

CHAPTER 3

AFFECTED ENVIRONMENT

WILDLIFE

Terrestrial

The Bureau of Land Management administers over 260,000,000 acres of terrestrial wildlife habitat on the public lands in the western states. These public lands sustain a nationally significant, rich heritage with an abundance and diversity of fish and wildlife. The federal lands provide seasonal or permanent habitat for more than 3,000 species of mammals, birds, reptiles, amphibians, and fish. Increasing human populations in the west are placing ever increasing demands for consumptive as well as non-consumptive uses. All these species and their genetic differences are significant for their aesthetic, recreational, and scientific values.

Livestock grazing has been a widespread and significant influence on all of the wildlife habitats and species on the public lands since the introduction of livestock in the late 1700s. Livestock grazing is the most widespread economic use of public lands in the West. The grazing of domestic livestock has been highly contentious due the competing social, economic, natural, and economical values. Grazing has been particularly destructive in ecosystems where native grazing animals were scarce or absent (Mack and Thompson 1982, Milchunas et al. 1988, Schlesinger et al. 1990).

Jones (2000) systematic review of the scientific literature principal objective was to quantitatively synthesize the effects of cattle grazing on arid western rangelands. Eleven of 16 analyses (i.e., 69%) revealed significant detrimental effects of livestock grazing on arid rangelands. Grazed areas had reduced cryptogammic crust cover, reduced infiltration rates, significantly greater soil loss to erosion, significantly reduced litter biomass, cover, seedling survival, total vegetation biomass and grass and shrub cover compared to ungrazed areas.

Temperate Desert

The temperate desert generally occurs within the Columbia Plateau/Great Basin and is a large and complex region that is relatively arid due to its position in the rain shadow of the adjacent western mountain ranges (Cascade Mts. and Sierra Nevada Mts.). The vegetation complexes are dominated by sagebrush, pinyon/juniper woodlands, mountain shrub, ponderosa pine, lodgepole pine/subalpine fir forests, grasslands, and some very significant wetlands.

Shrub-steppe ecosystems in this region did not evolve with large herbivores, such as livestock. Subsequently, the grasses of this region were evolutionarily unprepared for introduced large herbivores (Mack and Thompson 1982). The result was the loss of native grasses and forbs, reduction in grass and forb cover, increased shrub cover, and increased non-native forbs and grasses.

Mammals typical of this region include pygmy rabbit (*Brachylagus idahoensis*), mule deer (*Odocoileus hemionus*), Rocky Mt. elk (*Cervus canadensis*), pronghorn (*Antilocapra americana*), bighorn sheep (*Ovis canadensis*), mountain lion (*Felis concolor*), bobcat (*Lynx rufus*), coyote (*Canis latrans*), kit fox (*Vulpes velox*), and numerous species of squirrels and voles. Reptiles and amphibians typical of the region include sagebrush lizard (*Sceloporus graciosus*) and western rattlesnake (*Crotalus viridis*),

Temperate Steppe

The temperate steppe generally occurs within the Colorado Plateau/Wyoming Basin and is a complex of mountain ranges dominated by a variety of coniferous forest types, interspersed with aspen communities, pinyon/juniper woodlands, separated by the tablelands of the Colorado Plateau. The Colorado Plateau/Wyoming Basin are also occupied by mule deer, Rocky Mt. elk, and pronghorn.

Tropical/Subtropical Steppe

The tropical/subtropical steppe and is characterized by shortgrass prairie in an arid region in the rainshadow of the Rocky Mts. that has greatly reduced vegetation stature and diversity, as well as the significant playa lakes shorebird/waterfowl wintering areas. Precipitation increases from west to east and temperature increases from north to south. These climatic gradients have created the lush tallgrass prairie east of the 100th meridian, midgrass prairie in the northwestern plains, and shortgrass prairie in the west-central plains (Bailey 1978). Livestock grazing has reduced fire frequency and intensity through consumption of fine fuels and thereby encouraging woody plant invasions (Bock et al. 1993). Historically, American bison (*Bos bison*) played a significant role in the ecosystem that favored short grass preferring species such as mountain plover (*Charadrius montanus*) and burrowing owl (*Athene cunicularia*). The shortgrass prairie was also home to the wolf (*Canis lupus*), as well as elk.

Tropical/Subtropical Deserts (Mojave, Sonoran and Chihuahuan)

The tropical/subtropical deserts include the Mojave, Sonoran and Chihuahuan deserts that are comprised of arid scrublands and grasslands at the lower elevations, oak-juniper woodlands and coniferous forests in the higher elevations. Historic livestock grazing degraded many grasslands in permanent desert scrub (Schlesinger et al. 1990). Historically, pronghorn occurred in all of the major valleys; wild turkey (*Meleagris gallopavo*) and grizzly bears (*Ursus arctos*) occurred in all major riparian areas; and wild turkey and black bear (*Ursus americanus*) in all mountain ranges. Reptiles include the desert tortoise (*Gopherus agassizii*).

Grazing by native ungulates historically was widely scattered and of low intensity. However, excessive grazing pressure has been responsible for the loss of many of these ecosystems

Migratory Birds

Executive Order 13186 (Responsibilities of Federal Agencies To Protect Migratory Birds) recognized that migratory birds are of great ecological and economic value to America and to other countries. They contribute to biological diversity and bring tremendous enjoyment to millions of Americans who study, watch, feed, or hunt these birds throughout the United States and other countries. The United States has recognized the critical importance of this shared resource by ratifying international, bilateral conventions for the conservation of migratory birds. Such conventions include the Convention for the Protection of Migratory Birds with Great Britain on behalf of Canada 1916, the Convention for the Protection of Migratory Birds and Game Mammals-Mexico 1936, the Convention for the Protection of Birds and Their Environment-Japan 1972, and the Convention for the Conservation of Migratory Birds and Their Environment-Union of Soviet Socialist Republics 1978.

These migratory bird conventions impose substantive obligations on the United States for the conservation of migratory birds and their habitats, and through the Migratory Bird Treaty Act (Act), the United States has implemented these migratory bird conventions with respect to the United States. This Executive Order directs Executive departments and agencies to take certain actions to further implement the Act.

Birds are particularly responsive to changes in their physical environment, that is, the structures of habitats in they nest and forage (Cody 1985). Livestock grazing that results in dramatic physical changes in the environment, such as conversion of grassland habitats to shrublands, have had the greatest adverse impact on native birds.

Table 1 is the “Watch List” from Partners in Flight, a voluntary, non-advocacy, international coalition whose vision is the restoration and maintenance of populations of native landbird species well distributed throughout their historical geographic ranges. Partners currently include federal, state, provincial and territorial government agencies, nongovernmental organizations, numerous universities, and private industry. This list represents the best science available on species of concern for BLM administered lands in the West.

Table 1
Partners-in-Flight Watch List

| Species | Population Trend | US + Canada Population |
|--------------------------------------|----------------------------|------------------------|
| Highest Continental Concern * | | |
| California Condor | Experimental Pop'n in Wild | < 100 |
| Gunnison Sage-Grouse | > 50% decline | 2,000 |
| Lesser Prairie-Chicken | > 50% decline | < 20,000 |
| Thick-billed Parrot | > 50% decline | |
| Black-capped Vireo | > 50% decline | 4,800 |

| | | |
|--|------------------|------------|
| Golden-cheeked Warbler | > 50% decline | 24,000 |
| Tricolored Blackbird | > 50% decline | 250,000 |
| High Continental Concern * | | |
| Greater Sage-Grouse | > 50% decline | 150,000 |
| Spotted Owl | Moderate decline | 11,000 |
| Swainson's Hawk | Uncertain | 120,000 |
| Blue Grouse | > 50% decline | 2,500,000 |
| Greater Prairie-Chicken | > 50% decline | 620,000 |
| Scaled Quail | Moderate decline | 590,000 |
| Band-tailed Pigeon | > 50% decline | 960,000 |
| Short-eared Owl | > 50% decline | 670,000 |
| White-throated Swift | > 50% decline | 330,000 |
| Rufous Hummingbird | > 50% decline | 6,300,000 |
| Elegant Trogon | Moderate decline | 370 |
| Red-headed Woodpecker | > 50% decline | 2,500,000 |
| Olive-sided Flycatcher | > 50% decline | 1,200,000 |
| Willow Flycatcher | Moderate decline | 3,300,000 |
| Bell's Vireo | > 50% decline | 1,100,000 |
| Pinyon Jay | > 50% decline | 3,000,000 |
| Oak Titmouse | Moderate decline | 910,000 |
| Sprague's Pipit | > 50% decline | 920,000 |
| Grace's Warbler | Moderate decline | 900,000 |
| Prairie Warbler | Moderate decline | 1,400,000 |
| Brewer's Sparrow | > 50% decline | 14,000,000 |
| Baird's Sparrow | > 50% decline | 1,100,000 |
| Harris's Sparrow | > 50% decline | 3,500,000 |
| Varied Bunting | Moderate decline | 31,000 |
| Painted Bunting | > 50% decline | 3,700,000 |
| Dickcissel | Moderate decline | 20,000,000 |
| Rusty Blackbird | > 50% decline | 2,500,000 |
| Biome-restricted High Responsibility Species ** | | |
| Bendire's Thrasher | > 50% decline | 96,000 |
| Montezuma Quail | Moderate decline | 6,000 |
| Black Swift | Moderate decline | 85,000 |
| Lewis's Woodpecker | Uncertain | 140,000 |
| Nuttall's Woodpecker | Uncertain | 290,000 |
| Wrentit | Moderate decline | 1,400,000 |
| California Thrasher | Moderate decline | 200,000 |
| Lucy's Warbler | Uncertain | 940,000 |
| Hermit Warbler | Uncertain | 2,500,000 |
| Five-striped Sparrow | Moderate decline | |
| Black-chinned Sparrow | Moderate decline | 310,000 |
| Audubon's Oriole | Uncertain | 8,700 |
| Mountain Quail | Uncertain | 160,000 |
| Flammulated Owl | Uncertain | 40,000 |
| Elf Owl | Uncertain | 46,000 |
| Costa's Hummingbird | Uncertain | 2,100,000 |
| Calliope Hummingbird | Uncertain | 1,000,000 |

| | | |
|-------------------------------|-----------|---------|
| Allen's Hummingbird | Uncertain | 560,000 |
| Arizona Woodpecker | Uncertain | 4,600 |
| White-headed Woodpecker | Stable | 83,000 |
| Thick-billed Kingbird | Uncertain | 2,500 |
| Gray Vireo | Stable | 340,000 |
| Yellow-billed Magpie | Uncertain | 180,000 |
| California Gnatcatcher | Stable | 1,200 |
| Black-capped Gnatcatcher | Uncertain | |
| Le Conte's Thrasher | Uncertain | 180,000 |
| Virginia's Warbler | Uncertain | 440,000 |
| Red-faced Warbler | Uncertain | 96,000 |
| Abert's Towhee | Uncertain | 220,000 |
| Rufous-winged Sparrow | Uncertain | 9,600 |
| Nelson's Sharp-tailed Sparrow | Stable | 510,000 |
| McKay's Bunting | Uncertain | 6,000 |
| Black Rosy-Finch | Uncertain | 170 |
| Brown-capped Rosy-Finch | Uncertain | 45,000 |
| Lawrence's Goldfinch | Uncertain | 140,000 |

(Rich et al. 2003)

* Widespread species with fairly large populations, but are declining and/or threatened throughout their range.

** Species with restricted distributions and small global populations.

Temperate Steppe and Temperate Desert

Birds typical of this region include greater sage-grouse (*Centrocercus urophasianus*), Gunnison sage-grouse (*Centrocercus minimus*), sage thrasher (*Oreoscoptes montanus*), sage sparrow (*Amphispiza belli*), loggerhead shrike, Brewer's sparrow (*Spizella breweri*) in the terrestrial environment and American white pelican (*Pelecanus erythrorhynchos*), cinnamon teal (*Anas cyanoptera*), gray vireo (*Vireo vicinior*), northern pintail (*Anas acuta*), tundra swan (*Cygnus columbianus*), American avocet (*Recurvirostra americana*), black-necked stilt (*Himantopus mexicanus*), willet (*Catoptrophorus semipalmatus*), Wilson's phalarope, eared grebe (*Podiceps nigricollis*), mountain plover, snowy plover (*Charadrius alexandrinus*), white-faced ibis (*Plegadis chihi*), and California gull (*Larus californicus*) in the wetlands.

