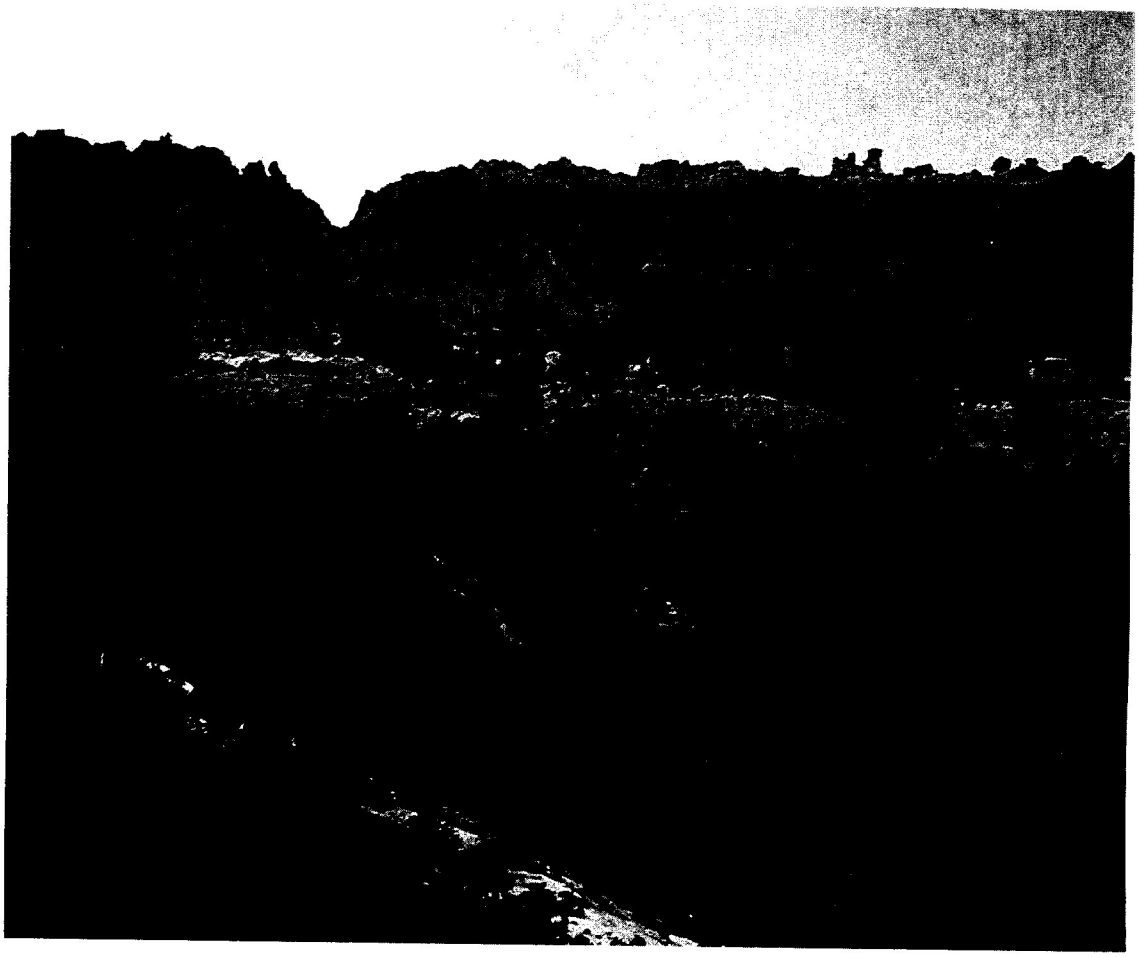
CHAPTER 3.6 EXCERPTED FROM:

Ely Proposed Resource Management Plan/Final Environmental Impact Statement



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COOPERATING AGENCIES:

Great Basin National Park
Humboldt-Toiyabe National Forest
Nellis Air Force Base
Nevada Department of Transportation
Nevada Division of Minerals
Nevada Department of Wildlife
Nevada State Historic Preservation Office

Lincoln County
Nye County
White Pine County
Duckwater Shoshone Tribe
Ely Shoshone Tribe
Moapa Band of Paiutes
Yomba Shoshone Tribe

BLM

ELKO/EELY/NEVADA

3.6 Fish and Wildlife

3.6.1 Aquatic Habitat and Fisheries

Existing Conditions

Aquatic habitat in the planning area includes a mixture of perennial, intermittent, and ephemeral streams, springs, lakes, and reservoirs that support fish (game and native nongame species) and invertebrate species for at least a portion of the year. In total, the planning area contains over 50 perennial stream segments on BLM-administered land (**Table 3.6-1**). Most of the perennial stream segments with game fish species are located in White Pine County. The majority of the lakes and reservoirs in the planning area are located on private or state-administered lands, which are not included in **Table 3.6-1**. BLM-administered land adjoins the boundary of a limited number of the reservoirs in White Pine County (i.e., Cold Creek Reservoir, Bassett Lake, and Comins Lake). Illipah Reservoir is included in this list because the Ely Field Office has developed and maintained recreational facilities (campsites and picnic areas) adjacent to the reservoir. No reservoirs or lakes in Lincoln or Nye counties are adjacent to BLM-administered land. Springs and their associated stream segments provide persistent habitat for fish and aquatic invertebrates. Based on inventories within the planning area, over 2,600 undeveloped springs have been mapped (see **Map 3.3-1**). Spring habitats provide important requirements for aquatic species such as water, food, and cover consisting of bottom substrate and vegetation.

