egg laying and incubation occurs from February through May with eaglets hatching during May and early June and fledging by early July.

16.1.1.1.2 Mexican Spotted Owl (MSO)

Mexican spotted owl (MSO) habitat includes high canopy closure, high stand density, and multi-layered canopies of uneven-age forest-woodland stands. Steep slopes and canyons with rocky cliffs characterize much of the MSO habitat. Within the Colorado Plateau, owls are known to nest in steep-walled canyon complexes and rocky canyon habitat within desert scrub vegetation. The owl exists in small isolated subpopulations and is threatened by habitat loss and disturbance from recreation, overgrazing, road development, catastrophic fire, timber harvest, and mineral development. The Moab FO area contains designated critical habitat for this species (Figure 16-1). Within the Moab FO one known nesting territory has been identified and is located well outside the designated critical habitat. No known nesting territories have been identified within Moab FO designated critical habitat. Nesting and breeding begins in March and eggs are laid in late March or early April and are incubated for approximately 30 days. The eggs usually hatch in

early May. Nesting owls fledge from early to mid-June and disperse out of the natal area in the fall.

16.1.1.1.3 Southwestern Willow Flycatcher (SWFL)

The southwestern willow flycatcher (SWFL) utilizes and breeds in patchy to dense riparian habitats along streams and wetlands near or adjacent to surface water or saturated soils. These dense patches are often interspersed with small openings, open water, and/or shorter/sparser vegetation, creating a mosaic habitat pattern. Historically, nests were constructed in native willow species but currently the SWFL will utilize both native and exotic species, such as tamarisk and Russian olive that provide desired habitat requirements (Sogge et al. 1997). Nesting season typically begins in May when males arrive to establish breeding territories. The females arrive a week or two later and nest building begins. Eggs are laid and incubated from late May through July. Chicks fledge 12 to 15 days after hatching during July and August and migrate south in late August through early fall. Population declines are attributed to numerous, complex, and interrelated factors such as habitat loss and modification, invasion of exotic plants into breeding habitat, brood parasitism by cowbirds, vulnerability of small population numbers, and winter and migration stress. The Moab FO area contains potential riparian habitat for this species.

16.1.1.1.4 Gunnison Sage-grouse

Sage-grouse require a variety of habitats such as large expanses of sagebrush (*Artemisia* spp.) communities below 9,800 feet, with a diversity of grasses and forbs and healthy riparian ecosystems. Their habitat requirements differ during most of the year and differ for sex and age classes. The presence of each habitat type in healthy condition in close proximity to winter, lek, nest and brood-rearing habitat is essential. A large percent of each seasonal habitat must be in later seral stage ecological condition to meet the requirements of the grouse. Population declines are attributed habitat loss and fragmentation for increased roads, housing developments, uranium mill tailings remedial action, powerlines, and reduction in riparian areas. Other issues decreasing habitat quality are livestock grazing, drought, land treatments, increased elk and deer populations, and herbicides. The Moab FO area contains habitat for this species and has had documented populations through the mid 1990s. Unfortunately no sightings have been reported in the past ten years.

16.1.1.1.5 (Western) Yellow-billed Cuckoo

The yellow-billed cuckoo is a federal Candidate species that has been listed due to loss of riparian habitat from agricultural use, water use, road development and urban development. No known population of this species exists at present within the Moab FO area. The yellow-billed cuckoo, however, is a neotropical migrant that utilizes riparian valleys throughout the state. Migrant or nesting populations may occur within the Book Cliffs, but there is inadequate sampling of potential habitat at this time (UDWR). The Moab FO area contains potential riparian habitat for this species.

16.1.1.1.6 Bonytail Chub

The bonytail chub has drastically declined in numbers since the 1960s and little is known about its biological requirements. Historically it was once widespread throughout the Colorado River Basin. Today it is thought to be found in large river reaches of the Colorado and Green Rivers. The Moab FO area contains both possible populations and designated critical habitat for this species.

16.1.1.1.7 Colorado Pikeminnow

Natural populations of the Colorado pikeminnow are restricted to the upper Colorado River Basin in Wyoming, Colorado, Utah, and New Mexico. The main stem of the Colorado River from Palisade, Colorado to Lake Powell has known population within this region. (Byes 2003). Flow regulations, migration barriers, habitat loss/alteration, and introduced non-native fish have all been identified as causes for population decline (UDWR). The Moab FO area contains both populations and designated critical habitat for this species.

16.1.1.1.8 Humpback Chub

Populations of humpback chub have been identified in the Upper Colorado River Basin with the highest concentrations found in the Black Rocks and Westwater Canyon reaches of the Colorado River near the Colorado/Utah state line (Byes 2003). The presences of juvenile population suggest spawning may occur in the Upper Colorado River at Black Rocks, Westwater Canyon, Cataract Canyon, and Desolation/Gray Canyon (Byes 2003). Flow alterations have been identified as a significant cause of decline. The Moab FO area contains both populations and designated critical habitat for this species.

16.1.1.1.9 Razorback Sucker

The Green River has the only known spawning areas (UDWR) for the razorback sucker. Populations have been identified in the Colorado River from Rifle Colorado to Lee's Ferry Arizona and also in areas of the Green, Gunnison, and Yampa Rivers (Byes 2003). The Moab FO area contains both populations and USFWS designated Critical Habitat for this species.

16.1.1.1.10 Black-footed Ferret

The Endangered black-footed ferret is considered the rarest mammal in North America; once common throughout the Great Plains now all native population have been extirpated. Successful captive breeding programs and reintroduction efforts are returning small population to their native ranges. Their diet consists of 90% prairie dogs and with recent declines in prairie dog numbers, reintroduced population are at risk. Within the Moab FO area, no known populations occur, but historical native ranges exist and reintroductions are being examined by state (UDWR) and federal agencies.

16.1.1.2 BLM Sensitive Species

The following BLM Sensitive Species are known to occur within the Moab FO area.

16.1.1.2.1 Allen's Big Eared Bat

Allen's big eared bat is listed as a BLM Sensitive Species because of limited distribution within the state. Southern Utah is the northern extreme of this species distribution. It occurs in various habitats including riparian, desert shrub, pinyon-juniper and mixed forest (UDWR 2000).

16.1.1.2.2 Big Free-tailed Bat

The big free-tailed bat is listed as a BLM Sensitive Species because of declining population sizes and limited distribution within the state. It is a migratory species and is known from the southern half of Utah although it may range further north. The big free-tailed bat has been captured in riparian, desert shrub and montane forest habitat types (UDWR 2003).

16.1.1.2.3 Fringed Myotis Bat

The fringed myotis bat is listed as BLM Sensitive Species because of limited distribution within the state. This species occurs predominantly in southern Utah although records of this species occur throughout the state. Fringed myotis occur in a variety of habitat including riparian, desert shrub, pinyon-juniper, mountain meadow, ponderosa pine, and montane forest (UDWR 2003).

16.1.1.2.4 Townsend's Big-eared Bat

The Townsend's big-eared bat is a BLM Sensitive Species, and USFS-listed Sensitive species due to limited distribution and a declining population (Oliver 2000). The Townsend's big-eared bat is a cave-roosting species that moves into man-made caves such as mines and buildings. Unlike many other bats, they are unable to crawl into crevices and usually roost in enclosed areas where they are vulnerable to disturbance. The Townsend's big-eared bat is quite sensitive to human disturbance, and this appears to be the primary cause of population decline for this species. This bat is colonial during the maternity season, when compact clusters of up to 200 individuals might be found. Maternity roosts form in the spring and remain intact during the summer. Site fidelity is high, and if undisturbed, the bats will use the same roost for many generations (Brown 1996).

16.1.1.2.5 Spotted Bat

The spotted bat is listed as a BLM Sensitive Species and is considered rare in Utah (though the spotted bat's distribution ranges throughout the western states from British Columbia to Mexico). The spotted bat has a very low reproductive potential, and therefore once populations are reduced they rebuild very slowly. Several sightings were reported to the UDWR in the southern portion of the Moab FO in 1959 and 1965, though no current populations are known today.

16.1.1.2.6 Gunnison's Prairie Dog

The Gunnison's prairie dog is listed as a BLM Sensitive Species. This species is highly susceptible to sylvatic plague and has a low ability to repopulate once the plague has decimated a colony. Mortality from plague frequently exceeds over 99 percent within colonies. Additional

threats include poisoning, agricultural conversion and urbanization and development. (UDWR 2003).

16.1.1.2.7 White-tailed Prairie Dog

The white-tailed prairie dog is listed as a BLM Sensitive Species. This species has declined by an estimated 84% in southern Utah. The decline can be attributed to this species' high susceptibility to sylvatic plague. Population numbers rarely rebound to previous numbers and occupied acreage once the plague has decimated a colony. Additional threats include poisoning, grazing, fire suppression, agricultural conversion, urbanization and oil and gas development. (UDWR 2003).

16.1.1.2.8 Burrowing Owl

The burrowing owl is listed as a BLM Sensitive Species to recent decreases in population size. Burrowing owls are neotropical migrants, nest underground in burrows, and are typically found in open desert grassland and shrubland areas that are level and well drained (Gleason and Johnson 1985). They depend on burrowing mammals for nest sites and are often associated with prairie dog colonies (Konrad and Gilmer 1984). The decline of the owl's population across its range appears to be due primarily to agricultural practices, use of pesticides, and the decline of prairie dog colonies (Haug et al. 1993).

16.1.1.2.9 Ferruginous Hawk

The ferruginous hawk, BLM Sensitive Species, is the largest of the North American buteos. It is a neotropical migrant breeding from southwestern Canada to central Arizona, New Mexico, and northern Texas and wintering in California to northern Mexico. It is a year-round resident from Nevada through western and southern Utah, northern Arizona, and New Mexico to eastern Colorado and South Dakota. In Utah, the ferruginous hawk nests at the edge of juniper habitats and open, desert and grassland habitats in the western, northeastern, and southeastern portions of the state. Within the Moab FO area they are found through the Cisco Desert, along the Colorado and the Green Rivers and the Potash area. Ferruginous hawks are highly sensitive to human disturbance and are also threatened by habitat loss from oil and gas development, agricultural practices, and urban encroachment. They have experienced a decline across much of their range and have been extirpated from some of their former breeding grounds in Utah.

16.1.1.2.10 Greater Sage-grouse

The greater sage-grouse is listed as a BLM Sensitive Species because of their limited distribution within the state and because of recent decreases in population size. Greater sage-grouse are found in the sagebrush foothills and plains of the Intermountain Region. Since 1967, the abundance of male grouse on known breeding grounds in Utah has declined approximately 50 percent. Brood counts and harvest data show a similar downward trend. Habitat loss and fragmentation from agricultural encroachment, urbanization, and overgrazing are the primary threats to the greater sage-grouse.

16.1.1.2.11 Lewis's Woodpecker

The Lewis's woodpecker is listed as a BLM Sensitive Species and USFWS Candidate species because of its limited distribution within the state and because of recent decreases in population size. This woodpecker is a permanent resident to western North America and, in Utah, is found primarily in the riparian habitats of the Uinta Basin and along the Green River. Formerly common in several areas of the state, the species distribution is currently reduced, and the species is experiencing a range-wide decline. This woodpecker usually feeds on flying insects in open areas interspersed with trees in the spring and summer. It feeds primarily on fruits and nuts in the fall and winter. It is adversely affected by loss of habitat from water development and agricultural practices and may be increasingly affected by competition for nest cavities from non-native bird species.

16.1.1.2.12 Cornsnake

The cornsnake is listed as a BLM Sensitive Species because of limited distribution and its potential for genetic uniqueness from the cornsnakes east of the Continental Divide. The cornsnake is associated with the Colorado and Green River corridors and population declines are attributed to habitat degradation, vegetative changes, and illegal collection (UDWR).

16.1.1.2.13 Smooth Greensnake

The smooth greensnake is listed as a BLM Sensitive Species because of its special habitat requirements, making it susceptible to habitat loss. The smooth green snake is associated with meadows and stream margins and habitat threats include livestock grazing, recreational activities, loss of wetlands, and human development (UDWR).

16.1.1.2.14 Blueheaded Sucker

The blueheaded sucker is listed as a BLM Sensitive Species, as it has been extirpated from 55 percent of its historical distribution. Within the Moab FO area, populations can be found in the mainstream rivers and tributaries to the headwater reaches of the Colorado and Green Rivers and in the Dolores River. Declines in populations are attributed to hybridization, altered hydrological regimes, in-stream habitat loss and degradation and predation of non-native fish (UDWR).

16.1.1.2.15 Roundtail Chub

The roundtail chub is listed as a BLM Sensitive Species as it has been extirpated from 45 percent of its historical distribution in the Colorado River Basin. Within the Moab FO area, populations are known to occur in the Colorado River from the Utah border to Moab and in the Green River from the Colorado-Green confluence upstream to Echo Park. Declines in populations are attributed to hybridization with other chub, habitat loss and degradation due to dam and reservoir construction, competition and predation of non-natives, parasitism, and dewatering activities (UDWR).

16.1.1.2.16 Flannelmouth Sucker

The flannelmouth sucker is listed as a BLM Sensitive Species, as it now occupies only 50 percent of its historical range within the Upper Colorado River Basin. Within the Moab FO area, populations are known to occur in the Colorado, Green and Dolores Rivers. Populations have declined since the 1960s due to impoundment of the mainstem of the Green and Colorado Rivers. (Flannelmouths have been extirpated from portions of the Gunnison River.) This fish is also susceptible to altered thermal and hydrological regimes, hybridization and competition of non-native fish (UDWR).

16.1.1.2.17 Eureka Mountainsnail

The Eureka mountainsnail is BLM Sensitive Species and is endemic to Utah and only four populations have been documented, one of which was located in northern Grand County in 1964. The precise location of this population is unknown and it has not been relocated since its discovery 39 years ago (UDWR).

Refer to Appendix 16-1 for BLM Sensitive Species which **may** occur within the Moab FO area.

The next two listed species are Conservation Agreement species.

16.1.1.2.18 Colorado Cutthroat Trout

There is a Conservation Agreement concerning the Colorado cutthroat trout (CRCT 2001) to expedite implementation of conservation measures in Colorado, Utah, and Wyoming as a collaborative and cooperative effort among resource agencies. Threats that warrant CRCT listing as a special status species by state and federal agencies and might lead to listing under the Endangered Species Act of 1973, as amended, will be eliminated or reduced through implementation of the Conservation Agreement and Conservation Strategy. The goals of the Agreement are to assure the long-term prosperity of CRCT throughout their historic range and to maintain areas which currently support abundant CRCT and manage other areas for increased abundance, to maintain the genetic diversity of the species, and to increase the distribution of the CRCT where ecologically, sociologically, and economically feasible. Within the Moab FO there is habitat and possible presence of CRCT is both La Sal Creek and Beaver Creek (according to the UDWR). The Moab FO manages approximately .08 miles of La Sal Creek and 6.6 miles of Beaver Creek (the upper 2 miles is considered native CRCT habitat).

16.1.1.2.19 Northern Goshawk

The goshawk is a neotropical migrant raptor that can be found in mature mountain forests and valley cottonwood habitats. In the winter months goshawks are known to move into lower elevation to forage (Squires and Reynolds 1997). Due to low population densities, loss of timber habitat and development in riparian areas, populations have declined across the Colorado Plateau (UDWR). A Conservation Agreement has been developed for the Northern Goshawk to maintain and restore habitat for the northern goshawk on the National Forests in Utah and in small portions of Wyoming and Colorado. Threats that might lead to listing under the Endangered Species Act of 1973, as amended, will be eliminated or reduced through

implementation of the Conservation Agreement and Conservation Strategy. The goals of the Agreement are to assure the long-term prosperity of goshawks by maintaining adequate nesting and foraging goshawk habitat that is well connected throughout the State of Utah to sustain a viable population of goshawks. This will be accomplished through management which mimics the variability of size, intensity, and frequency of native disturbance regimes within the full historic range of variation, including extreme events. Within the Moab FO, there is habitat and the possible presence of goshawk along the interface between BLM lands and the Manti La National Forest.

The goshawk is a neotropical migrant raptor that can be found in mature mountain forest and valley cottonwood habitats. In the winter months goshawks are known to move into lower elevation to forage. Due to low population densities, loss of timber habitat and development of riparian areas, populations have declined across the Colorado Plateau (UDWR).

16.1.2 Big Game

16.1.2.1 Mule Deer

Mule deer occupy most ecosystems in Utah but likely attain their greatest densities in shrublands on areas characterized by rough, broken terrain and abundant browse and cover. In the Rocky Mountains, winter diets of mule deer consist of approximately 75 percent browse from a variety of trees and shrubs and 15 percent forbs. Grasses make up the remaining 10 percent of the diet during winter. In the spring, browse is 49 percent of the diet and grasses and forbs make up approximately 25 percent each. Summer diets are 50 percent browse, with forbs consumption increasing to 46 percent. Browse use increases again in the fall to approximately 60 percent of the mule deer diet, forb use declines to 30 percent, and grasses increase to 10 percent (Fitzgerald et al. 1994). Mule deer summer range habitat types include spruce/fir, aspen, alpine meadows, and large grassy parks located at higher elevations. Winter range habitat primarily consists of shrub-covered, south-facing slopes and often coincides with areas of concentrated human use and occupation. Winter range is often considered a limiting factor for mule deer and Rocky Mountain elk in the Intermountain West. The portions of these acreages managed by the Moab FO are listed in Table 16-1 and shown on Figure 16-2.

Because of learned behavioral use patterns, passed on from one generation to the next, deer migrate for the winter into the same areas every year, regardless of forage availability or condition. These generally are areas lacking in snow depth, which allow easier movement, with pinion-juniper and sagebrush vegetation types. These vegetation types provide deer with both escape and thermal cover. Sagebrush is their primary forage during the winter season.

Over the past five years fawn production has been poor and the overall deer population has been declining. Poor range conditions caused by severe drought could be a major factor causing the population decline.

		Total Habitat	Critical Winter	Fawning
Total mule deer habitat in Moab FO area (acres)		1,489,172	757,060	442,714
Total mule deer habitat managed by BLM (acres)	Book Cliffs	534,400	266,787	72,848
	La Sal	313,498	311,271	2,275

16.1.2.2 Rocky Mountain Elk

The Rocky Mountain elk is considered a generalist feeder (Fitzgerald et al. 1994). In the northern and central Rocky Mountains, grasses and shrubs compose most of the winter diet, with the former being of primary importance in the spring months (Kufeld 1973). Forbs become increasingly important in late spring and summer, and grasses again dominate in the fall. These feeding relationships may change somewhat, depending on location. Associated with seasonal changes in diet are seasonal changes in habitat. The season and function of use of these habitats help distinguish various types of winter ranges, production areas (calving grounds), and/or summer range. Production or calving areas are used from mid-May through June and typically occupy higher elevation sites than winter range. Calving grounds are usually characterized by aspen, montane coniferous forest, grassland/meadow, and mountain brush habitats, and are generally in locations where cover, forage, and water are in close proximity (Fitzgerald et al. 1994). In western Colorado, for instance, most females calve within 660 feet of water (Seidel 1977). Along the Wasatch Front, typical Rocky Mountain elk winter range occurs between 5,500 and 7,500 feet elevation and comprises mountain shrub and sagebrush habitats. Critical winter range is considered to be the part of the local deer and elk range where approximately 90% of the local population is located during an average of five winters out of ten from the first heavy snowfall to spring green-up. The middle and higher elevations of the Moab FO area sustain several significant Rocky Mountain elk populations. The portions of these acreages managed by the Moab FO are listed in Table 16-2 and shown on Figure 16-3.

A large portion of the Book Cliff wildlife management unit is located north of the Moab FO area, in the Vernal FO area. Most of the elk associated with this unit winter in the Ten Mile drainage along East Willow Creek, West Willow Creek, and in She Canyon. The Moab FO administers portions of these areas, but the majority is administered by the State of Utah. Summer and fall livestock grazing along the Willow Creek drainage in the Bogart allotment has been identified to conflict with elk habitat use. Other allotments identified as elk winter range include Barley Flat, Bar-X, Corral Wash, Cottonwood, Crescent Canyon, Diamond Canyon, Floy Canyon, and San Arroyo. Allotments containing yearlong elk range include the Rattlesnake and Shower Bath Springs allotments. An amendment to the RMP has reallocated forage in the Cottonwood and Diamond Canyon allotments to elk.

A majority of the elk in the La Sal wildlife management unit stay on private and USFS lands year-round; however BLM lands do provide some winter range. The La Sal Mountains elk herds winter on the Adobe Mesa, Blue Hill, Hatch Point, Lisbon, Mill Creek, North Sand Flat, Professor Valley, and South Sand Flat allotments as well as Polar Mesa and Taylor allotments on the north side of the mountains. The Dolores Triangle provides winter range for elk, which migrate from Colorado to habitat in the Buckhorn, Granite Creek, and Steamboat Mesa

allotments. The number of elk within the Dolores Triangle varies from year to year, depending on the severity of the winter; during mild winters, relatively few elk migrate into this area.

		Total Habitat	Critical Winter	Calving
Total elk habitat in Moab FO area (acres)		1,070,044	246,653	289,781
Total elk habitat managed by BLM (acres)	Book Cliffs	548,634	66,052	42,075
	La Sal	82,594	82,594	0

16.1.2.3 Black Bear

In the Intermountain West, black bears are typically associated with forested or brushy mountain environments and wooded riparian corridors and seldom use open habitats (Zeveloff and Collett 1988). Black bears tend to be nocturnal and crepuscular and are considered omnivorous. Preferred foods include berries, honey, fish, rodents, birds and bird eggs, insects, and nuts. Black bears obtain most of their meat from carrion. From November to April, bears enter a period of winter dormancy. Winter dens are located in caves, under rocks, or beneath the roots of large trees where they are kept nourished and insulated by a several-inch-thick layer of fat (Zeveloff and Collett 1988).

