

**LIST OF APPENDICES
FOR VERMILION CLIFFS NATIONAL MONUMENT APPROVED PLAN**

APPENDIX A: VERMILION CLIFFS NATIONAL MONUMENT PROCLAMATION	A-1
APPENDIX B: U.S. FISH AND WILDLIFE SERVICE CONSULTATION: PORTIONS OF THE BIOLOGICAL OPINION.....	B-1
APPENDIX C: ARIZONA STANDARDS AND GUIDELINES FOR LIVESTOCK GRAZING MANAGEMENT.....	C-1
APPENDIX D: LIVESTOCK GRAZING ALLOTMENT MANAGEMENT STATUS	D-1
APPENDIX E: LIVESTOCK GRAZING ALLOTMENT ACRES AND ANIMAL UNIT MONTHS (AUMs) BY LAND STATUS	E-1
APPENDIX F: VEGETATION TREATMENT TOOLS AND METHODS.....	F-1
APPENDIX G: CONSERVATION MEASURES FOR SPECIAL STATUS SPECIES.....	G-1
APPENDIX H: VISUAL RESOURCE MANAGEMENT CLASSES AND OBJECTIVES FOR CLASSES.....	H-1
APPENDIX I: RECLAMATION STIPULATIONS	I-1
APPENDIX J: RECREATION MANAGEMENT AREAS.....	J-1
APPENDIX K: TRAVEL MANAGEMENT AREAS, TRANSPORTATION PLAN CONTENTS, AND APPROPRIATE ROUTE CONSTRUCTION AND MAINTENANCE STANDARDS BY TRAVEL MANAGEMENT AREA ..	K-1
APPENDIX L: LIST OF PREPARERS	L-1

APPENDIX A

**VERMILION CLIFFS NATIONAL MONUMENT
PROCLAMATION**

APPENDIX A: VERMILION CLIFFS NATIONAL MONUMENT PROCLAMATION

Establishment of the Vermilion Cliffs National Monument (#7374)

By the President of the United States of America

A Proclamation

Amid the sandstone slickrock, brilliant cliffs, and rolling sandy plateaus of the Vermilion Cliffs National Monument lie outstanding objects of scientific and historic interest. Despite its arid climate and rugged isolation, the monument contains a wide variety of biological objects and has a long and rich human history. Full of natural splendor and a sense of solitude, this area remains remote and unspoiled, qualities that are essential to the protection of the scientific and historic objects it contains.

The monument is a geological treasure. Its centerpiece is the majestic Paria Plateau, a grand terrace lying between two great geologic structures, the East Kaibab and the Echo Cliffs monoclines. The Vermilion Cliffs, which lie along the southern edge of the Paria Plateau, rise 3,000 feet in a spectacular escarpment capped with sandstone underlain by multicolored, actively eroding, dissected layers of shale and sandstone. The stunning Paria River Canyon winds along the east side of the plateau to the Colorado River. Erosion of the sedimentary rocks in this 2,500 foot deep canyon has produced a variety of geologic objects and associated landscape features such as amphitheatres, arches, and massive sandstone walls.

In the northwest portion of the monument lies Coyote Buttes, a geologically spectacular area where crossbeds of the Navajo Sandstone exhibit colorful banding in surreal hues of yellow, orange, pink, and red caused by the precipitation of manganese, iron, and other oxides. Thin veins or fins of calcite cut across the sandstone, adding another dimension to the landscape.

Humans have explored and lived on the plateau and surrounding canyons for thousands of years, since the earliest known hunters and gatherers crossed the area 12,000 or more years ago. Some of the earliest rock art in the Southwest can be found in the monument. High densities of Ancestral Puebloan sites can also be found, including remnants of large and small villages, some with intact standing walls, fieldhouses, trails, granaries, burials, and camps.

The monument was a crossroad for many historic expeditions. In 1776, the Dominguez-Escalante expedition of Spanish explorers traversed the monument in search of a safe crossing of the Colorado River. After a first attempt at crossing the Colorado near the mouth of the Paria River failed, the explorers traveled up the Paria Canyon in the monument until finding a steep hillside they could negotiate with horses. This took them out of the Paria Canyon to the east and up into the Ferry Swale area, after which they achieved their goal at the Crossing of the Fathers east of the monument. Antonio Armijo's 1829 Mexican trading expedition followed the Dominguez route on the way from Santa Fe to Los Angeles.

Later, Mormon exploring parties led by Jacob Hamblin crossed south of the Vermilion Cliffs on missionary expeditions to the Hopi villages. Mormon pioneer John D. Lee established Lee's Ferry on the

Colorado River just south of the monument in 1871. This paved the way for homesteads in the monument, still visible in remnants of historic ranch structures and associated objects that tell the stories of early settlement. The route taken by the Mormon explorers along the base of the Paria Plateau will later become known as the Old Arizona Road or Honeymoon Trail. After the temple in St. George, Utah was completed in 1877, the Honeymoon Trail was used by Mormon couples who had already been married by civil authorities in the Arizona settlements, but also made the arduous trip to St. George to have their marriages solemnized in the temple. The settlement of the monument area by Mormon pioneers overlapped with another historic exploration by John Wesley Powell, who passed through the monument during his scientific surveys of 1871.

The monument contains outstanding biological objects that have been preserved by remoteness and limited travel corridors. The monument's vegetation is a unique combination of cold desert flora and warm desert grassland, and includes one threatened species, Welsh's milkweed. This unusual plant, known only in Utah and Arizona, colonizes and stabilizes shifting sand dunes, but is crowded out once other vegetation encroaches.

Despite sporadic rainfall and widely scattered ephemeral water sources, the monument supports a variety of wildlife species. At least twenty species of raptors have been documented in the monument, as well as a variety of reptiles and amphibians. California condors have been reintroduced into the monument in an effort to establish another wild population of this highly endangered species. Desert bighorn sheep, pronghorn antelope, mountain lion, and other mammals roam the canyons and plateaus. The Paria River supports sensitive native fish, including the flannelmouth sucker and the speckled dace.

Section 2 of the Act of June 8, 1906 (34 Stat. 225, 16 U.S.C. 431) authorizes the President, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments, and to reserve as a part thereof parcels of land, the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected.

WHEREAS it appears that it will be in the public interest to reserve such lands as a national monument to be known as the Vermilion Cliffs National Monument:

NOW, THEREFORE, I, William J. Clinton, President of the United States of America, by the authority vested in me by section 2 of the Act of June 8, 1906 (34 Stat. 225, 16 U.S.C. 431), do proclaim that there are hereby set apart and reserved as the Vermilion Cliffs National Monument, for the purpose of protecting the objects identified above, all lands and interests in lands owned or controlled by the United States within the boundaries of the area described on the map entitled "Vermilion Cliffs National Monument" attached to and forming a part of this proclamation.

The Federal land and interests in land reserved consist of approximately 293,000 acres, which is the smallest area compatible with the proper care and management of the objects to be protected.

All Federal lands and interests in lands within the boundaries of this monument are hereby appropriated and withdrawn from all forms of entry, location, selection, sale, or leasing or other disposition under the public land laws, including but not limited to withdrawal from location, entry, and patent under the

mining laws, and from disposition under all laws relating to mineral and geothermal leasing, other than by exchange that furthers the protective purposes of the monument. For the purpose of protecting the objects identified above, the Secretary shall prohibit all motorized and mechanized vehicle use off road, except for emergency or authorized administrative purposes.

Lands and interests in lands within the proposed monument not owned by the United States shall be reserved as a part of the monument upon acquisition of title thereto by the United States.

The Secretary of the Interior shall manage the monument through the Bureau of Land Management, pursuant to applicable legal authorities, to implement the purposes of this proclamation.

The Secretary of the Interior shall prepare a transportation plan that addresses the actions, including road closures or travel restrictions, necessary to protect the objects identified in this proclamation.

The establishment of this monument is subject to valid existing rights.

Nothing in this proclamation shall be deemed to enlarge or diminish the jurisdiction of the State of Arizona with respect to fish and wildlife management.

This proclamation does not reserve water as a matter of Federal law.

Nothing in this reservation shall be construed as a relinquishment or reduction of any water use or rights reserved or appropriated by the United States on or before the date of this proclamation. The Secretary shall work with appropriate State authorities to ensure that any water resources needed for monument purposes are available. Laws, regulations, and policies followed by the Bureau of Land Management in issuing and administering grazing permits or leases on all lands under its jurisdiction shall continue to apply with regard to the lands in the monument.

Nothing in this proclamation shall be deemed to revoke any existing withdrawal, reservation, or appropriation; however, the national monument shall be the dominant reservation. Warning is hereby given to all unauthorized persons not to appropriate, injure, destroy, or remove any feature of this monument and not to locate or settle upon any of the lands thereof.

IN WITNESS WHEREOF, I have hereunto set my hand this ninth day of November, in the year of our Lord two thousand, and of the Independence of the United States of America the two hundred and twenty-fifth.

WILLIAM J. CLINTON

APPENDIX B

U.S. FISH AND WILDLIFE SERVICE CONSULTATION PORTIONS OF THE BIOLOGICAL OPINION

INCIDENTAL TAKE, REASONABLE AND PRUDENT MEASURES WITH TERMS AND CONDITIONS, AND CONSERVATION RECOMMENDATIONS

APPENDIX B: U.S. FISH AND WILDLIFE SERVICE CONSULTATION: PORTIONS OF THE BIOLOGICAL OPINION

INCIDENTAL TAKE, REASONABLE AND PRUDENT MEASURES WITH TERMS AND CONDITIONS, AND CONSERVATION RECOMMENDATIONS

The following are pages 105 through 118 from the Biological Opinion for the Arizona Strip Resource Management Plan, which includes Vermilion Cliffs National Monument, dated November 7, 2007 (refer to U. S. Fish and Wildlife Service [USUSFWS] document number AESO/SE [Arizona Ecological Services Office/Species Endangered], 22410-2002-F-0277-R1, 22410-2007-F-0463).

INCIDENTAL TAKE STATEMENT

Section 9 of the Endangered Species Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. “Take” is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. “Harm” is defined (50 CFR 17.3) to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. “Harass” is defined (50 CFR 17.3) as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. “Incidental take” is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

AMOUNT OF EXTENT OF TAKE

We recognize that some flexibility is built into, and some uncertainty is inherent in, some of the conservation measures that are part of the proposed action. We included consideration of that flexibility and uncertainty into our analysis in determining the amount of incidental take that we anticipate for each species.

California Condor

This Amount or Extent of Take section applies to condors occurring on NPS-administered land within the Arizona Strip District within the California condor nonessential experimental

population, and Arizona Strip District land outside of the nonessential experimental population area.

Because condors that occur in the project area are known and are monitored, detecting any incidences of harm, harassment, injury, or death of individuals will be straightforward. However, because condors occur only rarely outside of the nonessential experimental population area, and because these areas are a considerable distance from nesting and roosting habitat, we do not anticipate that the proposed action will incidentally take any California condors.

Mexican Spotted Owl

As of the date of this biological opinion, most of the approximately 13,000 acres of Mexican Spotted Owl (MSO) canyon habitat on Bureau of Land Management (BLM) land in the project area have not been surveyed to protocol, and no MSO PACs have been designated. However, BLM considers the unsurveyed habitat to be occupied by MSO due to the presence of key habitat components in these areas that provide high-potential for nesting and roosting MSO to occupy the area. Based upon this information, we are reasonably certain MSO currently occur within the action area. As surveys are conducted over the life of the proposed action, MSO may be detected in the project area. The USUSFWS anticipates that incidental take of MSO may result from vegetation treatments (not including fuels management), noxious weed control, mineral development, and permitted recreation that may be authorized under the proposed action. We anticipate that the take of MSOs will be difficult to detect because finding a dead or impaired specimen is unlikely, especially due to the remote nature of most of the MSO habitat in the action area. However, the level of incidental take can be anticipated by the loss of key habitat components and long-term disturbance that may affect the reproductive success and survival of the MSO within the project area. We anticipate that four MSO (two pairs) associated with habitat the BLM considers to be occupied (Paria, Kanab, and Hack canyon areas) may be taken as a result of the proposed action. The incidental take is expected to be in the form of harm and harassment resulting from the disruption of breeding, feeding, and sheltering activities from mineral development, permitted recreation, vegetation treatments and management, and noxious weed control.