Habitat quality in planning area water bodies depends on numerous factors such as annual precipitation, flow regimes or water volumes, extent of riparian vegetation, diversity of habitat features (i.e., pools, runs, and riffles), bank stability, types of fish cover, food sources, and water quality. Habitat quality varies by stream reach, with forested, higher-elevation stream segments generally containing better conditions compared to low-gradient, non-forested areas. Most of the water bodies located within the planning area are considered low quality aquatic habitat due to the lack of persistent year-round stream flow, relatively high water temperatures, and limited riparian vegetation.

Both cold water and warm water fish species occur in watersheds within the planning area. Cold water fish are represented by trout species such as rainbow, brown, brook, Bonneville cutthroat, and rainbow-cutthroat hybrid. Warm water game fish species include largemouth bass and northern pike. Except for Bonneville cutthroat trout (native species), these species were introduced in Nevada. One of the game species, Bonneville cutthroat trout, also is a BLM-sensitive species and is discussed in Section 3.7, Special Status Species. The occurrence of game fish species in streams, reservoirs, and lakes within the planning area is provided in **Table 3.6-1**. The basis for the list is that at least a portion of the stream segment is located on BLM-administered land. Numerous other streams in the Humboldt National Forest also support trout populations. Trout in these forest streams may move downstream during high flow periods and be present temporarily on BLM-administered land. However, the segments of these streams on BLM-administered land were not included in the list since these segments typically do not provide year-round habitat for aquatic species.

Table 3.6-1
Game Fish Resources in the Planning Area

County/Water Body	Location (Township, Range)	Species
Lincoln		
Beaver Dam Wash	T3S, R71E	Rainbow trout
Clover Creek	T4S, R67E	Rainbow trout
Meadow Valley Wash	T2S, R69E	Rainbow trout, brown trout
Nye		
Cherry Creek	T3N, R57E	Rainbow trout, brown trout
North Fork Cottonwood Creek	T2N, R56E	Brook trout
Forest Home Creek	T6N, R59E	Brown trout
Pine Creek	T3N, R56E	Brook trout
White Pine		
Baker Creek	T13N, R68E	Rainbow trout, brook trout, brown trout
Bassett Creek	T18N, R66E	Rainbow trout
Bassett Lake	T13N, R68E	Northern pike, largemouth bass
Bastian Creek	T15N, R66E	Rainbow trout, brown trout
Big Wash Creek	T12N, R70E	Bonneville cutthroat trout
Bird Creek	T18N, R65E	Rainbow trout, brook trout
Board Creek	T13N, R68E	Rainbow trout, rainbow-cutthroat hybrid
Cherry Creek	T24N, R63E	Rainbow trout
Chin Creek	T25N, R67E	Rainbow trout
Cleve Creek	T16N, R66E	Rainbow trout, brown trout
Cold Creek	T23N, R55E	Rainbow trout
Cold Creek Reservoir	T23N, R55E	Rainbow trout
Comins Lake	T15N, R64E	Rainbow trout, brown trout, northern pike, largemouth bass
Duck Creek	T17N, R65E	Rainbow trout, brown trout, brook trout
Duck Creek	T19N, R63E	Northern pike, largemouth bass
East Creek	T19N, R65E	Rainbow trout
Egan Creek	T22N, R62E	Rainbow trout
Eightmile Creek	T18N, R68E	Rainbow trout
Ellison Creek	T14N, R59E	Rainbow trout
Geyser Creek	T9N, R65E	Rainbow trout, brook trout
Goshute Creek	T25N, R63E	Bonneville cutthroat trout
Hampton Creek	T16N, R70E	Bonneville cutthroat trout
Hendry's Creek	T16N, R70E	Bonneville cutthroat trout
Huntington Creek	T25N, R55E	Brown trout
Illipah Creek	T17N, R59E	Rainbow trout, brown trout
Illipah Reservoir	T17N, R59E	Rainbow trout, brown trout
Indian Creek, Big	T21N, R65E	Rainbow trout, brook trout
Kalamazoo Creek	T20N, R66E	Rainbow trout, brown trout, brook trout
Lehman Creek	T13N, R86E	Brown trout, brook trout, rainbow trout
Mattier Creek	T21N, R64E	Rainbow trout, brook trout
McCoy Creek	T18N, R66E	Rainbow trout, brown trout
Meadow Creek	T19N, R66E	Brown trout
Mill Creek	T14N, R69E	Rainbow trout, Bonneville cutthroat trout
Muncy Creek	T20N, R66E	Rainbow trout, brown trout, cutthroat trout
North Creek	T10N, R65E	Rainbow trout, brook trout
Odgers Creek	T18N, R66E	Rainbow trout

Table 3.6-1 (Continued)