The middle and higher elevations of the Moab FO area sustain several significant black bear populations. The Moab FO area contains a total of 605,351 acres of black bear habitat. The BLM manages 146,716 acres of black bear habitat in the Book Cliffs wildlife management unit and 14,957 acres of black bear habitat in the La Sal wildlife management unit (Figure 16-4).

16.1.2.4 Pronghorn Antelope

Pronghorn antelope can be found throughout the western United States, Canada, and northern Mexico. They are generally associated with open plains where they feed mainly on browse. Pronghorn prefer to occupy areas with large tracts of flat to rolling open terrain where they rely on keen eyesight and swift movement to avoid predators. They also rely on vegetation within the shrub and grassland plant communities for food. Pronghorn are often found in small groups and are usually most active during the day.

There are two antelope herds within the Moab FO area: the Hatch Point herd and the Cisco Desert herd. The Moab FO area contains a total of 1,000,537 acres of pronghorn habitat; the BLM manages 743,524 acres of pronghorn habitat in the Book Cliffs wildlife management unit (Cisco Herd) and 78,822 acres of pronghorn habitat in the La Sal (Hatch Point herd) wildlife management unit (Figure 16-5).

In 1971, 172 pronghorn were reintroduced to the Hatch Point area. The population appeared to increase for the first 3 years following their introduction, but has declined since 1975. Drought, severe winter weather, and predation could be factors in the depletion of this herd.

The current Cisco Desert antelope herd originated from 48 animals that were released in Colorado in 1968. In 1983 an additional 150 antelope were released. This increased the herd to approximately 250 animals. In 1988, Colorado Division of Wildlife released another 90 antelope near the Utah-Colorado state line. The Cisco antelope have expanded west and are sometimes seen near Green River and south of I-70. The herd had increased to approximately 1,000 animals. However, pronghorn are responsive to climatic conditions and while mild winters and good moisture conditions prevailed, pronghorn numbers increased and their range expanded. During drought cycles, such as currently being experienced, pronghorn numbers sharply decline. The Cisco herd is currently believed to comprise less than 300 animals.

16.1.2.5 Desert Bighorn Sheep

Desert bighorn sheep are uniquely adapted to inhabit some of the most remote and rugged areas. Desert bighorns are sometimes referred to as a wilderness species because of the naturally remote and inaccessible areas they inhabit. They prefer open habitat types with adjacent steep rocky areas for escape and safety. Habitat is characterized by rugged terrain including canyons, gulches, talus cliffs, steep slopes, mountaintops and river benches (Shakleton et al. 1999). Desert bighorns generally occur in southern Utah and do not migrate.

The Moab FO area contains 422,192 acres of desert bighorn sheep habitat. (Figure 16-6). Of these acres, BLM manages 330,129. There are four herd areas for desert bighorn sheep in the Moab FO area. They are located 1) in the southeast area of Westwater Canyon (the Dolores Triangle herd), 2) in the Potash-Mineral Bottom-Ten Mile area (the Potash herd), 3) on the north side of the Colorado River east of Arches National Park (the Professor Valley herd), and 4) on the south side of the Colorado River along Kane Creek (The Lockhart herd. The Monticello FO of the BLM manages the majority of the habitat for the Lockhart herd.) The BLM manages 22,949 acres in the Dolores Triangle herd area and 245,870 acres in the Potash herd area. There are 17,707 BLM acres of desert bighorn habitat in the Professor Valley herd area, and 43,603 acres in the Lockhart herd area (There is also evidence of the Lockhart herd going up the Redd Sheep Trail to Hatch Point).

Desert bighorn sheep (Potash herd) are common within portions of the Shafer Basin-Big Flat-Ten Mile-Arth's Pasture area. Only a small percentage of the Shafer Basin-Big Flat-Ten Mile-Arth's Pasture area is considered to be suitable bighorn habitat. The habitat types preferred by bighorn are areas with steep rough terrain with good visibility (talus slopes and canyons) and flatter valley floors, which have rough terrain or escape cover nearby. Bighorn avoid flatter open terrain lacking in escape cover as well as and pinion-juniper forests, because of poor visibility and lack of escape terrain.

The habitat provided by Shafer Basin-Big Flat-Ten Mile-Arth's Pasture area contributes significantly to the area's overall desert bighorn population. The Potash and adjacent Canyonlands National Park (Island in the Sky) bighorn herd is the only remaining native (meaning not transplanted or reintroduced) desert bighorn herd in Utah, which supports a viable population. The combined population is estimated at 450-500 bighorn. Approximately 350 animals occupy the Island in the Sky and 150 to 200 bighorn inhabit lands managed by the Bureau of Land Management (BLM).

The Professor Valley desert bighorn herd's habitat extends to the east of Arches National Park onto BLM-managed land in the Cache Valley and Dome Plateau area. This area is located north of the Colorado River.

16.1.2.6 Rocky Mountain Bighorn Sheep

Rocky Mountain bighorn sheep can be found in small herds in northern and central Utah. Rocky Mountain bighorn sheep experienced significant declines in numbers in the early 1900s. Utah has been involved in an aggressive program for the past 30 years to restore bighorn sheep to their native habitat. Most Rocky Mountain bighorn sheep have seasonal migrations.

Rocky Mountain bighorn sheep were reintroduced into the Uintah-Ouray Indian Reservation in the early 1970s. An additional 13 Rocky Mountain bighorn were obtained from Waterton Lakes National Park, Alberta, Canada in April 1973. A viable population has become established along the eastern portion of the Green River corridor. Rocky Mountain bighorn currently occupy the rugged Book Cliffs terrain, south from the Indian Reservation and eastward to Thompson Springs, Utah.

The Moab FO area contains 593,867 acres of Rocky Mountain bighorn sheep habitat. (see Figure 16-6). There is one herd area for Rocky Mountain bighorn sheep in the Moab FO area located in the Book Cliffs. This is called the Book Cliffs Rattlesnake herd. The Moab FO directly manages 424,859 acres in this herd area.

16.1.2.7 Mountain Lion (Cougar)

The mountain lion, or cougar, likely inhabits most ecosystems in Utah. However, it is most common in the rough, broken terrain of foothills and canyons, often in association with montane forests, shrublands, and pinyon-juniper woodlands (Fitzgerald et al. 1994). Mule deer is the mountain lion's preferred prey species. Consequently, mountain lion seasonal use ranges are likely to closely parallel those of mule deer (Figure 16-7).

16.1.3 Upland Game

Upland game in the Moab FO area includes populations of blue grouse, chukar partridge, Rio Grande turkey, ring-necked pheasant and sage grouse. (Figures 16-8 through 16-10) Annual fluctuations for most upland game bird and small mammal populations very closely correlate with annual climatic patterns. Mild winters and early spring precipitation during the months of March, April and May are associated with increases in upland game populations. Warm, dry weather, especially during June, is generally considered vital for the survival of newly born young of many upland game species. Ring-necked pheasant and greater sage-grouse are two upland game species that have experienced a long-term decline as a result of degradation and loss of critical habitat (UDWR 2000). Table 16-3 shows Upland game habitat managed by the BLM.

A Strategic Management Plan for greater sage-grouse was issued by the UDWR in 2002 and is available on the UDWR website (UDWR 2002). Overall habitat conditions within the remaining sage-grouse habitat within Grand and San Juan Counties are consistent with a landscape dominated by agriculture. Undisturbed native sagebrush communities are rare as the area is

highly fragmented by cleared fields, roads, powerlines and pipelines. Livestock grazing is heavy, non-native noxious weeds have invaded or replaced native shrub and shrub-steppe communities on a large scale, and the overall level of human disturbance is relatively high. Furthermore, the ongoing severe drought (1999-2003) has contributed substantially to habitat deterioration. Therefore, overall habitat conditions are relatively poor and unstable compared to optimal sage-grouse habitat elsewhere. Sage-grouse may be petitioned for federal listing as either Threatened or Endangered species.

Upland game species	Total habitat in Moab FO area (acres)	Total area managed by BLM (acres)
Sage-grouse Winter Range	56,688	36,382
Sage-grouse Brooding Range	97,257	42,497
Rio Grande Turkey	189,320	13,8407
Blue Grouse	219,707	31,402
Chukar Partridge	1,738,282	1,328,451
Ring-necked Pheasant	37,225	10,513

16.1.4 Raptors

Special habitat needs for raptors include nest sites, foraging areas, and roosting or resting sites. Buffer zones are usually recommended around raptor nest sites during the early spring and summer when raptors are raising their young. The most utilized raptor nesting habitats in the Moab FO area are generally found along riparian areas and cliff faces. Juniper-desert shrub transition areas are identified as being important for nesting ferruginous hawks. There is one known bald eagle nest on BLM land within the Moab FO area; bald eagles use the Moab FO area extensively for winter foraging.

16.1.5 Reptile, Amphibian, and Other Non-game Species

The Moab FO area contains a high diversity of reptile, amphibian, and other non-game species, including small mammals, birds, and invertebrates, because of the variety of habitats found within the area. The area contains various riparian, talus slope, marsh, aspen-conifer, pinyon-juniper, and ridgetop habitats. Very little is known about the status of most of these species, but an effort is being made to acquire basic information on those listed by state and federal agencies as TES species.

16.1.6 Riparian and Aquatic Species

The riparian and aquatic habitat in the Moab FO area is associated with the Green and Colorado Rivers and their tributaries. Riparian Species and Avian Riparian Species of Special Concern in the Moab FO area include yellow-billed cuckoo and SWFL. The Green River sustains the largest breeding population of yellow-billed cuckoo in the state of Utah, with an estimated 10 to 20 pairs. SWFL also potentially occurs within the Moab FO area. It is currently believed that the range of this subspecies extends north to the Sand Wash area of the Green River (near the Uintah-Carbon county line). Many other TES species are highly dependent on riparian areas, and they are also crucial to neo-tropical migrant birds. A primary concern with the riparian areas is

the effect of decreased regeneration of cottonwood and willow stands and the invasion of non-native plant species such as salt cedar (*Tamarix* sp.) and Russian olive (*Elaeagnus angustifolia*) on riparian and aquatic wildlife species.

Aquatic species in the Moab FO area include several TES species such as bonytail, Colorado pikeminnow, humpback chub, razorback sucker, roundtail chub, blueheaded sucker, Colorado River cutthroat trout, and flannelmouth sucker. Table 16-4 gives the current UDWR inventories of fisheries within the Moab FO area.

Colorado River	Colorado pikeminnow, humpback chub, bonytail, razorback sucker, flannelmouth sucker, blueheaded sucker, channel catfish, roundtail chub, speckled dace, Plains killifish, fathead minnow, red shiner, sand shiner, smallmouth bass, largemouth bass, carp, black bullhead, walleye
Green River	Colorado pikeminnow, humpback chub, bonytail, razorback sucker, flannelmouth sucker, blueheaded sucker, channel catfish, roundtail chub, speckled dace, fathead minnow, red shiner, sand shiner, smallmouth bass, largemouth bass, carp, black bullhead, yellow bullhead, walleye, northern pike
Dolores River	flannelmouth sucker, blueheaded sucker, channel catfish, roundtail chub, speckled dace, carp, <i>fathead minnow</i> , <i>red shiner</i> , <i>sand shiner</i>
Castle Creek	speckled dace, <i>fathead minnow</i> , <i>red shiner</i> , <i>sand shiner</i>
Onion Creek	speckled dace, <i>fathead minnow</i> , <i>red shiner</i> , <i>sand shiner</i>
Kane Creek	speckled dace, <i>fathead minnow</i> , <i>red shiner</i> , <i>sand shiner</i>
La Sal Creek	Colorado River cutthroat, speckled dace, flannelmouth sucker, blueheaded sucker, mottled sculpin, speckled dace
Beaver Creek	Colorado River cutthroat, mottled sculpin
Negro Bill Canyon Creek	speckled dace, <i>fathead minnow</i> , <i>red shiner</i> , <i>sand shiner</i>
Mill Creek	brown trout, red shiner, <i>fathead minnow</i> , <i>sand shiner</i>
*Where fathead minnow, red shiner, sand shiner are added in italics, these are not necessarily documented. However, they are prolific in the mainstem Green and Colorado rivers. Thus, it is likely that they are in at least the lower extremities of these smaller tributaries.	

16.1.7 Management Indicator Species (MIS)

Management indicator species (MIS) are used by the BLM to monitor the effects of activities on a wide variety of habitat types. MIS were selected from the following categories (Table 16-5):

- Special status animal species, either listed, candidate, or proposed, on the USFWS Endangered species list and Utah's Species of Special Concern list.
- Species of some economic value, such as those that are hunted, fished, or trapped.
- Species with special habitat needs.
- Species whose population changes are believed to indicate effects of management on other species.

Habitat	Wildlife Species
Old growth conifer	Black bear, northern goshawk
Aquatic, marshes, lakes	Mallard duck, macroinvertebrates
Cliff rocks	Golden eagle, prairie falcon
Grasslands	Rocky Mountain elk, pronghorn, prairie dog, burrowing owl, ferruginous hawk
Deciduous woodlands	Rocky Mountain elk, mule deer, warbling vireo
Riparian	Yellow-billed cuckoo, southwestern willow flycatcher (SWFL), song sparrow, spotted towhee, Rocky Mountain elk, mule deer
Pinyon-juniper woodlands	Rocky Mountain elk, mule deer, juniper titmouse, gray flycatcher
Mountain shrub	Rocky Mountain elk, mule deer, green-tailed towhee, blue grouse
Sagebrush	Rocky Mountain elk, mule deer, pronghorn, greater sage-grouse, sage sparrow, sage thrasher, Brewer's sparrow
Desert shrub	Pronghorn, loggerhead shrike, ferruginous hawk

16.2 SPECIFIC MANDATES AND AUTHORITY

It must be noted that while the Moab FO manages the habitat, it is UDWR which manages the animals themselves. There are several federal and state laws, executive orders, regulations, cooperative agreements, and informational bulletins that direct the management of wildlife within the Moab FO area. They are:

16.2.1 Federal Laws

- The Migratory Bird Treaty Act of 1929, as amended, established federal responsibility to protect international migratory birds and authorizes the Secretary of the Interior, through the USFWS, to regulate hunting of migratory birds. The North American Waterfowl Management Plan, signed in 1986 between Canada and U.S., further sets population goals and how to achieve them.
- The Taylor Grazing Act of 1934, as amended, requires cooperation with states and other groups interested in conservation and propagation of wildlife within established grazing districts and provides for fishing and hunting within those districts in accordance with applicable laws.
- The bald eagle Protection Act of 1940, as amended, establishes penalties for taking, possessing, selling, purchasing, or bartering bald and golden eagles. It also provides for cancellation of the lease, license, or other federal land use authorization for anyone convicted of violating the act or any of its implementing regulations or permits.
- The Colorado River Storage Act of 1956 authorizes the Bureau of Reclamation to research and monitor activities of Endangered fish associated with the Colorado River. The act also authorizes the purchase of land and water rights to protect these Endangered fish.
- The Fish and Wildlife Coordination Act of 1958 mandates equal consideration of wildlife conservation with other features of water resource development programs and requires that damage to fish and wildlife resources be prevented, as well as that these resources be developed and improved.

- The Clean Air Act of 1970 establishes the mechanism for control of air pollution for public health and welfare, recognizing wildlife as one aspect of public welfare.
- The Endangered Species Act of 1973, as amended, requires the BLM to ensure that proposed actions do not jeopardize the continued existence of a Threatened or Endangered species and do not cause its critical habitat to be modified or destroyed.
- Federal Land Policy and Management Act of 1976 recognizes wildlife as a principal land use, requires consideration of wildlife objectives in commodity-oriented programs, and authorizes use of range betterment funds for enhancement of habitat for fish and wildlife.
- The objective of the Federal Water Pollution Control Act (Clean Water Act) of 1977 is the restoration and maintenance of the chemical, biological, and physical integrity of the nation's waters at a quality sufficient to protect fish and wildlife, as well as for recreational use.
- The Fish and Wildlife Improvement Act of 1978 authorizes the Secretary of the Interior to permit the taking of golden eagle nests that interfere with resource development or recovery operations.
- The Public Rangelands Improvement Act of 1978 directs that the condition of the public rangelands be improved so that they become as productive as feasible for wildlife habitat and other rangeland values. The act provides for on-the-ground funding of wildlife habitat protection, improvements, and maintenance projects.
- The North American Wetlands Conservation Act of 1989 is the first act to make federal funds available annually for wetland restoration in the United States, Canada, and Mexico. The act is intended to generate as much as \$30 million a year toward the North American Waterfowl Management Plan.
- The Non-Indigenous Aquatic Nuisance Prevention and Control Act of 1990 is meant to prevent and control infestations of coastal inland waters of the United States by zebra mussel and other non-indigenous, aquatic nuisance species. It is also meant to reauthorize the National Sea Grant College Program.

Other federal laws that may occasionally affect wildlife habitat management actions in the planning area are the Mineral Leasing Act, the Water Resources Planning Act, the Water Pollution Act, the Water Resources Development Act, the Federal Grants and Cooperative Agreements Act, the Safe Drinking Water Act, the Fish and Wildlife Act, and the Soils and Water Resources Conservation Act.

16.2.2 Executive Orders (EO)

- EO 11288 (July 1966) covered prevention, control, and abatement of water pollution by federal agencies.
- EO 11514 (March 1970) directed the protection and enhancement of environmental quality.
- EO 11643 (February 1972) dealt with animal damage control.
- EO 11870 (July 1975) dealt with animal damage control.

- EO 11917 (May 1976) dealt with animal damage control.
- EO 11987 (May 1977) directs executive agencies to restrict the introduction of exotic species into natural ecosystems (revoked by EO 13112).
- EO 11988 (May 1977) requires evaluation of potential effects of actions proposed within floodplains. It also directs federal agencies to reduce the risk of flood loss, minimize impacts of floods, and restore and preserve the natural and beneficial values of floodplains. Planning programs and budget requests must consider flood hazards and floodplain management.
- EO 11989 (May 1977) recognizes wildlife and their habitat as one of the values to be protected through closure of certain areas to OHV use or through the limitation of OHV use in those areas.
- EO 11990 (May 1977) directs federal agencies to minimize the destruction, degradation, and loss of wetlands and to preserve and enhance their beneficial values. All leases, ROWs, easements, and disposals involving federal wetlands must restrict uses by the grantee to be consistent with federal, state, and local wetland regulations.
- EO 12962 (June 1995) directs federal agencies to improve the quality, function, sustainable productivity, and distribution of U.S. aquatic resources for increases recreational fishing opportunities.
- EO 13112 (February 1999) establishes an Invasive Species Council to coordinate and develop control measures for non-native invasive species.
- EO 13186 (January 2001) establishes the responsibilities of federal agencies to protect migratory birds.

16.2.3 Regulations

- 43 CFR 24 Recognizes the necessity of maintaining fish and wildlife resources for their scenic, scientific, recreational, and economic importance, as well as the need for state and federal governments to work in harmony to develop and utilize these resources.
- 43 CFR 4100 Includes improvement of fish and wildlife habitat as a basic part of range betterment; provides BLM grazing and trespass regulations; requires the reservation of sufficient habitat for wildlife; and recognizes wildlife habitat as one of the values that can be protected by closing certain areas to livestock use.

16.2.4 Bureau of Land Management (BLM) Manuals

- Explains BLM policy on fencing to avoid or minimize impacts to wildlife.
- Explains BLM policy and provides guidance on land treatments.
- Contains information on introduction, transplant, augmentation, and reestablishment of fish, wildlife, and plants.

- Guides coordination between BLM and state and local governments. wildlife inventories; guides management and development of wetlands and riparian habitats; provides methodology for aquatic inventories and water analyses.
- Establishes BLM policy and guidance for introduction of exotic wildlife species, transplanting native wildlife species, and re-establishing formerly indigenous species.
- Guides the use of BLM's authority to further the purpose of the Endangered Species Act and similar state laws. Special status species management is outlined, and guidance is provided.

16.2.5 Instruction Memoranda and Information Bulletins

IM or IB Number	Subject
IM-UT-89-375	Range and Wildlife Project Maintenance
IM-UT-98-73	Revised Guidelines for Management of Domestic Sheep and Goats in Native Wild Sheep Habitats
IM-UT-90-60	Hauling Water and Feed to Wildlife and Wild Horses
IM-UT-90-260	Assistance to UDWR – Bighorn Sheep Information
IM-UT-90-306	Utah Wildlife Initiative – Flatwater Fishing
IM-WO-88-28 (10/87)	Revised Fish, Wildlife, and Special Status Plant Monitoring Policy
IM-WO-88-368 (4/88, 5/88)	Fish, Wildlife, and Special Status Plant Monitoring Assessment Ch 88-236 Procedures
IB-UT-79-155	Managing Riparian Zones for Fish and Wildlife
IB-UT-79-179	Memorandum of Understanding between BLM and UDWR Concerning Wildlife Management on Public Lands
IM-No. 2003-209	National Sage-grouse Habitat Conservation Strategy Development

16.2.6 Cooperative Agreements or Memoranda of Understanding

BLM Agreement No. UT-91 (12/27/76). Sikes Act program plan agreement for the State of Utah between BLM, U.S. Department of Agriculture, Forest Service, and UDWR (IM UT-76-443).