Species responding positively to grazing include the golden eagle (*Aquila chrysaetos*), brown-headed cowbird (*Molothrus ater*), and sage sparrow. Species responding negatively to grazing include long-billed curlew (*Numenius americanus*), Brewer's sparrow, vesper sparrow (*Pooecetes gramineus*), ferruginous hawk (*Buteo regalis*), burrowing owl, short-eared owl (*Asio flammeus*), western (*Sturnella neglecta*) and

eastern (*S. magna*) meadowlarks, northern harrier (*Circus cyaneus*), Swainson's hawk (*Buteo swainsoni*), red-tailed hawk (*Buteo jamaicensis*), savannah sparrow (*Passerculus sandwichensis*), grasshopper sparrow (*Ammodramus savannarum*), and white-crowned sparrow (*Zonotrichia leucophrys*) (Bock et al. 1993).

Tropical/Subtropical Steppe

Birds typical of this region include mountain plover, McCown's longspur (*Calcarius mccownii*), long-billed curlew, ferruginous hawk, burrowing owl, and lesser prairie-chicken (*Tympanuchus pallidicinctus*). Playa lakes in this region are significant for a myriad of wintering ducks, sandhill cranes, and shorebirds, as well as breeding habitat for snowy plover (*Charadrius alexandrinus*).

Livestock grazing has resulted in various responses by neotropical migratory birds who breed and winter in this region. Species usually responded positively included killdeer (*Charadrius vociferans*), mountain plover, burrowing owl, common nighthawk (*Chordeiles minor*), horned lark (*Eremophila alpestris*), northern mockingbird (*Mimus polyglottos*), lark sparrow (*Chondestes grammacus*), black-throated sparrow (*Amphispiza bilineata*), and McCown's longspur. Species usually responding negatively to grazing included northern harrier, short-eared owl, common yellowthroat (*Geothlypis trichas*), Botteri's sparrow (*Aimophila botterri*), Cassin's sparrow (*Aimophila cassinii*), savannah sparrow, Baird's sparrow (*Ammodramus bairdii*), and Henslow's sparrow (*Ammodramus henslowii*). Species responding negatively at heavier grazing included upland sandpiper (*Bartramia longicauda*), Sprague's pipit (*Anthus spragueii*), dickcissel (*Spiza americana*), lark bunting (*Calamospiza malanocorys*), grasshopper sparrow, chestnut-collared longspur (*Calcarius ornatus*), bobolink (*Dolichonix oryzivorus*), red-winged blackbird (*Agelaius phoeniceus*), and eastern and western meadowlarks (Bock et al. 1993).

Tropical/Subtropical Deserts (Mojave, Sonoran, and Chihuahuan)

Birds typical of this region include Gambel's quail (*Callipepla gambelii*), scaled quail (*Callipepla squamata*), Montezuma quail (*Cyrtonyx montezumae*), Swainson's and ferruginous hawks, lesser nighthawk (*Chordeiles acutipennis*), Chihuahuan raven (*Corvus cryptoleucus*), verdin (*Auriparus flaviceps*), cactus wren (*Campylorhynchus brunneicapillus*), pyrrhuloxia (*Cardinalis sinuatus*), and crissal (*Toxostoma crissale*), Le Conte's (*Toxostoma lecontei*), and curve-billed (*Toxostoma curvirostre*) thrashers.

Riparian/Wetlands Birds

Executive Order 11988 (Floodplain Management) and Executive Order 11990 (Protection of Wetlands) directs the BLM to avoid to the extent possible the long and short-term adverse impacts associated with the destruction or modification of wetlands and riparian areas.

Agricultural and urban development have been responsible for a significant decline of >80% of the riparian/wetland ecosystems in the West. Riparian/wetland ecosystems have always been a relatively minor component of the landscape in the west. Native plant and animal communities are the most diverse of any vegetation association with a broad mixture of shrub, grass, forb, and sedge species. Conservation of riparian/wetlands is of greatest concern due to their very high wildlife value and vulnerability to disturbance and fragmentation by livestock grazing and fragmentation associated with livestock grazing (Thomas et al. 1979, Knopf et al. 1988). Chaney et al. (1990) report that riparian habitats are the most modified land type in the West. Conservation of neotropical migratory birds in the West depends very much on the protection and eventual restoration of riparian ecosystems.

Southwestern riparian habitats host the highest breeding densities in all of North America (Carothers and Johnson 1975, Ohmart and Anderson 1982, Rice et al. 1983). In Idaho, 60% of all breeding neotropical migratory birds are found in riparian habitats (Saab and Groves 1992). Eighty-two (82 %) of all nesting species in Colorado use riparian areas and 78% (93 of 119) of landbirds are neotropical migrants (Knopf 1985).

Species usually responding positively to grazing include killdeer, Lewis' woodpecker (*Melanerpes lewis*), house wren (*Troglodytes aedon*), mountain bluebird (*Sialia currucoides*), American robin (*Turdus migratorius*), Brewer's blackbird (*Euphagus cyanocephalus*), pine siskin (*Carduelis pinus*), and brown-headed cowbird. Species responding negatively include American kestrel (*Falco sparverius*), Calliope hummingbird (*Stellula calliope*), willow flycatcher (*Empidonax traillii*), cedar waxwing (*Bombycilla cedrorum*), yellow-rumped warbler (*Dendroica coronata*), MacGillivray's warbler (*Oporornis tolmiei*), Wilson's warbler (*Wilsonia pusilla*), common yellowthroat (*Geothlypis trichas*), savannah sparrow, chipping sparrow (*Spizella passerine*), dark-eyed junco (*Junco hyemalis*), white-crowned sparrow, Lincoln's sparrow (*Melospiza lincolni*), red-winged blackbird, Bullock's oriole (*Icterus bullockii*), American goldfinch (*Carduelis tristis*), and Cassin's sparrow (Bock et al. 1993).

Few studies on the direct impact of livestock or livestock removal exist. Krueper et al. (2003) recently completed a multi-year study on the impacts of livestock removal on birds in the San Pedro Riparian National Conservation Area, Arizona (Table 2). Removal of livestock resulted in an increase for 42 species, 26 significantly, and decreased for 19 species, 8 significantly.

Table 2. Species with increasing and decreasing trends during the breeding season on the San Pedro Riparian National Conservation Area, Arizona, before and after removal of cattle late 1987, sorted by significance level of the trend.

| <i>Trend and species</i> | <i>Detections/kilometer</i> | | | | | <i>Annual change^a</i> |
|--------------------------|-----------------------------|-------------|-------------|-------------|-------------|----------------------------------|
| | <i>1986</i> | <i>1987</i> | <i>1988</i> | <i>1989</i> | <i>1990</i> | |

INCREASING SPECIES

| | | | | | | |
|---|-------|-------|-------|-------|-------|------|
| Cassin's Sparrow (<i>Aimophila cassinii</i>) | 0.06 | 0.92 | 5.19 | 5.15 | 2.15 | 2.42 |
| Dusky-capped Flycatcher (<i>Myiarchus tuberculifer</i>) | 0.03 | 0.07 | 0.09 | 0.32 | 0.31 | 1.93 |
| N. Beardless-Tyrannulet (<i>Camptostoma imberbe</i>) | 0.06 | 0.04 | 0.17 | 0.25 | 0.46 | 1.82 |
| Yellow Warbler (<i>Dendroica petechia</i>) | 3.21 | 6.05 | 8.77 | 17.68 | 16.71 | 1.55 |
| Western Wood-Pewee (<i>Contopus sordidulus</i>) | 1.51 | 1.62 | 2.18 | 3.23 | 4.17 | 1.31 |
| Summer Tanager (<i>Piranga rubra</i>) | 3.73 | 5.91 | 5.81 | 10.61 | 10.13 | 1.29 |
| Abert's Towhee (<i>Pipilo aberti</i>) | 6.14 | 7.28 | 8.63 | 13.11 | 15.43 | 1.28 |
| Great Blue Heron (<i>Ardea herodias</i>) | 0.24 | 0.65 | 0.42 | 0.43 | 0.97 | 1.27 |
| Mallard (<i>Anas platyrhynchos</i>) | 0.80 | 0.61 | 1.07 | 0.92 | 1.81 | 1.23 |
| Blue Grosbeak (<i>Guiraca caerulea</i>) | 2.92 | 5.20 | 4.46 | 6.19 | 7.22 | 1.22 |
| Ash-throated Flycatcher (<i>Myiarchus cinerascens</i>) | 1.81 | 2.36 | 2.41 | 3.66 | 3.74 | 1.21 |
| Cassin's Kingbird (<i>Tyrannus vociferans</i>) | 3.46 | 3.93 | 3.06 | 6.07 | 5.54 | 1.15 |
| Common Yellowthroat (<i>Geothlypis trichas</i>) | 1.27 | 3.24 | 5.36 | 12.95 | 14.71 | 1.87 |
| Brown-headed Cowbird (<i>Molothrus ater</i>) | 3.47 | 5.03 | 5.58 | 6.21 | 8.11 | 1.21 |
| Vermilion Flycatcher (<i>Pyrocephalus rubinus</i>) | 2.35 | 3.22 | 3.40 | 5.40 | 7.30 | 1.32 |
| White-winged Dove (<i>Zenaida asiatica</i>) | 1.93 | 2.69 | 3.37 | 7.54 | 10.78 | 1.56 |
| Bewick's Wren (<i>Thryomanes bewickii</i>) | 10.87 | 10.85 | 9.82 | 14.34 | 14.97 | 1.10 |
| Yellow-breasted Chat (<i>Icteria virens</i>) | 5.35 | 6.60 | 7.94 | 17.17 | 20.58 | 1.44 |
| Lesser Goldfinch (<i>Carduelis psaltria</i>) | 5.08 | 5.17 | 3.73 | 7.00 | 6.13 | 1.07 |
| Gray Hawk (<i>Asturina nitida</i>) | 0.57 | 0.92 | 0.54 | 0.84 | 1.15 | 1.14 |
| Hooded Oriole (<i>Icterus cucullatus</i>) | 0.00 | 0.17 | 0.21 | 0.20 | 0.41 | 1.86 |
| Brown-crested Flycatcher (<i>Myiarchus tyrannulus</i>) | 2.07 | 2.32 | 2.43 | 3.34 | 3.54 | 1.16 |
| Mourning Dove (<i>Zenaida macroura</i>) | 1.05 | 1.41 | 1.80 | 5.30 | 4.09 | 1.50 |
| Common Raven (<i>Corvus corax</i>) | 0.02 | 0.01 | 0.17 | 0.13 | 0.24 | 2.18 |
| House Finch (<i>Carpodacus mexicanus</i>) | 2.17 | 1.39 | 1.71 | 2.80 | 3.12 | 1.15 |
| N. Rough-winged Swallow (<i>Stelgidopteryx serripennis</i>) | 0.08 | 0.38 | 0.35 | 0.64 | 0.53 | 1.55 |
| Black Phoebe (<i>Sayornis nigricans</i>) | 0.27 | 0.15 | 0.10 | 0.51 | 0.92 | 1.44 |
| Black-chinned Hummingbird (<i>Archilochus alexandri</i>) | 0.57 | 0.57 | 0.50 | 0.71 | 1.63 | 1.26 |
| Indigo Bunting (<i>Passerina cyanea</i>) | 0.02 | 0.02 | 0.27 | 0.54 | 0.58 | 2.73 |
| Lucy's Warbler (<i>Vermivora luciae</i>) | 13.80 | 14.68 | 13.76 | 16.03 | 20.81 | 1.10 |
| Bell's Vireo (<i>Vireo bellii</i>) | 0.91 | 1.50 | 1.22 | 1.89 | 2.69 | 1.27 |
| Phainopepla (<i>Phainopepla nitens</i>) | 0.11 | 0.10 | 0.78 | 0.16 | 0.64 | 1.47 |
| Yellow-billed Cuckoo (<i>Coccyzus americanus</i>) | 0.43 | 0.63 | 0.78 | 0.96 | 1.19 | 1.28 |
| Common Ground-Dove (<i>Columbina</i> | 0.08 | 0.18 | 0.07 | 0.54 | 0.41 | 1.57 |