County/Water Body	Location (Township, Range)	Species
Paris Creek	T25N, R62E	Brook trout
Piermont Creek	T19N, R66E	Brown trout
Pine Creek	T13N, R68E	Bonneville cutthroat trout
Pine/Ridge Creeks	T19N, R54E	Bonneville cutthroat trout
Seigel Creek	T22N, R66E	Rainbow trout
Shingle Creek	T13N, R68E	Brown trout, rainbow trout, rainbow-cutthroat hybrid
Silver Creek	T14N, R70E	Rainbow trout, brown trout, brook trout
Snake Creek	T12N, R70E	Rainbow trout, brown trout, brook trout
Steptoe Creek	T16N, R65E	Rainbow trout, brown trout, brook trout
Strawberry Creek	T14N, R69E	Bonneville cutthroat trout
Sunkist (North) Creek	T21N, R65E	Brook trout
Taft Creek	T17N, R66E	Rainbow trout, brook trout
Tailings Creek	T18N, R63E	Brook trout, northern pike
Timber Creek	T18N, R65E	Rainbow trout, brook trout
Unnamed	T16N, R68E	Rainbow trout, brown trout, brook trout
Vipont (Stephens) Creek	T16N, R66E	Rainbow trout
Water Canyon Creek	T19N & T20N, R55E	Rainbow trout, brook trout
White River	T13N, R61E	Rainbow trout, brown trout, brook trout
Willard Creek	T13N, R68E	Rainbow trout, rainbow-cutthroat hybrid
Williams Creek	T13N, R68E	Rainbow trout, rainbow-cutthroat hybrid
Willow Creek	T14N, R63E	Rainbow trout, brown trout

Source: Crookshanks 2004, 2003; Hutchings 2004, 2003; Nevada Department of Wildlife 2003a,b; and Nevada Department of Wildlife 2005a.

Water bodies in the planning area also support native nongame fish species, which mainly comprise the sucker, minnow, and killifish families. Habitat used by native nongame fish species includes perennial streams, springs, spring outflows, reservoirs, and lakes. In general, the sucker species prefer stream habitats, while the killifish species usually are found in springs and slow-moving stream segments. The native minnow species utilize both flowing and standing water environments. Some of the native fish are discussed in Section 3.7, Special Status Species. Several nonnative nongame species such as *Gambusia*, convict cichlid, and shortfin molly affect native fish populations due to predation. Crayfish and bullfrogs also prey on native fish species.

Game fish species in the planning area utilize a variety of habitat conditions. Trout have adapted to a wide range of habitat conditions including lakes, reservoirs, and small to large-size streams (Sigler and Sigler 1987). Cover in the form of undercut banks, instream structure, and overhanging vegetation are important aspects of quality habitat for trout species. Natural reproduction for trout species occurs within numerous stream segments such as Goshute Creek (Bonneville cutthroat trout) and Clover Creek (rainbow trout). Spawning occurs in the spring for these species. Brown trout and brook trout are fall spawners. Largemouth bass and northern pike occur in reservoirs, lakes, and slow-moving streams such as Duck Creek. Both species usually are associated with instream structure and aquatic vegetation (Sigler and Sigler 1987). Largemouth bass is a spring and summer spawner, while northern pike breed in the spring. Habitat preferences and spawning periods for game fish species are provided in **Table 3.6-2**.

Table 3.6-2
Game Fish Habitat Preferences and Spawning

Species	Habitat	Spawning	References
Rainbow trout	Optimum riverine habitat is characterized by clear, cold water with silt-free rocky substrate in riffle-run areas, abundant instream cover, and well-vegetated banks. Lake/reservoir habitat is characterized by clear water, cool temperatures, and available deeper water.	Spring, almost exclusively in streams.	Raleigh et al. 1984
Brown trout	Riverine habitat consists of clear, cool to cold water; a relatively silt-free rocky substrate in riffle-run areas; mixture of pools, riffles and runs; well vegetated streambanks and abundant instream cover. Most cover-oriented of all trout species. Lake/reservoir habitat is the same as described for rainbow trout.	Fall, typically stream spawners.	Raleigh et al. 1986
Cutthroat trout	Habitat preferences are similar to rainbow trout. Cutthroat tend to occupy headwater stream areas when other trout are present in the same river system.	Spring, stream spawners.	Hickman and Raleigh 1982
Brook trout	Habitat preferences are similar to other trout species except that they are quite adaptable to a headwater streams, large rivers, ponds, and large lakes. Species is most commonly found in headwater streams.	Fall, stream spawners but utilize spring upwelling areas of lakes and ponds.	Raleigh 1982
Largemouth bass	Riverine habitat preferences include large, slow-moving rivers or pools of streams with soft bottoms and some aquatic vegetation. Lake/reservoir habitat conditions include excessive shallow areas with submergent vegetation and some deeper water.	Spring, usually in lakes/reservoirs.	Stuber et al. 1982

Trends

Limited information is available to make documented statements about trends in aquatic habitat quality or fish populations in the planning area. Habitat surveys have been conducted by the Nevada Department of Wildlife and the Ely Field Office in some streams during the past 5 years, but in most cases, previous data are lacking for comparison and trend analysis (Crookshanks 2003). Stream segments on BLM-administered land exhibit varying habitat conditions from low to moderate quality habitat. Fish population numbers are not monitored or censused on a frequent basis. Most of the streams listed in **Table 3.6-1** maintain viable fish populations through natural spawning. Stream stocking only occurs in upper White River, Cleve Creek, and Steptoe Creek, and is used to supplement natural spawning in these popular fishing streams.

Threats to native and nonnative fishes in the planning area include habitat alterations, water depletions, disease, predation, competition, and hybridization. Climatic events involving drought have contributed to reduced water levels for aquatic species.

Current Management

In Nevada, fish species and their habitat in public waters are managed cooperatively by the BLM and the Nevada Department of Wildlife to provide optimal habitat for fish species. The Nevada Department of Wildlife determines the species being managed (both game and nongame) and the management policies involving fishing regulations and habitat protection. Management direction and guidance are provided by Nevada Administrative Code, Chapter 503 – Hunting, Fishing and Trapping/Miscellaneous Protective Measures. The Federal Land Policy and Management Act of 1976 also states that public lands would be managed in a manner "...that will provide food and habitat for fish and wildlife..." Beneficial use for aquatic life is included in all Nevada water quality classifications (A, B, C, and D) (see Section 3.3, Water Resources). The Recreational Fisheries Conservation Plan Implementation Strategy (Implementation Memorandum WO-97-053) also identified a goal to increase fishing opportunities nationwide through conservation, restoration, and enhancement of aquatic systems and fish populations by increasing fishing access, education, and partnership opportunities.