A Memorandum of Understanding (MOU) between UDWR and Utah BLM (6/22/79, pursuant to Cooperative Agreement between the Governor of Utah and BLM Utah State Director (Agreement No. UT0141 of 9/19/78), is a supplement to that 1978 agreement for the purpose of furthering State-BLM cooperation in fish and wildlife management (also known as UDWR Agreement No. 80-5135 and BLM IM UT-179 of 8/10/79).

MOU between Ducks Unlimited and BLM to provide a foundation for cooperative implementation of the BLM's strategy plan for waterfowl in the BLM's Fish and Wildlife 2000 Plan. The MOU will also assist in achieving the goals of the North American Waterfowl Management Plan. (February 20, 1990, Information Bulletin #90-137.)

MOU between USFWS and BLM signed in 1987 outlines the purposes for animal damage control and the program's intent. The Animal Damage Control program is conducted pursuant to the Animal Damage Control Act of March 2, 1931 (7 USC 426-426b), and Chapter 23 of Title 4 Utah Code Annotated 1953, titled The Agricultural and Wildlife Damage Prevention Act.

MOU between 4-H Nation Council and BLM to provide for planning and developing of leadership training in the Nation 4-H Volunteer Leader Forum in natural resources. (August 8, 1988, Information Bulletin #88-373.)

MOU between the BLM and the following organizations to provide a framework for cooperative management activities necessary to maintain and enhance the productivity of each organization-concerned wildlife species on public lands administered by the BLM.

- Rocky Mountain Elk Foundation – February 18, 1988
- National Wild Turkey Federation – February 25, 1988
- Quail Unlimited – June 11, 1988 (Information Bulletin 88-299)
- Foundation for North American Wild Sheep – October 19, 1988
- Mule Deer Foundation – March 25, 1989 (Information Bulletin 89-212)
- National Rifle Association – May 25, 1990
- Draft MOU with Watchable Wildlife programs on public land - September 6, 1989.

One-shot Antelope Hunt Foundation provides funding for water projects to aid wildlife.

Partnership between Trout Unlimited, UDWR, USFS, and BLM is designed to improve aquatic and riparian habitat through funding for habitat improvement, dated April 12, 1989.

16.3 CURRENT MANAGEMENT PRACTICES

16.3.1 Current Management Practices Affecting Special Status Species

The Endangered Species Act of 1973, as amended, requires the BLM to ensure that proposed actions do not jeopardize the continued existence of a Threatened, Endangered or Candidate species and do not cause its critical habitat to be modified or destroyed. In compliance with this Act, the Moab FO consults with the USFWS on four Endangered fish species (the Colorado pikeminnow (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), the razorback sucker (*Xyrauchen texanus*) and the bonytailed chub (*Gila elegans*)). Consultation is also sought on the Threatened MSO (*Strix occidentalis lucida*), the SWFL (*Empidonax traillii extimus*), the bald eagle (*Haliaeetus leucocephalus*) and a Candidate species, the Gunnison sage-grouse (*Centrocercus minimus*). Species added to the Endangered, Threatened, or Candidate list will be the subject of consultation according to USFWS recommendations.

Designated Critical Habitat defined by the USFWS is to be managed by the BLM to insure that proposed actions do not cause destruction or adverse modification to Designated Critical Habitat. Critical Habitat designated by the USFWS for listed species are 1) areas within the geographical area occupied by the species where habitat features are found that are essential to the conservation of the species and may require special management considerations and measures to ensure protection of this habitat and 2) specific areas outside the geographic areas occupied by the species that are determined essential for the conservation of the species (ESA 3(5)9A) 50 CRF 17 and 226). The protection of Designated Critical Habitat ensures protection and conservation of listed species within their current habitat and also allows for the future recovery of listed species by allowing for the expansion of listed species into currently unoccupied habitat. Within the Moab FO Designated Critical Habitat is recognized for five species: the Mexican spotted owl (Figure 16-1), the humpback chub, the Colorado Pikeminnow, the bony-tailed chub, and the razorback sucker (Figure 16-11).

The four Endangered fish of the Colorado River each have a Recovery Plan in place, with designated Critical Habitat, and known distributions within the Moab FO area (Figure 16-11). When activities or actions take place within Critical Habitat, known areas of distribution, or if these activities may effect constituent elements essential for the conservation of the species, consultation with USFWS is initiated and mitigation measure are put into place.

The Mexican Spotted Owl Recovery Plan provides a basis for management actions to remove recognized threats and thus recover populations of the MSO. The Moab FO area is within the Colorado Plateau recovery unit; there is Critical Habitat within the FO boundaries. USFWS and the Recovery Plan recognize two habitat models, the 1997 Willey-Spotskey's MSO Habitat Model and the 2000 Willey-Spotskey's MSO Habitat Model as tools to identify and protect MSO habitat. (see Figure 16-1). When activities or actions take place within Critical Habitat, known areas of distribution, areas defined by one or both of the models, or actions which may effect constituent elements essential for the conservation of the species within any of these areas, consultation with USFWS is initiated and conservation measures are put into place. Over the past several years the Moab FO has contracted Southwest Research to survey (according to protocol) habitat depicted with the Willey-Spotskey models for suitability and presence of MSO and to monitor nest sites and quality of habitat.

The Final Recovery Plan for Southwest Willow Flycatcher provides a basis for management actions to be undertaken by land management agencies to remove recognized threats and recover the SWFL. When activities or actions take place within known areas of distribution or suitable riparian habitat (dense riparian habitats along streams and wetlands near or adjacent to surface water or saturated soils), or when activities may affect constituent elements essential for the conservation of the species, consultation with USFWS is initiated and mitigation measure are put into place. Over the past several years the Moab FO has contracted private researchers to survey (according to protocol) riparian habitat for suitability and presence of SWFL and to monitor nest sites and quality of habitat.

There is one known bald eagle nest site and established winter foraging habitat within the Moab FO area. Buffers are in place around the site and consultation is required if activities or actions occur during critical time periods within the nest site or within winter foraging habitat.

The Gunnison sage-grouse is a Candidate Species with no recovery plan in place to date and is afforded no legal protection under the Endangered Species Act, although the USFWS addresses Candidate Species as Proposed Species. As a federal agency that works in cooperation with the USFWS, we are encouraged by the USFWS to also treat Candidate Species as Proposed Species. If activities or actions occur or affect known areas of distribution during critical time periods the Moab FO will consult USFWS.

16.3.2 Current Management Practices Affecting Non-Special Status Species

16.3.2.1 The 1985 Grand Resource Area Resource Management Plan (Grand RMP)

The goals and objectives of the 1985 RMP include managing wildlife to favor a diversity of game and non- game wildlife species, supporting the UDWR's long-range management species goals for deer, elk, and antelope, and protecting riparian and other areas important to wildlife (including raptors and other non-game birds and game fish). Management actions for wildlife in the Grand RMP are summarized here.

Wildlife is managed to support 22,250 deer, 2,300 elk, 1440 bighorn sheep, and 887 antelope. All forage and space has been allocated on Pear Park (14,720 acres), Spring Creek (924 acres), and Castle Valley (6,400 acres) for deer and elk winter use. All existing wildlife waters are to be maintained. Techniques such as livestock manipulation, implementation and maintenance of land treatments, limited fire suppression policies, prescribed burning, and seeding are used to maintain and improve wildlife habitat. Designation of utility corridors would leave undisturbed areas for wildlife. Major mineral ROWs are to avoid 48,245 areas of bighorn sheep habitat in Mineral Bottom, Potash, and Westwater area to reduce stress from human disturbance.

The Grand RMP applied a Category 2 oil and gas leasing stipulation in order to protect 260,769 acres of deer and elk winter range, 25,431 acres of antelope range, 25,431 acres of bighorn sheep habitat and 3,840 acres of golden eagle nesting sites. For deer and elk winter range, exploration, drilling, and other development was only allowed from May 16 through October 16. For antelope fawning, exploration, drilling, and other development was only allowed from June 16 through May 14 only.

Grazing authorization was licensed at the level of the past 5 years' average use (that is, from 1980-1985). Other decisions in the 1985 Grand RMP included fencing three miles of perennial streams through the Diamond, Cottonwood, and Showerbath allotments and a grazing rotation use was to be implemented. (These actions were never taken on the ground; the retirement of the Diamond and Cottonwood allotments made this action somewhat moot). Livestock was to be restricted from grazing on 27,000 acres of highly saline soil in 10 allotments (Athena, Barley-Flats, Cisco Mesa, Cisco Springs Wash, Crescent Canyon, Highlands, Monument Wash, Taylor, Thompson Canyon, and Whipsaw Flat), allowing for an increase in wildlife forage, water, and cover for both game and non-game species. (Again, this action was never implemented). Aquatic habitat would have improved due to the reduction of salinity and sedimentation.

The 1985 Grand RMP called for OHV closures in small areas including Behind the Rocks, Negro Bill Canyon, Westwater Canyon, Windwhistle and Hatch Point campgrounds Canyonlands Needles and Anticline overlooks and Onion Creek to protect scenic and

recreational values and to reduce soil erosion and sediment into the Colorado River. Areas unoccupied by humans and vehicles and free from noise and harassment will allow habitat, forage and space for wildlife to increase. The 1985 Grand RMP OHV designations were implemented.

A decision in the Grand RMP was to place emphasis on livestock use while improving or maintaining vegetative conditions to benefit both livestock and wildlife. This would have been accomplished by maintaining or improving the ecological condition of rangelands to increase Animal Unit Months (AUMs). New AUMs would be split evenly between livestock and wildlife. Fire management included allowing limited fire suppression on 1.8 million acres and prescribed burns on 14,149 acres to increase plant diversity and AUMs for livestock and wildlife. Fire and grazing treatments were to provide an additional 4,886 AUMs.

16.3.2.1.1 Habitat Management Plans

Three Habitat Management Plans (HMPs) were incorporated into the Grand RMP (BLM 1985); the Cisco Desert, Hatch Point, and Dolores Triangle HMPs. An additional Habitat Management Plan (The Potash-Confluence HMP of 1986) was written after the signing of the Grand RMP.

The Cisco Desert and Hatch Point HMPs were written particularly for antelope, and are primarily concerned with the development of water. The Cisco Desert HMP was intended to benefit 578 antelope. These numbers would be attained through habitat management and natural reproductive processes. Twelve water developments have been installed for the Cisco Desert antelope. Many of the objectives in the Cisco Desert HMP need to continue to be implemented. The Hatch Point HMP was intended to benefit 309 antelope. These numbers would be attained through habitat management, change in livestock class from sheep to cattle, and maintenance of land treatments. Ten water developments have been installed for the Hatch Point antelope. Many of the objectives in the Hatch Point HMP have not been met or completed.

The Dolores Triangle HMP was written for deer, elk, and bighorn sheep, but also has objectives for raptors, waterfowl, and native trout. Deer and elk winter habitat were to be improved through mechanical methods. Bighorn sheep would be supported by improving habitat, reallocating forage, and reducing harassment. The bighorn sheep area is closed to OHV use. Bald eagle habitat was to be improved through the installation of fencing and enclosures. Riparian habitat along Granite, Coates, Ryan, and Renegade Creeks would be improved to support a native fish population. Six in-stream structures were installed along Granite Creek and other instream improvements have been installed throughout these riparian areas to improve brook trout habitat. To date, most of these structures have been washed out. Though many of the objectives of the Dolores Triangle HMP have been implemented, none have been completed.

The Potash-Confluence HMP, developed from direction established in the Grand RMP, was approved in 1986. This HMP provides management guidance primarily for desert bighorn sheep, but also includes guidance for chukar partridge, bald eagles, and peregrine falcon. Under this HMP, 278,000 acres of land administered by the BLM are to be maintained in good condition and habitat is to be improved where needed. Eight specific management objectives were established:

1. Improve 42,500 acres of critical bighorn sheep habitat by preventing major human disturbance during lambing and breeding seasons.
2. Provide additional water sources at a minimum spacing of 1 water development in each 2 square mile area on lambing grounds.
3. Adopt fence standards to adequately restrict livestock while providing for free movement of bighorn sheep.
4. Maintain water developments used by bighorn sheep, chukar partridge and other wildlife by providing funding where needed and ensuring that wildlife escape ramps are placed in all water troughs.
5. Assist in the development of livestock manipulation techniques on Horsethief Point, Spring Canyon Bottom, and Ten-Mile Point allotments to improve or maintain bighorn sheep habitat.
6. Change season of use on the Potash allotment to reduce competition on lambing and breeding grounds.
7. Maintain 64,000 areas of cliff habitat to support 4 breeding pairs of peregrine falcon along the Colorado and Green Rivers to achieve as annual production of 10 peregrines by 1990.
8. Protect and maintain 5,000 acres of riparian habitat to provide wintering habitat for bald eagles and support a diversity of game and non-game species.

A primary objective for installing water developments in the Potash-Confluence HMP is to alleviate conflicts created by human occupancy (recreational and industrial) and to reduce competition between livestock and bighorn for forage, water and space. Most bighorn water developments were installed in areas inaccessible to both people and cattle. This spatial separation lessens the potential for bighorn and people and cattle interaction. The risk of bighorn contacting diseases, which could be carried by the cattle, is also lessened.

The objectives of the Potash-Confluence HMP are still current and need to be considered in planning.

16.3.2.1.2 Wildlife Amendments to the 1985 Grand RMP

Bighorn Sheep Amendment to RMP

An RMP amendment (EA #UT-068-89-036) was completed in 1989 involving the improvement of desert bighorn and Rocky Mountain bighorn habitat. The amendment provided for installation of new water facilities and modified the Grand RMP to support the current bighorn sheep population of 259 and to increase management of desert bighorn to 1440 animals (which are the estimated prior stable numbers). Population goals would be reached by big games releases, reestablishment, and through change of livestock. Furthermore, the amendment prevents changes in livestock from cattle to domestic sheep to prevent forage competition and disease transmittal to bighorns. Current allotments grazing domestic sheep were not required to change to cattle.

Amendments to Grand RMP: Livestock Grazing Use Adjustments (Forage Allocations; 1995) and Diamond-Cottonwood Allotments (1996)

An RMP amendment (EA #UT-068-94-047) was implemented in 1995 and 1996 which benefited wildlife across much of Moab FO area. The amendment allowed for the removal of cattle from the Bogart, Diamond, Cottonwood, North Sand Flats, South Sand Flats, and Between the Creeks allotments. This action resulted in a retirement of 3,351 BLM AUMs that are now reserved for wildlife.

The amendment included the reallocation of cattle grazing privileges in the Cisco, Main Canyon-Middle Canyon, and Arth's pasture allotments to enhance, protect and improve wildlife habitat, riparian vegetation, watershed, and recreation values. These reductions totaled 3,206 AUMs. Main and Middle Canyon were combined and a rest/rotation system implemented allowing pastures to be rested every third or fourth year. AUMs remaining for cattle on the Arth's Pasture allotment were to be actively managed using fencing and herding to benefit desert bighorn sheep, by reducing spatial competition, social intolerance, disease transmittal, and competition for forage and water. These reductions in AUMs are summarized in Table 16-6.

Allotment	Permitted BLM AUMs	Reallocation of BLM AUMs	Remaining BLM AUMs	Permitted Season of Use
Cisco	4,149	2,330 (56%)	1,819	10/25-6/20
Main Canyon-Middle Canyon	951	451 (47%)	500	6/01-10/30
Arth's Pasture	808	425 (53%)	353	11/6-5/17

All livestock AUMs in the Horse Pasture-Nash Wash area of the Cisco allotment were reallocated for use by deer and antelope. The domestic sheep grazing that was permitted was redistributed throughout the remaining portion of the Cisco Allotment. Approximately 3 miles of fence was constructed on the unfenced portion to exclude livestock from the Horse Pasture area. The Horse Pasture area is an area where large numbers of deer concentrate during the winter months and is considered to be a critical deer winter area and competition for forage and space had existed for decades. Wintering deer would no longer have to compete with cattle and domestic sheep for sagebrush and the early spring season grasses. It was hoped that there would be an increase in the deer population resulting from increased reproductive success rates (fawn:doe ratio) through increased forage availability. Any disturbance which had been caused by the presence of sheep dogs, sheep camps and the domestic sheep herd, which may have interfered with deer movement and their use of pinion-juniper trees for thermal and escape cover, would no longer occur.

Of the 2,330 reallocated AUMs in the Cisco allotment, 500 are specifically for pronghorn habitat enhancement. The additional 500 AUMs of forage specifically allocated for antelope should allow the herd to increase by approximately 400 animals. Approximately 300-400 antelope could occupy the Cisco Allotment yearlong, except during the winter months when antelope gather into large herds. Possibly 600-800 antelope could occupy a portion of the Cisco Allotment for a two to three month period.

16.3.2.1.3 Species-Specific Management Practices from the 1985 Grand RMP

Desert and Rocky Mountain Bighorn Sheep

Avoid situating major ROWs within 48,245 acres in the Mineral Bottom, Potash and Westwater areas to protect critical bighorn sheep habitat.

Antelope

Implement prescribed fires in antelope habitat, leaving at least 20% of existing vegetative cover (primarily sage brush) for use by antelope, while providing an opportunity for forbs to proliferate in burned areas.

Categorize fawning grounds as Category 2 (Lease with Special Stipulations) to protect fawning grounds from oil and gas development disturbance by allowing exploration, drilling, and other development only from June 16 to May 14.

Elk and Deer

Categorize deer and elk winter range as Category 2 (Lease with Special Stipulations) to protect winter range from oil and gas development disturbance by allowing exploration, drilling, and other development only from May 16 through October 16.

16.3.3 Current Management Practices Not Addressed in the 1985 Grand RMP

16.3.3.1 Mountain Lion (UDWR)

A mountain lion management plan for the State of Utah was completed by the UDWR in 1999. This plan outlines the historic and current management of mountain lion in the State. With respect to mountain lion, the goal for the wildlife management units in the Moab FO area is to maintain a healthy mountain lion population within existing occupied habitat while considering human safety, economic concerns, and other wildlife species. A healthy mountain lion population was identified as one that maintains a reasonable proportion of older age animals, maintains breeding females, has healthy individuals, is in balance with its natural prey, and maintains genetic variability. The management objectives involve maintaining current mountain lion distribution; minimizing the loss in quality and quantity of existing critical and high priority mountain lion habitat; reduce the risk of loss of human life and reduce the chances of injury by mountain lion; maintain a downward trend in the number of livestock killed by mountain lions; maintain quality recreational hunting and viewing opportunities for a minimum of 800 persons per year.

16.3.3.2 Upland Game (UDWR)

A Strategic Management Plan for greater sage-grouse was issued by the UDWR in 2002. The management goal for greater sage-grouse is to protect, enhance, and conserve sage-grouse populations and sagebrush-steppe ecosystems.

16.3.3.3 Other Species Requiring Special Habitat Needs

Reptiles, amphibians, and other non-game species often have special habitat needs. Amphibian populations have been shown to be particularly susceptible to disturbance activities and increases in chemical pollutants in their habitats. A study of the reptile, amphibian, and small mammal species in the Book Cliffs area was conducted by BYU in 1995 and 1996. These studies

concluded that a large proportion of small mammals and all amphibian species in riparian and wetland areas had the potential to be significantly impacted by activities such as grazing. Most reptile species that are associated with talus slopes and rock faces appeared to be at no risk from any existing management practices.

Riparian and aquatic species are often used as indicator species of ecosystem health. These species often need protection from resource use such as recreation, grazing and mineral extraction. Invasive non-native species also impact riparian species. These species are often impacted by resource management decisions made outside the Moab FO area.

Current management practices for species requiring special habitats (e.g., raptors, amphibians, reptiles, and other non-game species) include restricting activities so as to prevent or mitigate disturbances that may affect these species or their habitats. Spatial and temporal buffers have been established by the USFWS for raptor nesting locations and seasons. Table 16-7 has been reproduced from the "Utah field office guidelines for raptor protection from human and land use disturbances."

Species	Spatial Buffer (Miles)	Seasonal Buffer
Bald Eagle	1.0	1/1-8/31
Golden Eagle	0.5	1/1-8/31
Northern Harrier	0.5	4/1-8/15
Cooper's Hawk	0.5	3/15-8/31
Ferruginous Hawk	0.5	3/1-8/1
Red-Tailed Hawk	0.5	3/15-8/15
Sharp-Shinned Hawk	0.5	3/15-8/31
Swainson's Hawk	0.5	3/1-8/31
Turkey Vulture	0.5	5/1-8/15
Peregrine Falcon	1.0	2/1-8/31
Prairie Falcon	0.25	4/1-8/31
American Kestrel	None	4/1-8/15
Burrowing Owl	0.25	3/1-8/31
Flammulated Owl	0.25	4/1-9/30
Great Horned Owl	0.25	12/1-9/31
Long-Eared Owl	0.25	2/1-8/15
N. Saw-Whet Owl	0.25	3/1-8/31
Short-Eared Owl	0.25	3/1-8/1
Mexican Spotted Owl (MSO)	0.5	3/1-8/31
N. Pygmy Owl	0.25	4/1-8/1
W. Screech Owl	0.25	3/1-8/15

16.3.3.4 Management Indicator Species (MIS)

MIS are used to monitor the effects of BLM actions on a wide variety of habitat types. No information is available to determine the present capability to meet the demands of these species, other than those MIS species mentioned in other sections. It is currently unknown if the species chosen as MIS are adequate to monitor for changes in the habitats they were chosen for, or if managers will be able to identify utilization thresholds from these species. It is also unknown what effects current management practices are having on MIS other than Rocky Mountain elk, mule deer, and prairie dogs.