| | | | | | | |
|--|------|------|------|------|------|------|
| <i>passerina)</i> | | | | | | |
| Red-winged Blackbird (<i>Agelaius phoeniceus</i>) | 0.08 | 0.01 | 0.16 | 0.12 | 0.31 | 1.71 |
| Song Sparrow (<i>Melospiza melodia</i>) | 1.09 | 0.80 | 1.39 | 3.00 | 4.18 | 1.49 |
| Turkey Vulture (<i>Cathartes aura</i>) | 0.51 | 0.00 | 3.68 | 1.37 | 0.85 | 1.40 |
| Ladder-backed Woodpecker (<i>Picoides scalaris</i>) | 1.52 | 1.67 | 1.62 | 1.59 | 2.10 | 1.06 |
| Gila Woodpecker (<i>Melanerpes uropygialis</i>) | 2.63 | 2.41 | 2.47 | 3.07 | 2.79 | 1.04 |
| Bullock's Oriole (<i>Icterus bullockii</i>) | 1.55 | 1.67 | 1.56 | 2.21 | 1.69 | 1.05 |
| Botteri's Sparrow (<i>Aimophila botterii</i>) | 1.83 | 2.61 | 1.47 | 4.21 | 2.40 | 1.11 |
| White-breasted Nuthatch (<i>Sitta carolinensis</i>) | 1.24 | 1.72 | 1.30 | 1.66 | 1.50 | 1.03 |
| DECREASING SPECIES | | | | | | |
| Great Horned Owl (<i>Bubo virginianus</i>) | 0.43 | 0.42 | 0.21 | 0.47 | 0.33 | 0.96 |
| Northern Cardinal (<i>Cardinalis cardinalis</i>) | 0.46 | 0.20 | 0.25 | 0.43 | 0.25 | 0.95 |
| Killdeer (<i>Charadrius vociferus</i>) | 1.43 | 0.67 | 0.57 | 0.56 | 0.50 | 0.80 |
| European Starling (<i>Sturnus vulgaris</i>) | 0.64 | 0.72 | 0.70 | 0.55 | 0.21 | 0.78 |
| House Sparrow (<i>Passer domesticus</i>) | 0.34 | 0.49 | 0.38 | 0.09 | 0.00 | 0.51 |
| Greater Roadrunner (<i>Geococcyx californianus</i>) | 0.72 | 0.43 | 0.33 | 0.21 | 0.26 | 0.76 |
| Eastern Meadowlark (<i>Sturnella magna</i>) | 1.43 | 1.52 | 1.00 | 1.71 | 0.80 | 0.90 |
| Black-throated Sparrow (<i>Amphispiza bilineata</i>) | 1.86 | 0.91 | 0.89 | 0.64 | 0.76 | 0.81 |
| Verdin (<i>Auriparus flaviceps</i>) | 0.69 | 0.79 | 0.33 | 0.10 | 0.34 | 0.71 |
| Red-tailed Hawk (<i>Buteo jamaicensis</i>) | 0.22 | 0.17 | 0.16 | 0.20 | 0.09 | 0.84 |
| Cactus Wren (<i>Campylorhynchus brunneicapillus</i>) | 0.53 | 0.55 | 0.40 | 0.39 | 0.18 | 0.78 |
| Crissal Thrasher (<i>Toxostoma crissale</i>) | 0.93 | 0.44 | 0.60 | 0.68 | 0.44 | 0.90 |
| Cooper's Hawk (<i>Accipiter cooperii</i>) | 0.26 | 0.10 | 0.07 | 0.16 | 0.14 | 0.92 |
| Bushtit (<i>Psaltiriparus minimus</i>) | 2.16 | 1.23 | 1.85 | 1.89 | 1.31 | 0.94 |
| Gambel's Quail (<i>Callipepla gambelii</i>) | 3.12 | 2.52 | 1.28 | 2.64 | 1.79 | 0.90 |
| Northern Mockingbird (<i>Mimus polyglottos</i>) | 1.72 | 1.34 | 1.28 | 1.17 | 1.05 | 0.89 |
| Western Kingbird (<i>Tyrannus verticalis</i>) | 2.08 | 1.52 | 1.56 | 1.61 | 1.70 | 0.97 |
| Northern Flicker (<i>Colaptes auratus</i>) | 1.83 | 1.85 | 1.45 | 1.77 | 1.66 | 0.98 |
| Canyon Towhee (<i>Pipilo fuscus</i>) | 0.52 | 0.39 | 0.37 | 0.51 | 0.36 | 0.96 |

(Krueper et al. 2003)

SPECIAL STATUS SPECIES

Species that are considered special status species included herein are those that are officially listed under the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq.*) as threatened or endangered, those that are proposed for listing, or are candidates for listing as threatened or endangered under the provisions of the Endangered Species Act (ESA); those listed by a State in a category such as threatened or endangered implying potential endangerment or extinction; and those designated by each BLM State Director as sensitive. The protection provided by the policy for candidate species shall be used as the minimum level of protection for BLM sensitive species. The sensitive species designation is normally used for species that occur on Bureau administered lands for which BLM has the capability to significantly affect the conservation status of the species through management.

The BLM Special Status Species Management (6840) policy requires that BLM ensure that actions requiring authorization or approval are consistent with the conservation needs of special status species and do not contribute to the need to list any special status species, either under provisions of the ESA or other provisions of this policy.

Appendix I is the complete list of special status species by state at this time.

While BLM would prefer to manage native plant and animal communities or ecosystems, the ESA requires the agency to manage threatened and endangered species by species.

The effects of livestock grazing on native plant and animal communities depends on the affected plant or animal, grazing intensity, season of use, and long-term weather patterns (Milchunas et al. 1988). Long-term studies on the impacts of livestock grazing are wanting due to the enormous cost and complexity that such studies would require. Historic bison grazing in the shortgrass prairie was characterized by bison migrating great distances and would graze an area only once or twice each year for relatively short periods. Livestock on the other hand graze an area continuously for longer periods during the growing season. The remainder of the West lacked continual large herbivore grazing. Many species and their habitats have been affected by livestock grazing, which in some cases has contributed to or caused the extirpation or endangerment of species. The General Accounting Office (GAO 1991) cited several studies that recorded the deleterious effects of livestock grazing have had on a number of wildlife species and their habitats. GAO concluded that current grazing practices degrade wildlife habitat, including the tendency for livestock to transmit diseases to wildlife and change the composition of vegetation communities beyond what is practical for wildlife adaptation to such radical changes. The GAO report went on to document the adverse impacts livestock grazing have had upon Mojave desert tortoise, bighorn sheep, and Montezuma quail.

Grazing directly and indirectly impacts special status species. Direct grazing impacts include livestock consumption of palatable special status plants and direct trampling of special status species, such as desert tortoise. Allied livestock management actions, such as vehicular traffic, water development have caused direct take. The exact extent of such is not well known since monitoring is always deficient.

Livestock grazing also causes indirect take of special status species. Indirect take has taken the form of removing palatable forage for species such as desert tortoise and sage-grouse and removing screening for nest concealment for sage-grouse. Livestock grazing operations have also been responsible for the introduction and transport of invasive species such as cheatgrass, which most cases forever changes the dynamics of the ecology of the native plant community. Overgrazing has caused a decline in diversity and abundance of native plant communities. Ecological decline from overgrazing is a gradual, long-term process.

Johnson (1989) reported that in Arizona and New Mexico there are more than 100 special status species dependent on riparian ecosystems and they are all sensitive largely due to livestock grazing. This can be generalized to most special status species on rangelands.

Animals

BLM management of the public lands will become increasingly complex due to the listing of additional species as threatened or endangered under the ESA in the West.

There are a number of species which have been receiving increased attention from environmental groups. The mountain plover will in all likelihood be listed as threatened or endangered under the ESA in fall of 2003. This listing will affect Montana, Wyoming, Nevada, Colorado, Utah, Arizona, New Mexico, and California primarily.

Petitions have been filed with the U.S. Fish and Wildlife Service (FWS) for the mountain quail (*Oreortyx pictus*), but the FWS found the petition insufficient to list.

The FWS received a petition on April 21, 2003 to list the pygmy rabbit rangewide as threatened or endangered. This listing would affect the states of Oregon, Idaho, California, Nevada, Wyoming, Utah and Montana. The FWS recently published in the Federal Register the final rule (March 5, 2003) listing the pygmy rabbit, Columbia Basin distinct population segment in Washington, as endangered under the ESA.

Table 3 details the 7 petitions that have been received by FWS to list both the Gunnison and greater sage-grouse as threatened or endangered. Listing of this species may not be imminent, but the 50% habitat loss (Map 1) and continuing population declines of >60% are reminiscent of the eventual listings of the desert tortoise and northern spotted owl (*Strix occidentalis*). The listing of the sage-grouse would create significant workload demands on all BLM resource specialists, but the greatest impact would be upon the grazing program.

Table 3
Summary of Sage Grouse Petitions Submitted to the U.S. Fish and Wildlife Service (USFWS)¹

(as of April 16, 2003)

| | | |
|---|---|--|
| Petition Date: May 14, 1999 (74 pages) | Petition Date: January 25, 2000 (254 pages) | Petition Date: December 28, 2001 (493 pages) |
| Species: Washington population of the Western Sage Grouse <i>Centrocercus urophasianus phaios</i> | Species: Gunnison Sage Grouse <i>Centrocercus minimus</i> | Species: Mono Basin population of the Greater Sage Grouse <i>Centrocercus urophasianus phaios</i> |
| Petition Request: List as threatened or endangered | Petition Request: List as endangered or threatened, emergency listing, and designation of critical habitat | Petition Request: Emergency list as endangered |
| Petitioners: Northwest Ecosystem Alliance and Biodiversity Legal Foundation | Petitioners: Mark Salvo, American Lands Alliance, Dr. Randy Webb, Net Work Associates, Andy Kerr, The Larch Company, Jasper Carlton, Biodiversity Legal Foundation, Susan Ash, Wild Utah Forest Campaign, Rob Edwards, Sinapu | Petitioners: Donald Randy Webb, Institute for Wildlife Protection |
| Legal Action: No NOI** to date | Legal Action: Court complaint dated September 29, 2000 from the American Lands Alliance et al. On January 31, 2003 District Court rules that the USFWS must prepare a 12-month finding. USFWS has filed a motion with the court to reconsider this decision. | Legal Action: A court complaint dated July 3, 2002 was received from Dr. Steven Herman and the Institute for Wildlife Protection. New NOI dated January 9, 2003 on the USFWS 90-day finding from Dr. Steven Herman and the Institute for Wildlife Protection. |
| USFWS Determination: Both a 90-day finding (August 24, 2000) and a 12-month finding (May 7, 2001) published in the <u>Federal Register</u> . Outcome was that the petition presents substantial information and listing is warranted but | USFWS Determination: The s as a candidate by USFWS prior petition. It has a listing priority | USFWS Determination: Initial review indicated that the situation does not warrant an emergency listing. A 90-day finding was initiated August 1, 2002. The 90-day finding was published in the <u>Federal Register</u> December 26, |

| | | |
|--|--|---|
| precluded for the Columbia Basin Distinct Population Segment (occurs in WA and n. OR); became a candidate by default under USFWS policy. | | 2002 with an outcome that the information presented in the petition is not substantial. |
| Lead USFWS Office: Upper Columbia Fish and Wildlife Office, Spokane, Washington (509) 891-6839 | Lead USFWS Office: Western Colorado Field Office, Grand Junction, Colorado (970) 243-2778 | Lead USFWS Office: Nevada Fish and Wildlife Office, Reno, Nevada (775) 861-6300 |
| USFWS Contact: Chris Warren | USFWS Contact: Terry Ireland | USFWS Contact: Kevin Kritz |

| | | |
|--|---|--|
| Petition Date: January 24, 2002 (468 pages) | Petition Date: June 18, 2002 (7 pages) | Petition Date: July 3, 2002 (524 pages) |
| Species: Western subspecies of the Greater Sage Grouse <i>Centrocercus urophasianus phaios</i> | Species: Greater Sage Grouse <i>Centrocercus urophasianus</i> | Species: Eastern subspecies of the Greater Sage Grouse <i>Centrocercus urophasianus urophasianus</i> |
| Petition Request: List the subspecies | Petition Request: List as endangered | Petition Request: List as endangered |
| Petitioners: Donald Randy Webb, Institute for Wildlife Protection | Petitioners: Craig Dremann | Petitioners: Donald Randy Webb, Institute for Wildlife Protection |
| Legal Action: Court complaint dated October 3, 2002 from the Institute for Wildlife Protection. New NOI dated February 7, 2003 from the Institute for Wildlife Protection challenging the merits of the 90-day finding. | Legal Action: No NOI** to date | Legal Action: Court complaint dated January 10, 2003 filed in the Western District Court of Washington by the Institute for Wildlife Protection for failure to do a 90-day finding. USFWS responded to the complaint but no date established yet for a finding. |
| USFWS Determination: A 90-day finding was | USFWS Determination: Insufficient funds to initiate | USFWS Determination: Insufficient funds to |

| | | |
|--|--|--|
| initiated October 30, 2002. The 90-day finding was published in the <u>Federal Register</u> on February 7, 2003 with an outcome that the information presented in the petition is not substantial. | a 90-day finding | initiate a 90-day finding |
| Lead USFWS Office: Oregon Fish and Wildlife Office, Portland, Oregon (503) 231-6179 | Lead USFWS Office: Wyoming Ecological Services Field Office, Cheyenne, Wyoming (307) 772-2374 | Lead USFWS Office: Wyoming Ecological Services Field Office, Cheyenne, Wyoming (307) 772-2374 |
| USFWS Contact: Jeff Dillon | USFWS Contact: Pat Deibert | USFWS Contact: Pat Deibert |

| |
|--|
| Petition Date: March 19, 2003 (992 pages; combination of previous petitions for Western and Eastern subspecies) |
| Species: Greater Sage Grouse <i>Centrocercus urophasianus</i> |
| Petition Request: List as endangered |
| Petitioners: Donald Randy Webb, Institute for Wildlife Protection |
| Legal Action: No legal action to date |
| USFWS Determination: No determination yet. |