The Nevada Department of Wildlife has prepared fisheries management plans for several reservoirs (Cold Creek and Illipah) that are bordered by BLM-administered land or have adjacent recreational facilities maintained by the Ely Field Office (Nevada Department of Wildlife 1996; Haskins 1989). Trout species are managed using various coldwater fishery concepts under the *Nevada Coldwater Fishery Program Management Concepts*. Fishery management concepts for these reservoirs are listed in **Table 3.6-3**.

Stocking efforts have involved trout releases in a selected number of reservoirs and stream segments such as rainbow trout in Cave Lake, Cleve Creek, Steptoe Creek, White River, Comins Lake, Illipah Reservoir, and Cold Creek Reservoir in White Pine County (Nevada Department of Wildlife 2003b). No recent stocking has been done in water bodies on BLM-administered land in Lincoln County. In 2003, Nevada Department of Wildlife stocked rainbow trout and brown trout in Eagle Valley and Echo Canyon reservoirs. Some of these fish may have been washed downstream (e.g., to Meadow Valley Wash). Limited fishing exists in the Meadow Valley Wash segments bordered by BLM-administered land.

Table 3.6-3
Reservoir Fishery Management

Reservoir	Concept	Objectives
Cold Creek	Quality Fishery	Meet harvest objectives of 0.5 fish per hour (2 fish per day) with harvested fish being 50 percent larger than stocking size, while maintaining carryover of 30 percent of the year's stocked fish.
Illipah	General Quality Fishery	Meet harvest rates of 2.0 to 2.5 fish per angler and 0.5 to 0.75 per hour, with harvested fish being 75 percent larger than stocking size (and 25 percent being at least 50 percent larger than stock size). Harvest rates should be attainable in all but low water years.

3.6.2 Wildlife

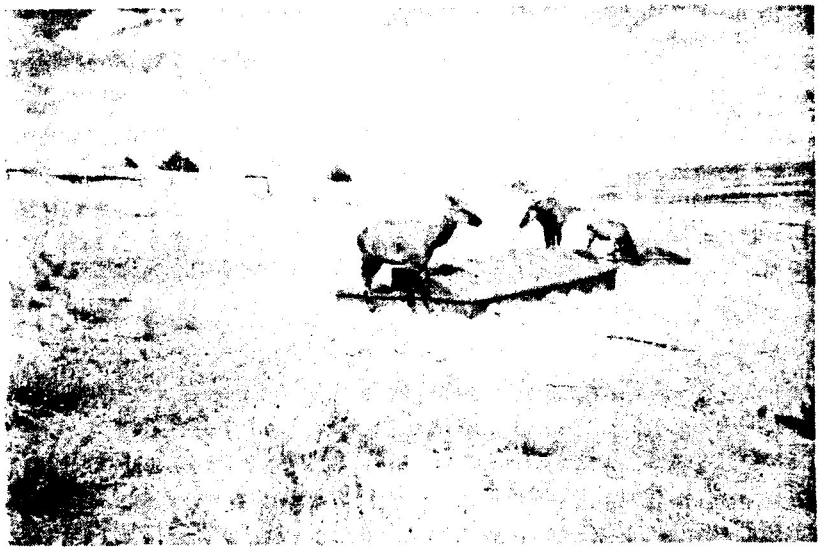
Existing Conditions

A diversity of wildlife resources typical of the Great Basin and the Mojave Desert ecological systems occupy a variety of wildlife habitats in the planning area. The vegetation types or communities that comprise the primary wildlife habitats in the planning area include sagebrush, pinyon-juniper woodland, and salt desert shrub. Other, less abundant wildlife habitats that occur in the planning area include high elevation conifer/aspen forests, Mojave Desert shrub, and riparian/wetland habitats (see Section 3.5, Vegetation). The riparian habitat associated with wetlands and perennial stream channels is considered the highest value habitat for area wildlife. Available water for wildlife consumption and riparian vegetation for cover, breeding, and foraging are the predominant limiting factors for wildlife in the planning area. Therefore, riparian habitats, particularly those with multistoried canopies and open (free) water, typically support a greater diversity and population density of wildlife than the drier, upland habitats.

Surface water sources potentially available to wildlife are described in Section 3.3, Water Resources. Riparian and associated wetlands range from lower-elevation lakes, streams, wetlands, stock ponds, or isolated springs that primarily are composed of small, narrow drainages or moist soils with scattered patches of emergent vegetation to higher-elevation springs that maintain a greater-value riparian habitat for wildlife use. Important habitat characteristics for wildlife include the amount of open water; the extent of both woody and herbaceous vegetation for cover, foraging, and breeding activities; the quality of plant communities relative to the long-term use by wildlife (i.e., community longevity); and the diversity of plant species present.

Big Game. Big game species within the planning area consist primarily of Rocky Mountain elk, mule deer, pronghorn antelope, and desert bighorn sheep. Other big game species within the planning area include Rocky Mountain bighorn sheep, mountain goat, and mountain lion.