Two federally listed Endangered fish, the Colorado squawfish (*Ptychocheilus lucius*) and the razorback sucker (*Xyrauchen texanus*), are known to occur historically in the Colorado River. This portion of the river is officially designated as Critical Habitat for these species. The river corridor also supports migrating and wintering federally-listed Threatened bald eagles (*Haliaeetus leucocephalus*), and the state-listed Endangered peregrine falcon (*Falco peregrinus*). Riparian habitat in the area could support the Endangered SWFL (*Empidonax traillii extimus*), as it is known to occur in similar habitat further down the river. Several BLM-Sensitive birds are also known to occur, or have the potential to occur, in the river corridor. Many animals without special status also depend on the riparian areas along the Colorado River, a unique habitat in this desert environment.

16.3.4 Current Cooperative Efforts with Other Agencies

Partnerships and cooperative efforts using Challenge Cost Share Programs and Cooperative Agreements have been formed with private, state and non-federal agencies to inventory and monitor habitat, distribution and nesting sights for raptors, desert bighorn sheep, MSO, yellow-billed cuckoo and the SWFL. In addition, BLM cooperates with UDWR in managing the habitat upon which wildlife depends. Annually, the Moab FO reviews inventory and monitoring needs, funding, and potential agency partners to implement these needs.

16.4 RESOURCE DEMAND AND ANALYSIS

16.4.1 Big Game

The UDWR publishes an annual big game report that outlines the management goals and reports the annual harvest, sex and age composition, population trends, movements, and seasonal distribution of big game herds in Utah. This report also outlines condition and utilization of big game ranges in the State. It is again important to remember that while UDWR manages the wildlife, the BLM manages the habitat upon which the wildlife depends. This means that the relationship between the two agencies is interdependent.

The future demand for big game species is expected to continue to increase as the number of people wishing to participate in both consumptive and non-consumptive activities involving these species increases. A projected demand for hunting permits, harvest rates, or habitat use required to sustain these numbers has not yet been determined by UDWR.

Big game species include black bear, mountain lion, mule deer, pronghorn, bighorn sheep and Rocky Mountain elk. (Sport fisheries and upland game populations also contribute to the

economic value of the wildlife in the Moab FO area.) There are three types of hunting permits for big game: a once-in-a-lifetime permit, a limited-entry permit, or a general season permit. Black bear and mountain lion permits are awarded via random drawing; the demand on black bear and mountain lion permits generally exceeds the number of permits offered.

16.4.1.1 Mule Deer

The management goals for mule deer populations located in the Moab FO area are to provide a broad range of recreational opportunities, including hunting and viewing; balance mule deer herd impacts with human needs, such as private property rights, agricultural crops, and local economies; and maintain the mule deer population at a level that is within the long-term capability of the available habitat. The target wintering mule deer herd size and annual harvest for the two wildlife management units associated with the Moab FO area are described in Table 16-8. Current mule deer numbers estimates are listed in Table 16-9. The deer in the Dolores subunit migrate onto this unit and are also hunted in Colorado, but Colorado figures are not known. The harvest figures are generally low for Utah because the deer are typically in Colorado at the time of the Utah deer hunting season.

Table 16-8. UDWR Wildlife Management Goals for Mule Deer

Unit number	Unit name (subunit)	Winter Population Objective	Postseason Bucks/100 Does Objective	Size Objective	Annual Harvest Objective
10	Book Cliffs				
	10A Bitter Creek	10,000	15	30%>3pt	--
	10B South Book Cliffs	5,000	15	30%>3pt	--
13	La Sal				
	13A La Sal Mountains	13,000	15	30%>3pt	--
	13B Dolores	6,400	25	40%>3pt	--

Table 16-9. UDWR Current Mule Deer Estimates

Unit number	Unit name (subunit)	Population Estimate	Percent of Objective	Current Buck/Doe Ratio	2001 Harvest
10	Book Cliffs				
	10A Bitter Creek	5700	57	No Data	No Data
	10B South Book Cliffs	1,350	27	35/100	150
13	La Sal				
	13A La Sal Mountains	5,200	40	14/100	400
	13B Dolores	3,100	48	19/100	26

The impacts on wintering mule deer and other big game animals from an increasing density of natural gas wells, roads, and associated human activities was analyzed in a two-year baseline study (1999-2000) by the UDWR. UDWR identified that accelerated oil and gas development has the potential to further displace big game animals and increase habitat fragmentation during the winter period, thereby lowering the relative carrying capacity of the range.

16.4.1.2 Rocky Mountain Elk

Rocky Mountain elk populations are associated with the two wildlife management areas found in the Moab FO area. The management goals for Rocky Mountain elk populations are to provide a broad range of recreational opportunities, including hunting and viewing; balance elk herd impacts with human needs, such as private property rights, agricultural crops, and local economies; and maintain the elk population at a level that is within the long-term capability of the available habitat. Rocky Mountain elk goals and numbers for the Moab FO area are displayed in Tables 16-10 and 16-11.

Unit number	Unit name subunit	Winter Population Objective	Postseason Bulls/100 Cows Objective	Age Objective
10	Book Cliffs			
	10A Bitter Creek	6,500	8	50% > 2.5 yrs
	10B South Book Cliffs	1,000	8	50% > 2.5 yrs
13	La Sal			
	13A La Sal Mountains	1,850	8	50% > 2.5 yrs
	13B Dolores	850	8	50% > 2.5 yrs

Unit number	Unit name Subunit	Population Estimate	Percent of Objective	Current Bull/Cow Ratio	2001 Harvest
10	Book Cliffs				
	10A Bitter Creek	2300	35	No Data	No Data
	10B South Book Cliffs	250	25	No Data	No Data
13	La Sal				
	13A La Sal Mountains	1,850	103	No Data	163
	13B Dolores	725	85	No Data	2

16.4.1.3 Black Bear

A black bear management plan for the State of Utah was completed by the UDWR in 2000. This plan outlines the historic and current management of black bears in the State. With respect to black bears, the goal of the wildlife management units in the Moab FO area is to maintain a healthy bear population capable of providing a broad range of recreational opportunities (including hunting and viewing in existing occupied habitat) while considering human safety, economic concerns, and other wildlife species. The management objectives are to maintain bear distribution and increase it in suitable unoccupied or low density areas; maintain current bear populations with a reasonable proportion of older age animals and breeding females; balance bear population numbers with other wildlife species; minimize the loss in quality and quantity of UDWR-identified, critical and high-priority bear habitat, including migration corridors between occupied areas; reduce the risk of loss of human life and reduce chances of injury to humans by bears; reduce the number of livestock killed by bears; and maintain quality consumptive and non-consumptive recreational opportunities.

16.4.1.4 Pronghorn

A pronghorn management plan for the State of Utah is currently being developed by the UDWR. This plan will outline the historic and current management of pronghorn in the State as well as the management goals and objectives for pronghorn populations in the state. Table 16-12 outlines UDWR's management goals for pronghorn.

Unit number	Unit Name	Population Estimate	Population Objective	Buck/Doe Ratio	Age Objective	Trend
10	Book Cliffs	250	1500	35/100	No Set Objective	Population has Declined
13	La Sal	180	309	No Data	No Set Objective	Population has Declined

16.4.1.5 Desert and Rocky Mountain Bighorn Sheep

A state of Utah management plan for desert bighorn sheep was developed in 1999. This plan assesses current information on bighorn sheep, identifies issues and concerns relating to bighorn sheep management, and establishes goals and objectives for future bighorn management programs in Utah.

Tables 16-13 and 16-14 outline the current desert bighorn sheep estimates in the Moab FO area and the wildlife management goals for desert bighorn sheep in the Moab FO area. Because the Lockhart desert bighorn sheep herd's habitat is primarily in the Monticello Field Office, that herd is not discussed in this table.

Bighorn sheep require separation from domestic sheep to prevent the transmission of diseases against which they have no natural defenses. Water and vegetation improvements have also been shown to benefit bighorn sheep populations. A management plan for bighorn sheep in the state of Utah has been developed.

Demands on most wildlife and their habitats within the planning unit are projected to increase. Future demands by other land uses are also expected to remain at current levels or increase, resulting in pressure upon existing wildlife habitat.

Unit number	Unit name (subunit)	Population Estimate	Population Objective	Percent of Objective	2002 Harvest
13	La Sal				
	Potash	200	300	59%	3
	Professor Valley	26	100	26%	not hunted
	Dolores Triangle	20	100	--	not hunted

Table 16-14. UDWR Wildlife Management Goals for Desert Bighorn Sheep in the Moab FO Area				
Unit number	Unit name (subunit)	Objective Ram/Ewe	Current Ram/Ewe	Age Objective
13	La Sal Potash Professor Valley Dolores Triangle	None set None set None set	75/100 100/100 Unk.	30% of Rams > 5 yrs 30% of Rams > 5 yrs 30% of Rams > 5 yrs

16.4.2 Special Status Species

The future demand for all special status animal species is to identify and eliminate or reduce the threats that caused the species to be federally listed, and then to increase the number of individuals in the population to improve its stability. The capability of the existing resources to support these special status species varies by species. For some species, such as bald eagle and peregrine falcon, the prospect of recovery has been fairly good. However, most other special status species are not faring as well, and intensive, long-term management and monitoring will be needed to ensure that these species do not become extinct. The many other species of concern and state-Sensitive species have no current inventories or monitoring plans in place. It is BLM's intention to ensure that none of these species requires future listing.

Federal and state law protects Threatened and Endangered species, and consumptive use of these species is generally not permitted. Endangered species management, including the identification and designation of critical habitat, is the responsibility of the USFWS; however, protection and management of this habitat is the BLM's responsibility. Appropriate management of these lands is outlined in BLM Manual 1748 and includes monitoring populations, conducting habitat inventories, assisting in preparation of recovery or other management plans, and complying with Section 7 consultation as defined in the Endangered Species Act. A consultation agreement (CA), which describes how consultation will be carried out for the Moab RMP revision process, has been developed and signed by BLM and USFWS.

Greater sage-grouse populations in the Moab FO area have been and continue to be significantly impacted by degradation in habitat primarily due to overgrazing and by fragmentation of habitat. Greater sage-grouse have experienced a long-term decline as a result of degradation and loss of critical habitat (UDWR 2000). Goals are to establish populations of sage-grouse in areas where they were found historically and ensure the current sagebrush-steppe habitat is capable of maintaining a viable population of sage-grouse.

16.4.3 Other Species with Specific Habitat Requirements

The future demands for species with specific habitat requirements will likely increase, due to continued urbanization and development of natural resources to support the growing human population in the Moab FO area. This is the case especially for species like raptors, neotropical migrants, and TES, non-game, riparian, and aquatic species. However, precise information on the future demands and capability of the existing resources to provide for the demands of these species has not been obtained.

Resource allocations for raptors, reptiles, amphibians, and other non-game species in the Moab FO area are limited to protecting individuals and habitat of state or federally listed species and designating spatial and temporal barriers for nesting raptors.

Specific habitat requirements relative to raptors are generally associated with limiting disturbance during the nesting season and maintaining small game populations as a forage base. Threats such as electrocution from power lines and environmental contaminants continue to be a concern in some areas.

The habitat needs of reptiles, amphibians, and other non-game species often go undetermined because the study of other more politically and economically desirable species are given priority for funding, manpower, and time. Reptiles, amphibians, and other non-game species are also often harder to study and monitor because of low population sizes or secretive behavior.

Current data on streams relative to channel condition, water quality, habitat quality, and flow need to be improved. Adequate management decisions are difficult until these databases are completed.

16.4.4 Management Indicator Species (MIS)

The future demands (as well as the capability of the resource to meet the demands) of MIS will be used in monitoring habitat quality in the Moab FO area. The specific habitat requirements for many of the MIS identified in Table 16-5 still need to be refined.

16.5 CONSISTENCY WITH NON-BUREAU PLANS

16.5.1 United States Fish and Wildlife Service (USFWS)

The USFWS has approved recovery plans for the bald eagle (1983), peregrine falcon (USFS 1984), black-footed ferret (USFS 1988), bonytail (USFS 1990a), humpback chub (USFS 1990b), Colorado pikeminnow (USFS 1991), MSO (1995), and razorback sucker (USFS 1999). The Recovery Implementation Plan for the Endangered Fish Species in the upper Colorado River Basin was also approved in 1987, and recovery plans are currently being prepared for SWFL and Canada lynx. The recovery plans identify a strategy that, when implemented, will lead to recovery of the species. BLM management plans must conform with the management strategy, goals, and objectives of the various recovery plans.

16.5.2 Utah School and Institutional Trust Lands (SITLA)

SITLA has prepared a plan for the management of the state lands within Utah. The Lands Division is constitutionally charged to manage the school trust lands for the maximum return to the trust. Lands are scheduled to be disposed of through sales or exchanges or developed under long-term leases. Habitat loss for special status wildlife species is addressed, but general wildlife habitat loss, including riparian habitat, is not. This loss of general wildlife habitat is in direct conflict with most BLM wildlife plans.

16.5.3 Grand County, Utah

The Grand County General Plan's purpose is to help local officials and citizens respond to demographic, economic, and land use change. Habitat for special status species is not addressed nor is general wildlife habitat. The Grand County General Plan was updated in 2004.

16.5.4 San Juan County, Utah

In the past, San Juan County residents have enjoyed many benefits associated with an abundant and diverse wildlife population. The county recognizes the UDWR's efforts to manage wildlife and fisheries resources for the public benefit and formally supports those efforts which complement other county interests. In the past few years, there seems to have been a downward trend in the number of hunters who frequent the area. Some think this trend is satisfactory; others, whose businesses are more directly affected by low numbers, are concerned.

It is San Juan County's position that all wildlife decisions affecting southeastern Utah should have local input. Decisions rendered by the agency should reflect a balance with other local priorities. Of particular interest is that forage allocations be balanced between competing uses based on fair and equitable assumptions. Perhaps the greatest concern is that there needs to be a clear understanding of how much forage is available for livestock and wildlife, and in fact how much forage goes to each.

The county encourages state wildlife management agencies to provide adequate notice to local residents and governments before decisions are made and/or programs implemented. The county will work to improve communications between the regional wildlife advisory councils and county residents. When requested by the Governor, the county will also submit formal comments regarding proposed UDWR property acquisitions.

San Juan County will oppose any attempts to designate Threatened or Endangered plant or animal species habitat without local input to the planning and decision making process.

16.5.5 Manti-La Sal National Forest

The Manti-La Sal National Forest Plan states that appropriate habitat management should maintain viable populations of existing vertebrate species and is generally consistent with this AMS.

Habitats of Threatened and Endangered species will be maintained. Habitat will be surveyed and appropriate action taken. Habitats for Sensitive species will be managed to reduce the potential for these species becoming Threatened or Endangered.

Flood damaged fisheries habitat could significantly be improved as a result of the flood damage repair program in conjunction with watershed activities. In other areas, the fisheries habitat would gradually increase by improving habitat in suitable marginal and unsuitable lakes and reservoirs, and completing stream and riparian improvement projects. Riparian habitat should be maintained and its condition improved.

Big-game winter range capacity will be maintained through direct habitat improvement, which could offset encroachment by other activities. Increased emphasis will be given to non-game habitat and non-consumptive wildlife uses.

Populations of deer and elk should increase over current levels. MIS habitat will be maintained at levels that meet or exceed requirements for minimum viable populations.

16.5.6 National Park Service (NPS)

The Canyonlands Natural Resources Management Plan is generally consistent with this AMS. It contains the following objectives:

- Maintain a viable population of desert bighorn sheep, which can also serve as a seed source for reintroduction to other National Park areas and public lands.
- Protect and perpetuate the peregrine falcon and its habitat.
- Protect the bald eagle wintering habitat and possibly establish a nesting pair of bald eagles.
- Protect and perpetuate the natural or restored populations of Endangered fishes in the river system (Colorado River squawfish and humpback chub).
- The Arches National Park RMP is generally consistent with this AMS. It contains the following objectives:
 - Protect and perpetuate unique plant species and communities (including rare, Threatened, Endangered and endemic species, as well as pristine, disjunct and uncommon plant communities).
 - Inventory and monitor major natural resources (vegetation, wildlife, soils, clear air, clear vistas, natural quiet and clean water) to enhance the information database and to determine changes in critical resources such that management practices can be modified promptly to reverse and mitigate adverse impacts to those resources.

16.6 ISSUES OR CONCERNS

16.6.1 Issues Regarding Threatened, Endangered and Special Status Species (TES)

All Endangered species, by definition, are in some type of jeopardy from some natural or human-induced disturbance. A total of 61 known special status animal species (eleven federally-listed and 50 state-listed) exist within the Moab FO area during part or all of their life cycle.

16.6.1.1 Inadequate Inventories and Critical Thresholds for Special Status Species; Need for Compliance with TES Recovery Plans

A total of 11 federally-listed species and 50 state-listed species were identified as having potential to occur within the Moab FO area. Recovery plans have been finalized for nine species (black-footed ferret, bald eagle, peregrine falcon, bonytail, Colorado pikeminnow, humpback chub, razorback sucker, SWFL, and MSO). Land use decisions must comply with TES Recovery plans. Life history data has been collected primarily on the Threatened and Endangered species found in the Moab FO area. However, inventory work needs to be done on many of the Species

of Special Concern, including raptors, fish, amphibians and macroinvertebrates, to identify where in the management area they exist, potential conflicts, and management strategies to provide protection for these species. Inventories are needed to determine locations, populations, suitable habitat, potential nesting and foraging areas, and possible presence of many state-Sensitive species (UDWR 1999). With current inventories in place, habitat management plans and protective measures could then be addressed.

Critical thresholds are not known for most special status species but need to be identified to ensure the continued survival of these species. A critical threshold is the point of degradation at which a habitat or a species population cannot sustain itself. Critical thresholds have not been determined for any animal species or habitat types within the area and no additional analysis has been done to try to determine these critical thresholds in the Moab FO area. Recovery plans will need to be updated or developed as more information is made available, and RMPs must be amended as needed.

16.6.1.2 Habitat Management for TES

Habitat on BLM managed lands needs to be managed according to USFWS Recovery Plans. In addition, habitat needs to be managed so that no state-Sensitive species would have to be listed and a recovery plan prepared for it. Threats to habitat include cross county motorized travel, as well as other forms of development.

16.6.1.3 Insufficient Protection of Aquatic and Riparian Habitat for TES

Twelve special status species rely predominantly on the Green and Colorado Rivers and their tributaries and associated riparian habitats. Aquatic and riparian habitat for many of these special status species is primarily affected by water projects outside the area and by grazing and other disturbance of riparian habitat within the area. Additionally, disturbance of riparian habitat by recreation activities negatively effects aquatic and riparian habitat. The decline of aquatic and riparian special status species has been attributed to the combined effects of regulation of natural water flow through dam construction, flow depletions from irrigation, introduction of non-native fish and plant species, and changes to thermal regimes and sediment transport as a result of dam operations. The Moab FO area has little control over many of these factors. However, other activities that have significant impacts to riparian and aquatic special status species are under the direct control of the Moab FO area. These include oil and gas development, ROW issuance, grazing, and recreation activities, including OHV use.

Grazing can affect the health and function of riparian habitat. This habitat is vital to the survival of many Sensitive and important species. Current protective measures used in grazing management need to continue. Evaluation of all riparian habitats within grazing allotments needs continual monitoring. Riparian habitat should be managed to avoid degradation. Where possible, there should be only restricted access to stream banks and wetlands by livestock to avoid degradation.

SWFL and yellow-billed cuckoo have been declining due to degradations in riparian habitat throughout the west. Loss of habitat due to water development projects, including the construction of dams and the diverting of water for agricultural and municipal use, has been

identified as the primary impact to these species. It is suspected that these species will continue to decline until significant measures are taken to protect and restore riparian habitat.

There is an increasing demand to attempt to reintroduce special status species whose populations have been significantly reduced or extirpated from the Moab FO area. These reintroductions include several aquatic Endangered species including the razorback sucker, bonytail, and humpback chub. The special status fish species associated with the Colorado River Basin have continued to exhibit limited recruitment and population numbers have continued to decline over the past several years. Some species, such as the Colorado pikeminnow, are doing better than others (e.g., bonytail, humpback chub, and razorback sucker). Impacts from non-native fish and habitat and flow alteration have been identified as the major causes for the decline in these species. Recovery plans have been written for each of these four fish species, and projects designed to improve the situation for these fish have begun to be implemented. However, recovery success thus far has been limited.

16.6.1.4 Insufficient Protection of Sagebrush Habitat for TES

Shrub-steppe ecosystems, specifically sagebrush dominated ecosystems, are declining in both quantity and quality throughout the Intermountain West. This has had an adverse impact on many wildlife species dependant on this habitat type; some of these species have been petitioned for listing under the Endangered Species Act. The current drought cycle has intensified this sagebrush die-off. In Utah, several hundred thousand acres of sagebrush habitat is dead or severely stressed to the point that recovery is unlikely without intervention. A large portion of this habitat occurs within critical ranges for Gunnison and greater sage-grouse. The potential impact this could have on these species and others that are dependant on this habitat type is unknown at this time. Within the Moab FO area, many shrub species appear to be stressed.