Lead USFWS Office: Wyoming Ecological Services Field Office, Cheyenne, Wyoming
(307) 772-2374

USFWS Contact: Pat Deibert

¹Table compiled by Kevin Kritz, U.S. Fish and Wildlife Service, Nevada Fish and Wildlife Office, 1340 Financial Blvd. Suite #234, Reno, NV 89502-7147
(775) 861-6300

**** 60-day Notice of Intent to Sue (NOI)**

Vegetation

Riparian

Riparian areas are a highly productive and unique wetland environment that is found adjacent to rivers and streams. Riparian communities are often referred to as “ribbons of green” in the arid Western U.S., since in many landscapes, the riparian areas along watercourses provide the only visible green vegetation. Though estimates vary, it is generally agreed that riparian ecosystems comprise less than 1% of the surface area in the 11 western United States (Cooperrider et al. 1986; Ohmart 1996). Riparian communities in the Western U.S. are the most productive habitats in North America (Johnson et al. 1977), and provide irreplaceable wildlife habitat for breeding, wintering, and migration. An estimated 75% of the vertebrate species in Arizona and New Mexico depend on riparian habitat for some portion of their life history (Johnson et al. 1977). Numerous classification systems have been developed for riparian communities, but the system proposed by Dick-Peddie and Hubbard (1977) was used for BLM’s Range Reform 1994 EIS, and remains appropriate for this effort. **[Include Dick-Peddie and Hubbard’s description of riparian communities here? Or leave as reference and let them look at the 1994 EIS for details?]. [Why not Cowardin classification?]**

**Table 3-1
Comparison of Condition of Lotic Riparian Habitat on BLM Lands 1998 vs. 2001**

| Condition of Riparian Area | 1998 | | 2001 | | % Change |
|------------------------------|--------------------------------|-----|--------------------------------|-----|----------|
| | Total Miles in Lower 48 States | % | Total Miles in Lower 48 States | % | |
| Proper Functioning Condition | 13,230 | 36% | 14,314 | 42% | +6% |
| Functioning-At-Risk | 12,900 | 35% | 14,657 | 43% | +8% |
| Non-Functional | 3,251 | 9% | 3,688 | 11% | +2% |
| Unknown | 7,310 | 20% | 1,478 | 4% | -16% |

**Table 3-2
Comparison of Lentic Riparian-Wetland Habitat on BLM Lands 1998 vs. 2001**

| Condition of Riparian Area | 1998 | | 2001 | | % Change |
|------------------------------|--------------------------------|-----|--------------------------------|-----|----------|
| | Total Acres in Lower 48 States | % | Total Acres in Lower 48 States | % | |
| Proper Functioning Condition | 147,923 | 41% | 166,796 | 51% | +10% |
| Functioning-At-Risk | 45,135 | 13% | 48,320 | 15% | +2% |
| Non-Functional | 7,557 | 2% | 6,409 | 2% | 0% |
| Unknown | 166,819 | 44% | 107,135 | 32% | -12% |

Figure 3-1
Condition of Lotic Riparian Areas on BLM Lands (Lower 48 States), 2001

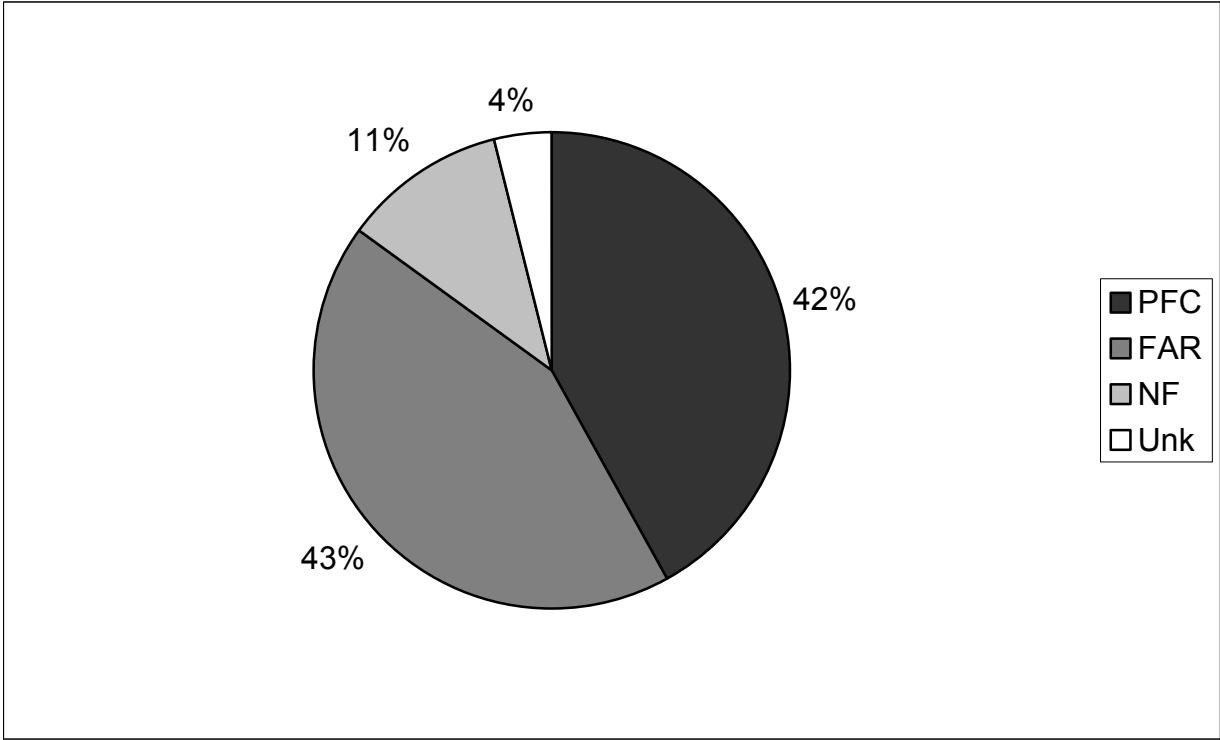
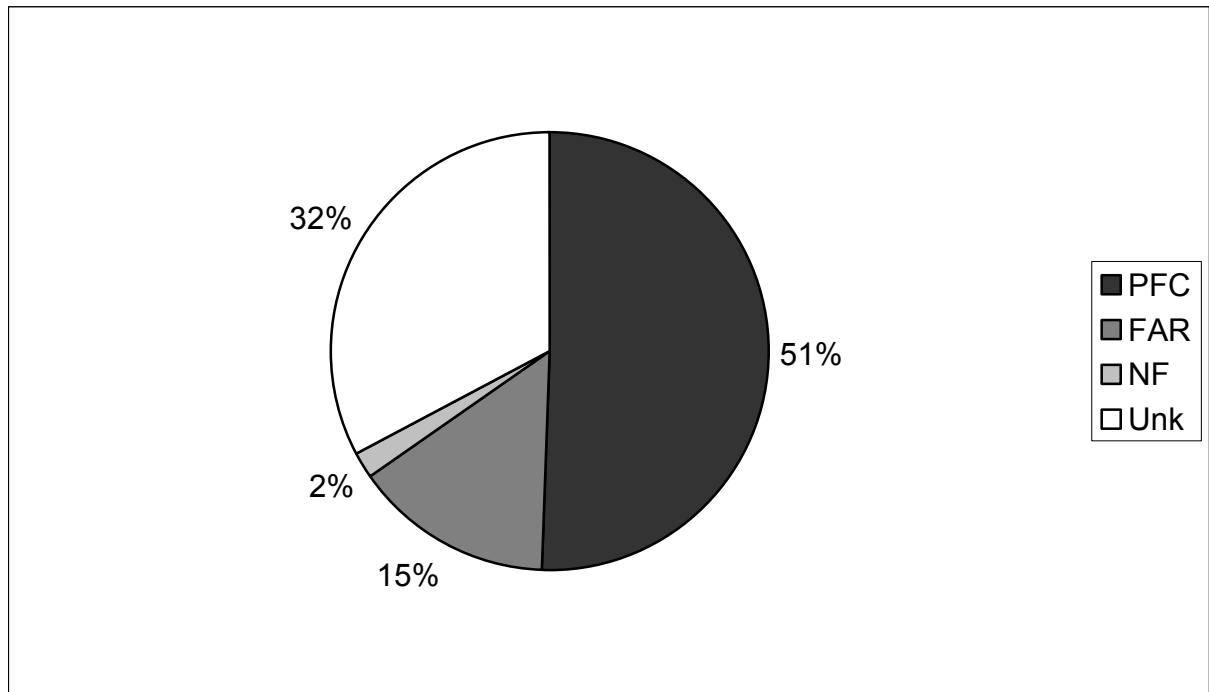


Figure 3-2
Condition of Lentic Riparian-Wetland Areas on BLM Lands (Lower 48 States),
2001



Riparian, Wetlands, and Aquatic Communities

Riparian areas were greatly altered by early grazing practices prior to 1934, when the Taylor Grazing Act established some control over livestock grazing practices on the public domain (Leopold 1946). Nonetheless, numerous recent studies clearly document that livestock grazing continues to degrade riparian habitats (Elmore and Kaufman 1994, Ohmart 1996, Belsky et al. 1999). Although many riparian systems respond quickly to improved management or livestock exclusion, Clary et al. (1996) found that past grazing practices at their study site in eastern Oregon had likely altered habitat conditions so drastically that a wide range of grazing treatments (including no grazing) for a period of 7 years resulted in few differential responses by plants or animals. Natural recovery of native riparian vegetation may be very slow, even with reduction or elimination of cattle grazing due to deterioration of stream condition (downcutting, widening), dominance of non-native annuals within the riparian area, and loss of native seed sources (Clary et al. 1996). The continuing decline in the condition of many western U.S. riparian areas is partially attributable to the more than doubling of the number of cattle grazing western rangelands between 1940 and 1990 (Trimble and Mendel 1995).