Rocky Mountain Elk. Rocky Mountain elk occur in a wide variety of habitats from low to upper elevations within the planning area. Summer habitats include ponderosa pine, white fir, mixed conifer, Engelmann spruce, aspen, and higher elevation pinyon-juniper woodlands and meadows above 6,200 feet in elevation. Winter habitat consists primarily of pinyon-juniper woodlands and sagebrush-grasslands between 5,000 and 9,500 feet in elevation. Pinyon-juniper, aspen, mixed-conifer forests, and mountain mahogany provide thermal and escape cover. Shrub species, including antelope bitterbrush and sagebrush, also provide important cover and forage for elk. Although elk forage largely on grass species, they also consume a wide variety of forbs and shrubs (BLM 2001c). Important elk ranges within the planning area are presented in **Map 2.4.6-1**.



After being eliminated from most of their range in eastern Nevada in the early settlement period, Rocky Mountain elk were reintroduced to White Pine County in a series of releases, with the first release of Yellowstone elk occurring in 1932. Augmentation releases occurred in the late 1980s, early 1990s, and in 2001. Elk also are reported to have immigrated into the planning area from transplanted populations in western Utah (Lincoln County Elk Management Technical Review Team 1999). Elk presently occupy many mountain ranges within the planning area. The largest herd occurs in the Egan and Schell Creek ranges of the Nevada Department of Wildlife Management Areas 11 and 22. Since the late 1990s, elk populations in Lincoln and White Pine counties have been managed under the guidance of the Lincoln and White Pine Elk Management Sub-plans to the Statewide Elk Species Management Plan. These management sub-plans established population objectives by management unit.

Pronghorn Antelope. From 1950 to 2003 Nevada Department of Wildlife has released a total of 2,310 pronghorn antelope statewide, including White Pine, Lincoln, and Nye counties. Currently, pronghorn are found in all major valleys in White Pine County, and in the central and northern portions of Lincoln and Nye counties within the planning area (Nevada Department of Wildlife 2003c). Pronghorn prefer gently rolling to flat topography that provides good visibility of the surrounding area. The majority of Nevada's pronghorn inhabit Great Basin sagebrush/grassland habitat types. Water is a key component of pronghorn habitat. The amount of drinking water required for pronghorns is related both to maximum air temperatures and the amount of moisture in the forage (Nevada Department of Wildlife 1983). Pronghorn diet consists of grasses, forbs, and browse plants. Within the planning area, pronghorn depend on sagebrush for both food and cover. Other important forage species include antelope bitterbrush, saltbush, rabbitbrush, cheatgrass, Indian ricegrass, and shadscale. During the summer, pronghorn are widely distributed throughout the valleys and mountain foothills and primarily are associated with low sagebrush habitat with mixed vegetation

(i.e., grasses, forbs, and shrubs). Important pronghorn ranges within the planning area are presented in **Map 2.4.6-2**.

Mule Deer. Mule deer are widespread within the planning area and typically are associated with middle to upper elevations. Habitat for mule deer within the planning area includes big sagebrush, low sagebrush, shadscale, and grasslands. Deer generally are classified as browsers, foraging primarily on forbs and shrubs. However, the importance of forage type tends to vary by season and climate. Forbs and grasses are an integral part of the mule deer diet during the spring and fall growth seasons when succulence is greatest. Shrubs are utilized more heavily during dry summer and winter periods. Important forage on range for mule deer includes snowberry, sagebrush, serviceberry, antelope bitterbrush, and mountain mahogany. Mountain mahogany and pinyon-juniper woodlands are important for thermal and escape cover during winter. During summer, mule deer tend to rely on riparian and mountain sagebrush communities. Important mule deer ranges within the planning area are presented in **Map 2.4.6-3**.

Rocky Mountain Bighorn Sheep. Rocky Mountain bighorn sheep prefer high, steep rocky slopes that are in close proximity to suitable feeding sites. Primary forage includes grasses, grass-like plants, forbs, and shrubs. Twelve Rocky Mountain bighorn sheep were reintroduced to Mount Grafton in the late 1980s. To date, limited populations of Rocky Mountain bighorn sheep occur on Mount Moriah and Mount Wheeler in White Pine County, and on Mount Grafton in Lincoln County (see **Map 2.4.6-4**).

Desert Bighorn Sheep. Typical desert bighorn sheep habitat consists of rough, rocky, and steep terrain, broken by canyons and washes. Bighorn sheep require access to freestanding water during the summer months, and throughout the year during drought conditions. The diet of bighorn sheep consists primarily of grasses, shrubs, and forbs. Preferred species include squirreltail grass, galleta grass, big sagebrush, winterfat, shadscale, and Mormon tea (Nevada Department of Wildlife 1978).

Historically, the desert bighorn occupied suitable habitat in all 17 counties throughout Nevada. However, due to a multitude of various land and resource uses associated with the westward expansion of humans, desert bighorns became extirpated from much of their range in Nevada. By 1960, the distribution of desert bighorns was restricted to five counties in Nevada including Clark, Lincoln, Nye, Esmeralda, and White Pine. Of the remaining desert bighorn populations, those considered the most significant were located in Clark and Lincoln counties. In 1936, 1.5 million contiguous acres were established in these two counties as the Desert National Wildlife Range to primarily benefit desert bighorn conservation. In addition to establishing the Desert National Wildlife Range, considerable funding and effort has been expended in subsequent decades by state and federal agencies, as well as private organizations, to stabilize and expand Nevada's bighorn sheep populations. These efforts include habitat enhancement projects within potentially suitable habitat.