Greater sage-grouse and Gunnison sage-grouse are in a precipitous decline in both numbers and distribution. The greater sage-grouse has been nominated to USFWS to be placed on the Endangered species list, and the Gunnison is a Candidate species. Historic and current grazing practices and fragmentation of habitat have been identified as the primary threats to the species. It is suspected that this species will continue to decline until current grazing practices change and large blocks of the sagebrush ecosystem are restored, preserved, and managed for sage-grouse populations.

16.6.1.5 Insufficient Protection of TES Prairie Dog Habitat

Gunnison and white-tailed prairie dogs have been nominated to the USFWS Endangered species list and are on the State of Utah and the BLM Sensitive Species Lists (UDWR 1999). Within the Moab FO area, white-tailed prairie dog densities have decreased up to 90 percent. The Cisco Complex historically contained over 41,300 acres of habitat, but current inventories indicate it has been reduced to fewer than 7,000 acres. Gunnison prairie dog densities also are on the decline, but due to slightly different life histories, numbers appear slightly more stable. Distribution of Gunnison prairie dogs tends to be on higher elevations and many times within agricultural land on the private sector, making management of this species more difficult. Threats leading to prairie dog decline include oil and gas exploration and development, OHV use, shooting, poisoning, noxious weeds, inappropriate livestock grazing, fire suppression, and

plague. The current drought situation has placed increasing stress on declining populations and many prairie dog towns have become expatriated.

The prairie dog is considered a "keystone species" in prairie and arid grassland ecosystems and species such as the black-footed ferret, burrowing owl, ferruginous hawk, golden eagle, and swift fox, can be considered dependent on prairie dogs and their colonies. All of these species have experienced extensive declines on account of the decrease in prairie dog populations and suitable habitat.

Increasing prairie dog populations has also been identified as a primary goal of the black-footed ferret recovery program. The captive breeding program and reintroduction of black-footed ferret to the wild has successfully increased the size of the ferret population in areas outside of the Moab FO area. Black-footed ferret habitat is limited to prairie dog towns with suitable population densities. Disease and the shooting of prairie dogs may decrease the black-footed ferret's future prospects for recovery. Current inventories of prairie dog population and protection of suitable unoccupied and occupied towns are needed to determine if the Moab FO area has ferret reintroduction potential. If potential areas are found, a prairie dog and black-footed ferret Habitat Management Plan must be developed prior to reintroduction plans.

Prairie dogs also play an important role in the life history of burrowing owls and ferruginous hawks, both BLM sensitive species. In Utah, burrowing owls and ferruginous hawks are some of few raptors that use arid grasslands and desert scrub lands as their main habitat, utilizing prairie dog towns for food and shelter. Burrowing owls nest in burrows dug by prairie dogs, foxes, badgers, and coyotes by refurbishing the abandoned holes. Evidence suggests that they prefer larger prairie dog colonies, perhaps because of decreased threat of predation. Burrowing owls will nest alone or in colonies of up to 12 pairs. Colonization is often a result of the availability of large abandoned prairie dog towns. Burrowing owls feed on animals such as young prairie dogs, mice, rats, ground squirrels, pocket gophers, snakes, reptiles and insects. Ferruginous hawks occur in semiarid grasslands with scattered trees, rocky mounds or outcrops, and shallow canyons that overlook open valleys. Along with burrowing owls, they are the only raptors that use these arid grasslands and scrub lands as their main habitat. In Utah, prairie dogs are the main prey source.

16.6.2 Issues Regarding Big Game Species

Issues regarding Big Game species in general will be discussed first. This will be followed by a discussion of issues relevant to each of the game species.

16.6.2.1 Insufficient Wildlife Habitat Inventories

Wildlife habitat inventories need to be updated to assist in identifying measurable objectives for important wildlife habitats including desired future conditions Opportunities or restrictions needed to achieve management objectives must be identified. These updated inventories should include the objectives of wildlife habitat management plans (HMP) and UDWR herd management plans.

16.6.2.2 Insufficient Forage Allocation for Wildlife

Forage allocations for big game species need to be reviewed and modified to provide for objective levels of big game species. The conflict with expanding wildlife populations and species into new habitats needs to be resolved. The objectives of the Bighorn Sheep Amendment and should be considered. AUM allocations for livestock and big game should be reviewed and rangeland standards and guides need to be applied to resolve forage issues.

16.6.2.3 Habitat Fragmentation and Habitat-use Patterns

Habitat fragmentation due to oil and gas development, recreational uses, including OHV use, and fencing further alters current wildlife ranges. Current road systems through antelope, bighorn sheep, and deer and elk habitats interfere with wildlife movement. The designation of wildlife corridors would mitigate habitat fragmentation and the reduction or removal of oil and gas development and recreational use would further enhance these habitats.

Monitoring seasonal habitat-use patterns and resolving big-game winter-use conflicts with livestock, OHV use, and resource development should continue. Information on the future demands for and capability of existing resources to satisfy the habitat requirements of these species has not been obtained

In many areas of the Moab FO area, recreational, energy and grazing conflicts affect the condition of rangelands by altering and decreasing forage productivity, fragmenting habitat, increasing disturbance, increasing spatial and water resource competition, degrading riparian habitat, and causing an increase in the potential for disease transmission to wildlife. Sensitive area such lambing and rutting grounds and pristine, un-fragmented forage and escape terrain for bighorn sheep need protection from most public land use activities. Critical winter range, essential to the health and survival of deer and elk may be degraded by many activities. Private parties and organizations that are interested in acquiring land for wildlife provide opportunities to eliminate these conflicts.

Appendix 16-2 summarizes the conflicts among wildlife habitat needs, mineral development and livestock by allotments in the Moab FO area.

16.6.2.4 Drought and Invasive Species Concerns

Current drought conditions have deteriorated the conditions of rangelands, increasing livestock competition and decreasing quality and amount of available forage. Invasive species such as cheat grass, Russian thistle, and halogeton continue to alter composition of vegetation, making forage less productive. Due to drought conditions forage allocations need to be addressed and adjusted for livestock and pronghorn, deer, elk, and bighorn. Until drought conditions subside, removing cattle from the range would improve habitat for wildlife and cattle at a faster rate when adequate moisture returns to the system. Rangeland degradation attributable to OHV use is exacerbated under drought conditions. Consideration also needs to be addressed for future drought conditions that decrease productivity of wildlife and livestock ranges.

16.6.2.5 Chronic Wasting Disease (CWD)

Chronic wasting disease (CWD) is related to a group of diseases known as transmissible *spongiform encephalopathies* (TSEs). TSEs include such diseases as scrapie in sheep, bovine spongiform encephalopathy (BSE) in cattle (Mad Cow Disease,) and Creutzfeldt-Jakob disease of humans. These are diseases of the nervous system that result in distinctive lesions in the brain. The causative agent is believed to be a modified protein (*prion*). These modified proteins are typically found in nervous and lymphatic tissues. CWD attacks the central nervous system of deer and elk and is fatal to animals that contract it. However, according to the World Health Organization, "there is currently no evidence that CWD in deer and elk is transmitted to humans." CWD in deer in Utah appears in the La Sal Mountains east of Moab.

16.6.3 Issues Specific to Mule Deer and Rocky Mountain Elk

16.6.3.1 Insufficient Forage for Mule Deer and Rocky Mountain Elk

Summer and fall livestock grazing along the Willow Creek drainage in the Bogart allotment has been identified to conflict with elk habitat use. Other allotments identified as elk winter range include Barley Flat, Bar-X, Corral Wash, Cottonwood, Crescent Canyon, Diamond Canyon, Floy Canyon, and San Arroyo. Allotments containing yearlong elk range include the Rattlesnake and Shower Bath Springs allotments. Drought and other adverse conditions have exacerbated the conflict between livestock grazing and leaving sufficient forage for Rocky Mountain elk.

Over the past five years the overall mule deer population has been declining. Poor range conditions caused by severe drought could be a major factor causing the population decline. Range conditions are worsened by cross country OHV use.

16.6.3.2 Expansion of Elk into the Cisco Desert

The Cisco Desert currently supports and growing elk herd of approximately 125 animals that could increase forage and spatial competition. Cooperative efforts with UDWR are needed to develop a management plans for this relatively new and expanding herd.

16.6.3.3 Conflict between Other Resource Uses and Critical Winter Deer and Elk Range

Critical winter range for deer and elk has changed since the 1985 RMP and will continue to change because environmental conditions are dynamic and land use patterns affect habitat health. Critical winter ranges for deer and elk need to be reevaluated during this land use planning effort. Grazing, minerals, oil and gas, and recreation activities (including motorized cross country travel) need to be managed to allow for these changing conditions. Winter range is important to support a healthy elk population and vital to the survival of a declining deer population. On an annual basis, winter ranges should be reviewed in cooperation with UDWR and changes in land use made as appropriate.

The condition of rangeland within critical winter range needs to be examined. Sound stock adjustments should be made in a timely manner to avoid any degradation to shrub dominated rangelands. Land treatments should be implemented on winter ranges. BLM should work with UDWR to review monitoring of vegetative trends and stocking rate adjustments. Due to the

degradation of sage dominated shrublands, healthy winter range is an increasingly important issue. (Figure 16-2 shows current deer critical winter range and Figure 16-3 shows elk winter range.)

Winter range elk conflict areas include but are not limited to Barley Flat, Bar-X, Corral Wash, Cottonwood, Crescent Canyon, Diamond Canyon, Floy Canyon, and San Arroyo. The Ten Mile drainage along East Willow Creek, West Willow Creek, and She Canyon provide winter range for elk, but the Moab FO administers only portions of these areas. (The majority of this area is administered by the State of Utah). Cooperative efforts need to be built to ensure both state and federal agencies are in agreement on management of this crucial winter range.

Portions of critical winter range are in oil and gas lease Category 2 (Open to Leasing with Special Stipulations); this category affords stipulations to protect winter range, allowing activity only from May 16 till October 31. However, much of the winter range is within Category 1 oil and gas lease Category 1 (Open to Leasing with Standard Stipulations). Category 1 stipulations afford no protection to critical winter habitat. Lease categories need to be evaluated and adjusted on an on-going basis to protect critical winter range for both deer and elk.

16.6.3.4 Conflict between Other Resource Uses and Crucial Fawning and Calving Grounds

Within the Moab FO area, crucial calving and fawning areas have been identified by the UDWR. These areas are critical to the propagation of the species and insuring that herd populations remain stable or increase. Protecting these areas from disturbance during birthing is imperative to early survival and fawn/calf production. Over the past five years fawn production has been poor and the overall deer population has been declining. Fawn recruitment and survival is vital to the restoration of these populations. As with critical winter range, dynamic environmental conditions and land use patterns cause these areas to change over time and need to be reviewed jointly by the UDWR and BLM. Protective measures are needed to ensure that energy development, grazing, and recreational activities (including motorized vehicle travel) do not disturb these areas during critical times, and to ensure that these activities do not degrade habitat to a point where it is no longer suitable for fawning, calving, and providing forage critical to lactating cow elk and does.

Within the Moab FO area, the majority of calving/fawning grounds managed by BLM are classified as oil and gas lease Category 2 (Open to Leasing with Special Stipulations), but there is no specific stipulation in place that allows for protection during birthing and lactating times. An oil and gas stipulation needs to be developed and implemented to protect deer and elk during these crucial times. In addition, all calving/fawning grounds currently classified as Category 1 oil and gas lease need to be re-classified as Category 2 in order to make use of stipulation. One area requiring recategorization is 1,620 acres in the Dolores Point/Dakota Rock allotment.

16.6.4 Issues Specific to Pronghorn

16.6.4.1 Insufficient Forage for Pronghorn

Seasonal migration patterns of pronghorn (both the Book Cliffs-Cisco herd and the La Sal- Hatch Point herd) are not well defined. Livestock grazing has been identified as a resource use that conflicts with the preliminary pronghorn management goals in both the Book Cliffs and the La

Sal wildlife management areas. Cattle and pronghorn compete for the same forage species, primarily during the spring season. This means that spring grazing seasons for cattle should be reduced to improve pronghorn foraging opportunities. Strong and direct competition for forage is also possible during all seasons of the year between domestic sheep and pronghorn. Conflicts due to cattle grazing have been identified on the Hatch Point, Lisbon, and Windwhistle allotments.

The Hatch Point allotment also has authorized domestic sheep grazing. If this use is activated, there could be strong and direct competition for forage on a year-round basis. This competition for forage is particularly severe during the spring season, when both species are seeking forbs. The allotments in the Cisco Desert where conflicts with both domestic sheep and with cattle have been identified include Bar-X, Cisco Mesa, Cisco Springs Wash, Corral Wash, Harley Dome, Pipeline, Sulfur Canyon, and San Arroyo.

16.6.4.2 Insufficient Forage for Pronghorn During Times of Drought

Heavy use of forage by livestock during severe drought can force pronghorn to feed on poisonous plants, resulting in mortality (Hailey 1979 in Raymond et al. 1998). Competition from cattle on ranges that are in good ecological condition does not appear to be a serious problem. Research in New Mexico (Holechek et al. 1989:201-203) suggests that cattle and antelope have a dietary overlap of about 18 percent, and during drought periods this increases to 30 percent. When it is available, cattle are primarily grazers of grasses while antelope require a high forb and/or shrub diet throughout the year. However, in periods of drought, or where the range is in poor ecological condition, cattle are forced to consume shrubs and forbs. This reduces available pronghorn forage and creates a direct conflict between cattle and antelope. The Hatch Point, Lisbon, and Windwhistle allotments appear to be in poor ecological condition due to the current drought and direct conflicts exist between cattle and the Hatch Point pronghorn herd.

Both domestic sheep and pronghorn consume large quantities of forbs and shrubs. The research in New Mexico (Holechek et al. 1989:201-203) indicated that the dietary overlap between antelope and domestic sheep averaged about 45 percent. However, during periods of drought, overlaps increased to 60 percent. On sheep allotments, this research showed that antelope suffered heavy to complete mortality in drought periods. The Hatch Point allotment has authorized sheep AUMs and if activated, would cause a direct forage conflict with the Hatch Point pronghorn herd.

16.6.4.3 Expansion of Cisco Pronghorn Herd Numbers

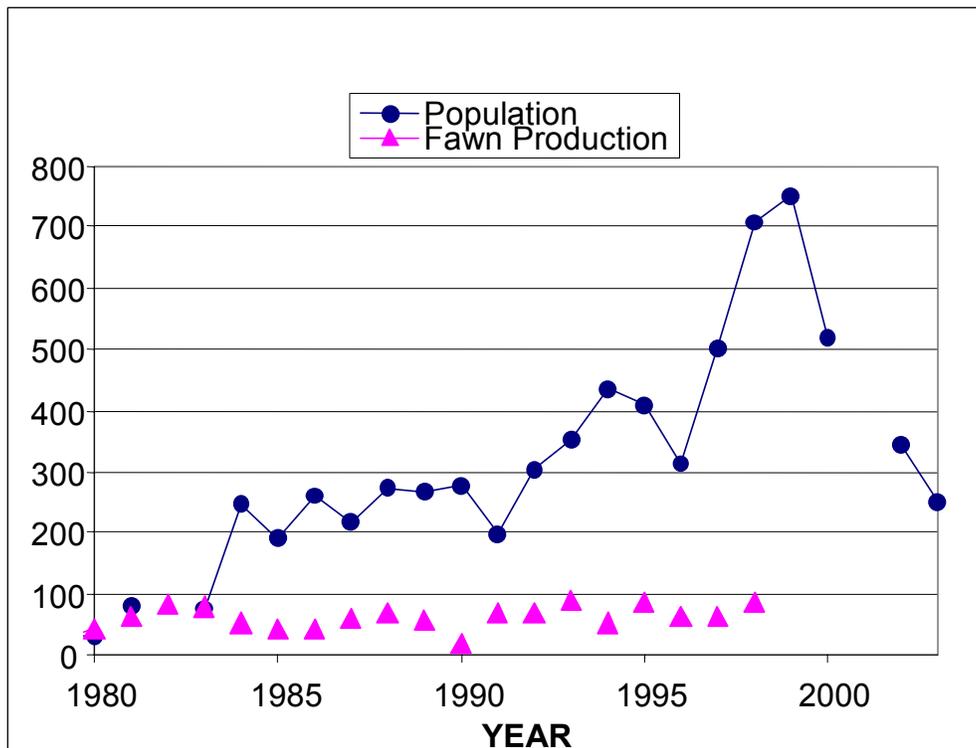
The pronghorn herd on the Cisco Desert approached 1000 animals in 1999; the herd expanded to areas outside the land designated for pronghorn in the 1985 Grand RMP. Since 1999, pronghorn numbers have decreased dramatically due to the recent drought and the attendant competition for forage. The 1985 RMP identified eight allotments (604,000 acres within this herd unit) and allocated 257 AUMs (206 antelope) of forage for antelope. The RMP also states that "wildlife habitat will be managed in support of 578 pronghorn as the long-term herd management goal." The plan, however, did not increase the necessary AUMs by 465, in order to correspond with increased pronghorn numbers. In 1995 the RMP was amended, reallocating additional AUMs for

antelope on the Cisco allotment, however, the 1985 Grand RMP still did not allow for an expanding pronghorn herd.

In May of 2000, UDWR recommended a long term population goal for the entire Cisco unit (25 allotments covering 776,741 acres designated as pronghorn range) of 2500 pronghorn. As noted above, the population of this herd has decreased to below 300 animals. There are several limiting factors that effect pronghorn dynamics. Spring and summer precipitation directly correlates to fawn recruitment and survival and population trends. Distinct drops in fawn production and recruitment, and population numbers correspond with below average precipitation years. (Moretti, UDWR, personal communication). Fawn production, survival and population numbers can increase dramatically in moist years (see Chart 16-1).

The expansion of this herd throughout the Cisco Desert needs to be addressed. When precipitation increases, pronghorn densities will increase to within the 1999 range. This range is expected to move farther south of I-70 and to the west U.S. Highway 191. Habitat requirements are in need of revision in the areas not recognized as pronghorn habitat in the 1985 RMP. These requirements include forage allocations, grazing management adjustments, water developments, OHV designation, and oil and gas category changes. The UDWR has also requested the opportunity to review monitoring of vegetative trends and stocking rate adjustments.

Chart 16-1. Cisco Pronghorn Herd Counts and Fawn Production



16.6.4.4 Insufficient Water Resources for Pronghorn

Water resources for pronghorn need to be examined, especially if the Cisco herd expands south of I-70. This expansion is expected to happen if the current drought lessens in intensity, and if fawn production increases, as would be expected under wetter conditions.

16.6.4.5 Conflict between Other Resource Uses and Pronghorn

Livestock grazing and oil gas activities are conflicting with pronghorn habitat in both the Hatch Point and Cisco areas. Oil and gas activities have been identified as causing a direct loss of habitat from clearing drill sites and from the construction of roads and pipelines in both wildlife management areas. Traffic on roads, cross-country vehicle travel, and human activities at the drill sites may also disturb pronghorn and limit their movements.

16.6.4.6 Habitat Fragmentation for Pronghorn

Oil and gas development, road building and related improvements, and growing recreational use in the Moab area, including increased motorized travel both on and off road, cause habitat fragmentation and increase stress on pronghorn herds. Current road systems through antelope habitats interfere with antelope movement.

16.6.5 Issues Specific to Desert Bighorn Sheep and Rocky Mountain Bighorn Sheep

16.6.5.1 Insufficient Forage for Desert and Rocky Mountain Bighorn Sheep

Livestock grazing competes for forage with both Rocky Mountain and desert bighorn sheep. Allocations must be carefully considered to allow sufficient forage for bighorn. This is particularly true in the area east of Arches National Park, in the Taylor, North River, Highlands and Squaw Park allotments.

16.6.5.2 Expansion of Rocky Mountain Bighorn in the Book Cliffs

Rocky Mountain bighorn sheep have expanded to the east in the Book Cliffs. UDWR now recognizes the Book Cliffs escarpment from the Green River to the Colorado state line as habitat or potential habitat. The RMP needs to recognize the expansion of the Rocky Mountain bighorn into new areas in the Book Cliffs.

16.6.5.3 Expansion of Desert Bighorn North along the Green River

Desert bighorn sheep have expanded north from Canyonlands National Park and from the Potash area. They have moved as far north as Duma Point and the White Wash Sand Dunes. UDWR recognizes the entire area on the east side of the Green River and south of White Wash Sand Dunes as desert bighorn sheep habitat. The RMP needs to accommodate the expansion of the desert bighorn into this area.

16.6.5.4 Disease Transmittal from Domestic Livestock

The greatest conflict between livestock and bighorn sheep is the potential for disease transmission. A number of documented cases exist where entire bighorn sheep herds have died when a domestic sheep herd was moved into bighorn habitat. While cattle have not directly been implicated in the sudden die-offs of bighorn, a strong probability exists that the presence of cattle can suppress the growth of a bighorn sheep herd because lamb survival is low. Numerous documented cases strongly link the presence of domestic sheep with the subsequent loss of all or part of the affected bighorn population. The theory is that the New World (bighorn sheep) are susceptible to the diseases of Old World (domestic sheep) because the bighorn did not co-evolve with the Old World domestic sheep diseases. Bighorn sheep have not developed an immune system against these diseases.