The USUSFWS completed a biological opinion on September 3, 2004 (02-21-03-F-0210) for a fire and fuels management program on BLM-administered lands within Arizona. That opinion issued an incidental take statement for MSO for fire suppression and fuels management activities. That programmatic opinion included incidental take that could occur from the fire management program as a result of this proposed action. The following Incidental Take Statement is carried forward from the 2004 opinion:

Fire Suppression, and Fire and Fuels Management Treatments

We anticipate that incidental take of MSO could occur as a result of fire suppression, wildland fire use, prescribed fire, and mechanical treatments. We anticipate that the take of MSOs will be difficult to detect because finding a dead or impaired specimen is unlikely, especially due to the remote nature of most of the MSO habitat in the action area. However, the level of incidental take can be anticipated by the loss of essential elements in the habitat and long-term disturbance that may affect the reproductive success and survival of the MSO within the project area. We anticipate that two MSO (one pair) could be taken as a result of the proposed action. The incidental take is expected to be in the form of harm and harassment resulting from:

1. Harm through long-term disturbance from actions in unsurveyed MSO habitat associated with the proposed action. Unknown MSO may be present during wildland fire use, mechanical treatments, prescribed fire and/or suppression actions, which may result in direct impacts to owls, disrupted reproduction and/or the ability of the habitat to provide for essential elements of survival for resident MSO.
2. Harm through the reduction of MSO nesting and roosting habitat due to temporary habitat loss that may result from mechanical thinning, prescribed or wildland fire, and/or fire suppression actions that result in the removal of MSO habitat components (multi-storied canopy, coarse woody debris, snags) to the extent that at least near-term survival of MSO within that habitat is not likely.
3. Harassment through the reduction of the habitat suitability for prey species, thus limiting the availability of prey for owls. Habitat suitability will be decreased through the loss of coarse woody debris and herbaceous vegetation following prescribed fires. These actions could impair the ability of MSO to survive and/or successfully raise young.

Southwestern Willow Flycatcher

The USUSFWS anticipates that Southwestern Willow Flycatchers (SWWFs) could be taken as a result of harm (habitat loss) and harassment (disturbance) due to recreation activities and/or vegetation treatments. The anticipated level of take is the failure of one nesting attempt every three years. The incidental take is expected to be in the form of harassment and/or harm due to nest failure or the inability to nest due to the loss of suitable habitat.

The USUSFWS completed a biological opinion on September 3, 2004 (file number 02-21-03-F-0210) for a fire and fuels management program on BLM-administered lands within Arizona. That opinion issued an incidental take statement for SWWF for fire suppression activities. That programmatic opinion included incidental take that could occur from fire suppression as a result of this proposed action. The following Incidental Take Statement is carried forward from the 2004 opinion.

Fire Suppression

The BLM has proposed fire suppression actions that, when wildfires occur, are expected to reduce the overall adverse effects to SWWF and their habitat. Although we are unable to determine where or when incidental take of SWWF could occur as a result of fire suppression actions, take as a result of these actions has occurred in the past. We anticipate that the take of SWWF will be difficult to detect because finding a dead or impaired specimen is unlikely. Survey data may not be available prior to a wildfire ignition; however, locations of existing territories on or adjacent to BLM land are known. The level of incidental take can be anticipated by the loss of essential elements in the habitat and long-term disturbance that may affect the reproductive success and survival of the SWWF within the project area. The average number of pairs per site within the Middle Gila/San Pedro Management Unit, where territories on BLM-administered land were found in 2004, is 5.2. Fire suppression actions within one habitat site will likely remove all habitats within the site and/or disturb all birds within the site. We anticipate that five pairs (ten SWWF) and their eggs and young could be taken as a result of the proposed action¹. The incidental take is expected to be in the form of harassment, harm, and mortality resulting from:

1. Harassment through long-term disturbance from fire suppression actions in occupied SWWF habitat associated with the proposed action. SWWF present during fire suppression actions will be directly impacted, resulting in disrupted reproduction, and/or loss of habitat that provides for the essential elements of survival.
2. Harm through the loss of SWWF nesting habitat due to temporary habitat loss that may result from backburning, bulldozing, aircraft use, and/or water drops during fire suppression that remove SWWF-habitat components (multi-storied canopy, dense vegetation) to the extent that the habitat patch is no longer suitable for nesting by SWWF.
3. Mortality of SWWF eggs or young in nests from fire suppression actions in occupied SWWF habitat.

Brady Pincushion Cactus, Holmgren Milk Vetch, Jones' Cycladenia, Siler Pincushion Cactus, Welsh's Milkweed

Sections 7(b)(4) and 7 (o)(2) of the Act do not apply to the incidental take of listed plant species. However, protection of listed plants is provided to the extent that the Act requires a Federal permit for removal or reduction to possession of threatened or endangered plants from areas under Federal jurisdiction, or for any act that will remove, cut, dig up, or damage or destroy endangered plants on any other area in knowing violation of any regulation of any State or in the

¹ This level of incidental take applies to BLM actions throughout Arizona as a result of fire suppression activities.

course of any violation of a State criminal trespass law. Neither incidental take authorization nor recovery permits are needed for implementation of the proposed action.

The USUSFWS will not refer the incidental take of any migratory bird or bald eagle for prosecution under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §§ 703-712), or the Bald and Golden Eagle Protection Act of 1940, as amended (16 U.S.C. §§ 668-668d), if such take is in compliance with the terms and conditions (including amount and/or number) specified herein.

EFFECT OF THE TAKE

In this biological opinion, we have determined that this level of anticipated take is not likely to result in jeopardy to these species or destruction or adverse modification of critical habitat.

REASONABLE AND PRUDENT MEASURES WITH TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the Act, BLM must comply with the following terms and conditions (lettered and Roman numeral items), which implement the reasonable and prudent measures (numbered items) and outline reporting/monitoring requirements. The terms and conditions are non-discretionary.

Mexican Spotted Owl

The following reasonable and prudent measure and terms and conditions are necessary and appropriate to minimize take of MSO.

1. The Arizona Strip District Office (ASDO) shall take measures to minimize effects to individuals from project activities.
 - A. BLM will work with us to proactively develop appropriate measures to protect individual MSO from the site-specific effects of the activities authorized by the proposed action.
2. BLM shall submit annual reports as described in Reporting Requirements, below.

Southwestern Willow Flycatcher

The following reasonable and prudent measures and terms and conditions are necessary and appropriate to minimize take of SWWF.

1. BLM shall minimize the site-specific effects on SWWF of activities authorized by the proposed action.

- A. BLM will rehabilitate all undesignated routes used by OHVs within riparian areas, or areas with the potential to support SWWF breeding habitat. This can include obliterating the beginnings and ends of undesignated routes so that the routes are not accessible or visible to the public.
 - B. BLM will monitor other recreational activities that contribute to degradation of habitat on BLM-administered lands along the Virgin River and Kanab Creek and take appropriate measures to minimize those activities or modify them to reduce habitat degradation.
2. BLM shall monitor the effects of incidental take and submit annual reports as described in Reporting Requirements, below.
 - A. ASDO shall provide information on survey status for each area of suitable habitat, including location, size, shape, and spacing of habitat areas; either the date(s) surveyed (according to current protocol) or indication that the area has not been surveyed, and any other available information.

Additionally, the following reasonable and prudent measure with terms and conditions are carried forward from the September 3, 2004 opinion (02-21-03-F-0210):

3. Minimize the effects of harassment, harm, and mortality to SWWFs.
 - A. In cooperation with us, and using guidance from the SWWF recovery plan, BLM shall incorporate the elements recommended for fire risk evaluation and planning into its Fire Management Plans for all current flycatcher breeding sites on or adjacent to BLM-administered lands. This planning effort shall be initiated prior to the 2006 wildfire season.
 - B. If additional sites become occupied over the life of the land use plan Amendment, BLM shall include them in the yearly Fire Management Plans in cooperation with us, prior to the next wildfire season.

REPORTING REQUIREMENTS

The BLM shall submit annual monitoring reports to the Arizona Ecological Services Field Office by February 1 beginning in year 2009. These reports shall briefly document for the previous calendar year the effectiveness of the terms and conditions and locations of listed species observed, and, if any are found dead, suspected cause of mortality. The report shall also summarize tasks accomplished under the conservation measures and terms and conditions. The report shall make recommendations for modifying or refining conservation measures and terms

and conditions to enhance listed species protection or reduce needless hardship on the BLM and its permittees.

Disposition of Dead or Injured Listed Species

Upon locating a dead, injured, or sick listed species initial notification must be made to the USUSFWS's Law Enforcement Office, 2450 W. Broadway Rd, Suite 113, Mesa, Arizona, 85202, telephone: 480/967-7900) within three working days of its finding. Written notification must be made within five calendar days and include the date, time, and location of the animal, a photograph if possible, and any other pertinent information. The notification shall be sent to the Law Enforcement Office with a copy to this office. Care must be taken in handling sick or injured animals to ensure effective treatment and care, and in handling dead specimens to preserve the biological material in the best possible state.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. We recommend that BLM coordinate with us to develop specific management actions within ACECs to further protect special status species.
2. We recommend that BLM require implementation of conservation measures for California condors for all activities within the non-essential experimental population area, unless firefighter or public safety, or the protection of valuable property, improvements, or natural resources, render them infeasible during a particular operation.
3. We recommend that BLM continue to work with Arizona Game and Fish Department (AGFD) to educate and encourage hunters to use non-lead bullets when hunting game in condor habitat.
4. We recommend that BLM conduct comprehensive surveys for MSO in predicted MSO habitat according to current survey protocol.
5. We recommend that BLM develop environmental education and information materials on the SWWF and other riparian species and make these materials available to the public at the ASDO office in St. George, Utah.

6. We recommend that BLM work with us to proactively develop appropriate measures to protect listed plants from the effects of site-specific activities that will be implemented under the proposed action.
7. We recommend that BLM not dispose of land that contains occurrences, habitat, or potential habitat of listed plant species or other special status plant species.
8. We recommend that BLM actively pursue obtaining ownership of the habitat of listed and other sensitive plant species that exists on non-Federal lands in the project area. We recommend BLM work closely with us to identify and prioritize such lands.
9. We recommend new transportation routes in listed plant species habitat not be authorized. We also recommend that existing routes that are resulting in effects to the species be closed or routed away from the species.
10. We recommend installation of physical barriers or designation of parking areas that are necessary to keep vehicles from impacting listed plant species.
11. We recommend that range developments that attract and or concentrate cattle be located away from listed plant species habitat and occurrence.
12. We recommend installation of fences or development of other protective measures (e.g., herding) where cattle are attracted to concentrate in areas in listed plant species habitat.
13. We recommend developing or modifying listed plant species monitoring programs so that they are efficient and effective in achieving desired monitoring results.
14. We recommend conducting research to determine the actual effects of various actions on the plant community dynamics of listed plant species habitat.
15. We recommend that the BLM encourage seasonal restrictions (April 1 to September 30) on mining and other project operations within or adjacent to occupied SWWF breeding habitat, if these activities can disturb nesting birds. The need for this restriction will be assessed during the NEPA analysis and section 7 consultation conducted for the mining plan of operations.