From the late-1980s to present, the Nevada Department of Wildlife has been reintroducing desert bighorn sheep into a number of mountain ranges within the planning area including the Egan, Hiko, South Pahroc, and the Delamar ranges (Scott 2004). These releases were conducted as a result of a number of habitat management plans that evaluated bighorn sheep habitat suitability for potential reintroduction or augmentation in the planning area (BLM – Nevada Department of Wildlife 1987, 1989, 1991; BLM 1987a,b).

Subsequent to the releases, sheep have expanded their distribution to the Mount Irish Range. The primary limiting factors to the success of these reintroductions is the spread of disease from domestic sheep that graze in areas adjacent to reintroduction sites (see Section 4.1.4.4) and restrictions/limitations on movement/migration (Scott 2004). A few desert bighorn sheep were released at the southern tip of the Pahranagat Range in 1991 in a cooperative noise disturbance study with the U.S. Air Force (Nevada Department of Wildlife 2005a). Potential bighorn sheep habitat within the planning area is presented in **Map 2.4.6-4**.

Mountain Goat. Mountain goat habitat consists of steep rocky cliffs, projecting pinnacles, ledges, and talus slopes. Mountain goats are limited to the northwestern-most portion of the planning area boundary in the southern reaches of the Ruby Mountains (Nevada Department of Wildlife Management Unit 103) on U.S. Forest Service-administered lands and in the vicinity of Bald Mountain (Nevada Department of Wildlife Management Unit 108). They are not known to be full-time residents of the planning area (Nevada Department of Wildlife 2005a).

Mountain Lion. Mountain lions occupy the higher mountain elevations within the planning area, but would move down into the lower elevations following the resident mule deer populations. This species is managed as a game species by the Nevada Department of Wildlife. In some areas of livestock or wildlife predation, they are controlled as a predator species by Wildlife Services. From 2002 to 2003, the planning area accounted for 46 mountain lions and approximately 32 percent of the statewide mountain lion harvest. The average mountain lion harvest within the planning area from 1998 to 2003 was 67 lions and approximately 41 percent of the statewide harvest.

Small Game. Examples of upland game birds in the planning area include greater sage-grouse, blue grouse, chukar partridge, Gray (Hungarian) partridge, mourning dove, Gambel's quail, and Rio Grande and Merriams turkey. Although the greater sage-grouse is a small game species, it also is considered a special status species and is discussed in Section 3.7, Special Status Species.

Blue grouse occupy open stands of conifer or aspen with an understory of brush. Winter habitat consists of dense conifers at higher elevations. Chukar partridge occur at low to upper elevations of mountain ranges in the planning area and typically are associated with more rugged slopes, canyons, and drainages in proximity to open water. The limiting factor for chukar is water availability during the late summer months when daytime temperatures are at their maximum and water is least available. The gray (Hungarian) partridge is considered widespread but not common and is associated with grassland, shrubland, and agricultural areas. Mourning dove is one of the more commonly observed game species within the planning area, particularly during the spring, summer, and early fall. Mourning dove typically prefer habitats in close proximity to sources of open water. Gambel's quail occur in scrublands and brushy thickets of the Mojave Desert ecological system, and in agricultural areas. Rio Grande turkey releases within the planning area boundary have occurred in southern Lincoln County since early 1999. However, because brood surveys have not been conducted in Lincoln County, the status of this species is unknown (Nevada Department of Wildlife 2003b). Recently, releases also have occurred on the east side of the Snake Range near Baker in White Pine County. Rio Grande turkeys prefer riparian woodlands associated with oak-pine and pinyon-juniper woodlands.

Small game mammal species that are found in the planning area include pygmy and cottontail rabbits.

Common waterfowl that occupy open water and wetland habitats within the planning area include American coot, mallard, green-winged teal, and Canada geese. Other waterfowl that occur in the planning area include gadwall, pintail, and a variety of diving ducks (e.g., lesser scaup, canvasback, and redhead).

Furbearers that occur within the planning area include bobcat, beaver, muskrat, coyote, red fox, gray fox, and kit fox.

Nongame Species. A diversity of nongame species (e.g., small mammals, raptors, passerines, amphibians, and reptiles) occupy a variety of trophic levels and habitat types within the planning area. Nongame mammal species in the study area include a variety of shrews, bats, ground squirrels, rabbits, woodrats, and mice. These small mammals provide a substantial prey base for area predators including mammals (e.g., coyote, fox, badger, skunk), raptors (e.g., eagles, buteos, and owls), and reptile species.

Migratory Birds. Some of the more common bird species that occur within the planning area include a wide range of neotropical migrant species such as sage thrasher, lark sparrow, Brewer's sparrow, and chipping sparrow. These bird species are considered integral to natural communities and commonly are viewed as environmental indicators based on their sensitivity to environmental changes caused by human activities. Other bird species that occur within wetland habitats include American bittern, killdeer, common snipe, long-billed curlew, American avocet, willet, and a variety of sandpiper species.

Many raptor species also are known to breed within the planning area including eagles (golden eagle), falcons (prairie falcon, American kestrel, and peregrine falcon), accipiters (sharp-shinned hawk, Cooper's hawk, goshawk), buteos (ferruginous hawk, red-tailed hawk, Swainson's hawk), northern harrier, and owls (e.g., great-horned owl, burrowing owl, long-eared owl, and short-eared owl).