Two areas in the Moab FO area are particularly vulnerable to this potential problem. Rocky Mountain bighorn sheep are moving to the east in the Book Cliffs area. UDWR has designated Rocky Mountain bighorn habitat and potential occupancy within the Book Cliffs. This movement of Rocky Mountain bighorn sheep to the east will conflict with the grazing of domestic sheep in the Cisco, Sulphur Canyon, and San Arroyo allotments. These allotments are authorized for sheep AUMs; the northern edges of these allotments are within bighorn habitat. Livestock conversions from sheep to cattle or 9 mile buffers would protect the health of the Rocky Mountain bighorn sheep.

The 1989 RMP amendment recognized Rocky Mountain bighorn habitat from the Green River east to the Sejo Canyon road and included 10 allotments (North Rattlesnake, Showerbath, Tusher, Lone Cone, Corral Wash, Floy Canyon, Thompson Canyon, Crescent Canyon, and the northern half of Horse Canyon and Floy Creek) Currently, only the North Rattlesnake allotment has AUMs authorized for bighorn (32 AUMs). As the Rocky Mountain bighorn expand eastward through the range, conflicts with cattle grazing will increase. Bighorn sheep tend to be socially intolerant of cattle and limit their habitat use to areas isolated from cattle grazing and/or areas that are topographically inaccessible to cattle. Due the present and inevitable expanse of this herd eastward, grazing management needs to reevaluate AUM allocations, stocking rates, and season of use. Areas within the Book Cliffs that offer good escape terrain, forging, and lambing need to be identified and cattle restricted or removed from these areas.

The Hatch Point allotment is a high priority for livestock conversion from sheep to cattle to eliminate disease transmission and forage conflict. Domestic sheep grazing is authorized on the Hatch Point allotment. Approximately 2,500 sheep (2,877 AUMs) could graze the allotment from mid-November until May 31. The allotment has not been grazed by domestic sheep since the mid-1980s, with the exception of one grazing season in the early 1990s. If the permittee chooses to use sheep AUMs, potential forage conflict and disease transmission will be present. The Kane Springs allotment also presents possible disease transmission and forage conflicts with domestic sheep.

16.6.5.5 Insufficient Water Resources for Bighorn Sheep

Water resources for bighorn sheep need to be considered throughout their ranges.

16.6.5.6 Increased Human Activities in Bighorn Sheep Habitat and Habitat Fragmentation Issues

Recreational activities, including OHV travel and energy development are conflicting with the management goals established for bighorn sheep in the Westwater and in Potash-Mineral Bottom areas. Competition between bighorn sheep and livestock for food, space, and water is believed to limit bighorn sheep numbers in these areas. Recreational activities, such as camping, OHV travel and mountain biking, are also in conflict with bighorn sheep management goals. In the Shafer Basin area, camping has been eliminated via Federal Register Notice to eliminate the conflict with bighorn, but this closure is only in place until the time of the updated RMP.

Recreation is increasing throughout the Moab FO area, but especially in the Green River rims area, and this is an issue that must be addressed. The focus of recreational use in this area is motorized activities, such as dirt bike and ATV riding. This use may not be compatible with bighorn occupation, especially during lambing, rutting and lactating seasons. These seasons are exactly the times when motorized recreational use is at its peak.

In the area east of Arches National Park (Cache Valley/Professor Valley), approximately 32 square miles of undistributed land offers bighorn sheep pristine and unfragmented habitat important to herd management, lambing, and breeding. Consideration needs to be given to Cache Valley and Professor Valley for future protection from recreational use and oil and gas exploration. Other areas within the Moab FO area that have this potential need to be defined and afforded similar protection.

16.6.6 Issues Regarding Raptors

16.6.6.1 Inadequate Raptor Inventories

A study of the raptor populations in the Moab FO area is needed to determine nesting locations and population trends. This information would be useful planning land use activities such as oil and gas leasing and development and recreational activities.

16.6.6.2 Coordinating with U.S. Forest Service (USFS) Regarding Northern Goshawk Habitat

The USFS is currently monitoring northern goshawk, a state-Sensitive species (UDWR 1999). There is a need to coordinate with the USFS regarding this bird's winter habitat.

16.6.7 Issues Regarding Reptile, Amphibian, Riparian and other Non-Game Species

16.6.7.1 Insufficient Inventories of Non-Game Species

There is insufficient knowledge of many non-game species, including reptiles, amphibians, and other species. Inventory work needs to be done on many of these species to identify where in the management area they exist, as well as to identify potential conflict, and management strategies to provide protection for these species. Inventories are needed to determine locations, populations, suitable habitat, and potential nesting and foraging areas. With current inventories in place, habitat management plans could then be addressed.

16.6.7.2 Insufficient Protection of Riparian and Aquatic Habitats for Non-Game Species

Aquatic and riparian habitat for many species is primarily affected by water projects outside the area and by grazing and other disturbance of riparian habitats within the area. Additionally, disturbance of riparian habitat by recreation activities negatively effects aquatic and riparian habitat. This is particularly true for dispersed camping and motorized vehicular activities, especially where travel is through the riparian zone. Recreation users are particularly attracted to riparian habitats, which exacerbates the issue.

The decline of aquatic and riparian species has been attributed to the combined effects of regulation of natural water flow through dam construction, flow depletions from irrigation, introduction of non-native fish and plant species, and changes to thermal regimes and sediment transport as a result of dam operations. The Moab FO area has little control over many of these factors. However, other activities that have significant impacts to riparian and aquatic species are under the direct control of the Moab FO. These include oil and gas development, ROW issuance, grazing, and recreation activities, including motorized vehicular travel.

16.6.8 Issues Regarding Management Indicator Species (MIS)

16.6.8.1 Insufficient Knowledge of Management Indicator Species (MIS)

The effects of current management practices on MIS other than those also identified as special status species or species of economic value are generally unknown. No information about the present capability to meet the demands of these other MIS species has been obtained. The specific habitat requirements for many of these other MIS still need to be refined.

16.7 MANAGEMENT OPPORTUNITIES AND LIMITATIONS

This RMP revision provides the opportunity to re-evaluate past management decisions and make adjustments that reflect current knowledge and situations. The following discussion identifies opportunities to enhance wildlife habitat management in the Moab FO area. The following list is not to be considered comprehensive but discusses just some of the management opportunities available to enhance wildlife populations in the Moab FO area.

Management opportunities and limitations for wildlife in general will be discussed first, followed by management opportunities for particular species.

16.7.1 General Management Opportunities and Limitations

16.7.1.1 Critical Thresholds

A critical threshold is the point of degradation at which a habitat or a species population cannot sustain itself. Critical thresholds have not been determined for any animal species or habitat types within the Moab FO area and no additional analysis has been done to try to determine these critical thresholds in the Moab FO area.

16.7.1.2 Fencing Standards

Allow only construction of three-strand fences on future fencing proposals to reduce impacts to wildlife. However, this would not be feasible in areas where domestic sheep are present. Do not allow division of larger grazing allotments into smaller units that would require further fencing in order to reduce wildlife habitat fragmentation. Fencing should only be done with approved allotment plans.

16.7.1.3 Wildlife Forage

Increase forage by decreasing competition for it from domestic livestock.

16.7.1.4 Recreational Conflict with Wildlife Habitat

Restrict recreation uses that conflict with wildlife. Limit motorized recreation use where necessary to enhance wildlife populations and habitat. Limit motorized and mechanized travel to designated roads. Restrict recreation in particularly sensitive areas, such as riparian zones.

16.7.1.5 Restoration of Sagebrush Habitat

Within the Moab FO area, many shrub species and scrub/sagebrush dominated ranges appear to be stressed. Due to the statewide concerns of large shrub-steppe and sagebrush ecosystem degradation and die-offs and to the effects on critical ranges for sage-grouse and mule deer, action within the Moab FO area is needed to address this growing issue. On June 12, 2003, the BLM, USFS, and UDWR met to review the current situation and discuss options. In order to improve these degraded scrub ecosystems the following needs were identified. The Moab FO should incorporate these management tools into future land management plans and decisions:

- Manage shrub-steppe ecosystems for a diverse age class of sagebrush and a diverse understory of perennial grasses and annual forbs.
- Provide adequate habitat to sustain wildlife populations of special conservation.
- Concern and to prevent any future listing under ESA.
- Avoid landscape scale monocultures of even-aged sagebrush.
- Incorporate NEPA compliance and archeological clearances into stabilization and restoration efforts.
- Understanding the extent and potential impacts (direct and ancillary) this drought and sagebrush die-off could have for wildlife and rural economies.

16.7.2 Management Opportunities for Threatened, Endangered, and Special Status (TES) Species

16.7.2.1 Monitoring TES and Adhering to Recovery Plans

TES species within the Moab FO area must be evaluated to determine the status of the species locally. Cooperative agreements with other federal and non-federal agencies should allow for the continued monitoring of habitat and occurrences of species. New plans and agreements should be

promulgated to inventory species of concern that have no current local information. Management strategies to provide protection for these species need to be developed. Update and amend RMPs as needed as Recovery Plans are updated or added to and as new information is made available.

16.7.2.2 Mexican Spotted Owl (MSO) Recovery

The Mexican Spotted Owl Recovery Plan provides a basis for management actions to be undertaken by the Moab FO to remove recognized threats and recover the MSO. A proposed rule designating Critical Habitat for the MSO was published in July 2000. This rule became effective March 5, 2001. The Moab FO area is within the Colorado Plateau recovery unit and contains Designated Critical Habitat. USFWS and the Recovery Plan recognizes two models, the 1997 Willey-Spotskey's MSO Habitat Model and the 2000 Willey-Spotskey's MSO Habitat Model, to be used as tools to identify and protect MSO habitat (Figure 16-13). The 1997 model is recognized as an overestimate of all habitats in almost all cases, whereas the 2000 model may underestimate owl habitat, particularly foraging, winter and dispersal habitat. USFWS recommends a multi-tool approach, using the 1997 model for large scale planning efforts and the 2000 model to identify possible areas that may provide nesting and roosting habitat where activity centers may be located.

Buffers of 0.5 mile should be used in areas where the 2000 model depicts potential habitat and planned projects may cause impacts. Canyons less than 2 km wide and more than 2 km long should be assessed for potential MSO habitat. Implement field reviews by experienced MSO field personnel to determine the quality of habitat identified by both models. Conduct owl surveys, according to protocol, in areas where surveys predict quality breeding/roosting habitat. Continue surveys to fully understand the accuracy of the models and what areas have truly potential habitat and which area of the models and Critical Habitat can be eliminated. Areas determined to be quality breeding/roosting habitat need inventory and monitoring plans in place.

16.7.2.3 Managing for TES Fish

The potential habitat of Bonytail, Colorado pikeminnow, humpback chub, and razorback sucker need to be reviewed for any necessary habitat improvement work. Remove or control non-native fish that threaten various life stages of these fish.

Colorado River cutthroat trout: Review potential for any necessary habitat improvement. Remove or control non-native fish that prey on, compete with, or hybridize with Colorado River cutthroat trout.

16.7.2.4 Southwestern Willow Flycatcher (SWFL) Recovery and Protecting Riparian Habitat for TES Species

Restore and conserve riparian areas to benefit SWFL and other riparian species. Fence riparian areas to reduce or eliminate grazing pressure on young native trees such as willow and cottonwoods. Rotate grazing allotments in riparian areas to allow young trees to become established. Plan tamarisk removal and native planting efforts to improve riparian areas that have serious tamarisk invasions. Continue to inventory riparian habitat to determine suitable habitat for nesting and occupancy by SWFL. Protect and enhance riparian habitat to allow for SWFL

expansion into riparian regions. Use Habitat Conservation Plans to offset and mitigate loss or degradation of riparian habitat due to proposed actions.

Restoration and conservation of riparian areas will also benefit the yellow-billed cuckoo. Fence riparian areas to reduce or eliminate grazing pressure on young trees. Rotate grazing allotments in riparian areas to allow young trees to become established. Inventory riparian habitat to determine suitable yellow-billed cuckoo habitat for nesting and occupancy. Protect and enhance riparian habitat to allow for the expansion of this species into riparian regions.

16.7.2.5 Prairie Dog Habitat

Both Gunnison and white tailed prairie dogs have been nominated to USFWS to be placed on the Endangered species list. Continue to monitor population densities on current prairie dog towns and prevent poisoning, animal damage control, and shooting of prairie dogs on active sites. Wherever possible, use land management practices that enhance established towns and promote population expansion. UDWR is in the process of preparing Management Plans and Guidelines for both species. These Plans need to be built into BLM management practices. Inventory habitat suitable for occupancy and establish land management plans that will protect and enhance habitat so that when environmental and ecological conditions improve, prairie dogs will be able to expand into suitable unoccupied areas. Develop oil and gas stipulations to protect populations and habitat during critical seasons or within critical habitat areas. Control cross country motorized activity to protect this prairie dog habitat and populations.

Develop cooperative agreements with other agencies to inventory prairie dog densities and provide suitable habitat for expansion. Protect suitable unoccupied and occupied towns and habitat. Support UDWR and USFWS in determining if potential reintroduction sites are available within Moab FO area for the black-footed ferret. If potential areas are found for its reintroduction, a prairie dog and ferret Habitat Management Plan should be developed prior to reintroduction plans. Prevent poisoning, animal damage control, and shooting of prairie dogs at potential black-footed ferret release sites to encourage an increase in population and expansion of prairie dogs.

16.7.2.6 Roost Sites to Encourage Bald Eagle Nesting

Bald eagles nest in old growth cottonwoods. Encourage the growth of cottonwoods by developing a livestock grazing system to do so, or use portable enclosures to protect cottonwood seedlings until they are out of reach from grazing animals. Along the Green River acquire and protect roost sites through land exchange or acquisition. Evaluate the potential of constructing artificial nest structures for bald eagles.

16.7.2.7 Sage-grouse Habitat

The greater sage-grouse has been nominated to the USFWS Endangered species list. To lessen the possibility of listing, reduce or eliminate grazing in areas occupied by sage-grouse until late in the growing season (August). In addition, eliminate grazing in areas where sage-grouse populations are in a precipitous decline. Restore and conserve large blocks of undisturbed sagebrush habitat. Fence riparian areas near sage-grouse populations to reduce or eliminate grazing within these areas. The Strategic Management Plan for Sage-grouse (2002) recommends

conservation strategies for vegetation management, lek disturbance, grazing management, and fire management. Areas that have been identified as winter habitat, brooding habitat or active leks (see Figure 16-3), need the following protective measures in place:

Regulate grazing management to achieve and maintain sagebrush and riparian/meadows habitats in good ecological condition. Manage brooding and nesting habitat at a 15-25 percent sagebrush canopy cover and with 7 inches of grass/forb understory through the May nesting season. Manage sagebrush in winter habitat at 15-25 percent canopy with heights 10-12 inches above average snowfall. When ecological conditions do not meet need habitat requirements for sage-grouse, the allotment area should be rested and/or season of use reduced to accommodate these requirements. Consider allotment retirements to preserve habitat quality.

- Protect active leks during the breeding season from recreational activities, including motorized recreation, and from land use developments such as the construction of roads, fences, utility lines, or other development activities from March 1 through May 31. Place buffers of 0.6 miles in lek activity areas during breeding season.
- Protect leks from disturbance and degradation by classifying these areas as oil and gas lease Category 2 (Open to Leasing with Special Stipulations) and develop and implement stipulations that protect known lek areas during the breeding season. Restrict recreational activities, including motorized travel, during breeding season. Classify areas of known winter and brooding habitat as oil and gas lease Category 3 (No Surface Occupancy) to protect these areas from disturbance, fragmentation and degradation. Restrict recreational activities such as OHV use, camping, or any other activities that may lead to the disturbance or degradation of all brooding and winter habitat for grouse.
- Follow the Strategic Management Plan for Sage-grouse prior to planning prescribed burns within sage-grouse habitat. Fire management plans, land treatment plans, and livestock manipulation plans need to be consistent with the Strategic Management Plan for Sage-grouse. Plan and implement suitable sage-grouse habitat restoration plans.

16.7.3 Management Opportunities for Big Game

16.7.3.1 Objectives and Allocations for Big Game in General

The wildlife management goals in the 1985 Grand RMP, current UDWR population estimates, UDWR herd objectives, and AUM allocations for wildlife need to be evaluated for consistency and available resources within the Moab FO area. Table 16-15 outlines current populations and objectives.

16.7.3.2 Big Game Habitat

Inventory the quantity and quality of big game habitat in all potential reintroduction sites. Allocate forage in all potential big game habitat. Improve habitat for big game through vegetation treatment, water development, and fence modification. Modify grazing rotations to eliminate domestic livestock from areas critical to big game. OHV use should be limited to designated roads in big game habitat. Mitigate existing operational leases for mineral or fossil fuel development occurring in big game areas by improving habitat (vegetation treatments, water development, etc.) to compensate for acreages disturbed by the existing activity.

Table 16-15. Wildlife Population Estimates; UDWR Population Objectives; and BLM Objectives and Forage Allocation					
Species	Unit name (subunit)	UDWR Population Estimate	UDWR Population Objective	Current BLM Objectives	Current BLM Forage Allocation (AUM)
Desert Bighorn	Potash	200	300	1,037 included w/Potash 229	496 included w/Potash 25
	Professor Valley	26	100		
	Dolores Triangle	20	100		
Rocky Mountain Bighorn	Book Cliffs	150	450	98	32
Mule Deer	Book Cliffs	5700 1,350	10,000 5,000	749/all Book Cliffs	2942/all Book Cliffs
	10A Bitter Creek				
	10B South Book Cliffs				
	La Sal	5,200 3,100	13,000 6,400	15,900 3,850	2690 2463
	13A La Sal Mountains				
	13B Dolores				
Elk	Book Cliffs	2300 250	6,500 1,000	850/all Book Cliffs	1,072/all Book Cliffs
	10A Bitter Creek				
	10B South Book Cliffs				
	La Sal	1,850 725	1,850 850	1,200 250	721 394
	13A La Sal Mountains				
	13B Dolores				
Antelope	Book Cliffs	250	1500	578	926
	La Sal	180	309	309	104

16.7.4 Management Opportunities for Mule Deer and Rocky Mountain Elk

16.7.4.1 Mule Deer and Rocky Mountain Elk Habitat

Create additional forage via vegetation treatments to reset the seral stage of critical areas and reseed areas with favorable plant species. Revise and change livestock grazing systems to stabilize downward vegetation trends where applicable. Acquire and protect crucial wildlife habitat through sale or exchange. Restrict driving to designated roads to increase vegetation.

16.7.4.2 Critical Deer and Elk Winter Range

Re-evaluate critical winter ranges for deer and elk through the guidance of UDWR. Re-classify current, historical, and potential critical winter ranges as oil and gas leasing Category 2 to allow for Special Stipulations as needed. UDWR should help define historical and potential critical winter ranges. Review critical winter ranges on an annual basis with UDWR and make changes

in land use as directed by UDWR. Set a time frame with UDWR for annual review and adhere to this each year. Oil and gas Applications for Permit to Drill will be reviewed annually and needed stipulations placed or removed as appropriate.

Grazing management will be coordinated annually with UDWR to annually review stocking rates and season of use for current winter range areas. Sound stocking adjustments will be determined in a timely manner with the assistance of UDWR and BLM. Healthy shrubs should dominate rangelands which are to be managed at high rangeland ecological conditions. Land treatments should be implemented on critical winter ranges to maintain and improve ecological conditions.

16.7.4.3 Crucial Fawning and Calving Grounds

Re-evaluate crucial fawning and calving grounds on an annual basis with guidance from UDWR. Re-classify all current, historical, and potential crucial fawning and calving grounds as oil and gas leasing Category 2. Re-classify 1,620 areas in the Dolores Point/Dakota Rock allotment as Category 2. Develop and implement an oil and gas stipulation that allows surface occupancy only from July 10 to May 15 to protect calving and fawning grounds. Oil and gas Applications for a Permit to Drill will be reviewed annually and needed stipulations placed or removed as appropriate.

Stocking rates and season of use within crucial fawning and calving grounds will be evaluated, as determined by annual review. Sound stocking adjustments in a timely manner will be determined with the assistance of UDWR and BLM. Healthy crucial fawning and calving grounds should be managed at high rangeland ecological conditions to insure adequate forage for lactating cows and does.

Restrict recreational activities from crucial fawning and calving grounds May 15 through July 10.

16.7.5 Management Opportunities for Pronghorn

16.7.5.1 Pronghorn Habitat

Re-evaluate forage allocation objectives for both livestock and pronghorn especially during drought conditions. During periods of drought and vegetative stress, a reduction in livestock is necessary to protect antelope habitat.

Revise and change livestock grazing systems to stabilize downward vegetation trends where applicable. Create additional forage via vegetation treatments to reset the seral stage of critical areas and reseed areas with favorable plant species. Acquire and protect crucial wildlife habitat through sale or exchange.

Habitat fragmentation for antelope and increased stress on herds can be mitigated by the designation of wildlife corridors and via a reduction in roads for energy development and recreational activities. Limit vehicle access, energy development, and OHV use to designated roads to stop habitat fragmentation. Energy development may require new access routes; these should be closed and rehabilitated once the development or activity is complete. New roads

needed for energy development should be closed to public and used only for maintenance of the energy activity.

Antelope occupy a large corridor through the Cisco Desert. Much of this land is oil and gas lease Category 1 (Open to leasing with standards stipulations) and does not allow protection of crucial fawning areas during fawning time. Identify these fawning habitat areas and classify oil and gas leases as Category 2 lands. Antelope are also found in the Hatch Point area. Although these lands are in oil and gas leasing Category 2, there is currently no special stipulation in place to protect fawning areas.