Riparian areas combine the presence of water, increased vegetation, shade, and a favorable microclimate to create the most biologically diverse habitat found on BLM lands. Riparian areas are highly prized for their recreation, fish and wildlife, water

supply, cultural, and historic values, as well as for their economic values related to livestock production, timber harvest, and mineral extraction (BLM 1998). In the semi-arid west, healthy functioning riparian areas perform several critical functions:

- Improve water quality via filtering and sediment removal
- Stabilize streambanks
- Soil retention
- Dissipate stream energy during high flow events (reduced flood damage)
- Provide water, forage, and shade for wildlife and livestock
- Act as migration corridors for wildlife and birds
- Create opportunities for recreation (fishing, camping, picnicking, hiking)
- Maintain in-stream flows and restore perennial flow
- Maintain aquatic habitat for healthy fish populations
- Raise and maintain the water table
- Increase habitat diversity for wildlife and plants
- Enhance aesthetics

Livestock grazing causes numerous changes in plant communities. Removal of streamside vegetation can lead to channel downcutting or incision, which lowers the water table near the stream. As the water table drops, riparian plant species and their associated wildlife species are replaced by upland species (sagebrush and juniper), which can tolerate drier soils (Belsky et al. 1999). Removal of vegetation leads to increases in noxious weeds which invade the bare ground. Once established, these weed species crowd out native riparian species and lead to a decline in riparian functioning. Belsky et al. (1999) concluded that many riparian and their associated aquatic habitats have been converted into communities that are now dominated by habitat generalists and weedy species such as cheatgrass (*Bromus tectorum*), cowbirds (*Molothrus spp.*), smallmouth bass (*Micropterus dolomieu*), and by upland or common species such as sagebrush, juniper, and speckled dace (*Rhinichthys osculus*).

Livestock are adapted to mesic habitats, and spend a disproportionate amount of their time in riparian areas. Since riparian areas are among the biologically richest communities in the arid Western U.S., many of the adverse impacts associated with grazing are magnified in riparian habitats (Fleischner 1994). Several studies have shown that damage to riparian habitat as a result of livestock grazing can be reduced by improving grazing methods, herding or fencing cattle away from streams, reducing livestock numbers, or increasing the period of rest from grazing (Armour et al. 1994, Elmore and Kauffman 1994). Studies have shown that improved livestock management allows damaged and denuded streambanks to revegetate and for erosion rates to decline (Elmore and Kauffman 1994). However, Elmore and Kauffman (1994) concluded that the most dramatic and rapid rates of ecosystem recovery are obtained by livestock exclusion. The results of recent studies and literature reviews (Armour et al 1994; Elmore and Kauffman 1994; Ohmart 1996; Belsky et al. 1999) only serve to validate Platts (1982) conclusion that livestock grazing is the major cause of impaired stream and riparian environments and reduced fish populations throughout the arid western U.S.

Riparian Conditions and Trends

In 1993, BLM adopted the Process for Assessing Proper Functioning Condition (BLM 1993) as its standard methodology for determining the condition on riparian resources on public lands. BLM has aggressively undertaken the task of conducting PFC assessments on its lands, resulting in a decrease of sites classified as Unknown from 55% in 1993 to only 4% in 2001. As a result of its commitment to the standardized PFC assessment technique, BLM has compiled several years of information on the status and trends of riparian conditions on lands under its management.

Riparian habitat on BLM lands in the lower 48 states include 34,137 miles adjacent to flowing water (lotic systems) and 328,660 acres of riparian habitat associated with standing water (lentic systems). As of October 2001, the condition of approximately 96% of lotic riparian areas on BLM lands in the lower 48 states had been assessed using the Proper Functioning Condition (PFC) assessment technique (BLM, 2002). Overall, 42% were classified as being in Proper Functioning Condition, 43% as Functioning-At-Risk (FAR), 11% as Non-Functional, and 4% as Unknown (see Figure 3-1)(BLM 2002). Of the miles in the FAR category, 36% were in an upward trend, indicating that the condition is improving and no changes in management are immediately needed. In September 1990, BLM published its Riparian-Wetland Initiative for the 1990's (BLM 1990). The Initiative set the goal of restoring or maintaining riparian-wetland areas so that 75% or more would be in PFC by 1997. The fact that only 42% of BLM's lotic riparian areas were classified as PFC in 2001, shows that BLM still has a long way to go before this goal is met.

As of October 2001, the condition of approximately 67% of lentic riparian areas on BLM lands in the lower 48 states had been assessed using the PFC assessment technique (BLM 2002). Overall, 51% were found to be in PFC, 15% in FAR, 2% in Non-Functional, and 32% were Unknown (BLM 2002)(see Figure 3-2).

Over the past 15-20 years, BLM has focused a great deal of its restoration efforts on riparian areas. Riparian areas typically respond quickly to management changes, and in some instances recovery has been dramatic. Many of the restoration efforts have been in highly visible areas, where the public has taken the lead in changing land management practices. Despite several highly publicized and visible successes, trends indicate that the overall improvement in the condition of riparian habitat on BLM lands is minimal. A comparison of lotic riparian conditions on BLM lands in the lower 48 states from 1998 to 2001 shows little improvement in overall condition of riparian areas (see Table 1). While the percentage of miles in PFC has increased over the four year period, the percentage of miles classified as Non-Functional has also increased. The largest change from 1998 to 2001 is in the Unknown category, which dropped from 20% to 4%, demonstrating BLM's commitment to actively evaluate the condition of its riparian resources.

Riparian, Wetland, and Aquatic Communities

Riparian ecosystems are extremely productive and offer a unique combination of habitat niches for fish and wildlife. Riparian communities provide abundant food, shelter, and water, and are used extensively by wildlife at all stages of their life history. Riparian ecosystems are important for a wide range of physical and biological features, including:

- Dense vegetation cover for shelter, shade, nesting, and resting
- Presence of surface water and abundant soil moisture
- Diverse vegetation structure provides a range of habitat types
- Linear nature provides protected pathways for wildlife migration

Numerous studies have documented the effects of livestock grazing and trampling on aquatic and riparian species in the western United States. Belsky et al. (1999) summarized these effects and their impacts on various species groups. Their findings are summarized as follows:

- Fish species diversity, abundance, and productivity decline due to higher water temperatures, increased turbidity, lower summer flows, decreased dissolved oxygen, damaged spawning beds, loss of plant cover, fewer insects, and decreased hiding cover. These habitat changes lead to loss of salmonids and other cold-water species, loss of avian and mammalian predators, and replacement of cold-water aquatic species with warm-water species.
- Aquatic invertebrate abundance, diversity, and species composition is altered by higher water temperatures, increased fine sediments, lower dissolved oxygen levels, and lower late season flows. Alteration of the aquatic invertebrate community results in loss of species that require clean, cold water and coarse substrate, increase in algae feeders, fewer palatable species, and less food for higher trophic levels.
- Amphibian and reptile abundance and species composition declines as a result of loss of prey base, loss of thermal cover and protection from predators, increased aridity, and decreased vegetation structure. Declines in amphibian and reptile numbers leads to loss of biodiversity and prey for higher trophic levels and loss of native species.
- Bird diversity, abundance, and species composition is altered due to reduction in food, water quality and quantity, loss of perches, nesting sites, and protective plant cover. The alteration of bird species composition results in a reduction in biodiversity, replacement of riparian specialists by upland species and generalists, and loss of some neotropical migrants.
- Mammal diversity, abundance, and species composition is often altered due to loss of food sources, change to a warmer, drier, more exposed environment, and behavioral modifications such as avoidance of livestock. Changes in the mammal population lead to changes in predator-prey relations, lessened beaver activity and loss of wetlands they create, and replacement of riparian species with upland species and generalists.
- The abundance of threatened and endangered species is reduced due to loss of habitat, disturbance, livestock herbivory, competition with livestock, and habitat

fragmentation. The reduction in the abundance of threatened and endangered species could lead to possible extinction.

Due to their importance to a wide range of both terrestrial and aquatic species, riparian ecosystems serve as repositories for biodiversity throughout the West (Belsky et al. 1999). Several studies have shown that livestock grazing has led to a decline in neotropical migratory birds that utilize riparian habitat (Saab et al. 1995). The declines are particularly apparent for ground-nesting species and species that forage in riparian areas with heavy shrub or ground cover (Saab et al. 1995). Riparian areas attract a disproportionate number of migrating birds and provide primary habitat for waterfowl and shorebirds (BLM 1994). Wet meadow areas and riparian zones serve as critical feeding and watering sources for sage grouse (Hockett 2002). Larger vertebrate species also depend on riparian areas. Mule deer and elk use riparian areas for food and cover and for travel and migration corridors (Thomas et al. 1979). Pronghorn antelope use riparian areas extensively in summer (Cooperrider et al. 1986). Flather et al. (1994) reported that livestock grazing was the fourth leading cause of species endangerment in the U.S. and the second leading cause of plant endangerment. The same report also found that within the Arizona Basin and the Colorado/Green River Plateau, livestock grazing is the primary cause of species being federally listed as threatened or endangered. Livestock grazing often indirectly affects wildlife associated with spring and seep ecosystems. Throughout the west, seeps and springs have been altered, and in many cases completely dewatered, in order to provide water for livestock. Springs are developed and their water is piped to a trough or pond, resulting in loss of riparian vegetation and the animals that are dependant on the natural spring ecosystem. Springsnails are aquatic mollusks that occur primarily as relict populations of formerly widespread species (BLM 2001). There are several species of springsnails on the federal endangered species list and numerous others are found on BLM sensitive species lists. Livestock grazing directly impacts springsnail populations through trampling, spring channel alteration, and degradation of water quality (Frest 2002).

Cold Water Fisheries

Fish populations are directly affected by changes in riparian habitat. Numerous studies document reduced trout populations as a result of habitat loss and degradation caused by livestock grazing (Platts 1991; Behnke 1992). Ungrazed streams on the Tonto and Santa Fe National Forests had twice as many trout and twice the trout biomass as did grazed streams (Rinne and Lafayette 1991). The native cutthroat trout population in Huff Creek, Wyoming, increased from 36 fish per mile to 444 fish per mile in response to livestock exclusion followed by improved livestock management (Chaney et al. 1990). Measurements showed that Huff Creek's channel narrowed by about one-third, doubled in depth, and water temperatures declined in response to changes in livestock management (Chaney et al. 1990). BLM's efforts to protect and expand populations of native cutthroat trout have been hampered by livestock grazing in some areas. Changes in riparian and aquatic habitat due to livestock grazing often give nonnative trout a competitive advantage over native trout (Griffith 1988). Increased sediment loads and

higher summer water temperatures due to riparian degradation favor exotic introduced trout species over native cutthroat trout (Stefferd 1988).

Streamside grazing removes vegetation, leading to warmer water temperatures due to loss of shade, and higher levels of sediment in the stream as a result of increased soil erosion. Increased sediment can smother fish eggs in spawning areas and lead to reduced abundance of young fish. Livestock remove vegetative cover and compact soils, which slows the rate of water percolation and infiltration, resulting in unnaturally high and frequent runoff events. The increased erosion and subsequent frequent flood events alter cold water fish habitat by filling pools and substrate with silt, uprooting riparian vegetation, widening stream channels, and lowering water tables (Bock et al. 1992). Wider and shallower stream channels provide less hiding cover for fish and leave them more susceptible to predation. There is a clear and documented connection between the health of upland vegetation and the health of riparian communities and aquatic habitat. Chaney et al. (1993) noted that accelerated runoff from uplands triggers downcutting of soft substrate streams. The downcutting lowers both the streambed and water table, desiccates the riparian area, destabilizes streambanks, and increases erosion and further accelerates runoff. The cumulative effect of declining riparian condition is that coldwater species such as trout and salmon decline, and are replaced by less valuable and more tolerant species (Belsky et al. 1999).

Livestock grazing has major effects on stream channel morphology. As the protective riparian vegetation is removed, livestock shear off streambanks and the banks begin to erode (Bowers et al. 1979). After the streambanks become broken down and eroded, the stream channel becomes wider and shallower. Wide shallow streams have much greater surface area exposed to solar radiation and evaporation. Eroding streambanks contribute excessive sand and silt accumulation over the stream substrate, leading to loss of aquatic invertebrates and smothering of fish eggs (Armour 1978).

Figure 3-1 shows the sequential degrading of a stream channel and its associated riparian community (BLM 1993) [**Note: Figure 3-1 is identical to Figure 3-2 in the 1994 EIS**]. A healthy riparian community protects streambanks from erosion and maintains a high water table and productive habitat for fish and aquatic invertebrates (State A in Figure 3-1). As the stream channel erodes, the wet meadow areas become disconnected from the water table and dry out (State B in Figure 3-1). Sagebrush and rabbitbrush encroach on the site resulting in a reduction in the amount and quality of forage. In the absence of protective riparian vegetation, the stream channel is likely to become incised and form a new base level (State C in Figure 3-1). Once the channel becomes incised, it is classified as non-functional. Over time, the incised channel widens and a new floodplain begins to develop at the new base level (State D in Figure 3-1). Figure 3-2 shows the stages in the recovery of a stream-associated riparian area [**Note: Figure 3-2 is identical to Figure 3-3 in the 1994 EIS**].