In order for the USUSFWS to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the USUSFWS requests notification of the implementation of any conservation recommendations.

APPENDIX C

**ARIZONA STANDARDS AND GUIDELINES FOR LIVESTOCK
GRAZING MANAGEMENT
AND
RANGELAND HEALTH IMPLEMENTATION STATUS**

APPENDIX C: ARIZONA STANDARDS AND GUIDELINES FOR LIVESTOCK GRAZING MANAGEMENT

INTRODUCTION

The Department of the Interior's final rule for Grazing Administration, issued on February 22, 1995, and effective August 21, 1995, requires that the Bureau of Land Management (BLM) State Directors develop State or regional standards and guidelines for grazing administration in consultation with BLM Resource Advisory Councils (RAC), other agencies and the public. The final rule provides that fallback standards and guidelines will be implemented, if State standards and guidelines are not developed by February 12, 1997. Arizona Standards and Guidelines and the final rule apply to grazing administration on public lands as indicated by the following quotation from the Federal Register, Volume 60, Number 35, page 9955 (1995).

"The fundamentals of rangeland health, guiding principles for standards and the fallback standards address ecological components that are affected by all uses of public rangelands, not just livestock grazing. However, the scope of this final rule, and therefore the fundamentals of rangeland health of §4180.1, and the standards and guidelines to be made effective under §4180.2, are limited to grazing administration."

Although the process of developing standards and guidelines applies to grazing administration, present rangeland health is the result of the interaction of many factors in addition to livestock grazing. Other contributing factors may include, but are not limited to, past land uses, land use restrictions, recreation, wildlife, rights-of-way, wild horses and burros, mining, fire, weather, and insects and disease.

With BLM's commitment to ecosystem and interdisciplinary resource management, the standards for rangeland health, as developed in this current process, will be incorporated into management goals and objectives. The standards and guidelines for rangeland health for grazing administration, however, are not the only considerations in resolving resource issues.

The following quotations from the Federal Register, Vol. 60, No. 35, page 9956, February 22, 1995, describe the purpose of standards and guidelines and their implementation:

"The guiding principles for standards and guidelines require that State or regional standards and guidelines address the basic components of healthy rangelands. The Department believes that by implementing grazing-related actions that are consistent with the fundamentals of §4180.1 and the guiding principles of §4180.2, the long-term health of public rangelands can be ensured.

Standards and guidelines will be implemented through terms and conditions of grazing permits, leases, and other authorizations, grazing-related portions of activity plans (including Allotment Management Plans), and through range improvement-related activities.

The Department anticipates that in most cases the standards and guidelines themselves will not be terms and conditions of various authorizations but that the terms and conditions will reflect the standards and guidelines.

The Department intends that assessments and corrective actions will be undertaken in priority order as determined by BLM.

"The Department will use a variety of data including monitoring records, assessments, and knowledge of the locale to assist in making the "significant progress" determination. It is anticipated that in many cases it will take numerous grazing seasons to determine direction and magnitude of trend. However, actions will be taken to establish significant progress toward conformance as soon as sufficient data are available to make informed changes in grazing practices."

FUNDAMENTALS AND DEFINITION OF RANGELAND HEALTH

The Grazing Administration Regulations, at §4180.1 (43 Code of Federal Regulation [CFR] 4180.1), Federal Register Vol. 60, No. 35, pg. 9970, direct that the authorized officer ensures that the following conditions of rangeland health exist:

(a) Watersheds are in, or are making significant progress toward, properly functioning physical condition, including their upland, riparian-wetland, and aquatic components; soil and plant conditions support infiltration, soil moisture storage, and the release of water that are in balance with climate and landform and maintain or improve water quality, water quantity, and timing and duration of flow.

(b) Ecological processes, including the hydrologic cycle, nutrient cycle, and energy flow, are maintained, or there is significant progress toward their attainment, in order to support healthy biotic populations and communities.

(c) Water quality complies with State water quality standards and achieves, or is making significant progress toward achieving, established BLM management objectives such as meeting wildlife needs.

(d) Habitats are, or are making significant progress toward being, restored or maintained for Federal threatened and endangered species, Federal Proposed, Category 1 and 2 Federal candidate and other special status species.

These fundamentals focus on sustaining productivity of a rangeland rather than its uses. Emphasizing the physical and biological functioning of ecosystems to determine rangeland health is consistent with the definition of rangeland health as proposed by the Committee on Rangeland Classification, Board of Agriculture, National Research Council (Rangeland Health, 1994, pg. 4 and 5). This Committee defined Rangeland Health ". . .as the degree to which the integrity of the soil and the ecological processes of rangeland ecosystems are sustained." This committee emphasized ". . .the degree of integrity of the soil and ecological processes that are most important in sustaining the capacity of rangelands to satisfy values and produce commodities." The Committee also recommended that "The determination of whether a rangeland is healthy, at risk, or unhealthy should be based on the evaluation of three criteria: degree of soil stability and watershed function, integrity of nutrient cycles and energy flow, and presence of functioning mechanisms" (Rangeland Health, 1994, pg. 97-98).

Standards describe conditions necessary to encourage proper functioning of ecological processes on specific ecological sites. An ecological site is the logical and practical ecosystem unit upon which to base an interpretation of rangeland health. Ecological site is defined as:

". . . a kind of land with specific physical characteristics which differs from other kinds of land in its ability to produce distinctive kinds and amounts of vegetation and in its response to management" (Journal of Range Management, 48:279, 1995). Ecological sites result from the interaction of climate, soils, and landform (slope, topographic position). The importance of this concept is that the "health" of different kinds of rangeland must be judged by standards specific to the potential of the ecological site. Acceptable erosion rates, water quality, productivity of plants and animals, and other features are different on each ecological site.

Since there is wide variation of ecological sites in Arizona, standards and guidelines covering these sites must be general. To make standards and guidelines too specific will reduce the ability of BLM and interested publics to select specific objectives, monitoring strategies, and grazing permit terms and conditions appropriate to specific landforms.

Ecological sites have the potential to support several different plant communities. Existing communities are the result of the combination of historical and recent uses and natural events. Management actions may be used to modify plant communities on a site. The desired plant community for a site is defined as follows: "Of the several plant communities that may occupy a site, the one that has been identified through a management plan to best meet the plan's objectives for the site. It must protect the site at a minimum" (Journal of Range Management, 48:279, 1995).

Fundamentals (a) and (b) define physical and biological components of rangeland health and are consistent with the definition of rangeland health as defined by the Committee on Rangeland Classification, Board on Agriculture, National Research Council, as discussed in the paragraph above. These fundamentals provide the basis for sustainable rangelands.

Fundamentals (c) and (d) emphasize compliance with existing laws and regulation and, therefore, define social and political components of rangeland health. Compliance with Fundamentals (c) and (d) is accomplished by managing to attain a specific plant community and associated wildlife species present on ecological sites. These desired plant communities are determined in the BLM planning process, or, where the desired plant community is not identified, a community may be selected that will meet the conditions of Fundamentals (a) and (b) and also adhere to laws and regulations. Arizona Standard 3 is written to comply with Fundamentals (c) and (d) and provide a logical combination of Standards and Guidelines for planning and management purposes.

STANDARD AND GUIDELINE DEFINITIONS

Standards are goals for the desired condition of the biological and physical components and characteristics of rangelands. Standards:

- (1) are measurable and attainable; and
- (2) comply with various Federal and State statutes, policies, and directives applicable to BLM Rangelands.

Guidelines are management approaches, methods, and practices that are intended to achieve a standard. Guidelines:

- (1) typically identify and prescribe methods of influencing or controlling specific public land uses;
- (2) are developed and applied consistent with the desired condition and within site capability; and
- (3) may be adjusted over time.

IMPLEMENTING STANDARDS AND GUIDELINES

The authorized officer will review existing permitted livestock use, allotment management plans, or other activity plans that identify terms and conditions for management on public land. Existing management practices and levels of use on grazing allotments will be reviewed and evaluated on a priority basis to determine if they meet, or are making significant progress toward meeting, the standards and are in conformance with the guidelines. The review will be interdisciplinary and conducted under existing rules which provide for cooperation, coordination, and consultation with affected individuals, federal, state, and local agencies, tribal governments, private landowners, and interested publics.

This review will use a variety of data, including monitoring records, assessments, and knowledge of the locale to assist in making the significant progress determination. Significance will be determined on a case-by-case basis, considering site potential, site condition, weather and financial commitment. It is anticipated there will be cases where numerous years will be needed to determine direction and magnitude of trend.

Upon completion of review, the authorized officer shall take appropriate action as soon as practicable but no later than the start of the next grazing year upon determining that the existing grazing management practices or level of use on public land are significant factors contributing to failure to achieve the standards and conform with the guidelines that are made effective under 43 CFR 4180.2. Appropriate action means implementing actions that will result in significant progress toward fulfillment of the standards and significant progress toward conformance with guidelines.

Livestock grazing will continue where significant progress toward meeting standards is being made. Additional activities and practices will not be needed on such allotments. Where new activities or practices are required to assure significant progress toward meeting standards, livestock grazing use can continue contingent upon determinations from monitoring data that the implemented actions are effective in making significant progress toward meeting the standards. In some cases, additional action may be needed as determined by monitoring data over time.

New plans will incorporate an interdisciplinary team approach (Arizona BLM Interdisciplinary Resource Management Handbook, April 1995). The terms and conditions for permitted grazing in these areas will be developed to comply with the goals and objectives of these plans, which will be consistent with the standards and guidelines.

ARIZONA STANDARDS AND GUIDELINES

Arizona Standards and Guidelines (S&G) for grazing administration were developed through a collaborative process involving the Bureau of Land Management State S&G Team and the Arizona Resource Advisory Council. Together, through meetings, conference calls, correspondence, and Open Houses with the public, the BLM State Team and RAC prepared Standards and Guidelines to address the minimum requirements outlined in the grazing regulations. The Standards and Guidelines, criteria for meeting Standards, and indicators are an integrated document that conforms to the fundamentals of rangeland health and the requirements of the regulations when taken as a whole.

Upland sites, riparian-wetland areas, and desired resource conditions are each addressed by a standard and associated guideline.

Standard 1: Upland Sites

Upland soils exhibit infiltration, permeability, and erosion rates that are appropriate to soil type, climate and landform (ecological site).

Criteria for meeting Standard 1:

Soil conditions support proper functioning of hydrologic, energy, and nutrient cycles. Many factors interact to maintain stable soils and healthy soil conditions, including appropriate amounts of vegetative cover, litter, and soil porosity and organic matter. Under proper functioning conditions, rates of soil loss and infiltration are consistent with the potential of the site.

Ground cover in the form of plants, litter or rock is present in pattern, kind, and amount sufficient to prevent accelerated erosion for the ecological site; or ground cover is increasing as determined by monitoring over an established period of time.

Signs of accelerated erosion are minimal or diminishing for the ecological site as determined by monitoring over an established period of time.

As indicated by such factors as:

Ground Cover

litter

live vegetation, amount and type (e.g., grass, shrubs, trees, etc.)

rock

Signs of erosion

flow pattern

gullies

rills

plant pedestaling

Exceptions and exemptions (where applicable):

None

Guidelines:

1-1. Management activities will maintain or promote ground cover that will provide for infiltration, permeability, soil moisture storage, and soil stability appropriate for the ecological

sites within management units. The ground cover should maintain soil organisms, plants, and animals to support the hydrologic and nutrient cycles, and energy flow. Ground cover and signs of erosion are surrogate measures for hydrologic and nutrient cycles and energy flow.

1-2. When grazing practices alone are not likely to restore areas of low infiltration or permeability, land management treatments may be designed and implemented to attain improvement.

Standard 2: Riparian-Wetland Sites

Riparian-wetland areas are in properly functioning condition.