Examples of migratory birds and their associated habitats that are of management concern in the Great Basin include the following:

- Sagebrush Shrubland (Sagebrush Obligate) Species – sage thrasher, sage sparrow, and Brewer's sparrow.
- Shrubland Species – green-tailed towhee, black-throated sparrow, and lark sparrow.
- Shrubland and Grassland Species – loggerhead shrike.
- Grassland Species – long-billed curlew and vesper sparrow.
- Dry Woodland Species – gray flycatcher.

- Riparian Species – MacGillivray's warbler, willow flycatcher, orange-crowned warbler, and yellow-breasted chat.

- Pinyon-juniper Woodland Species – pinyon jay, gray vireo, juniper titmouse, black-throated gray warbler, and ferruginous hawk.

Trends

Habitat Trends. In recent years, land management direction, long-term climatic shifts, and the introduction and spread of noxious weeds and exotic species have resulted in substantial alterations of wildlife habitats and degraded rangeland within the Great Basin and Mojave Desert ecological systems (Dobkin et al. 1998, Fleischner 1994, Jones 2000, National Research Council 1994). These changes are discussed in greater detail in Section 3.5.2.

The sagebrush community provides food and cover for about 100 bird species, 70 mammal species, and 23 amphibian and reptile species, including a number of important game species (e.g., mule deer, pronghorn, Rocky Mountain elk, Rocky Mountain bighorn sheep, greater sage-grouse, Gray partridge, and valley quail) within the planning area (BLM 2000c). However, with the establishment of cheatgrass and other exotic vegetation (e.g., red brome, and medusa head) over the last 25 years (West 1994), sagebrush and other shrub communities such as salt desert scrub, have been converted to an exotic-dominated environment that provides little or no food for wildlife (BLM 2001b, 2000a). Rowland et al. (2003) estimates that approximately 3.06 million acres of vegetation (including 1.11 million acres of sagebrush vegetation) is at risk of displacement from cheatgrass invasion in the planning area. Conversely, some sagebrush communities at mid to low elevations have stagnated as late phase sagebrush communities, resulting from decades of altered fire regimes and poor grazing management. Because of altered fire regimes and poor grazing management within sagebrush communities, the overall habitat trends have been loss or reduction of important grass and forb species for wildlife consumption and a reduction in overall habitat quality for wildlife that depend on these resources. In addition, displacement of sagebrush by the expansion of pinyon-juniper woodlands has placed additional stress on the sagebrush ecological system, which has been severely reduced in area and degraded in habitat quality (Connelly et al. 2004). It is estimated that the planning area has the largest amount of sagebrush (greater than 1.41 million acres) managed by the Nevada BLM that is at high risk of displacement by pinyon-juniper (Rowland et al. 2003).

As discussed in Section 3.5, Vegetation, recent trends within the pinyon-juniper woodland community include increasing age and density of trees, increasing establishment of woody species within ecological conditions that typically support shrub-dominated and grassland communities, and decreasing herbaceous understory as a result of increased tree density. Although these trends benefit species that occur primarily in woodland habitats, these trends also lead to loss in forage (grass and forb) production within dense stands and a reduction of species diversity.

As discussed above, riparian habitat is considered the highest value habitat for area wildlife. In the Great Basin region, as elsewhere throughout the Intermountain West, riparian habitats are considered crucial centers of biodiversity (Dobkin et al. 1998), providing essential wildlife habitat for breeding, wintering, and

migration (Fleischner 1994). One of the most substantial riparian habitats in the planning area is Meadow Valley Wash, which drains through both the Great Basin and Mojave Desert ecological systems. Declines in native riparian habitats throughout the West and Great Basin are attributed to extensive livestock grazing (both past and present), wild horse use, water developments that divert water, and invasive weeds.

Species Trends.

Elk. In general, elk have been increasing both numerically and geographically throughout the planning area with slight to moderate upward trends depending on the management area. However, populations generally remain within the objectives of the existing management plans.

Mule Deer. Mule deer have experienced declining trends throughout the planning area, as in other areas of the West but remain above historic levels (Nevada Department of Wildlife 2005a). Contributing factors to declining population trends include habitat degradation, pinyon-juniper increase, invasive species, poorly managed grazing, wildland fire, and drought (Wasley 2004).

Pronghorn. Pronghorn populations within the planning area have experienced static to upward trends over the last 10 years but remain below historic levels (Nevada Department of Wildlife 2005a). However, the prolonged drought conditions have slowed population growth or resulted in slightly declining pronghorn population trends in the planning area.

Rocky Mountain Bighorn Sheep. Rocky Mountain bighorn sheep populations in the Snake Range in White Pine County are stable at low population numbers. However, bighorn sheep populations on Mount Grafton in Lincoln County have been reduced to only a few individuals (Scott 2004).

Desert Bighorn Sheep. Desert bighorn sheep populations have experienced a slight downward trend from 2002. This trend is attributed to severe drought conditions that have resulted in an overall reduction in lamb recruitment (Nevada Department of Wildlife 2003d). Overall, desert bighorn sheep populations remain well below historic levels and distribution.

Mountain Lion. The mountain lion population trend in the planning area is considered to be stable; however, future trends of mountain lions within the planning area would depend on status and trends of area deer herds (Nevada Department of Wildlife 2003d).

Small Game and Non-game Species. In general, these species' populations fluctuate over short time periods in response to weather cycles and longer term habitat trends, which are discussed above. Greater sage-grouse and pygmy rabbits are discussed under Section 3.7, Special Status Species.