CH 4 – ENVIRONMENTAL CONSEQUENCES

NO ACTION - MANAGEMENT ALTERNATIVE 1

WILDLIFE

Terrestrial (including Migratory Birds)

The environmental impact changes analysis herein focuses on proposed policy changes and existing regulations for livestock grazing as they affect wildlife populations and their habitats on the 162 million acres grazed by domestic livestock in the western United States. Implicit in these environmental consequences is the analysis of the policy changes and existing regulations as stated, as well as the *practical* and *legal* implications of any changes.

The No Action alternative includes all of the previous regulations, as well as new proposed policy changes.

Impacts on wildlife resources are most beneficial under the No Action alternative.

Satisfactory performance for a grazing permit/lease requires that unsatisfactory performance results in having a federal/state permit/lease cancelled. This allows BLM to reward those permittees who are performing well and disciplining those that do not. This results in positive long-term impacts for wildlife resources and the ecosystems upon which they depend.

The BLM can currently take action against a grazing permit or lease when a permittee or lessee has been convicted by a court of law or otherwise found to be in violation of several different Federal or State laws or regulations (i.e., placing poisonous bait or hazardous devices to kill wildlife, applying or storing pesticides, herbicides, or other hazardous material on public lands, altering or destroying natural stream courses without authorization, polluting water sources, aiding and abetting or directly illegally taking, destroying, or harassing fish and wildlife), where the violation is related to the grazing use authorized by BLM. This provision has had a positive impact on wildlife resources by discouraging grazing permittees from these prohibited acts. Historic, adverse impacts have been realized upon Lahontan cutthroat trout, black-tailed prairie dogs and therefore black-footed ferrets, gray and Mexican wolves, jaguar, grizzly bears, southwestern willow flycatchers, and many others.

The existing administrative remedies require that any person whose interest is adversely affected by a final decision may appeal and file a petition for stay. This has had positive impacts for wildlife resources as it allows environment organizations to appeal grazing decisions on behalf of wildlife resources. As a result, a stay must be granted by the Office of Hearings and Appeals to suspend implementation of a final decision. This has been positive for wildlife resources.

Broad public participation in the grazing decision process has increased overall support for achieving ecologically sound resource objectives and resulted in decisions benefiting multiple uses and more diverse ecosystems.

BLM ownership of range improvements have allowed projects to be more easily built and modified for safe wildlife use.

SPECIAL STATUS SPECIES

Terrestrial (including Migratory Birds)

The BLM Special Status Species Management Policy (Manual 6840) ensures that actions authorized or approved by BLM are consistent with the conservation needs of special status species and do not contribute to the need to list any special status species. Conservation of special status species means the use of all methods and procedures which are necessary to improve the condition of special status species and their habitats to a point where their special status recognition is no longer warranted.

Special status species are defined as those proposed for listing under the Endangered Species Act (ESA), officially listed as threatened or endangered under the ESA, those listed by a State in a category such as threatened or endangered implying potential endangerment or extinction, or those designated by each BLM State Director as sensitive.

It is BLM policy to conserve listed species and the ecosystem upon which they depend. BLM shall manage species proposed for listing under the ESA as threatened or endangered and proposed critical habitat with the same level of protection provided for listed species. For candidate species, BLM shall implement management plans that conserve the species and habitats and ensure that actions authorized, funded, or carried out by BLM do not contribute to the need to list the species. The protection provided by the 6840 policy for candidate species shall be used as the minimum level for protection for BLM sensitive species. State listed species shall be managed consistent with state laws protecting these species to the extent that they are consistent with FLPMA and other federal laws.

Timely implementation of grazing decisions for correcting environmental damage has resulted in reducing resource damage, benefiting more diverse, healthier ecosystems. Implementing decisions before an appeal is resolved has resulted in short to long-term increases in herbaceous cover and forage for wildlife. Historic, adverse impacts have been realized upon Lahontan cutthroat trout, southwestern willow flycatchers, yellow-billed cuckoo, Bell's vireo, northern beardless tyrannulets, and countless threatened, endangered, proposed, and candidate plant species.

The present grazing regulations favor emphasizing potential natural vegetation communities that favor most special status species. Any increase in the already burdensome grazing appeals process would have an adverse on terrestrial and aquatic wildlife species. Timely implementation of grazing decisions for correcting environmental problems has reduced resource damage, benefiting riparian areas most importantly for aquatic and migratory birds. Of special concern in the future will be the

ability to make timely and effective grazing decisions with respect to pygmy rabbits, mountain plover, mountain quail, and Gunnison and greater sage-grouse, all of whom are being considered for listing in the near future. An inability to make effective grazing decisions for these species will result in long-term, adverse impacts to these species. Managing rangelands to restore and maintain natural ecosystems has resulted in increased biological diversity, allowing more wildlife and plant species to meet basic life requirements.

RIPARIAN, WETLAND, AND AQUATIC COMMUNITIES

Trends in riparian condition are discussed in Section 3.5.3.2. Riparian habitat conditions on BLM lands in the lower 48 states showed only minimal improvement from 1998 to 2001. Under continuation of existing management and regulations, overall riparian conditions Bureauwide (excluding Alaska) would remain static or improve only slightly from current conditions. Some regions would show noticeable improvements in riparian conditions, while other regions would show declines or no change. The trend from 1998 to 2001 showed an increase in the percentage of streams classified as “properly functioning” from 36% to 42% (a rate of 1.5% per year). We can assume that the rate of improvement will decrease as the percentage of sites in the “unknown” category falls to zero. The resulting rate of increase in the percentage of properly functioning streams would be only 1% per year. At this rate, it would take BLM until 2036 (nearly 40 years later than the original BLM target of 1997) to reach its goal of having 75% of its lotic riparian areas in proper functioning condition. The continuation of Current Management will not allow BLM to reach its riparian goals in a timely fashion.

At the local scale, some improvements in riparian and aquatic habitat would result from the continuing implementation of rangeland standards and guides as mandated under Current Management. The rangeland standards and guides process identifies where livestock grazing is a significant factor contributing to riparian sites not meeting standards. Once these sites are identified, livestock management practices should be modified to allow these sites to recover so that they will meet riparian standards. Improvements in riparian health depend on the willingness of local BLM managers to enforce changes in grazing management where livestock grazing is a significant factor in failing to achieve or make significant progress toward meeting the riparian standard. Once riparian degradation has been documented and livestock grazing is identified as a significant factor, changes in grazing management should lead to improved riparian conditions.

Regulations under Current Management provide only limited protection for riparian and aquatic habitat. Even with local improvements due to the proper implementation of rangeland standards and guides, in many areas riparian and aquatic conditions will remain static or decline under Current Management. Livestock are adapted to mesic habitats and spend a disproportionate amount of their time in riparian areas. Even with fewer livestock on the range and improved upland conditions in the long-term, livestock will continue to congregate in riparian areas. Livestock grazing and trampling in riparian areas results in reduced abundance and diversity of fish, aquatic invertebrates,

amphibians, birds, and threatened and endangered species. The removal of streamside vegetation by livestock leads to increased sedimentation, increased water temperatures due to loss of shading, and wider and shallower stream channels, all of which combine to degrade aquatic habitat.

PROPOSED ACTION – MANAGEMENT ALTERNATIVE 2

WILDLIFE

Terrestrial (including Migratory Birds)

The environmental impact changes analysis herein focuses on policy and regulation changes for livestock grazing as they affect wildlife populations and their habitats on the 162 million acres grazed by domestic livestock in the western United States. Implicit in the environmental consequences is the analysis of the policy and regulation changes as stated, as well as the *practical* and *legal* implications of these changes.

The Proposed Action will have a slow, long-term adverse impact on wildlife and biological diversity in general. Upland and riparian habitats will continue to decline due to increasing an already burdensome grazing appeals process, lack of ability to control illegal activities on public lands, and allowing livestock operators to acquire rights to livestock management facilities and vegetation on public lands. The cumulative effects resulting from all these changes will be significant and adverse for wildlife and biological diversity in the long-term. The numbers of special status species will continue to increase in the future under this alternative.

Significant losses of native habitats have been caused by agricultural conversion, rangeland conversion, livestock management, post-fire rehabilitation, wildfire, prescribed fire, structures, conifer expansion, exotic invasive plants, and wild horses and burros.

The current trend for upland habitats is unknown, but as the West is in the fifth year of a drought, it can be assumed that upland habitats are in poor and declining condition. The poor and declining trend in many western uplands is due not only to the drought conditions, but also the inherent inability to make livestock adjustments due to the existing burdensome grazing appeals process. This has had significant, long-term adverse impacts upon wildlife resources, including threatened and endangered and special status species.

In terms of improving working relationships with permittees and lessees, explicitly stating and emphasizing in the grazing regulations that the economic, social, and cultural elements be considered in when making grazing decisions will tend to give emphasis of these considerations over natural resource considerations, such as wildlife and special status species. The BLM is required by the National Environmental Policy Act of 1969 (Public Law 91-90; 42 U.S.C. 4321 et seq.) to use a systematic interdisciplinary approach, which ensures the integrated use of natural and social sciences and the design arts in planning and decision-making affecting the human environment. The grazing

regulations do not contain language specifically addressing the need for compliance with the NEPA.

Range improvement ownership has significant meaning with respect to a livestock operator's right to be there. That is, ownership of water or range improvements gives the livestock operator the right to be at any given point in time and any change in that right results in a "take". "Take" results in the permittee either being allowed to be grazing regardless of range condition and thus adversely impact wildlife resources or the permittee must be compensated. In the cases of *Hage v. United States*, 35 Fed. Cl. 147, 180 (1996) and *Hage v. United States*, 42 Fed. Cl. 249 (1998), the court held that the operator had indeed ownership of water rights and therefore the right to graze in order to utilize that water. Therefore, by establishing ownership of water or range improvements the livestock operator will have the right to graze and greatly diminishes the ability of the BLM to regulate grazing and will create long-term impacts to wildlife resources.

Authorizing joint title to range improvements will have very long lasting adverse impact to the wildlife of the public lands in the West. The proposed action would require that title to all new permanent, structural grazing-related range improvements constructed on public lands, or made to the vegetation resource on the public lands, except temporary or removable improvements, be held jointly between the cooperators and the United States in proportion to their initial contribution to on-the-ground project development and construction costs. Allowing permittees joint ownership of the vegetation of the public lands would give them ownership and therefore a right to "take" that vegetation regardless of adverse impacts to wildlife resources.

The BLM would continue work cooperatively with other cooperators in the development and construction of water-related range improvement projects including application for its proportional right to acquire, perfect, maintain and administer water rights, as allowed by State law. Some states, such as Nevada, are passing laws prohibiting the federal government from owning water rights, which adversely affects wildlife resources. Under these laws the BLM would not be able to hold water rights for the wildlife resources on public lands, thus there will be a long-term adverse to wildlife and special status species as BLM will be unable to require that water be made available for wildlife during time periods when livestock are not grazing. Present ability of BLM to hold water rights to benefit wildlife, particularly fish has been significant. Deferring to state water law, as in the case of Nevada, where they prohibit the BLM from holding water rights will have a long-term, adverse impact on wildlife, particularly fish. Where BLM does not have some control over the water, livestock facilities are often shut off when livestock are absent, but wildlife could use the facilities. Exclusive control of water will reduce wildlife habitat quality by promoting wildlife-livestock conflicts.

Under current regulations, the determination that livestock grazing practices are a significant factor in failing to achieve the rangeland health standards or making significant progress toward the fundamentals of rangeland health, BLM is required to formulate, propose, and analyze appropriate actions to address the failure to meet the rangeland health standards by the next grazing season after the determination. Amending

when BLM will make changes in grazing management when not meeting land health standards from the present requirement of the next grazing season to 24 months and that any adjustment in active use in excess of 10% must be implemented over a 5-year period could have significant and long-term adverse effects upon wildlife resources and biological biodiversity in general, but could be especially problematic for many of the special status species on public lands, especially plants.

The proposed changes for protecting the health of the rangelands:

1. Grazing decisions would require not only a land health assessment, but also monitoring data. BLM, in fact, lacks sufficient funding and staffing to perform adequate monitoring.
2. After a grazing decision record of decision there is a 2 year period allowed prior for making any changes in the grazing operation.
3. Proposed changes in active use greater than 10% would require a 5 year phase-in period.