Criteria for meeting Standard 2:

Stream channel morphology and functions are appropriate for proper functioning condition for existing climate, landform, and channel reach characteristics. Riparian-wetland areas are functioning properly when adequate vegetation, land form, or large woody debris is present to dissipate stream energy associated with high water flows.

Riparian-wetland functioning condition assessments are based on examination of hydrologic, vegetative, soil and erosion-deposition factors. BLM has developed a standard checklist to address these factors and make functional assessments. Riparian-wetland areas are functioning properly as indicated by the results of the application of the appropriate checklist.

The checklist for riparian areas is in Technical Reference 1737-9 "Process for Assessing Proper Functioning Condition." The checklist for wetlands is in Technical Reference 1737-11 "Process for Assessing Proper Functioning Condition for Lentic Riparian-Wetland Areas." These checklists are reprinted on the pages following the Guidelines for Standard 3.

As indicated by such factors as:

- Gradient
- Width/depth ratio
- Channel roughness and sinuosity of stream channel
- Bank stabilization
- Reduced erosion
- Captured sediment
- Ground-water recharge
- Dissipation of energy by vegetation

Exceptions and exemptions (where applicable):

Dirt tanks, wells, and other water facilities constructed or placed at a location for the purpose of providing water for livestock and/or wildlife and which have not been determined through local planning efforts to provide for riparian or wetland habitat are exempt.

Water impoundments permitted for construction, mining, or other similar activities are exempt.

Guidelines:

2-1. Management practices maintain or promote sufficient vegetation to maintain, improve or restore riparian-wetland functions of energy dissipation, sediment capture, groundwater recharge and stream bank stability, thus promoting stream channel morphology (e.g., gradient, width/depth ratio, channel roughness and sinuosity) and functions appropriate to climate and landform.

2-2. New facilities are located away from riparian-wetland areas if they conflict with achieving or maintaining riparian-wetland function. Existing facilities are used in a way that does not conflict with riparian-wetland functions or are relocated or modified when incompatible with riparian-wetland functions.

2-3. The development of springs and seeps or other projects affecting water and associated resources shall be designed to protect ecological functions and processes.

Standard 3: Desired Resource Conditions

Productive and diverse upland and riparian-wetland plant communities of native species exist and are maintained.

Criteria for meeting Standard 3:

Upland and riparian-wetland plant communities meet desired plant community objectives. Plant community objectives are determined with consideration for all multiple uses. Objectives also address native species, and the requirements of the Taylor Grazing Act, Federal Land Policy and Management Act, Endangered Species Act, Clean Water Act, and appropriate laws, regulations, and policies.

Desired plant community objectives will be developed to assure that soil conditions and ecosystem function described in Standards 1 and 2 are met. They detail a site-specific plant community, which when obtained, will assure rangeland health, State water quality standards, and habitat for endangered, threatened, and sensitive species. Thus,

desired plant community objectives will be used as an indicator of ecosystem function and rangeland health.

As indicated by such factors as:

Composition
Structure
Distribution

Exceptions and exemptions (where applicable):

Ecological sites or stream reaches on which a change in existing vegetation is physically, biologically, or economically impractical.

Guidelines:

3-1. The use and perpetuation of native species will be emphasized. However, when restoring or rehabilitating disturbed or degraded rangelands, non-intrusive, non-native plant species are appropriate for use where native species (a) are not available, (b) are not economically feasible, (c) cannot achieve ecological objectives as well as non-native species, and/or (d) cannot compete with already established non-native species.

3-2. Conservation of Federal threatened or endangered, proposed, candidate, and other special status species is promoted by the maintenance or restoration of their habitats.

3-3. Management practices maintain, restore, or enhance water quality in conformance with State or Federal standards.

3-4. Intensity, season and frequency of use, and distribution of grazing use should provide for growth and reproduction of those plant species needed to reach desired plant community objectives.

3-5. Grazing on designated ephemeral (annual and perennial) rangeland may be authorized if the following conditions are met:

ephemeral vegetation is present in draws, washes, and under shrubs and has grown to useable levels at the time grazing begins;

sufficient surface and subsurface soil moisture exists for continued plant growth;

serviceable waters are capable of providing for proper grazing distribution;

sufficient annual vegetation will remain on site to satisfy other resource concerns, (i.e., watershed, wildlife, wild horses and burros); and

monitoring is conducted during grazing to determine if objectives are being met.

3-6. Management practices will target those populations of noxious weeds that can be controlled or eliminated by approved methods.

3-7. Management practices to achieve desired plant communities will consider protection and conservation of known cultural resources, including historical sites, and prehistoric sites and plants of significance to Native American peoples.

STANDARDS AND GUIDELINES ON THE ARIZONA STRIP DISTRICT

The Standards were written by Arizona's Resource Advisory Council (RAC) in 1997. They were accepted and approved that same year by the Secretary of the Interior. The Guidelines apply only to authorized livestock grazing activities, the Standards apply to all programs and all authorized activities. Two teams implement the Standards on all grazing allotments on the Arizona Strip. The Interdisciplinary Assessment Team (IAT) is made up of resource specialists from the BLM, Arizona Game and Fish Department (AGFD), the Natural Resources Conservation Service and Mohave County Extension Agency. This team carries out the assessment. The Arizona Resource Advisory Council appointed a nine member Rangeland Resource Team (RRT), to be involved in the process from beginning to end.

- The RRT is constructed similar to the RAC with 3 representatives in each of 3 diverse groups:
 1. Commodities: Livestock Grazing, Mining, Commercial Recreation
 2. Non-Commodities: Wildlife, Environmental, Dispersed Recreation
 3. Local Area Interest: Public-at-large, Native American Interests, Elected Officials
 - The RRT has 2 objectives:
 1. Ensure the Standards are consistently applied across allotment boundaries, and
 2. Ensure determinations are based on something..., monitoring data, professional opinion.
- There is a list of members on both teams below.

Each year letters are sent to approximately 700 individuals notifying them which grazing allotments are to be evaluated in the upcoming fiscal year. The recipient is then instructed how to request designation as an "Interested Public" and be involved in the evaluation and decision making process.

BLM grazing regulations at 43 CFR 4100.0-5 state, “Interested public means an individual, group or organization that has **submitted a written request** to the authorized officer to be provided an opportunity to be involved in the decision making process for the management of livestock grazing on **specific grazing allotments** or has submitted written comments to the authorized officer regarding the management of livestock grazing on a specific allotment”(emphasis added).

The Arizona Strip District holds an issue-scoping meeting once a year, where all issues raised are documented as either relating, or not relating, to rangeland health. During the year each allotment with issues that relate to rangeland health is visited, after assembling all available information and monitoring data. Both teams visit sites representing each issue and the IAT determines, by consensus, whether the area is meeting standards. The interested public is invited to the scoping meetings and the field visits. If an area does not meet the standards, the cause is determined and recommendations are made to improve the situation. If the current livestock grazing practices are determined to be the cause of non-attainment, BLM regulations (43 CFR 4180.1) require the modification of the practices by the next grazing season.

The IAT then produces a report documenting the results of the evaluation. The S&G report is sent to the RAC, the RRT, State Agencies having lands or managing resources within the area, and the Interested Public. Any comments received are used in the preparation of an Environmental Assessment for renewing the ten-year grazing permit. A Grazing Decision is then issued to the Permittee, State Agencies having lands or managing resources within the area, and the Interested Public. This grazing decision outlines the terms and conditions of the grazing permit and may be protested or appealed by any or all recipients.

RANGELAND HEALTH IMPLEMENTATION STATUS

Standards for Rangeland Health Evaluation Results and Evaluation Schedule

Vermilion Cliffs National Monument (AZ120)

Allotment Name	Allotment Number	Evaluation Result or FY Scheduled
Bunting Well	04847	Meeting the Standards
Ferry Swale	05336	Meeting the Standards
Sand Hills	05328	Evaluation in Draft
Signature Rock	05350	Meeting the Standards
Wahweap	05340	Meeting the Standards

APPENDIX D

**LIVESTOCK GRAZING
ALLOTMENT MANAGEMENT STATUS**

APPENDIX D: LIVESTOCK GRAZING ALLOTMENT MANAGEMENT STATUS

Vermilion Cliffs National Monument

Allotment Name	Allotment Number	Management Status	AMP	Current Mgt
Bunting Well	04847	M	A	Deferred
Ferry Swale	05336	M	A	Deferred
Sand Hills	05328	I	A	Rest-Rotation
Signature Rock	05350	I	A	Fall Winter
Wahweap	05340	C		Season Long

ALLOTMENT CATEGORIZATION CRITERIA

Maintain (M)

- (a) Present range condition is satisfactory.
- (b) Allotments have high or moderate resource potential and are producing near their potential (or trend is moving in that direction.)
- (c) No serious resource-use conflicts/controversy exist.
- (d) Opportunities may exist for positive economic return from public investments.
- (e) Present management is satisfactory.
- (f) Other criteria appropriate to the Environmental Statement (ES) area.

Improve (I)

- (a) Present range condition is unsatisfactory.
- (b) Allotments have high to moderate resource production potential and are producing at low to moderate levels.
- (c) Serious resource-use conflicts/controversy exists.
- (d) Opportunities exist for positive economic return from public investments.
- (e) Present management appears unsatisfactory.
- (f) Other criteria appropriate to the ES area.

Custodial (C)

- (a) Present range condition is not a paramount factor.
- (b) Allotments have low resource production potential, and are producing near their potential.
- (c) Limited resource-use conflicts/controversy may exist.
- (d) Opportunities for positive economic return on public investment do not exist or are constrained by technological or economic factors.
- (e) Present management appears satisfactory or is the only logical practice under existing resource conditions or land ownership pattern.
- (f) Other criteria appropriate to the ES area.

APPENDIX E

LIVESTOCK GRAZING ALLOTMENT ACRES AND ANIMAL UNIT MONTHS (AUMs) BY LAND STATUS

APPENDIX E: LIVESTOCK GRAZING ALLOTMENT ACRES AND ANIMAL UNIT MONTHS (AUMS) BY LAND STATUS

Table E.1. Allotment Acres by Land Status for Vermilion Cliffs National Monument					
Allotment	Allotment Number	State Acres	Private Acres	Other Federal Acres	Public Acres
Bunting Well	04847	43,228	168	578	25,183
Ferry Swale	05336	4,584	0	16,994	18,200
Sand Hills	05328	11,727	260		186,082
Signature Rock	05350		840		3,840
Wahweap	05340			5,990	
Summary (5 detail records)		59,539	1,268	23,562	233,305

Table E.2 Allotment AUMs by Land Status for Vermilion Cliffs National Monument					
Allotment Name	Allotment Number	State AUMs	Private AUMs	Other Federal AUMs	Public AUMs
Bunting Well	4847	2,876	11	38	1,675
Ferry Swale	5336			849	828
Sand Hills	5328	1,320	24		15,081
Signature Rock	5350		52		382
Wahweap	5340			276	0
Summary (5 detail records)		4,196	87	1,163	17,966

Table E.3 Allotment AUMs By Land Status for Vermilion Cliffs National Monument					
Allotment Name	Allotment Number	State AUMs	Private AUMs	Other Federal AUMs	Public AUMs
Bunting Well	4847	3,280			1,320
Ferry Swale	5336			849	828
Sand Hills	5328	1,320	24		15,081
Signature Rock	5350		52		382
Wahweap	5340			276	0
Summary (10 detail records)		4,600	76	1,125	17,611

APPENDIX F

VEGETATION TREATMENT TOOLS AND METHODS

APPENDIX F: VEGETATION TREATMENT TOOLS AND METHODS

This appendix briefly describes a variety of vegetation treatment tools and methods that may be used in Bureau of Land Management (BLM)-administered lands of the Monument. Included are recommendations for uses of various tools and methods, as well as advantages and disadvantages of each.