Migratory Birds. Many migratory bird species in the planning area have negative or unknown population trends, with some showing a stable or increasing population trend. Landscapes in the planning area are complex and variable. Grasslands may naturally transition into shrublands and then into woodlands. In addition, sagebrush and grassland habitats across the West have been altered by a century of settlement, livestock grazing, agriculture, weed invasion, and changes in wildfire frequency. Since certain

species have adapted to specific habitat types, these changes in habitat condition and abundance have had negative effects on certain migratory birds. Habitat changes may result in increases in the populations of some bird species at the expense of other bird species. Thus, there is no change that will benefit or adversely affect all migratory bird species.

Current Management

The Ely Field Office manages wildlife habitat on the public lands, and the Nevada Department of Wildlife manages wildlife populations on these public lands. Management direction and guidance for wildlife is provided by the Nevada Administration Code, Chapters 502, 503, and 504, and Nevada Revised Statutes 502, 503, and 504. The Nevada Department of Wildlife provides recommendations to the Ely Field Office relative to managing habitat for wildlife species.

Management guidelines and objectives for elk management within the planning area are presented, in general, in the Statewide Elk Species Management Plan and the Central Nevada Elk Management Plan, and more specifically, in the White Pine County and Lincoln County Elk Management Plans. The county management plans present short- and long-term management actions and strategies that are designed to meet the requirements of an elk management sub-plan as referenced in the statewide elk plan and Assembly Concurrent Resolution Number 46.

Management guidelines and objectives for Rocky Mountain bighorn sheep habitat are presented in the Bighorn Sheep Management Plan – 2001 (Nevada Department of Wildlife 2001a). Current management for Rocky Mountain bighorn sheep habitat is focused on managing historic remote summer habitat as yearlong habitat since lower elevation winter habitat currently is inadequate for wintering sheep because of existing land management practices.

Management guidelines and objectives for desert bighorn sheep habitat are presented in the Meadow Valley – Arrow Canyon – Delamar Habitat Management Plan (BLM 1991), the Pahranagat Habitat Management Plan (BLM 1989), the North Hiko Range Habitat Management Plan (BLM 1987a), the South Hiko Habitat Management Plan (BLM 1987b), and the Bighorn Sheep Management Plan – 2001 (Nevada Department of Wildlife 2001a). Current management for desert bighorn sheep habitat is focused on managing historic remote summer habitat as yearlong habitat since lower elevation winter habitat currently is inadequate for wintering sheep because of existing land management practices.

Guidelines for pronghorn management are presented in the Policy for the Management of Pronghorn Antelope (Nevada Department of Wildlife 2003e).

Migratory birds are protected under the Migratory Bird Treaty Act (16 U.S. Code 703-711) and Executive Order 13186 (66 Federal Register 3853). A list of Birds of Conservation Concern was developed as a result of a 1988 amendment to the Fish and Wildlife Conservation Act. This legislation mandates that the U.S. Fish and Wildlife Service "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973." The goal of the Birds of Conservation Concern list is to prevent or remove the need

for additional Endangered Species Act bird listings by implementing proactive management and conservation actions. As a result, Birds of Conservation Concern species would be consulted on in accordance with Executive Order 13186 (U.S. Fish and Wildlife Service 2002a). A total of 29 Birds of Conservation Concern potentially could occur within the Great Basin ecological system of the planning area, and 28 Birds of Conservation Concern potentially could occur within the Mojave Desert ecological system of the planning area (U.S. Fish and Wildlife Service 2002a). (See **Table 3.6-4**.)

Partners in Flight is a multi-faceted organization with the goal of documenting and reversing population declines of neotropical migratory birds and improving their habitats. Partners in Flight Priority Bird Species that potentially could occur within plant communities in the planning area are identified in the Nevada Partners in Flight Bird Conservation Plan (Nevada Partners in Flight 1999).

A draft Memorandum of Understanding among the BLM, U.S. Forest Service, and U.S. Fish and Wildlife Service was drafted pursuant to Executive Order 13186 to promote conservation and protection of migrating birds. Specific measures to protect migratory bird species and their habitats have not been identified within the Executive Order document, but instead, the Executive Order provides guidance to agencies to promote best management practices for the conservation of migratory birds. As a result, the Nevada State BLM prepared Migratory Bird Best Management Practices for the Sagebrush Biome to assist BLM field offices in the consideration of migratory birds in land management activities (U.S. President 2001).

Table 3.6-4
Migratory Birds of Conservation Concern Within the Planning Area

Species[1]	Great Basin Region	Mojave Desert Region
Yellow rail	X	
Black rail		X
Gull-billed tern		X
Black skimmer		X
American golden-plover	X	
Mountain plover		X
Snowy plover	X	X
American avocet	X	
Solitary sandpiper	X	
Whimbrel	X	X
Long-billed curlew	X	X
Marbled godwit	X	X
Red knot		X
Sanderling	X	
Wilson's Phalarope	X	
Yellow-billed cuckoo	X	X
Black swift	X	
Lewis' woodpecker	X	
Gila woodpecker		X
Williamson's sapsucker	X	
White-headed woodpecker	X	
Gilded flicker		X
Loggerhead shrike	X	X
Bell's vireo		X
Gray vireo	X	X
Bendire's thrasher		X
Crissal thrasher		X
Le Conte's thrasher		X
Yellow warbler		X
Virginia's warbler	X	
Brewer's sparrow	X	
Rufous-winged sparrow		X
Black-chinned sparrow		X
Sage sparrow	X	X
Lark bunting		X
Tricolored blackbird	X	X
Lawrence's goldfinch		X

[1] Bird species were taken from the U. S. Fish and Wildlife Service Birds of Conservation Concern 2002 (U.S. Fish and Wildlife Service 2002).