Antelope populations and habitats many times reflect current weather activity and range conditions. Place pronghorn fawning stipulations on parcels within pronghorn range as leases come up for sale. When parcels are actually developed, the Moab FO will coordinate with the UDWR and determine where these fawning areas are likely to occur and advise the lease holder. Many times fawning areas change throughout these areas and this protective stipulation may not be needed.

Cross country OHV use damages antelope habitat. All motorized and mountain bike travel should be restricted to designated roads to increase vegetation.

16.7.5.2 Pronghorn and Domestic Livestock

Conflicts due to cattle grazing have been identified on the Hatch Point, Lisbon, and Windwhistle allotments due to drought conditions and poor range ecological conditions. When poor or reduced ecological conditions prevail, use or season of use should be reduced in these allotments.

The Hatch Point allotment also has authorized domestic sheep grazing, though the permittee usually does not use these AUMs for sheep. If domestic sheep use is activated, there could be strong and direct competition for forage on a year-round basis. Convert Hatch Point sheep AUMs to cattle AUMs in order to prevent additional stress to the Hatch Point pronghorn herd. Review grazing allocations to determine current available forage and make appropriate stocking adjustments.

16.7.5.3 Pronghorn Expansion of Range

Though current pronghorn numbers are low due to drought conditions, the animals have still expanded their range. When drought conditions subside, it is inevitable that the herd will approach the prior number of 1000 animals. Pronghorn should be allowed to expand into suitable habitat. BLM should enhance or maintain habitat through installation and maintenance of water facilities. Evaluate allocation of AUMs throughout the 25 allotments and adjust grazing to support this expansion. Adjust area of occupancy by pronghorn to include the pronghorn antelope habitat designated by UDWR in 2001 (see Figure 16-5), which lies within these 25 allotments. This range encompasses 822,001 acres, an increase in coverage from the 1985 RMP of 172,741 acres.

The Moab FO should set long-term goals for the Cisco herd at 2500 animals, as recommended by the UDWR. This would result in densities to 1.6 to 1.9 pronghorn per square mile (current density is 1.4). To accommodate the expected expansion of pronghorn southward of I-70 and to

the west of U.S. Highway 191, this area will also be analyzed for future conflicts and included in the Moab FO pronghorn management area.

Conflicts have been identified in forage competition between sheep and pronghorn within this range, including the following allotments: Cisco, Cisco Mesa, Corral Wash, Harley Dome, Little Hole, Pipeline, Sulfur Canyon, San Arroyo, and Winter Camp. Appendix 16-3, Pronghorn Range Expansion, defines the allotments affected, allocated AUMs, type of use, and season of use. To reduce sheep/antelope conflicts, season of use should be ended at March 31 on all sheep allotments and on cattle allotments where ecological conditions are compromised due to drought conditions or heavy grazing.

UDWR should be given the opportunity to review the monitoring of vegetative trends and stocking rate adjustments. Their input should be considered when conflicts arise in season of use, numbers of stock to be turned out, and decisions are to be made concerning the ecological condition of range. Sheep AUMs should be converted to cattle AUMs to reduce forage conflicts. Additional water resources should be established within the new (2001) habitat range to reduce water conflict between wildlife and livestock. Future water developments should also be planned for areas south of I-70 and west of U.S. Highway 191 that are not in the 2001 pronghorn range.

16.7.5.4 Pronghorn Watering

Establish additional guzzlers and other water sources to improve habitat and distribution in the area (especially during drought years) with the objective of one water source every 2 to 3 miles.

16.7.6 Management Opportunities for Desert and Rocky Mountain Bighorn Sheep

16.7.6.1 Bighorn Sheep Habitat

Inventory quantity and quality of bighorn sheep habitat in all potential and occupied areas. Allocate forage in all potential bighorn habitat and begin the reintroduction process with UDWR. Improve habitat for bighorn sheep through vegetation treatment, water development, and fence modification.

Adequate forage should be allotted for the bighorn population, including a mix of forbs, grass, and browse. All waters should be maintained for bighorn for the seasons that bighorn are present.

16.7.6.2 Special Livestock Fence Construction Meeting Specifications Deemed Safe for Bighorn Sheep

Livestock grazing systems should be avoided which will restrict alter, limit, deleteriously affect the habitat of bighorn. Conflict between cattle and desert bighorn sheep is most likely to occur during the early spring months.

The Rattlesnake Rocky Mountain bighorn herd will continue to grow eastward along the Book Cliffs. Re-evaluation of these ranges for Rocky Mountain bighorn sheep and cattle conflicts should be analyzed by grazing and wildlife management, as well as UDWR, to determine where the greatest spatial, forage, and water resource conflicts are or will occur. Areas determined to be crucial for Rocky Mountain bighorn sheep use should be protected from cattle grazing by

reduction or removal of livestock. Forage allocation should be evaluated in allotments where cattle grazing is permitted and AUMs should be planned for Rocky Mountain bighorn sheep. The current 32 AUM allocations on the North Rattlesnake allotment will not support this growing herd and is a priority for reallocation. Other allotments that provide Rocky Mountain bighorn sheep habitat need re-allocation of forage. The recent Rattle Fire of 2002 opened up areas that previously were not suitable for bighorn occupancy, thus allowing for rapid expansion into new, suitable habitat. Sightings of bighorn are now recorded as far east as the confluence of Diamond and Cottonwood Creeks. As this herd moves east, more allotments will need to be adjusted for allocation of Rocky Mountain bighorn sheep forage. These allotments include Main Canyon, Middle Canyon, and the northern parts of Cisco, Cisco Mesa, San Arroyo, Sulphur Canyon Winter Camp, and Bar-X, and Corral Wash Canyon.

OHV use should be limited to designated roads in bighorn sheep habitat. Roads in areas inhabited by bighorn sheep and that are deemed no longer necessary will be closed and rehabilitated. Allow no new development within bighorn sheep habitats. Mitigate existing operational leases for mineral or fossil fuel development occurring in bighorn sheep areas by improving habitat (e.g., vegetation treatments, water development, etc.) to compensate for acreages disturbed by the existing activity. Designate oil and gas leasing areas as Category 2 (Open to Leasing with Special Stipulations) or Category 3 (No Surface Occupancy) to reduce impacts to bighorn sheep.

16.7.6.3 Critical Lambing, Lactating and Rutting Areas for Bighorn Sheep

Modify grazing rotations to eliminate domestic livestock from areas critical to bighorn sheep (e.g., lambing grounds, water sources, etc.). No livestock grazing should be permitted just prior to or immediately following the lambing season. Separate water developments should be provided for bighorn and livestock during periods when both livestock and bighorn will be present at the same time.

Develop and implement stipulations that will protect areas used by bighorn for lambing, lactating, and rutting during crucial times. Escape terrain, permanent watering areas, and critical foraging areas need to be protected from disturbance and development and need to be classified as oil and gas lease Category 3 (No Surface Occupancy) or Category 4 (No Leasing), allowing for no surface disturbance.

16.7.6.4 Mining Activities Should be Excluded from Critical Areas Such as Lambing Grounds and Water Holes

Work with UDWR to define other pristine and unfragmented areas to be used as lambing and rutting grounds or habitat critical to foraging and escape. Restrict oil and gas leasing by placing critical areas in Category 3 or 4. Close critical areas to recreational activities. Recreational constraints will be developed to protect lambing seasons from April 15 to June 15, and rutting seasons from October 15 through December 31.

16.7.6.5 Eliminating Domestic Sheep from Bighorn Habitat

Eliminate domestic sheep grazing through cancellation of licenses or change in class of livestock from domestic sheep to cattle within 10 miles of potential bighorn sheep habitat.

Convert the Hatch Point and Kane Creek allotments from sheep to cattle to eliminate disease transmission and forage conflict. This is a priority if a healthy desert bighorn sheep population is to be maintained. The Hatch Point allotment is of the utmost importance. If this conversion is not made and the permittee chooses to graze domestic sheep, a native population of desert bighorns may be at risk of extirpation.

Convert allotments where Rocky Mountain bighorn sheep habitat and potential occupancy exist. Several allotments (Cisco, Middle Canyon, San Arroyo, Sulphur Canyon, and Winter Camp) are authorized for domestic sheep AUMs. Convert these allotments to cattle or restrict the grazing of sheep. Install protective fencing to keep domestic sheep at least 10 miles away from Rocky Mountain bighorn sheep habitat.

16.7.6.6 Providing Unfragmented Bighorn Sheep Habitat in Cache Valley

Cache Valley and Professor Valley is pristine and un-fragmented habitat important to desert bighorn herd management, lambing, foraging, escape terrain, and breeding. Protection of the condition and remoteness of this area is important to the Arches bighorn sheep herd. Oil and gas classification should be changed to Category 3 (No Surface Occupancy) or Category 4 (No Occupancy) to preserve this area from disturbance and fragmentation.

Cache Valley should be closed to all recreational activities, including driving, hiking, backpacking, and climbing. The access to this area should be closed and educational signing provided to inform the public of the importance of protecting this area from disturbance.

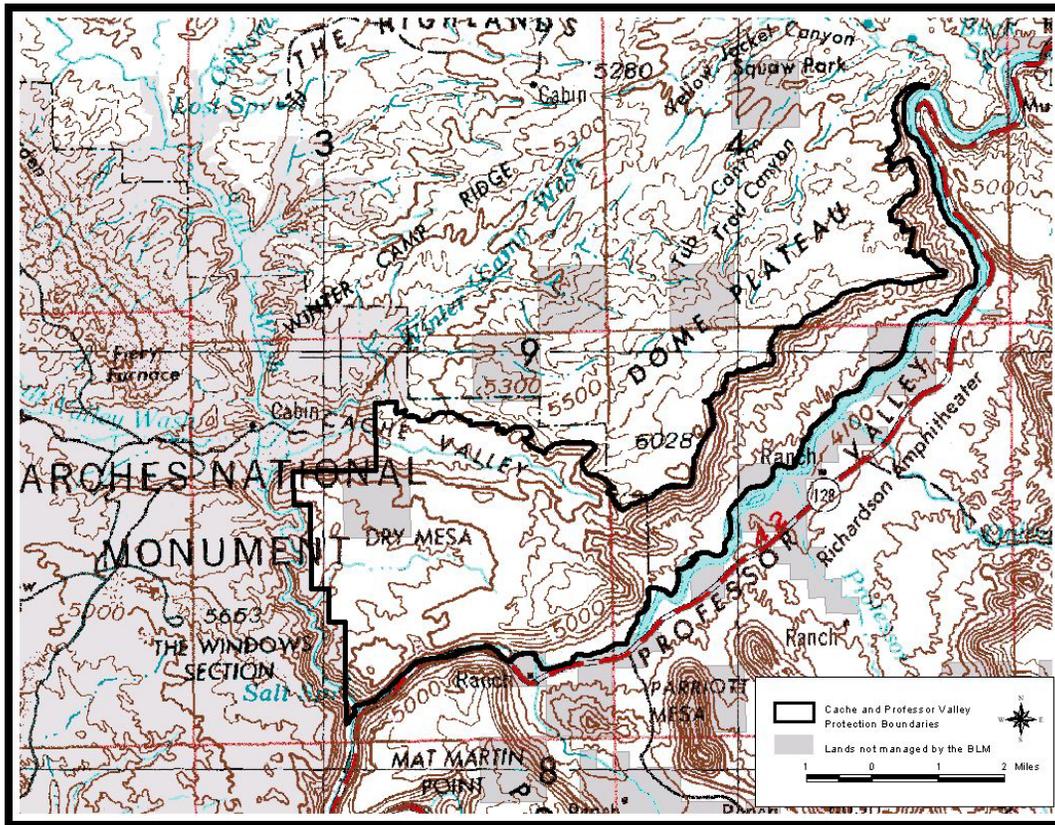
Permit grazing only when excellent ecological range conditions prevail and only from December 20 to February 28 to avoid the rutting and lambing seasons and to assure there is adequate forage for lactating ewes. Reduce AUMs and attempt to retire allotments or seek partners to buy AUMs for retirement, to eliminate all forage conflict and the potential for disease transmittal. Chart 16-2 shows the Cache Valley area.

16.7.7 Management Opportunities for Black Bear

16.7.7.1 Black Bear Populations and Distribution

Population management goals for black bear include maintaining a healthy predator population within the existing occupied habitat while considering human safety, economic concerns, and other wildlife species. Management objectives include maintaining current bear distribution while working to increase bear distribution into suitable unoccupied or low-density areas. This would be accomplished by maintaining migration corridors to allow natural expansion into unoccupied habitat, reducing the risk of injury to humans and loss of livestock and property, and maintaining quality consumptive and non-consumptive bear-related recreational opportunities.

Chart 16-2. Area used by bighorn sheep to be protected from land use activities.



16.7.8 Management Opportunities for Mountain Lion

16.7.8.1 Mountain Lion Populations and Distribution

Population management objectives for mountain lion include maintaining a healthy predator population within the existing occupied habitat while considering human safety, economic concerns, and other wildlife species. Currently, all wildlife units maintain a mountain lion population goal of 65 percent survival, a harvest goal of adults 6 years or older comprising more than 15 percent of the harvest, and a harvest goal of females comprising less than 40 percent of the harvest.

16.7.9 Management Opportunities for Raptors

16.7.9.1 Monitoring and Managing Raptors

Update the raptor inventory data and monitor status every five years. Manage key habitats, emphasizing maintenance and restoration of natural biological diversity. Develop cooperative agreements with federal and non-federal agencies, private contractors, and research partners to perform these inventories. This would provide resource managers with an idea of raptor activity and productivity in the Moab FO area. Once complete, plan and implement a monitoring program that will insure current information is available for use when making land use decisions.

16.7.9.2 Protecting Raptors with Buffer Zones

Evaluate effectiveness of buffers on nest sites. Standardize the area's raptor protection buffer zones, with no construction or disturbing activities (including recreation) allowed within specified distances or dates. Re-evaluate and update protective stipulations attached to oil and gas leases to protect nest sites. Plan oil and gas development in conjunction with nesting location data to develop predictive models for raptor/energy development conflicts and to develop conservation measures for unleased parcels. Establish recommended buffers around nest sites and restrict recreational activities during recommended nesting and fledging periods. Rights-of-way for electric transmission lines should ensure that support towers are designed to protect raptors from electrocution. Old transmission lines should be inspected to see if any additional modifications are necessary.

16.7.10 Management Opportunities for Other Species Requiring Special Habitat Needs

16.7.10.1 Riparian Habitat

Many species depend for all or part of their life cycles on riparian areas. Designate all riparian habitat in the area as oil and gas leasing Category 2 (Open to Leasing with Special Stipulations) or Category 3 (No Surface Occupancy). Change livestock systems and seasons of use to avoid grazing during warm-season growing periods in riparian areas. Construct protective fencing around springs and seeps to provide water for cattle outside of protection areas. Require permittees to provide alternate water sources to alleviate livestock use of riparian areas.

Require special use permits for large reservoir construction (greater than two surface acres) to address opportunities for fishery management. The developer should maintain an adequate conservation pool and sediment basin to permit a fishery to exist and should take into consideration fish passage across the dam. Analyze water rights to explore opportunities for improvement to existing and potential fisheries.

Restrict recreation uses in riparian areas, such as limiting driving to designated roads. Only designate roads in riparian zones that are absolutely crucial to transportation networks. Design roads to avoid riparian areas.

Plan inventories for current distribution and occurrence of species, habitat potential and suitability, and habitat quality within drainages, streams, rivers and riparian areas. As plans are developed, seek funding through Challenge Cost Share Programs, Cooperative Agreements, and cooperative efforts from agencies and affiliations that support or are interested in environmental and ecological projects. Through funding and cooperative efforts, establish partnerships with federal, non-federal, state, and private agencies to assist in the implementation and execution of each plan.

16.7.10.2 Wolf

In 2003, the Utah Legislature passed House Joint Resolution 12 (HJR-12), which directs UDWR to prepare a proposal for a Wolf Management Working Group. Within the Moab FO area there is possible wolf habitat in the Book Cliffs. If wolves do re-colonize in this area, re-evaluation and land management practices may need to be adjusted to accommodate wolf management.

16.7.11 Management Objectives for Management Indicator Species (MIS)

Complete or contract inventory-establishing basic data on the species identified as MIS. Emphasis should be on macroinvertebrates to help evaluate quality and stability of aquatic habitats. Define critical threshold levels for proper management of the Moab FO area.

16.7.12 Management Objectives for Proposed Areas of Critical Environmental Concern (ACEC)

Three new ACECs have been proposed for nomination that are focused on wildlife. They are the Cisco Complex, Behind the Rocks, and Professor Valley.

16.7.12.1 Cisco Complex

The Center for Native Ecosystems (in conjunction with Biodiversity Conservation Alliance, Southern Utah Wilderness Alliance, American Lands Alliance, Forest Guardians, Sinapu, and Terry Tempest Williams) has proposed an ACEC to protect white tailed prairie dog habitat. This ACEC would be a complex of 25 areas located throughout Utah, Colorado, and Wyoming, designed to protect white-tailed prairie dog habitat. A habitat complex includes an area large enough to encompass all active and inactive colonies that are within 7 km of each other, as delineated by protocol developed by Biggins et al. (1993). The proposed ACEC boundary would encompass all complexes totaling over 5,000 acres with a one-half mile buffer around the complex. If multiple land ownership occurs within this area, the BLM acreage would be managed by the ACECs special management considerations, regardless of whether or not the BLM portion totals 5,000 acres.

16.7.12.2 Behind the Rocks

The Nature Conservancy has nominated approximately 16,200 acres south of Moab known as Behind the Rocks for ACEC designation. The area encompasses the Pritchett and Hunter Canyon drainages as well as areas to the north and southeast. Designation would protect several special status plants and animals, and expanses of relict plant communities and sensitive soils. Approximately 92 percent of the proposed ACEC is public land administered by the Moab BLM FO.

Several special status wildlife species occur within the proposed Behind the Rocks ACEC, including the state-listed Endangered peregrine falcon, the willow flycatcher (possibly the federally listed Endangered southwestern subspecies), the spotted bat, and the big free-tailed bat; both listed as Sensitive species by the State of Utah (UDWR 1999). Also, key riparian habitat occurs along Hunter and Kane creeks within the proposed ACEC. This area is important for maintaining species diversity.

16.7.12.3 Professor Valley

The Nature Conservancy has nominated 36,900 acres northeast of Moab in the Professor Valley area for ACEC designation. The area encompasses the majority of Professor and Onion Creek drainages, as well as Ida Gulch and Richardson Amphitheater. ACEC designation would protect three special status plants, several special status animals, natural areas, and expanses of sensitive

soils. Approximately 85 percent is public land administered by the Moab FO area. The Nature Conservancy itself owns several parcels of land in this area.

Two federally listed Endangered fish, the Colorado squawfish (*Ptychocheilus lucius*) and the razorback sucker (*Xyrauchen texanus*), are known to occur historically in the section of the Colorado River which flows along the proposed ACEC boundary. This portion of the river is officially designated as Critical Habitat for these species. The corridor also supports migrating and wintering federally-listed Threatened bald eagles (*Haliaeetus leucocephalus*), and the state-listed Endangered peregrine falcon (*Falco peregrinus*). Riparian habitat in the area could support the Endangered SWFL (*Empidonax traillii extimus*), as it is known to occur in similar habitat further down the river. Several BLM-Sensitive birds are also known to occur, or have the potential to occur, in the river corridor. Many animals without special status also depend on the riparian areas along the Colorado River, a unique habitat in this desert environment.

16.8 REFERENCES

- Biggins, D.E., B.J. Miller, L.R. Haneburry, B. Oakleaf, A.H. Farmer, R. Crete, A. Dood. 1993. A system for evaluating black-footed ferret habitat. U.S. Fish & Wildlife Service. Biological Report 13:73-92.
- Brown, P.E. 1996. A survey for bats of the Soledad Mountain project, Mojave, Kern County, California. Located at <http://www.ca.blm.gov/GoldenQueen/pub-biob.htm>.
- CRCT Task Force. 2001. Conservation agreement and strategy for Colorado River cutthroat trout (*Oncorhynchus clarki pleuriticus*) in the States of Colorado, Utah, and Wyoming. Colorado Division of Wildlife, Fort Collins. 87p.
- Fitzgerald, J.P., C. A. Meaney, and D. M. Armstrong. 1994. Mammals of Colorado. Denver Museum of Natural History and University Press of Colorado, Niwot.
- Gleason, G.L. and D.R. Johnson. 1985. Factors influencing nesting success of burrowing owls in southeastern Idaho. Great Basin Naturalist 45:81-84.
- Grier, J.W., J.B. Elder, F.J Gramlich, N.F. Green, J.V. Kussman, J.E. Mathisen, J.P. Mattsson. 1983. Northern States Bald Eagle Recovery Plan. U.S. Fish and Wildlife Service, Washington D.C.
- Haug, E.A., B.A. Millsap, and M.S. Martell. 1993. Burrowing Owl (*Speotyto cunicularia*). In The Birds of North America, No. 61 (A. Poole and F. Gill, eds.). Philadelphia: The Academy of Natural Sciences; Washington, D.C.: The American Ornithologists' Union.
- Holechek, R.D., R.D. Pieper and C.H. Herbel. 1989. Range management principles and practices. Prentice Hall. pp. 201-203.
- Kufeld, R. C. 1973. Foods eaten by the Rocky Mountain elk. Journal of Range Management 26:106-113.