Manual

In manual treatments, plants are cut at or above ground level; plant root systems are pulled or dug out to prevent subsequent sprouting and regrowth; or mulch is placed around desired vegetation to limit the growth of competing vegetation. Hand tools and hand-operated power tools are used in manual vegetation treatments to cut, clear, or prune herbaceous and woody species. Hand tools such as the handsaw, axe, shovel, rake, machete, grubbing hoe, mattock (combination of axe and grubbing hoe), brush hook, and hand clippers, etc. are used in manual treatments. Axes, shovels, grubbing hoes, and mattocks can dig up and cut below the surface to remove the main root of plants such as prickly pear and mesquite with roots that can quickly resprout in response to surface cutting or clearing. Power tools, such as chain saws and power brush saws, are used to sever the main stem of woody vegetation at or near ground level.

The advantage of manual treatments is that they are species and individual plant specific, can be used in sensitive habitats, and can be used in areas inaccessible for mechanical treatments. The disadvantage is that they are labor intensive and, therefore, expensive.

Mechanical

Mechanical treatments are used to kill or reduce the cover of undesirable vegetation and thus encourage the growth of desirable vegetation. Several different types of mechanical equipment are effective in suppressing, inhibiting, or controlling herbaceous and woody vegetation (Vallentine 1980). Equipment could include wheeled or track type tractors, mowers, shredders, ATV's or specially designed vehicles with attached implements for mechanical vegetation treatments. The best mechanical method for treating undesired plants in a particular location depends on the following factors:

1. Characteristics of the undesired species present such as plant density stem size, woodiness, brittleness, and re-sprouting ability;
2. Need for seedbed preparation and/or re-vegetation,
3. Need to reduce erosion and improve effective ground cover,
4. Soil characteristics such as type, depth, amount and size of rocks, erosion potential, and susceptibility to compaction;
5. Climatic and seasonal conditions,
6. Topography and terrain,
7. Potential cost of project compared to expected results, and
8. Vegetation type.

Wheeled or crawler tractors can uproot and/or push vegetation over (bulldozing) with a heavy, hydraulic controlled blade. Vegetation is either left scattered or pushed into windrows or piles. There are several different kinds of blades available, depending of the type of vegetation and goals of the project. Bulldozing is most effective in removing scattered large brush or trees. Soil disturbance is a disadvantage of bulldozing.

Disk plowing in various forms can be used for removing shallow-rooted herbaceous and woody plants. Several different kinds of root plows are specific for certain types of vegetation. In addition to killing vegetation, disk plowing is effective in loosening the soil surface to prepare it for seeding and to improve the rate of water infiltration. The disadvantages of disk plowing are that it disturbs the soil and provides an opportunity for an increase in invasive non-native plants, it usually kills all species, and it may be expensive. Also, plowing is usually not practical on steep (greater than a 35% to 45% slope) or rocky slopes. Plant species that sprout from roots may survive.

Various tractor attachments are used for mowing, beating, crushing, chopping, or shredding vegetation depending on the nature of the vegetation and goals of the project. Mowing is effective in reducing plant height and usually does not kill vegetation. Mowing is more effective on herbaceous than woody vegetation. On the other hand, a rolling cutter may kill woody non-sprouting vegetation by breaking stems at ground level but leaving herbaceous vegetation. Generally, mowing, beating, crushing, chopping, or shredding disturbs the soil surface minimally. Rocky soil and steep slopes may limit use of this type of equipment. The advantage of using this type of equipment is that selective plants may be targeted to achieve specific goals.

Chaining and cabling are used to remove non-sprouting woody vegetation such as small trees and shrubs by pulling them over. Vegetation removal is accomplished by dragging heavy anchor chains or steel cables, hooked behind two tractors, in a U-shaped manner. Vegetation is either left scattered or pushed into windrows or piles. The chains or cables can also be used to prepare the soil surface for seeding desirable species and to cover seed with soil to improve germination. Although herbaceous vegetation is not normally injured during the treatment, desirable shrubs may be damaged. The disadvantage of this treatment is soil disturbance and that non-desirable “weedy” herbaceous vegetation can survive this treatment. This vegetation treatment method is cost effective as large areas can be readily treated.

Chemical

Until the Draft Programmatic EIS on Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States (2005) is final, the BLM will use EPA-approved herbicides in accordance with EPA's Endangered Species Pesticide Program covered in the BLM's *Vegetation Treatment on BLM Lands in Thirteen Western States FEIS* (May 1991) and to those approved for use by the Arizona Record of Decision (ROD, Page 3, July 1991). These herbicides are: Atrazine; Bromacil; Bromacil + Diuron; Chlorsulfuron; Clopyralid; 2,4-D, Dicamba; Dicamba + 2,4-D; Diuron; Glyphosate; Glyphosate + 2,4-D; Hexazinone; Imazapyr; Mefluidide; Metsulfuron Methyl; Picloram; Picloram + 2,4-D; Simazine; Sulfometuron Methyl; Tebuthiuron; and Triclopyr as listed on pages 1-19 through 1-32 and project design features listed on pages 1-33 through 1-37 of the FEIS. Once the ROD for this RMP is signed, the BLM will adhere to the standards and guidelines for each approved herbicide set forth in the Programmatic EIS on *Vegetation Treatment on BLM Lands in Thirteen Western States*.

Herbicide applications are designed to minimize potential impacts on non-target plants and animals, while achieving the objective of the vegetation treatment project. The rates of application depend on the target species, presence and condition of non-target vegetation, soil type, depth to the water table, presence of other water sources, and the requirements of the label. In many circumstances the herbicide chosen, time of treatment, and rate of application of the herbicide is different than the most ideal herbicide application for maximum control of the target plant species in order to minimize damage to the non-target plant species, and to ensure minimum risk to human health and safety.

The herbicides may be applied aurally with helicopters or fixed-wing aircraft, or on the ground using vehicles or manual application devices. Helicopters are more expensive than fixed-wing aircraft, but they are more effective in irregular terrain and in treating specific target vegetation in areas with many vegetation types. Manual applications are generally used for treating small areas or those inaccessible by vehicle.

The BLM will work closely with the U.S. Fish and Wildlife Service (USUSFWS) to ensure that herbicide applications will not affect listed or proposed threatened or endangered species on a project-level basis. If adverse effects are anticipated during informal consultation, then the BLM will formally consult on these projects. If the USUSFWS develops herbicide guidance for particular species that improves protection beyond the current BLM design features, the BLM will consider and incorporate that guidance as it consults with the USFWS on a project-level basis. In order to protect listed, proposed, and candidate species, buffer strips may be used.

Project design features may include buffer strips described in the *Vegetation Treatment on BLM Lands in Thirteen Western States Programmatic EIS* ROD (page 10), as follows: “Buffer strips will be used adjacent to dwellings, domestic water sources, agriculture land, streams, lakes, and ponds. A minimum buffer strip 100 feet wide will be provided for aerial application, 25 feet for vehicle application and 10 feet for hand application. Any deviations must be in accordance with the label for the herbicide. Herbicides could be wiped on individual plants within 10 feet of water where application is critical.” It should be noted that the Draft Vegetation Management EIS contains herbicides approved for application over water, and therefore, buffer strips may not always be necessary, once that Programmatic Vegetation Management EIS is approved.

The chemicals can be applied by many different methods and the selected technique depends on a number of variables. Some of these are:

1. treatment objective (removal or reduction);
2. accessibility, topography, and size of the treatment area;
3. characteristics of the target species and the desired vegetation;
4. location of sensitive areas in the immediate vicinity (potential environmental impacts);
5. anticipated costs and equipment limitations; and
6. meteorological and vegetative conditions of the treatment area at the time of treatment.

The changes made here are not consistent with the format of the numbered items under the “Mechanical Section.” Chemical treatments are generally cost effective and can be species specific. The disadvantages are they are not always species specific and precautions may need to be taken to ensure attainment of treatment objectives.

Biological

Biological control (biocontrol) is the intentional use of living organisms to reduce the population of a pest. It may include the use of insects, nematodes, mite, plant pathogens, and vertebrates. The majority of the noxious weeds in the United States are introduced without their natural enemies. Biocontrol seeks to use some of the native land's biotic factors to suppress populations of these undesirable plants. (Biological Control of Weeds in the West, Western Society of Weed Management, 1996). The eventual impacts of a biocontrol agent on its target plant will be the result of the:

1. density of weeds compared to the density of the agent;
2. effect of the local biotic and abiotic conditions on the agent and on the weed;
3. plant's reproductive ability (seeds only or seeds and vegetative reproduction);
4. agent's ability to stress the plant each year and the plant's ability to maintain and replace root reserves;
5. plant's ability to recover from the effects of the biocontrol agent, and;
6. interactions of multiple biocontrol agents attacking a single weed species.

The changes made here are not consistent with the format of the numbered items under the "Mechanical Section."

The advantages of biocontrol:

1. Once a biocontrol agent becomes established it usually will reproduce, increase its numbers, and continue to attack the target organism, generally without additional costs to the land manager.
2. Biocontrol agents move to host plants anywhere within their climatic range, readily crossing ownership boundaries and some geographical barriers.
3. Approved biocontrol agents are selective – host weeds are attacked without damage to the surrounding vegetation.
4. Properly tested biocontrol agents are not a source of environmental contamination.

The disadvantages of biocontrol:

1. It often takes many years for the populations of the introduced agents to increase to levels that permanently decrease the pest plant population.
2. Some biocontrol agents may be subject to predators.
3. Environmental conditions (shade versus sun, low versus high rainfall, sandy versus clay soils) often exclude some biocontrol agents from certain locations.
4. Biocontrol agents usually do not eradicate weed populations.

Cattle, sheep, and goats are domestic animals that can be used as biological agents to control the top growth of certain noxious weeds. The use of grazing as a biological control agent will be conducted in accordance with BLM procedures in the Use of Biological Control Agents of Pests on Public Lands (BLM 1990). The following are some advantages of using domestic animals, mainly sheep or goats, for noxious weed control.

1. They use weeds as a food source.
2. Following a brief adjustment period, they sometimes consume as much as 50 percent of their daily diet of targeted species.
3. Sheep or goats can be used in combination with herbicides.

Some of the disadvantages of using domestic animals are:

1. They also use non-target plants as food sources.
2. The use of domestic animals, like sheep or goats, requires a herder or temporary fencing.
3. The animals may be killed by predators such as coyotes.
4. Most weed species are less palatable than desirable vegetation.
5. They may accelerate movement of nonnative plants through seed ingestion and excretion.
6. They control few, if any, plant species.
7. Domestic livestock may transmit parasites and/or pathogens to resident native wildlife species.

Wildland Fire Use and Prescribed Fire

Wildland Fire Use

Wildland fire use is wildland fire used to protect, maintain, and enhance resources and, when possible, allowed to function in its natural ecological role. Use of fire will be based on approved Fire Management Plans and will follow specific prescriptions contained in operational plans.

The Interagency Standards for Fire and Fire Aviation Operations (2004) will be followed. It includes the following incident management guidance for wildland fire use:

1. Agencies may apply this strategy in managing wildland fires for resource benefit.
2. An approved Fire Management Plan (FMP) is required. This plan identifies specific resource and fire management objectives, a predefined geographic area, and prescriptive criteria that must be met.
3. A Wildland Fire Implementation Plan (WFIP) will be completed for all wildland fires that are managed for resource benefit. This is an operational plan for assessing, analyzing, and selecting strategies for wildland fire use. It is progressively developed and documents appropriate management responses for any wildland fire managed for resource benefits. The plan will be completed in compliance with the guidance found in the Wildland and Prescribed Fire Management Policy Implementation Procedures Reference Guide (August 1998).
4. Monitoring and Evaluation includes assessment and long term monitoring of the fire treatment to ensure the prescribed fire has met the objectives of the approved prescribed fire plan.