All of these cumulative delaying tactics could result in a protracted 7 year period for full implementation and change and thus would result in a long-term, adverse impact upon wildlife resources and biological diversity, including threatened and endangered and special status species.

The additional provision that determinations that existing grazing management practices or levels of grazing use are significant factors in failing to achieve standards and conform with guidelines must be based on not only the standards and guidelines assessment, but also include monitoring data will further delay the grazing decision process. Present BLM funding and staffing levels do not provide adequate resources for even minimal monitoring and the additional monitoring requirement will further burden the grazing decision process, thus adversely impacting wildlife resources and biological resources in the long-term.

Of the riparian habitats on public lands in the lower 48 states in 2001, only 42 % are in proper functioning condition, that is to say, they are meeting the physical characteristics necessary for proper functions, but are not indicative of proper biological function. The remaining 48 % are functioning at risk, non-functional, or unknown status (BLM 2002). The downward trend in riparian habitats is due to the difficulty in preventing livestock from congregating in riparian/wetland habitats and the current amount of year-long and continuous season-long grazing. Adverse, historic impacts which have been realized on riparian obligates and dependent species, especially fishes and migratory birds, will be exacerbated under the Proposed Action largely due to the inherent inability to make livestock adjustments due to increasing the burdensome grazing appeals process.

Of the wetlands habitats on public lands in the lower 48 states in 2001, only 51 % are in proper functioning condition. Once again, they are meeting the physical characteristics necessary for proper functions, but are not indicative of proper biological function. The remaining 49 % are functioning at risk, non-functional, or unknown status (BLM 2002).

Adverse, historic impacts which have been realized on wetland species will be exacerbated under the Proposed Action largely due the inherent inability to make livestock adjustments due to the burdensome grazing appeals process which will increase.

The change in definition of “interested public” will limit the ability of environmental groups to participate in the appeals process in the interest of wildlife. Including all interested parties in the appeals process has had a long-term positive impact for wildlife and special status species. Redefining “interested public” as an individual, group or organization that has: (1) submitted a written request to BLM to be provided an opportunity to be involved in the process leading to a decision for management of livestock grazing and followed up on that request by commenting on or otherwise participating in the decision-making process on management of a specific allotment; or (2) submitted written comments to the BLM regarding management of livestock grazing on a specific allotment, as part of the process leading to a BLM decision on the management of livestock grazing on the allotment will lessen the ability of environmental groups and organizations to participate in weigh in and support wildlife and special status species with regard to public land grazing issues.

This should result in long-term, adverse impacts to wildlife and special status species on public lands.

The deletion of the requirements to consult, cooperate and coordinate with or seek review and comment from the “interested public” for designating and adjusting allotment boundaries, reducing permitted use, emergency closures or modifications, renewing/issuing grazing permit/leases, modifying a permit/lease and issuing temporary non-renewable grazing permits will further reduce the ability of environmental groups and organizations to participate in weigh in and support wildlife and special status species with regard to public land grazing issues. This should result in long-term adverse impacts to wildlife and special status species on public lands.

The requirement for the BLM to cooperate with State, local, or county established grazing boards in reviewing range improvements and allotment management plans on public lands will result in giving permittees and lessees greater access to the decision making process at the expense of conservation groups who are advocates for wildlife resources. First, this requirement will give greater emphasis to local entities who favor extraction of forage and water resources at the expense of wildlife and biological diversity. Secondly, this requirement will give local entities greater influence over decision making than national interests who are excluded from this venue. This would be a long-term adverse impact for wildlife and special status species resources.

Providing permittees and lessees, the state having lands or responsibility for managing resources within the area, and the interested public the opportunity to review and comment on biological assessments prepared under the Endangered Species Act should have no impact on wildlife resources, other than delaying the process, but it is nonetheless a good cooperative business practice. Any required concurrence by the livestock permittee or lessee or other entity would negate the intent of the Endangered Species Act.

In terms of rangeland health, the requirement that the BLM could approve non-use for no longer than one year at a time for resource reasons as well as for business/personal needs of the permittee/lessee will create an administrative workload for BLM, but should have little impact upon wildlife resources.

Current regulations allow livestock operators to be cited for certain prohibited acts. Elimination of these prohibited acts (i.e., Placing poisonous bait or hazardous devices to kill wildlife, applying or storing pesticides, herbicides, or other hazardous material, altering or destroying natural stream courses without authorization, polluting water sources, aiding and abetting or directly illegally taking, destroying, or harassing fish and wildlife, and illegally removing or destroying archeological or cultural resources) will have a significant, long-term adverse impact on wildlife and special status species. Even though there may be other regulatory mechanisms for enforcement none of these regulatory mechanisms are presently effective. Examples include poisoning prairie dogs and ground squirrels, killing gray and Mexican wolves, grizzly bear jaguars and mt. lions, diverting water sources from historic Lahontan cutthroat habitat, etc. All of these illegal activities are conducted in support of their livestock operations and are thus directly related to livestock grazing activities. While none of these prohibited acts have been utilized to penalize a permittee, there is no way to ascertain how many permittees were influenced not to perform a prohibited act. We do know that a livestock operator in Montana, not connected to a BLM permit, did poison prairie dogs on public lands with no opportunity for enforcement due to state law permitting prairie dog poisoning.

Inclusion of prohibited acts as “terms and conditions” in grazing permits has been used rather sparingly and has not historically constituted an effective prohibition.

The exclusion of certain grazing permit or lease renewals or other proposed actions from EIS or EA analysis will have a negative impact on wildlife resources. Even though they do not individually or cumulatively have a significant effect on the human environment, it will limit wildlife input into allotments needing change to benefit wildlife species. This will also further restrict BLMs ability to assess cumulative impacts of livestock grazing on wildlife and special status species.

Allowing BLM managers to lock gates on public lands at the request of livestock operators will further restrict wildlife recreational users from using the public lands whether for hunting, fishing, or wildlife viewing.

Timely implementation of grazing decisions for correcting environmental damage has resulted in reducing resource damage, benefiting more diverse, healthier ecosystems. Staying decisions prior to resolving an appeal will have significant adverse impacts upon such listed species as Lahontan cutthroat trout, desert tortoise, southwestern willow flycatchers, yellow-billed cuckoo, Bell’s vireo, northern beardless tyrannulets, and countless threatened, endangered, proposed, and candidate plant species. It is doubtful that conservation partnerships, RCAs, voluntary restructuring of allotments, or conservation easements would have any beneficial impact to wildlife, especially listed species, unless there is a change within the livestock grazing industry. Traditionally,

livestock operators have shown a desire to appeal proposed grazing decisions, regardless of the impacts upon listed species.

SPECIAL STATUS SPECIES

Terrestrial (including Migratory Birds)

Please refer to the impacts section under the previous Wildlife section , as those impacts will also apply to special status species and in many cases be exacerbated for special status species who are either threatened or endangered or sensitive due to low population levels, degraded habitats, or endemism.

The BLM Special Status Species Management Policy (Manual 6840) ensures that actions authorized or approved by BLM are consistent with the conservation needs of special status species and do not contribute to the need to list any special status species. Conservation of special status species means the use of all methods and procedures which are necessary to improve the condition of special status species and their habitats to a point where their special status recognition is no longer warranted.

Special status species are defined as those proposed for listing under the Endangered Species Act (ESA), officially listed as threatened or endangered under the ESA, those listed by a State in a category such as threatened or endangered implying potential endangerment or extinction, or those designated by each BLM State Director as sensitive.

It is BLM policy to conserve listed species and the ecosystem upon which they depend. BLM shall manage species proposed for listing under the ESA as threatened or endangered and proposed critical habitat with the same level of protection provided for listed species. For candidate species, BLM shall implement management plans that conserve the species and habitats and ensure that actions authorized, funded, or carried out by BLM do not contribute to the need to list the species. The protection provided by the 6840 policy for candidate species shall be used as the minimum level for protection for BLM sensitive species. State listed species shall be managed consistent with state laws protecting these species to the extent that they are consistent with FLPMA and other federal laws.

The proposed changes for protecting the health of the rangelands:

4. Grazing decisions would require not only a land health assessment, but also monitoring data. BLM, in fact, lacks sufficient funding and staffing to perform adequate monitoring.
5. After a grazing decision record of decision there is a 2 year period allowed prior for making any changes in the grazing operation.
6. Proposed changes in active use greater than 10% would require a 5 year phase-in period.

All of these cumulative delaying tactics could result in a protracted 7 year period to effect change and thus would result in a long-term, adverse impact upon wildlife resources and biological diversity, including special status species. Changes in active use in excess of 10% would be implemented over a 5-year period unless the changes must be made before 5 years to comply with applicable law (e.g., Endangered Species Act). The excepted provision for the Endangered Species Act will result in BLM being able to make necessary adjustments within a reasonable timeframe, thus reducing adverse impacts to listed threatened or endangered species.

All of these cumulative delaying tactics would result in a long-term, adverse impact upon special status species and biological diversity, especially special status species such as Gunnison and greater sage-grouse, mountain plover, pygmy rabbit, mountain quail, etc. Wisdom et al. (2003) identified 363 species of conservation concern in the sagebrush ecosystem in the western United States alone, of which 70% are plants. These 363 species are considered to be at risk of regional extirpation owing to habitat or population declines or rarity (Wisdom et al. 2003).

RIPARIAN, WETLAND, AND AQUATIC COMMUNITIES

Under the Proposed Action, riparian, wetland, and aquatic resources will improve with the implementation of some actions under consideration and decline with the implementation of others. The Proposed Action will change several elements of BLM's current management policies, regulations, and management practices. Each of the key elements that will be changed is discussed below, including an analysis of the effect of that change on riparian, wetland, and aquatic resources.

Authorizing Joint Title for Range Improvement Projects: Allowing title to range improvements to be held jointly would not affect riparian or aquatic resources in the short-term. The long-term effect of this action would be positive, since range improvements tied to improving distribution of livestock (upland water developments, riparian pasture fences, exclosure fences, etc.) would likely be maintained more regularly as a result of joint title.

Water Rights: Eliminating the current regulation on water rights for livestock grazing would have a negative effect on riparian and aquatic conditions if BLM loses its ability to file for instream flow water rights. Negative impacts to riparian habitat would result if water rights on existing or newly discovered springs were exercised such that the natural spring source and outflow are altered or dewatered.

Prohibited Acts: Elimination of several acts prohibited by current regulations would have both short and long term negative effects for riparian and aquatic resources. If BLM loses its enforcement authority to punish violators by not issuing, suspending, or canceling their grazing permits, then these prohibited acts become more likely to occur on public lands. The elimination of five prohibited acts under the Proposed Action would

directly and negatively affect riparian and/or aquatic resources. The effects of eliminating these prohibited acts are as follows:

- Placement of poisonous bait or hazardous devices designed for the destruction of wildlife: Placing poisonous bait or hazardous devices to kill wildlife often involves the use of cyanide, which is lethal to fish and aquatic invertebrates.
- Application or storage of pesticides, herbicides, or other hazardous materials: Improper application of pesticides or herbicides can kill fish and aquatic invertebrates. In addition, riparian vegetation is sometimes targeted for removal with herbicides due to the mistaken perception that willows (*Salix spp.*) and other riparian species dewater streams and ditches. These species are vital to properly functioning riparian systems and, by storing water in stream banks, actually increase late season stream flows by releasing the stored water slowly over time as flows decline.
- Alteration or destruction of natural stream courses without authorization: Unauthorized alteration of stream courses would lead to loss of aquatic habitat diversity and destruction of riparian vegetation if a stream is straightened or channelized. Streams are often straightened or altered in an effort to bring more agricultural land into production or to facilitate water removal from a stream into an irrigation ditch. Channelization of streams leads to increased erosion and downcutting of the stream channel due to increased stream gradient.
- Pollution of water sources: Polluting water sources directly and negatively affects fish and aquatic invertebrate populations.
- Illegal take, destruction or harassment, or aiding and abetting in the illegal take, destruction or harassment of fish and wildlife resources: Aiding and abetting in, or directly illegally taking, destroying, or harassing wildlife or fish directly and negatively affects fish populations.