- Oliver, George V. 2000. The bats of Utah, a literature review. Utah Natural Heritage Program, UDWR publication number 00-14.
- Raymond et al. 1998. Evidence for Evolutionary Conservation of Sex-determining Genes. *Nature* 391: 69
- Romin, L and J.A. Muck. 1999. Utah field office guidelines for raptor protection from human and land use disturbances. U.S. Fish and Wildlife Service, Utah Field Office. Salt Lake City, UT.
- Seidel, J. W. 1977. Elk calving behavior in west central Colorado. Pp. 38-40 in Proc. Western States Elk Workshop, Colorado Division of Wildlife, Denver, Colorado.
- Sogge, M.K., R.M. Marshall, S.J. Sferra, and T.J. Tibbitts. 1997. A Southwestern Willow Flycatcher natural history summary and survey protocol. Tech. Rep. NPS/NAUCPRS/NRTR-97/12, U.S. Geological Survey Biological Resources Division, Colorado Plateau Field Station, Northern Arizona University, Flagstaff.
- Squires, J.R., and R.T. Reynolds. 1997. Northern Goshawk (*Accipiter gentilis*). In *The Birds of North America*, No. 298 (A. Poole and F. Gills, eds.). The Academy of Natural Sciences, Philadelphia, PA, and the American Ornithologists' Union, Washington, D.C.
- Utah Division of Wildlife Resources. 2002. Utah Division of Wildlife Resources Upland Game Information. Located at <http://www.wildlife.utah.gov/uplandgame>. Accessed 9/30/02.
- _____. 2001. Utah big game annual report – 2001. Publication 01-30. Utah Division of Wildlife Resources, Salt Lake City, Utah.
- _____. 2000. Utah upland game annual report – 1999. Publication 00-27. Utah Division of Wildlife Resources, Salt Lake City, Utah.
- _____. 1999. Utah Sensitive Species List. Unpublished Document, Utah Division of Wildlife Resources, Salt Lake City, Utah.
- U.S. Bureau of Land Management (BLM). 1985. The Grand Resource Area Resource Management Plan (RMP). Moab, Utah: Bureau of Land Management, Moab Field Office.
- _____, 1985. The Grand Resource Area Resource Management Plan (RMP). Moab, Utah: Bureau of Land Management, Moab Field Office.
- U.S Fish and Wildlife Service. 1984. American Peregrine Falcon: Rocky Mountain/Southwest Population Recovery Plan. Prepared by the Rocky Mountain/Southwest Peregrine Falcon Recovery Team. Washington D.C.
- _____. 1988. Black-footed Ferret Recovery Plan. Washington D.C.

- ____. 1990a. Bonytail Chub Recovery Plan. Prepared by the Colorado River Fishes Recovery Team; for Region 6, U.S. Fish and Wildlife Service. Washington D.C.
 - ____. 1990b. Humpback Chub Recovery Plan. Prepared by the Colorado River Fishes Recovery Team; for Region 6, U.S. Fish and Wildlife Service. Washington D.C.
 - ____. 1991. Colorado Pikeminnow Recovery Plan. Prepared by the Colorado River Fishes Recovery Team; for Region 6, U.S. Fish and Wildlife Service. Washington D.C.
 - ____. 1999. Razorback Sucker Recovery Plan. Prepared by the Colorado River Fishes Recovery Team; for Region 6, U.S. Fish and Wildlife Service. Washington D.C.
 - ____. 1999. Utah field Office Guidelines for Raptor Protection. Salt Lake City, Utah.
 - ____. 2002. Sage-Grouse Recovery Plan. Washington D.C.
- Zeveloff, S., and F. Collett. 1988. Mammals of the Intermountain West. University of Utah Press, Salt Lake City, Utah. Pp. 288-290.

APPENDIX 16-1

SPECIAL STATUS SPECIES IN GRAND AND SAN JUAN COUNTIES, UTAH

Table 16-1-1. Special Status Mammalian Species Potentially Occurring in Grand and San Juan Counties, Utah			
Scientific Name Common Name	Habitat	Status	Area of Potential and/or Known Occurrence
<i>Mustela nigripes</i> Black-footed ferret	Prairie dog towns associated with open grassland and prairies.	Federally Endangered and BLM Sensitive ^d	May occur throughout eastern Utah, only known population occurs in the Uinta Basin.
<i>Idionycteris phyllotis</i> Allen’s big-eared bat	Rocky and riparian areas in woodland and scrubland regions, roosts in caves or rock crevices.	BLM Sensitive ^b	Throughout southern Utah.
<i>Nyctinomops macrotis</i> Big free-tailed bat	Rocky and woodland habitats, roosts in caves, mines, old buildings, and rock crevices.	BLM Sensitive ^{a/b}	Throughout southern Utah.
<i>Myotis thysanodes</i> Fringed myotis	Desert and woodland areas, roosts in caves, mines, and buildings.	BLM Sensitive ^b	Throughout southern Utah.
<i>Euderma maculatum</i> Spotted bat	Found in a variety of habitats, ranging from deserts to forested mountains; roost and hibernate in caves and rock crevices.	BLM Sensitive ^b	Throughout Utah.
<i>Corynorhinus townsendii</i> Townsend’s big-eared bat	Occur in many types of habitat, but is often found near forested areas; roosts and hibernates in caves, mines, and buildings.	BLM Sensitive ^{a/b}	Throughout Utah.
<i>Cynomys gunnisoni</i> Gunnison’s prairie dog	Grasslands, semidesert and montane shrublands	BLM sensitive	Throughout southeastern Utah
<i>Cynomys leucurus</i> White-tailed prairie dog	Semi desert grasslands and open shrublands	BLM sensitive	Throughout northcentral Utah.
a: Listed by the State of Utah as a species of special concern due to declining population sizes within the state. b: Listed by the State of Utah as a species of special concern due to its limited distribution within the state. c: Listed by the State of Utah as Threatened d: Listed by the State of Utah as Endangered			

Table 16-1-2. Special Status Avian Species Potentially Occurring in Grand and San Juan Counties, Utah

<i>Scientific Name</i> Common Name	Habitat	Status	Area of Potential and/or Known Occurrence
<i>Haliaeetus leucocephalus</i> Bald eagle	Roosts and nests in tall trees near bodies of water.	Federally Threatened and BLM Sensitive ^c	Throughout Utah.
<i>Strix occidentalis lucida</i> (Mexican) spotted owl	Steep rocky canyons.	Federally Threatened and BLM Sensitive ^c	Southern and eastern parts of Utah.
<i>Empidonax traillii extimus</i> Southwestern willow flycatcher	Low scrub, thickets, or groves of small trees, often near watercourses.	Federally Endangered and BLM Sensitive ^d	Throughout southern Utah.
<i>Coccyzus americanus occidentalis</i> (Western) yellow-billed cuckoo	Riparian habitats.	Federal Candidate and BLM Sensitive ^c	Throughout Utah.
<i>Centrocercus minimus</i> Gunnison sage-grouse	Sagebrush and sagebrush/grassland habitats.	Federal Candidate and BLM Sensitive ^{a/b}	Southeastern Utah.
<i>Pelecanus erythrorhynchos</i> American white pelican	Along lakes, ponds, creeks, and rivers.	BLM Sensitive ^b	Throughout Utah.
<i>Dolichonyx oryzivorus</i> Bobolink	Riparian or wetland areas.	BLM Sensitive ^{a/b}	Throughout Utah.
<i>Athene cunicularia</i> Burrowing owl	Open grassland and prairies.	BLM Sensitive ^a	Throughout Utah.
<i>Buteo regalis</i> Ferruginous hawk	Flat and rolling terrain in grassland or shrub steppe; nests on elevated cliffs, buttes, or creek banks.	BLM Sensitive ^c	Throughout Utah.
<i>Centrocercus urophasianus</i> Greater sage-grouse	Sagebrush plains, foothills, and mountain valleys.	BLM Sensitive ^{a/b}	Throughout Utah.
<i>Melanerpes lewis</i> Lewis's woodpecker	Burned-over Douglas-fir, mixed conifer, pinyon-juniper, riparian, and oak woodlands, but is also found in the fringes of pine and juniper stands, and deciduous forests, especially riparian cottonwoods	BLM Sensitive ^{a/b}	High and mid-elevation mountain ranges of Utah.
<i>Accipiter gentilis</i> Northern goshawk	Mature mountain forest and riparian zone habitats.	Conservation Agreement Species	High and mid-elevation mountain ranges of Utah.
<i>Asio flammeus</i> Short-eared owl	Grasslands, shrublands, and other open habitats.	BLM Sensitive ^a	Throughout Utah.

Table 16-1-2. Special Status Avian Species Potentially Occurring in Grand and San Juan Counties, Utah

<i>Scientific Name</i> Common Name	Habitat	Status	Area of Potential and/or Known Occurrence
<i>Picoides tridactylus</i> Three-toed woodpecker	Engelmann spruce, sub-alpine fir, Douglas fir, grand fir, ponderosa pine, tamarack, aspen, and lodgepole pine forests.	BLM Sensitive ^b	High and mid-elevation mountain ranges of Utah.
a: Listed by the State of Utah as a species of special concern due to declining population sizes within the state. b: Listed by the State of Utah as a species of special concern due to its limited distribution within the state. c: Listed by the State of Utah as Threatened d: Listed by the State of Utah as Endangered			

Table 16-1-3. Special Status Amphibian and Reptilian Species Potentially Occurring in Grand and San Juan Counties, Utah.

<i>Scientific Name</i> Common Name	Habitat	Status	Area of Potential and/or Known Occurrence
<i>Bufo microscaphus</i> Arizona toad	Streams, washes, irrigated croplands, reservoirs, and uplands adjacent to water.	BLM Sensitive ^a	Throughout Southwest Utah
<i>Sauromalus ater</i> Common chuckwalla	Predominantly found near cliffs, boulders, or rocky slopes, where they use rocks as basking sites and rock crevices for shelter.	BLM Sensitive ^{a/b}	
<i>Elaphe guttata</i> Cornsnake	Near streams, or in rocky or forest habitats	BLM Sensitive ^{a/b}	
<i>Xantusia vigilis</i> Desert night lizard	Extremely secretive, spending much of its time hiding under Joshua tree limbs and similar cover.	BLM Sensitive ^b	
<i>Opheodrys vernalis</i> Smooth greensnake	Moist grassy areas and meadows.		
<i>Bufo boreas</i> Western toad	Slow moving streams, wetlands, desert springs, ponds, lakes, meadows, and woodlands	BLM Sensitive ^a	
a: Listed by the State of Utah as a species of special concern due to declining population sizes within the state. b: Listed by the State of Utah as a species of special concern due to its limited distribution within the state. c: Listed by the State of Utah as Threatened			

Table 16-1-4. Special Status Fish Species Potentially Occurring in Grand and San Juan Counties, Utah.

<i>Scientific Name</i> Common Name	Habitat	Status	Area of Potential and/or Known Occurrence
<i>Gila elegans</i> Bonytail	Eddies, pools, and backwaters near swift current in large rivers	Federally Endangered and BLM Sensitive ^d	Mainstem of the Colorado and Green rivers

<i>Ptychocheilus lucius</i> Colorado pikeminnow	Adults can be found in habitats ranging from deep turbid rapids to flooded lowlands. Young prefer slow-moving backwaters	Federally Endangered and BLM Sensitive ^d	Mainstem of the Colorado, Green, and San Juan rivers
<i>Gila cypha</i> Humpback chub	Fast, deep, white-water areas	Federally Endangered and BLM Sensitive ^d	Mainstem of the Colorado and Green rivers
<i>Xyrauchen texanus</i> Razorback sucker	Slow backwater habitats and impoundments	Federally Endangered and BLM Sensitive ^d	Mainstem of the Colorado and Green rivers
<i>Catostomus discobolus</i> Bluehead sucker	Fast flowing water in high gradient reaches of mountain rivers	BLM Sensitive ^a	Tributaries of the Colorado and Green rivers
<i>Gila robusta</i> Roundtail chub	Large rivers, and is most often found in murky pools near strong currents	BLM Sensitive ^c	Mainstem and tributaries of the Colorado and Green rivers
<i>Catostomus latipinnis</i> Flannelmouth sucker	Large rivers, where they are often found in deep pools of slow-flowing, low gradient reaches	BLM Sensitive ^a	Mainstem and tributaries of the Colorado and Green rivers
<p>a: Listed by the State of Utah as a species of special concern due to declining population sizes within the state. b: Listed by the State of Utah as a species of special concern due to its limited distribution within the state. c: Listed by the State of Utah as Threatened d: Listed by the State of Utah as Endangered</p>			

Table 16-1-5. Special Status Invertebrate Species Potentially Occurring in Grand and San Juan Counties, Utah.			
<i>Scientific Name</i> Common Name	Habitat	Status	Area of Potential and/or Known Occurrence
<i>Oreohelix Eurekaensis</i> Eureka Mountainsnail	Forested areas.	BLM Sensitive ^b	East Tavaputs Plateau
<i>Oreohelix yavapai</i> Yavapai Mountainsnail	Fairy bowers, coves, and valleys.	BLM Sensitive ^b	Navajo and Abajo Mountains.
<p>b: Listed by the State of Utah as a species of special concern due to its limited distribution within the state.</p>			

APPENDIX 16-2

CONFLICTS AMONG ALLOTMENT USERS, MOAB FO AREA

Appendix 16-2. Conflicts Among Allotment Users, Moab FO Area						
Allotment number	Allotment Name	Livestock Use	Minerals Oil & Gas	Change in Season of Use	Change in Class	Wildlife Conflict
5821	Adobe Mesa	Cattle	X Category1 & 2	X		Mule Deer and Elk critical winter range
	Agate		X Category1			Pronghorn range
5861	Arth's Pasture	Cattle	X Category1			Desert Bighorn range
5803	Athena	Cattle	X Category1			Pronghorn range
5808	Bar-X	Cattle	XXX Category1 & 2	X		Mule Deer and Elk critical winter range/Pronghorn range(southern under cat.1) Rocky mountain Bighorn range(northern)
5817	Behind the Rocks	Cattle	X Category1 & 2			Mule Deer critical winter range
	Beaver Creek		X Category 1 &2			Mule Deer and Elk critical winter range
	Big Triangle		X Category 1 &2			Mule Deer and Elk critical winter range
5857	Big Flat	Cattle	XX Category1	X		Desert Bighorn range/ Pronghorn range
5830	Black Ridge	Sheep/ Cattle	X Category1 & 2			Mule deer critical winter range
	Bogart		No calving/ fawning stip			Elk calving and Deer fawning grounds
5863	Buckhorn	Cattle	XX Category1 & 2 & 3			Mule Deer and Elk critical winter range/Desert Bighorn range
5810	Cisco Mesa	Sheep/ Horse	XXX Category 1 &2	X	X	Mule Deer critical winter range/Pronghorn range(under cat.1) Rocky mountain Bighorn range(northern)
5883	Cisco	Cattle/ Sheep	XXX Category 1 &2	X	X	Mule Deer and Elk critical winter range /Pronghorn range(under cat.1)/Rocky mountain Bighorn range (northern under cat. 1)
5865	Coal Canyon	Cattle	X	X		Rocky mountain Bighorn range

Appendix 16-2. Conflicts Among Allotment Users, Moab FO Area						
Allotment number	Allotment Name	Livestock Use	Minerals Oil & Gas	Change in Season of Use	Change in Class	Wildlife Conflict
5862	Corral Wash	Cattle	XX Category 1	X		Pronghorn range(southern under cat.1)
5884	Corral Wash Canyon	Cattle	XX Category 1 &2			Mule Deer critical winter range/ Pronghorn range (under cat.1) Rocky mountain Bighorn range
	Cotton-wood Canyon		No calving/ fawning stip			Elk calving and Deer fawning grounds
5856	Crescent Canyon	Cattle	XXX Category 1 &2	X		Mule Deer and Elk year critical winter range/Pronghorn range(under cat.1) / Rocky mountain Bighorn range (northern under cat. 1)
	Diamond Canyon		No calving/ fawning stip			Elk calving and Deer fawning grounds
	Dolores Point		X Category 1 &2			Mule Deer and Elk year critical winter range
5386	East Coyote	Cattle	X Category 1 &2			Mule Deer critical winter range
	Elgin		X Category 1			Pronghorn range
5392	Fisher Valley	Cattle	X Category 1 &2			Mule Deer critical winter range
5801	Floy Canyon	Cattle	XX Category 1	X		Pronghorn range (southern) Rocky mountain Bighorn range(northern)
5801	Floy Creek	Cattle	XX Category 1 &2 No calving/ fawning stip			Mule Deer critical winter range /Pronghorn range (southern under cat.1)/ Elk calving and Deer fawning grounds Rocky mountain Bighorn range
	Granite Bench		X Category 1			Mule Deer and Elk year critical winter range
	Green River		X Category 1			Pronghorn range
5825	Harley Dome	Sheep	X Category 1	X	X	Pronghorn range
5389	Hatch Point	Sheep	XXX Category 1	X	X	Mule Deer critical winter range /Pronghorn range/Desert Bighorn range
	Highlands		X Category 1			Pronghorn range

Appendix 16-2. Conflicts Among Allotment Users, Moab FO Area						
Allotment number	Allotment Name	Livestock Use	Minerals Oil & Gas	Change in Season of Use	Change in Class	Wildlife Conflict
5877	Horse Canyon	Horse/ Cattle	XXX Category 1 &2	X		Mule Deer critical winter range/ Pronghorn range (under cat.1)/Rocky mountain Bighorn range(northern under cat.1)
	Horse Thief Canyon		X Category 1			Desert Bighorn range
	Horseshoe Canyon		X Category 1 &3			Desert Bighorn Range
5847	Kane Springs	Cattle/ Sheep	XX Category 1 &2	X	X	Mule Deer critical winter range/Desert Bighorn range
5388	Lisbon	Horse/ Cattle	X Category 1 &2			Mule Deer and Elk critical winter range
5866	Little Grand	Cattle	XX Category 1			Pronghorn range/ Desert Bighorn range
5883	Little Hole	Sheep	X Category 1	X	X	Pronghorn range
5837	Lone Cone	Cattle	X	X		Rocky mountain Bighorn range
	Lower Lisbon		X Category 1 &2			Mule Deer and elk critical winter range
5871	Middle Canyon	Cattle	No calving/ fawning stip	X		Elk calving and Deer fawning grounds Rocky mountain Bighorn range
5811	Monument Wash	Cattle	X Category 1			Pronghorn range
	Mountain Island		X Category 1 &2			Mule Deer and Elk year critical winter range
	North River		X Category 1			Desert Bighorn range and lambing grounds
5822	Pipeline	Sheep	X Category 1	X	X	Pronghorn range
	Polar Mesa		X Category 1			Mule Deer and Elk critical winter range
5863	Potash	Cattle	X Category 1			Desert Bighorn range
5820	Professor Valley	Cattle	XX Category 1			Deer critical winter range
5876	River	Cattle	X Category 1			Desert Bighorn range
	Ruby Ranch		X Category 1			Pronghorn range
5845	San Arroyo	Sheep	X Category 1 No calving/ fawning stip	X	X	Rocky mountain Bighorn/Pronghorn range/ Elk calving and Deer fawning grounds

Appendix 16-2. Conflicts Among Allotment Users, Moab FO Area						
Allotment number	Allotment Name	Livestock Use	Minerals Oil & Gas	Change in Season of Use	Change in Class	Wildlife Conflict
	Scarf Mesa		X Category 1 &2			Mule Deer and Elk critical winter range
	Shower Bath Springs		No calving/fawning stip			Elk calving and Deer fawning grounds
	South Beaver Mesa		X Category 1 &2			Mule Deer and Elk critical winter range
	South Sand Flats		X Category 1			Mule Deer and Elk critical winter range
5802	North Rattlesnake	Cattle	X	X		Rocky mountain Bighorn range
	South Rattlesnake		X Category 1			Mule deer critical winter range
5846	Spring Canyon Bottom	Cattle	X		X	Desert Bighorn range
5843	Steamboat Mesa	Cattle	X Category 1 &2		X	Mule deer critical winter range

APPENDIX 16-3

Appendix 16-3. Pronghorn Range Expansion				
Allotment Name	Active Preference AUMs			Season of Uses
	Sheep	Cattle	Horses	
Athena		1,137		10/20 to 05/20
Agate		716	17	11/15 to 03/15
Bar X		1,700		11/01 to 03/31
Big Flat		5,504		11/15 to 05/31
Crescent Canyon		859		11/12 to 04/11
Cisco	3,923	1,684		11/01 to 05/10 (cattle) 12/01 to 05/10 (sheep)
Cisco Mesa	2,965		104	11/15 to 05/15
Corral Wash	1,720			12/01 to 05/10
Corral Wash Canyon		616		11/01 to 05/10
Elgin		193		11/01 to 04/30
Floy Creek		1,101		11/15 to 04/20
Green River Flat		74		12/01 to 05/31
Harley Dome	1,401			11/15 to 05/12
Horse Canyon		866	168	11/12 to 04/30
Highlands		3,225		11/01 to 05/15
Little Grand		4,180		11/15 to 05/15
Little Hole	990			12/20 to 03/20
Monument Wash		4,714		11/16 to 5/15
Pipeline	1,000			11/01 to 04/30
Ruby Ranch		666		10/01 to 02/28
San Arroyo	4,256			11/10 to 05/25
Squaw Park		617		11/01 to 04/15
Sulphur Canyon	1,961			11/12 to 04/12
Ten-Mile Point		1,830		11/01 to 05/31
Winter Camp	248			12/25 to 5/10
Total	18464	29682	289	