Prescribed Fire

Prescribed fire is the planned application of fire to vegetation, under specific conditions of fuels, weather, and other variables, to ensure the fire remains in a predetermined area and achieves site-specific resource management objectives. Prescribed fire treatments will be implemented in accordance with BLM procedures in Fire Planning (BLM 1987c), Prescribed Fire Management (BLM 1988b), and Fire Training and Qualifications (BLM 1987d).

Prior to conducting a prescribed burn, a written plan must be prepared that takes into consideration existing conditions (amount of fuel, fuel moisture, temperatures, terrain, weather forecasts, etc.) and identifies people responsible for overseeing the fire.

Seeding

Following vegetation management treatments, seed may be applied. All seed will be tested and “state certified” free of weed seeds. Seed priming, covering, and other enhancement techniques may be used to increase germination rates. Seeding encourages development of a desired plant community, mitigates erosion, establishes effective ground cover, and/or encourages development of desirable wildlife habitat attributes. The disadvantages of seeding are that acquiring and applying seed is expensive and germination is not always successful.

APPENDIX G

CONSERVATION MEASURES FOR SPECIAL STATUS SPECIES

APPENDIX G: CONSERVATION MEASURES FOR SPECIAL STATUS SPECIES

The following Conservation Measures will be implemented as part of the proposed action for all management activities authorized. These Conservation Measures are intended to provide District-wide consistency in reducing or eliminating the effects of management actions on federally endangered, threatened, proposed, and candidate species, as well as species included on the Wildlife Species of Concern in Arizona and BLM Arizona Sensitive Species lists.

1.0 CONSERVATION MEASURES FOR FIRE MANAGEMENT ACTIVITIES

1.1 WILDLAND FIRE SUPPRESSION (FS)

The following Conservation Measures will be implemented during fire suppression operations, unless firefighter or public safety, or the protection of property, improvements, or natural resources, render them infeasible during a particular operation. Each Conservation Measure has been given an alphanumeric designation for organizational purposes (*e.g.*, FS-1). Necessary modifications of the Conservation Measures or impacts to federally protected species and habitat during fire suppression operations will be documented by the Resource Advisor, and coordinated with the U.S. Fish and Wildlife Service (USFWS).

- FS-1** Protect known locations of habitat occupied by federally listed species. Minimum Impact Suppression Tactics (MIST) will be followed in all areas with known federally protected species or habitat.
- FS-2** Resource Advisors will be designated to coordinate natural resource concerns, including federally protected species. They will also serve as a field contact representative (FCR) responsible for coordination with the USFWS. Duties will include identifying protective measures endorsed by the Field Office Manager, and delivering these measures to the Incident Commander; surveying prospective campsites, aircraft landing and fueling sites; and performing other duties necessary to ensure adverse effects to federally protected species and their habitats are minimized. On-the-ground monitors will be designated and used when fire suppression activities occur within identified occupied or suitable habitat for federally protected species.
- FS-3** All personnel on the fire (firefighters and support personnel) will be briefed and educated by Resource Advisors or designated supervisors about listed species and the importance of minimizing impacts to individuals and their habitats. All personnel will be informed of the conservation measures designed to minimize or eliminate take of the species present. This information is best identified in the incident objectives.
- FS-4** Permanent road construction will not be permitted during fire suppression activities in habitat occupied by federally protected species. Construction of temporary roads is

approved only if necessary for safety or the protection of property or resources, including federally protected species habitat. Temporary road construction should be coordinated with the USFWS, through the Resource Advisor.

- FS-5** Crew camps, equipment staging areas, and aircraft landing and fueling areas should be located outside of listed species habitats, and preferably in locations that are disturbed. If camps must be located in listed species habitat, the Resource Advisor will be consulted to ensure habitat damage and other effects to listed species are minimized and documented. The Resource Advisor should also consider the potential for indirect effects to listed species or their habitat from the siting of camps and staging areas (*e.g.*, if an area is within the water flow pattern, there may be indirect effects to aquatic habitat or species located off-site).
- FS-6** All fire management protocols to protect federally protected species will be coordinated with local fire suppression agencies that conduct fire suppression on BLM-administered lands to ensure that the agency knows how to minimize impacts to federally protected species in the area.
- FS-7** The effectiveness of fire suppression activities and Conservation Measures for federally protected species should be evaluated after a fire, when practical, and the results shared with the USFWS and Arizona Game and Fish Department (AGFD). Revise future fire suppression plans and tactical applications as needed and as practical.

1.2 FUELS TREATMENTS, PRESCRIBED BURNING AND OTHER FUELS MANAGEMENT ACTIONS (FT)

The following Conservation Measures are mandatory when implementing wildland fire use, prescribed fires, and proposed vegetation treatments using mechanical, chemical, and/or biological treatment methods:

- FT-1** Biologists will be involved in the development of prescribed burn plans and vegetation treatment plans to minimize effects to federally protected species and their habitats within, adjacent to, and downstream from proposed project sites. Biologists will consider the protection of seasonal and spatial needs of federally protected species (*e.g.*, avoiding or protecting important use areas or structures and maintaining adequate patches of key habitat components) during project planning and implementation.
- FT-2** MIST will be followed in all areas with known federally protected species or habitats.
- FT-3** Pre-project surveys and clearances (biological evaluations/assessments) for federally protected species will be required for each project site before implementation. All applicable Conservation Measures will be applied to areas with unsurveyed suitable habitat for federally protected species, until a survey has been conducted by qualified personnel to clear the area for the treatment activity.
- FT-4** Use of motorized vehicles during prescribed burns or other fuels treatment activities in suitable or occupied habitat will be restricted, to the extent feasible, to existing roads, trails, washes, and temporary fuel breaks or site-access routes. If off-road travel is

deemed necessary, any cross-country travel paths will be surveyed prior to use and will be closed and rehabilitated after the prescribed burn or fuels treatment project is completed.

- FT-5** As part of the mandatory fire briefing held prior to prescribed burning, all personnel (firefighters and support personnel) will be briefed and educated by Resource Advisors or designated supervisors about listed species and the importance of minimizing impacts to individuals and their habitats. All personnel will be informed of the Conservation Measures designed to minimize or eliminate take of the species present.

1.3 REHABILITATION AND RESTORATION (RR)

- RR-1** When rehabilitating important areas for federally listed species that have been damaged by fire or other fuels treatments, the biologist will give careful consideration to minimizing short-term and long-term impacts. Someone who is familiar with fire impacts and the needs of the affected species will contribute to rehabilitation plan development. Appropriate timing of rehabilitation and spatial needs of federally listed species will be addressed in rehabilitation plans.
- RR-2** Seed from regionally native or sterile alien (non-native) species of grasses and herbaceous vegetation will be used in areas where reseeding is necessary following ground disturbance to stabilize soils and prevent erosion by both wind and water.
- RR-3** Sediment traps or other erosion control methods will be used to reduce or eliminate influx of ash and sediment into aquatic systems.
- RR-4** Use of motorized vehicles during rehabilitation or restoration activities in suitable or occupied habitat will be restricted, to the extent feasible, to existing roads, trails, or washes, and to temporary access roads or fuel breaks created to enable the fire suppression, prescribed burn, or fuels treatment activities to occur. If off-road travel is deemed necessary, any cross-country travel paths will be surveyed prior to use and will be closed and rehabilitated after rehabilitation or restoration activities are completed.
- RR-5** All temporary roads, vehicle tracks, skid trails, and off-road vehicle (ORV) trails resulting from fire suppression and the proposed fire management activities be rehabilitated (water bars, etc.), and be closed or made impassible for future use.
- RR-6** Burned area emergency rehabilitation (BAER) activities and long-term restoration activities should be monitored, and the results provided to the USFWS and AGFD. Section 7 consultation for BAER activities will be conducted independently, if necessary.
- RR-7 (Recommended)** Develop public education plans that discourage or restrict fires and fire-prone recreation uses during high fire-risk periods. Develop brochures, signs, and other interpretive materials to educate recreationists about the ecological role of fires, and the potential dangers of accidental fires.

1.4 CONSERVATION MEASURES FOR FIRE MANAGEMENT ACTIVITIES IN RIPARIAN AND AQUATIC HABITATS (RA)

The following Conservation Measures be implemented during fire suppression and fuels treatment operations in riparian, wetland, or aquatic habitats, unless firefighter or public safety, or the protection of property, improvements, or natural resources, render them infeasible during a particular operation. Fuels treatment activities include prescribed fire and mechanical, chemical, and/or biological vegetation treatments in riparian, wetland, and aquatic habitats. Necessary modifications of the Conservation Measures or impacts to federally protected species and habitat during fire suppression operations will be documented by the Resource Advisor, and coordinated with the USFWS.

- RA-1** During wildfire suppression, apply MIST within riparian areas. Fire suppression actions in riparian areas should be prioritized to minimize damage to stands of native vegetation from wildfire or suppression operations. To the extent possible, retain large, downed woody materials and snags that are not a hazard to firefighters.
- RA-2** Fire suppression and rehabilitation in riparian corridors will be coordinated with the Resource Advisor or qualified biologist approved by BLM.
- RA-3** Site-specific implementation plans that include project areas with federally protected aquatic or riparian-obligate species will specify fire management objectives and wildland fire suppression guidance, taking into account the special concerns related to these species.
- RA-4** In riparian areas, use natural barriers or openings in riparian vegetation where possible as the easiest, safest method to manage a riparian wildfire. Where possible and practical, use wet firebreaks in sandy overflow channels rather than constructing firelines by hand or with heavy equipment.
- RA-5** Construction or development of a crossing for motorized vehicles across a perennial stream will not be permitted, unless an established road already exists or where dry, intermittent sections occur.
- RA-6** Avoid the use of fire retardants or chemical foams in riparian habitats or within 300 feet of aquatic habitats, particularly sites occupied by federally protected species. Apply operational guidelines as stated in the *Interagency Standards for Fire and Fire Aviation Operations 2003 (or updates)*, “Environmental Guidelines for Delivery of Retardant or Foam Near Waterways.”
- RA-7** Priority for placement of fire camps, fire staging areas, and aircraft landing or refueling sites will be outside riparian areas or river/stream corridors.
- RA-8** When using water from sources supporting federally protected species, care must be taken to ensure adverse impacts to these species are minimized or prevented. Unused water from fire abatement activities will not be dumped in sites occupied by Federally protected aquatic species to avoid introducing non-native species, diseases, or parasites.

- RA-9** If water is drafted from a stock tank or other body of water for fire suppression, it will not be refilled with water from another tank, lakes, or other water sources that may support non-native fishes, bullfrogs, crayfish, or salamanders.
- RA-10** Use of containment systems for portable pumps to avoid fuel spills in riparian or aquatic systems will be required.
- RA-11 (Recommended)** Develop and implement restoration plans for affected riparian or aquatic areas, including long-term monitoring, to document changes in conditions in the riparian zone and watershed that maintain flood regimes and reduce fire susceptibility. Monitor stream water quality and riparian ecosystem health to determine effects of wildfire and fire management activities. Coordinate efforts and results with the USFWS and AGFD.
- RA-12** Fire management treatments within or adjacent to riparian and aquatic habitats be designed to provide long-term benefits to aquatic and riparian resources by reducing threats associated with dewatering and surface disturbance, or by improving the condition of the watershed and enhancing watershed function.
- RA-13** For priority fire/fuels management areas (e.g., wildlife-urban interface (WUI) areas) with federally protected species or designated critical habitat downstream, BLM biologists and other resource specialists, as appropriate, in coordination with USFWS and AGFD, determine:
- A) The number of acres and the number of projects or phases of projects to occur within one watershed per year.
 - B) An appropriately-sized buffer adjacent to perennial streams in order to minimize soil and ash from entering the stream.
 - C) Where livestock grazing occurs in areas that have been burned, specialists will determine when grazing can be resumed. Such deferments from grazing will only occur when necessary to protect streams from increased ash or sediment flow into streams.²

If agreement cannot be reached or treatment will not meet fuel reduction objectives, BLM re-initiate consultation. Our authority to make these types of changes is in the regulations at 43 CFR 4110.3-3(b).