The provision to allow placement of locking devices on fence gates under the Proposed Action would have positive effects on riparian and aquatic resources if locks were placed for protection of natural resources. Closing roads due to wet conditions would decrease erosion and sedimentation and indirectly benefit aquatic resources.

Prohibiting the introduction of invasive species under the Proposed Action would also have a positive effect on riparian and aquatic conditions. The spread of aggressive invasive species such as tamarisk (*Tamarix spp.*), purple loosestrife (*Lythrum salicaria*), and Russian olive (*Elaeagnus angustifolia*) are negatively impacting riparian communities on public lands. These aggressive invasive species crowd out native riparian species and do not provide the deep roots of willows, sedges (*Carex spp.*), or cottonwoods (*Populus spp.*) that hold the streambank in place during high flow events. Introduction of non-native invasive fish species also has had a negative effect on fish communities on public lands by displacing native fish species and compromising their genetic purity (i.e., native cutthroat trout (*Oncorhynchus spp.*)). Making the introduction of invasive species a prohibited act will decrease the likelihood that they will be knowingly introduced.

Administrative Remedies: Narrowing the definition of who is considered a “party” to a case will negatively affect riparian and aquatic resources. Current regulations allow any “interested public” to appeal a grazing decision. In most instances, the “interested public” who appeals grazing decisions is a conservation organization whose appeal is based on documentation of negative impacts from livestock grazing to riparian, fisheries, wildlife, or threatened and endangered species habitat. Conservation organizations help BLM by identifying and documenting detrimental livestock grazing impacts on public lands, which enables BLM to more effectively protect riparian and aquatic habitat.

Temporary Nonuse: Extending the period for temporary nonuse from a maximum of three years to five years would positively benefit riparian and aquatic resources. Although riparian areas typically respond quickly to the removal of livestock grazing, complete recovery is a slower process. A five year period of rest from livestock grazing would allow ecological processes disrupted by livestock grazing (recruitment of young woody species, recovery of vegetation which protects stream banks and attenuates high flows, channel narrowing and stream bank stabilization as riparian vegetation traps sediment, etc.) to recover and function properly. Extending the maximum amount of time for temporary nonuse indefinitely would provide greater benefits in situations where five years of recovery is not adequate to restore ecological function.

Excluding Certain Lease Renewals from NEPA Compliance: The Proposed Action would exclude certain renewals of grazing permits or leases from NEPA analysis. The implementation of this action would have a negative effect on riparian and aquatic resources. Bypassing NEPA analysis would eliminate BLM’s obligation to assess and document existing riparian and aquatic conditions on a site specific basis. Without NEPA analysis, BLM would be unable to add stipulations designed to maintain or enhance riparian and aquatic conditions to grazing permits.

Permitted Use: Under this section of the Proposed Action, BLM would gain authority to create RCA’s. Creation of RCA’s would have a mixed effect on riparian and aquatic resources. The positive effect will be that RCA’s will provide a place for permittees to graze their livestock while the land attached to their base property undergoes restoration. The negative effects of RCA’s are twofold: First, RCA’s would be located on public lands that would otherwise be ungrazed. Since the ungrazed condition is optimal for riparian and aquatic resources, any grazing will lead to a decline in riparian and aquatic condition on RCA lands. Secondly, in some cases, RCA’s would serve as a “safety net” for permittees who have mismanaged land assigned to their base property by giving permittees an option to continue grazing while their home range undergoes restoration and recovery. The availability of RCA’s may, in some instances, serve to remove the incentive for permittees to graze their public land allotment responsibly.

Standard and Guideline Appropriate Action Implementation: If livestock grazing is determined to be a significant factor contributing to a riparian area not meeting land health standards, delaying any changes in the grazing permit for up to 18 months, as planned in the Proposed Action, will allow for additional degradation of riparian and aquatic habitat. In the case of a riparian area that is functioning-at-risk with a downward

trend, one additional grazing season combined with a high flow event could cause the system to become non-functional.

Removing the Provision for Conservation Use Permits: Removal of this provision as recommended in the Proposed Action would negatively affect riparian and aquatic resources. Conservation use permits would be issued to groups or individuals who do not plan to graze livestock on their allotment. Under this provision, groups or individuals would actively seek allotments that contain valuable riparian or threatened and endangered species habitat. The removal of livestock from allotments that are most vulnerable to degradation from livestock grazing via the issuance of a conservation use permit would have both short and long-term benefits for riparian and aquatic resources.

Water Resources

The proposed action will provide additional tools to exacerbate long term impacts on riparian habitats, channel morphology and water quality. Degradation of channel morphology and water quality will continue in watersheds with declining vegetative cover due in-large to the increasing and burdensome administrative procedural requirements for assessment and for acquisition of monitoring data.

Many rangeland watersheds throughout the western United States are currently stressed as a result of on-going drought conditions. The proposed extension(s) of time:

| | |
|--|-------------|
| Grazing decisions requirement land health assessment monitoring data | 2 –3 years |
| Following a grazing decision record of decision up to a 2 year planning period plus by application of decision to allotment but not later than start of next grazing year, an additional year. | 2 – 3 years |
| Proposed changes in active use greater than 10% would require up to a 5 year phase-in period. | 5 years |
| The West experiences below average rainfall every 6 out of 10 years actual on the ground improvements would require | ? |
| Protracted 10 year decision process plus the favorable climatic conditions to effect vegetation improvement | 10 + years |
| Litigation- appeals | ? |

abrogate our responsibility for management of water quality as codified in Section 313 of the Water Quality Act of 1987 (P.L. 100-4); and further, committed to by designation by most as a “Designated Management Agency”. Delaying modification of grazing

prescriptions when an where warranted and/or mitigation of damages created by failure to implement a Best Management Practices(BMPs) iterative process will continue to stress western watersheds.

The requirement for the BLM to cooperate with State, Local, and county established grazing boards in reviewing range improvements and allotment management plans could further delay mitigation and would give permittees greater access to the decision making process, at the expense of environmental groups and other public land users.

Reliance upon regulatory agencies to enforce environmental law and the potential for delaying implementation of appropriate on-the-ground resource management decisions could further prolong decisive actions to restore or maintain channel integrity and function and water quality.

The proposed changes water right direction will lead the “wait and see” States to enact legislation, like Nevada’s, to exclude federal ownership of water rights for livestock grazing. This potentially could lead to further takings litigation when and where ranchers are stripped of their grazing permits for non-payment of grazing fees or chronic trespass. With the ownership of certificated water rights comes a sense of ownership or control of an allotment and strips land managers of their ability to make science based resource management decisions.

MANAGEMENT ALTERNATIVE 3

WILDLIFE

Terrestrial (including Migratory Birds)

The impacts upon wildlife species in Alternative 3 are identical to those identified for Alternative 2, with the following exceptions:

The requirement that any change in active use in excess of 10% would be discretionary rather than mandatory would result in BLM being able to make changes on the ground in less than mandated 5 year period. This would greatly reduce the adverse impacts to wildlife resources.

The ability of BLM to base rangeland health determinations on a rangeland health assessment and/or monitoring data would greatly enhance BLM’s ability to take corrective action at the earliest date within existing funding and staffing. This would be a significant improvement over Alternative 2 where monitoring data would be required.

SPECIAL STATUS SPECIES

Terrestrial (including Migratory Birds)

The BLM Special Status Species Management Policy (Manual 6840) ensures that actions authorized or approved by BLM are consistent with the conservation needs of special status species and do not contribute to the need to list any special status species. Conservation of special status species means the use of all methods and procedures which are necessary to improve the condition of special status species and their habitats to a point where their special status recognition is no longer warranted.

Special status species are defined as those proposed for listing under the Endangered Species Act (ESA), officially listed as threatened or endangered under the ESA, those listed by a State in a category such as threatened or endangered implying potential endangerment or extinction, or those designated by each BLM State Director as sensitive.

It is BLM policy to conserve listed species and the ecosystem upon which they depend. BLM shall manage species proposed for listing under the ESA as threatened or endangered and proposed critical habitat with the same level of protection provided for listed species. For candidate species, BLM shall implement management plans that conserve the species and habitats and ensure that actions authorized, funded, or carried out by BLM do not contribute to the need to list the species. The protection provided by the 6840 policy for candidate species shall be used as the minimum level for protection for BLM sensitive species. State listed species shall be managed consistent with state laws protecting these species to the extent that they are consistent with FLPMA and other federal laws.

Changes in active use in excess of 10% would be implemented over a 5-year period unless the changes must be made before 5 years to comply with applicable law (e.g., Endangered Species Act). The excepted provision for the Endangered Species Act will result in BLM being able to make necessary adjustments within a reasonable timeframe, thus reducing adverse impacts to listed species.

RIPARIAN, WETLAND, AND AQUATIC COMMUNITIES

Temporary Nonuse: Extending the period for temporary nonuse from a maximum of three years to five years would positively benefit riparian and aquatic resources. Although riparian areas typically respond quickly to the removal of livestock grazing, complete recovery is a slower process. A five year period of rest from livestock grazing would allow ecological processes disrupted by livestock grazing (recruitment of young woody species, recovery of vegetation which protects stream banks and attenuates high flows, channel narrowing and stream bank stabilization as riparian vegetation traps sediment, etc.) to recover and function properly. Extending the maximum amount of time for temporary nonuse indefinitely would provide greater benefits in situations where five years of recovery is not adequate to restore ecological function.

Permitted Use: Under this section of the Proposed Action, BLM would gain authority to create RCA's. Creation of RCA's would have a mixed effect on riparian and aquatic

resources. The positive effect will be that RCA's will provide a place for permittees to graze their livestock while the land attached to their base property undergoes restoration. The negative effects of RCA's are twofold: First, RCA's would be located on public lands that would otherwise be ungrazed. Since the ungrazed condition is optimal for riparian and aquatic resources, any grazing will lead to a decline in riparian and aquatic condition on RCA lands. Secondly, in some cases, RCA's would serve as a "safety net" for permittees who have mismanaged land assigned to their base property by giving permittees an option to continue grazing while their home range undergoes restoration and recovery. The availability of RCA's may, in some instances, serve to remove the incentive for permittees to graze their public land allotment responsibly.

Consultation

At no time during the preparation of this draft EIS did BLM formally consult with the Fish and Wildlife Service (FWS) or National Marine Fisheries Service (NMFS) on listed species or informally conference on species proposed for listing under section 7 of the Endangered Species Act.

Before implementing actions that might affect listed or proposed species at the regional or site specific level, BLM would consult or confer with the FWS or NMFS.

Cumulative Impact Analysis

Cumulative impacts to wildlife and special status species resources are directly related to the incremental habitat loss, fragmentation, wildfire, invasive species, drought, urbanization, etc that have occurred since the mid 1800s.

Cumulative impacts resulting from the incremental impacts of delaying implementation of grazing decisions would result in long-term adverse impacts upon wildlife, special status species in particular, and biological diversity in general.

Incremental habitat loss and habitat fragmentation due to wildfires, drought, invasive species, and excessive livestock grazing will continue to adversely affect biological diversity, wildlife, and special status species. The sage-grouse, pygmy rabbit, and mt. plover, in particular, would be cumulatively affected by the past, present, and reasonably foreseeable loss of habitat.

Irreversible and Irretrievable Commitment of Resources.

The proposed action would result in a long-term, adverse effect upon special status species and biological diversity, resulting in an irreversible and irretrievable commitment of resources. Habitat loss and degradation is often irretrievable and irreversible even in the long-term due to soil loss and other changes in habitat features. The most significant

of these would be the loss of habitat for special status species such as Gunnison and greater sage-grouse, mountain plover, pygmy rabbit, mountain quail, and others.

Quantifying the actual loss of additional wildlife habitat, special status species, and biological diversity in the west is impossible, but it could be very significant..

Short-term vs. Long-term

Short-term is defined as 10 years; long-term is defined as the future beyond 10 years.

Historical loss of wildlife habitat in the west due to livestock grazing, drought, wildfires, and invasive species has been considerable. Additional habitat degradation and fragmentation due to livestock grazing and wildfires will result in further loss of biological diversity.

Impacts in the short and long-term associated with the delay in implementation of grazing decisions would adversely impact wildlife and special status species habitats, as well as biological diversity in general. Impacts to long-term productivity will depend upon BLM's ability to make land use decisions in a timely manner.

The short-term and long-term impacts are least under the No Action Alternative, greater for the Proposed Action, and to a small degree less under Alternative 3.