2.0 SPECIES SPECIFIC CONSERVATION MEASURES

In addition to the general Conservation Measures listed in **Section 1.0**, the following species-specific Conservation Measures will be applied to management actions in special status species habitats to the extent possible, and will be required during fuels and vegetation treatment activities. Necessary modifications of the Conservation Measures or impacts to federally

¹"Project" means any surface-disturbing activities proposed that may cause disturbance of desert tortoise habitat and/or death or injury of a desert tortoise, with the exception of grazing by livestock and activities associated with fire suppression.

protected species and habitat during implementation of management actions will be documented by the BLM or NPS biologist, and coordinated with the USFWS.

2.1 Reptiles (no conservation measures for reptiles occur within Vermilion Cliffs National Monument)

2.2 AMPHIBIANS (AM)

AM-1 Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats.

AM-2 All personnel performing fire management activities at any creek crossing will be informed of the potential presence of aquatic amphibians and the need to perform their duties to avoid impacts to the habitat.

2.3 BIRDS

2.3.1 California Condor (FE and 10J)

Conservation Measures for California Condor

CC-1. Management Guidance for Projects Constructed or Implemented by Authorized or Permitted Members of the Public within the 10(j) Area

CC-1.A. Immediately prior to the start of an authorized or permitted project, BLM/NPS will contact personnel monitoring California Condor locations and movements on the Arizona Strip to determine the locations and status of condors in or near the project area.

CC-1.B. BLM/NPS will request that permit holders notify the BLM/NPS wildlife team lead or condor biologist if California Condors visit the worksite while permitted activities are underway. BLM/NPS may encourage permit holders to modify, relocate, or delay project activities where adverse effects to condors may result.

CC-1.C. Where condor nesting activity is known within 0.5 miles of permitted or authorized activities that include operation of heavy machinery, BLM/NPS may encourage the operator to avoid use of the equipment during the active nesting season (February 1- November 30), or as long as the nest is viable.

CC-1.D. Where condors occur within 1.0 mile of permitted or authorized activities that include blasting, BLM/NPS will encourage that blasting be postponed until the condors leave the area or are hazed away by personnel permitted to haze condors. Where condor nesting activity is known within 1.0 mile of the project area, BLM/NPS encourages that blasting activity be delayed until after the active nesting season (February 1- November 30), or as long as the nest is viable. These dates may be modified based on the most current information regarding condor nesting.

- CC-2.** Management Guidance for Projects Constructed or Implemented by BLM/NPS Employees or Contractors Within the 10(j) Area AND For All BLM/NPS-Authorized Actions, Regardless of Proponent, Outside the 10(j) Area on the Arizona Strip.
- CC-2.A.** Immediately prior to the start of a permitted project, BLM/NPS will contact personnel monitoring California Condor locations and movement on the Arizona Strip to determine the locations and status of condors in or near the project area.
- CC-2.B.** Where California Condors visit a worksite while activities are underway, the on-site supervisor will notify the BLM/NPS wildlife team lead or condor biologist. Project workers and supervisors will be instructed to avoid interaction with condors. Project activities will be modified, relocated, or delayed if those activities could have adverse affects on condors. Operations will cease until the bird leaves on its own or until techniques are employed by permitted personnel that results in the individual condor leaving the area.
- CC-2.C.** Where condor nesting activity is known within 0.5 miles of activities that include operation of heavy machinery, BLM/NPS will direct the operator to cease equipment use during the active nesting season (February 1- November 30), or as long as the nest is viable. Where feasible and consistent with NEPA, BLM/NPS may relocate operations to a site greater than 0.5 miles from the condor nest site.
- CC-2.D.** Where condors occur within 1.0 miles of activities that include blasting, BLM/NPS will require that blasting be postponed until the condors leave the area or are hazed away by personnel permitted to haze condors. Where condor nesting activity is known within 1.0 miles of the project area, BLM/NPS will cease blasting during the active nesting season (February 1- November 30), or as long as the nest is viable. These dates may be modified based on the most current information regarding condor nesting.
- CC-3.** Management Guidance for All BLM/NPS-Authorized Actions, Regardless of Proponent or location Within the Planning Area.
- CC-3.A.** The project site will be cleaned up at the end of each day the work is being conducted (e.g., trash removed, scrap materials picked up) to minimize the likelihood of condors visiting the site. BLM/NPS staff may conduct site visits to the area to ensure adequate clean-up measures are taken.
- CC-3.B.** For projects where potential exists for leakage or spill of hazardous materials, a spill plan will be developed and implemented to prevent water contamination and potential poisoning of condors. The plan will include provisions for immediate clean up of any hazardous substance, and will define how each hazardous substance will be treated in case of leakage or spill. The plan will be reviewed by the BLM condor lead biologist to ensure condors are adequately addressed.
- CC-3.C** BLM/NPS will implement the protective measures for California Condors that are contained in the March 2004 “Recommended Protection Measures for Pesticide Applications in The Southwest Region of the USFWS.”
- CC-3.D.** Use of non-lead ammunition is strongly encouraged for activities involving the discharge of firearms.

- CC-4.** Management Guidance for All Actions Involving Use of Aircraft, Regardless of Proponent or location Within the Planning Area.
- CC-4.A.** Aircraft use along the Vermilion Cliffs, Paria Plateau, or any sites where condors are actively breeding or roosting will be minimized to the extent possible. Known active nest sites will be avoided.
- CC-4.B.** The BLM condor biologist or Wildlife Program Lead will contact the Peregrine Fund, as appropriate, immediately before operations involving aviation begin to check on possible locations of condors in the subject area.
- CC-4.C.** All BLM/NPS-authorized aviation personnel will be provided literature and/or instructed regarding condor concerns prior to conducting aerial operations.
- CC-4.D.** Aircraft will maintain and maximize safe flying separation distances from condors in the air or on the ground unless safety concerns override this restriction. If airborne condors approach aircraft, aircraft will give up airspace to the extent possible, as long as this action does not jeopardize safety. Aircraft will keep a minimum of 0.25 miles away from condors located on the ground.
- CC-5.** Management Guidance for Fire Suppression, Fire Use, Prescribed Fire, and Related Actions Within the Planning Area.
- CC-5.A.** The Resource Advisor will contact the Peregrine Fund daily (at 520-606-5155 or 520-380-4667) to check on locations of condors during fire suppression or fuels treatment activities involving aviation. This information will be communicated to the Incident Commander and aviation personnel.
- CC-5.B.** Any presence of condors in the general area of an active fire will be reported immediately to the Resource Advisor, who will in turn advise the BLM condor biologist, as appropriate. The BLM condor biologist or the AZ Strip FO wildlife team lead will be the primary contacts with the USFWS and the Peregrine Fund when such contacts are needed regarding condor concerns.
- CC-5.C.** Fire dispatch will immediately notify the Peregrine Fund at either (208) 362-3811 or (928) 355-2270 whenever a fire or other event on the Paria Plateau is reported which may conceivably threaten the condor holding pens and facilities atop the Vermilion Cliffs.
- CC-5.D.** If condors arrive at any area of human activity associated with fire suppression or fuels treatment projects (wildland fire use, prescribed fire, vegetation treatments), the birds will be avoided. The assigned Resource Advisor or a qualified wildlife biologist approved by BLM will be notified, and only permitted personnel will haze the birds from the area.
- CC-5.E.** All District BLM/NPS fire personnel, including helicopter pilots, will be provided literature or instructed regarding condor concerns. Normally this will be done by the BLM condor biologist when the fire crews first come on and are trained on various subjects, including desert tortoise concerns. If additional pilots come on during the summer, fire dispatch will notify the BLM condor biologist (435 688-3224) so that they can also be briefed.

- CC-5.F.** All helicopter dip tanks containing water will be covered when not in use or personnel will be stationed nearby until a cover is in place.
- CC-5.G.** If any fire retardant chemicals must be used in areas where condors are in the vicinity, the application area will be surveyed and any contaminated carcasses will be removed as soon as practical to prevent them from becoming condor food sources.
- CC-5.H.** Smoke from prescribed fire projects will be prevented from negatively affecting condor holding pens and breeding, nesting, and chick rearing sites. A proposed prescribed fire will not be initiated, or an existing fire use event will be modified or terminated, in order to prevent or stop significant amounts of smoke, or smoke that will remain in place for an extended period of time, or chronic smoke events, from occurring in area(s) where condors are held or attempting to breed, nest, or rear chicks.
- CC-5.I.** BLM will adhere to the air quality standards set by the Arizona Department of Environmental Quality.
- CC-5.J.** All camp areas will be kept free from trash.

2.3.2 Southwestern willow flycatcher (FE)

Conservation Measures for Southwestern Willow Flycatcher

WF-1. Management Guidance for Fire Suppression and Related Actions

- WF-1.A.** Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats.
- WF-1.B.** Except where fires are active in occupied habitat, minimize unnecessary low-level helicopter flights during the breeding season (April 1 – September 30). Approach bucket dip sites at a 90-degree direction to rivers to minimize flight time over the river corridor and occupied riparian habitats. Locate landing sites for helicopters at least ¼ mile from occupied sites to avoid impacts to willow flycatchers and their habitat.
- WF-1.C.** Minimize use of chainsaws or bulldozers to construct firelines through occupied or suitable habitat except where necessary to reduce the overall acreage of occupied habitat or other important habitat areas that otherwise be burned.
- WF-1.D.** Implement activities to reduce hazardous fuels or improve riparian habitats (prescribed burning or vegetation treatments) within occupied or unsurveyed suitable habitat for southwestern willow flycatchers only during the non-breeding season (October 1 to March 31).
- WF-1.E.** Avoid developing access roads that result in fragmentation or a reduction in habitat quality. Close and rehabilitate all roads that were necessary for project implementation.
- WF-1.F.** Prescribed burning will only be allowed within ½ mile of occupied or unsurveyed suitable habitat when weather conditions allow smoke to disperse

away from the habitat when birds may be present (breeding season of April 1 – September 30).

WF-1.G. Vegetation treatment projects adjacent to occupied or unsurveyed suitable habitat will only be conducted when willow flycatchers are not present (October 1 – March 31).

WF-1.H. Continue to implement the riparian fire management plan to minimize fire damage in riparian areas, especially those with suitable or potential flycatcher habitat.

2.3.3. Yuma clapper rail (FE)

Conservation Measures for Yuma Clapper Rail

CR-1. Management Guidance for Fire Suppression and Related Actions

CR-1.A. Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats.

CR-1.B. Any prescribed fire or vegetation treatment project in occupied or suitable marsh habitat only occur between September 1 and March 15 to avoid the Yuma clapper rail breeding and molting seasons.

CR-1.C. Mechanical removal of overstory habitat (e.g. tamarisk) could occur as early as August 15, after the breeding season for Yuma clapper rails.

CR-1.D. Herbicide application will not occur in Yuma clapper rail habitat and drift-inhibiting agents will be used to assure that the herbicide does not enter adjacent marsh areas.

CR-1.E. Evaluate past surveys for Yuma clapper rails as part of the planning for prescribed fire projects. Post-project surveys should also be conducted to document the re-growth of cattail habitats and occupancy by clapper rails.

CR-1.F. After fire suppression is completed in Yuma clapper rail habitat, review any available survey records of the burn site and record in the fire report the number of rails recorded from the vicinity during these surveys.

2.3.4. Bald eagle (FT)

Conservation Measures for Bald Eagle

BE-1. Management Guidance for Fire Suppression and Related Actions

BE-1.A. No human activity associated with fire management will be authorized within ½ mile of known bald eagle nest sites between December 1 and June 30.

BE-1.B. No tree cutting will be authorized within ¼ mile of known bald eagle nest trees.

BE-1.C. No human activity associated with fire management will be authorized within ¼ mile of known bald eagle winter roost areas between October 15 and April 15.

- BE-1.D.** No tree cutting will be authorized within the area immediately around winter roost sites as determined by BLM biologists.
- BE-1.E.** No helicopter or aircraft activity or aerial retardant application associated with fire management activities will be authorized within ½ mile of bald eagle nest sites between December 1 and June 30 or winter roost sites between October 15 and April 15.
- BE-1.F.** Prescribed burn activities outside of nesting season will be conducted in a manner to ensure nest and winter roost sites are more than ½ mile from downwind smoke effects.
- BE-1.G.** Provide reasonable protective measures so fire prescription or fuels treatment will not consume dominant, large trees as identified by the Resource Advisor or qualified biologist approved by BLM within ½ mile of known nests and roosts of bald eagles. Pre-treatment efforts should provide reasonable protection of identified nesting and roosting trees.
- BE-1.H.** Prepare and implement BAER plans for burned areas that have the potential to cause future erosion problems in the watershed, riparian, or aquatic areas. Objectives of these plans, within watersheds containing bald eagle breeding areas and/or potential habitat, will be to reduce erosion and sedimentation into these habitats.

2.3.5 Mexican spotted owl (FT)

Conservation Measures for Mexican Spotted Owl

- SO-3.** Management Guidance for Grazing Management
 - SO-3.A.** Determine the effectiveness of current grazing standards and guidelines as they relate to the owl's needs, and devise grazing strategies that can benefit the owl and its prey.
 - SO-3.B.** Monitor grazing use by livestock to determine any changes in the relative composition of herbaceous and woody plants to maintain habitat for owls and their prey.
 - SO-3.C.** Minimize or eliminate disturbance, injury, mortality, or other forms of take of Mexican spotted owls resulting from grazing by livestock.
- SO-1.** Management Guidance for Fire Suppression and Related Actions
 - SO-1.A.** BLM wildlife biologists will be involved early in the decision-making process for fuels management treatments (wildland fire use, prescribed fires, vegetation treatments) that are planned within suitable habitat for Mexican spotted owls.
 - SO-1.B.** Suitable habitat for Mexican spotted owls will be surveyed prior to implementing prescribed fire or vegetation treatment activities on BLM-administered lands to determine if owls are present and their breeding status. These fire management activities will only be implemented within suitable habitat if birds are not present.

SO-1.C. If a spotted owl is discovered during fire suppression or fuels treatment activities (wildland fire use, prescribed fire, vegetation treatments), the Resource Advisor or a qualified wildlife biologist will document the find and assess potential harm to the owl and advise the Incident Commander or project crew boss of methods to prevent harm. The information will include for each owl the location, date, and time of observation and the general condition of the owl. The Resource Advisor or biologist will contact the appropriate USFWS office.

SO-1.D. The following measures will be followed in suitable habitat (occupied or unoccupied) whenever consistent with objectives to reduce hazardous fuels:

1. Incorporate natural variation, such as irregular tree spacing and various stand/patch sizes, into management prescriptions and attempt to mimic natural disturbance patterns.
2. Maintain all species of native vegetation in the landscape, including early seral species. To allow for variation in existing stand structures and provide species diversity, both uneven-aged and even-aged systems may be used as appropriate.
3. Allow natural canopy gap processes to occur, thus producing horizontal variation in stand structure.
4. Retain hardwoods, large down logs, large trees, and snags. Emphasize a mix of size and age classes of trees. The mix should include large mature trees, vertical diversity, and other structural and floristic characteristics that typify natural forest conditions.

SO-1.E. The effects of fire suppression and fuels treatment activities on Mexican spotted owls and their habitat, and the effectiveness of these conservation measures, will be assessed after each fire event or fuels treatment project by the Resource Advisor or local biologist to allow evaluation of these guidelines. Prescriptions for wildland fire use, prescribed fires, and vegetation treatments will be adjusted, if necessary.

2.3.6. Yellow-billed cuckoo (FC)

Conservation Measures for Yellow-billed Cuckoo

YC-1. Management Guidance for Fire Suppression and Related Actions

YC-1.A. Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats.

YC-1.B. Any prescribed fire or vegetation treatment project in occupied or suitable marsh habitat only occur between September 1 and March 15 to avoid adverse affects to breeding birds.

YC-1.C. Mechanical removal of overstory habitat (e.g. tamarisk) could occur as early as September 1, after the breeding season for yellow-billed cuckoos.

YC-1.D. Evaluate past surveys for yellow-billed cuckoos as part of the planning for prescribed fire projects. Post-project surveys should also be conducted to

document the re-growth of mature cottonwood-willow gallery forests and occupancy by cuckoos.

YC-1.E. After fire suppression is completed in yellow-billed cuckoo habitat, review any available survey records of the burn site and record in the fire report the number of cuckoos recorded from the vicinity during these surveys.

YC-1.F. Continue to implement the riparian fire management plan to minimize fire damage in riparian areas, especially those with suitable or potential flycatcher habitat.

2.3.7. Peregrine Falcon (BLM Sensitive)

Conservation Measures for Peregrine Falcon

Continue post-delisting recovery monitoring of selected peregrine falcon nest sites in cooperation with AGFD and USFWS. The monitoring plan calls for five sampling periods at three-year intervals throughout the life of this Approved Plan. Monitoring protocol requires a minimum of two, four-hour visits to a site unless a nest is located sooner.

PF-1. Management Guidance for Fire Suppression and Related Actions

PF-1.A. BLM wildlife biologists will be involved early in the decision-making process for fuels management treatments (wildland fire use, prescribed fires, vegetation treatments) that are planned within ½ mile of active nest sites of peregrine falcon.

PF-1.B. Prior to implementing prescribed fire or vegetation treatment activities on BLM-administered lands, areas within ½ mile of cliff faces that could contain suitable habitat for peregrine falcon will be surveyed. Fire management activities will only be implemented when peregrine falcons are not present.

PF-1.C. If a peregrine falcon is discovered during fire suppression or fuels treatment activities (wildland fire use, prescribed fire, vegetation treatments), the Resource Advisor or a qualified wildlife biologist will document the find, assess potential harm to the falcon, and advise the Incident Commander or project crew boss of methods to prevent harm.

2.4. VIRGIN RIVER FISHES (not in Vermilion Cliffs National Monument)

2.5. Flowering Plants

Conservation Measures for Special Status Plants

PL-1. Management Guidance for Fire Suppression and Related Actions

- PL-1.A.** Known locations and potential habitat for plant populations will be mapped to facilitate planning for wildland fire use, prescribed fires, and vegetation treatments, and to ensure protection of these populations during fire suppression.
- PL-1.B.** Delineate buffer areas around plant populations prior to prescribed fire and vegetation treatment activities. Coordinate with the USFWS during any emergency response and wildland fire use activities to ensure protection of plant populations from fire and fire suppression activities.
- PL-1.C.** No staging of equipment or personnel will be permitted within 100 meters of identified individuals or populations of special status plant species during fire suppression, wildland fire use, or prescribed fire. Off-road vehicles will not be allowed within the 100-meter buffer area, unless necessary for firefighter or public safety or the protection of property, improvements, or other resources.
- PL-1.D.** No prescribed burning will be implemented within 100 meters of identified locations or unsurveyed suitable habitat of special status plant species unless specifically designed.

APPENDIX H

VISUAL RESOURCE MANAGEMENT CLASSES AND OBJECTIVES FOR CLASSES

APPENDIX H: VISUAL RESOURCE MANAGEMENT CLASSES AND OBJECTIVES FOR CLASSES

A. INTRODUCTION

The Visual Resource Management (VRM) system provides a means: to identify visual values; to establish objectives through the planning process for managing these values; and to provide timely inputs into proposed surface disturbing projects to ensure that these objectives are met. The objectives also provide visual management standards for the design and development of future projects and for rehabilitation of existing projects. Assigning values to visual resources produces information that, once passed through the VRM system, is to be used as a guide during project development. The Monument manager makes the decision on the amount of visual change that is acceptable for a project or activity proposal.

Following the update of the existing visual resource inventory to incorporate identified Monument scenic values and higher public sensitivity to those values, VRM classes were potentially designated for all Monument lands under all alternatives in the Arizona Strip Proposed Plan/FEIS. While VRM management classes may differ from VRM inventory classes, based on management priorities for land uses, the inventory did serve as the basis for considering and developing potential VRM designations. The potential for VRM classes to reflect and support resource allocation decisions significantly shaped the potential VRM designations in each alternative of the Proposed Plan/FEIS. If, for example, it was concluded that under the Plan resource allocation decisions that the "visual contrast rating scores will exceed the VRM class objectives" for a number of areas, the typical response will be to lower the VRM inventory rating for those areas to reflect the Plan's resource allocation decisions in those areas.

As VRM class designations are established upon the signing of the Record of Decision for the Approved Plan, it is the responsibility of the manager to ensure that visual impacts are minimized in all resource development activities including non-BLM initiated projects. Once established, VRM class designations are more than merely guidelines. Rather, having been developed through the planning process, meeting the objectives of each of the respective visual resource classes is as much a part of the Plan mandate as any other aspect of the resource allocation decisions made in the Approved Plan.

Since the overall VRM goal is to minimize visual impacts, mitigating measures should be prepared for all adverse contrasts that can be reduced, including the reduction of contrast in projects that have met the VRM objectives. This is done by incorporating visual design considerations into all surface disturbing projects regardless of size or potential impact. This does not mean that VRM will be used as a method to preclude all other resource development. It does mean that the visual values must be considered and those considerations documented in the decision-making process, and that if a proposed project or action is approved, a reasonable

attempt must be made to meet the VRM objectives for the area in question and to minimize the visual impacts of the proposal.

To facilitate incorporating visual design considerations into surface disturbing projects so as to assist management in the minimization of potential visual impacts, the contrast rating process is used as a visual design tool in project design and as a project assessment tool during environmental review. Contrast ratings are required for proposed projects in highly sensitive areas or high impact projects, but may also be used for other projects where it will appear to be the most effective design or assessment tool. A brief narrative visual assessment will be completed for all other projects that require an environmental assessment or environmental impact statement.

In its simplest form, the contrast rating process documents the existing form, line, color and texture aspects of landform, vegetation, and structures for a project area. It then documents the predicted form, line, color, and texture aspects the landform, vegetation and structures will display with the proposed project in place as observed from key observation points, such as overlooks or high-use travel corridors. The difference between the “before” and “after” represents the potential contrast produced by the project. If the overall level of contrast is within the standard or objective for the VRM class within which it lies, the project is considered to meet the VRM objective. If the contrast rating is outside the standard or objective, mitigation measures are considered and applied, in essence, redesigning the project to attempt to bring it into conformance with the VRM standard or objective. (For more information about contrast ratings, see BLM Handbook H-8431-1, Visual Resource Contrast Rating online at <http://www.blm.gov/nstc/VRM/8431.html>)

In applying the VRM Class objectives in the Approved Plan, the following general criteria were considered:

- Consider the overall management emphasis.
- Recognize all applicable special designations and all land use allocations as VRM classifications are applied.
- Assure that other management activities and land uses being provided for in a specific area may be achieved within the VRM Class objective being set, consistent with special designations and land use allocations.
- Use the least restrictive class that still achieves objectives to attain desired future conditions.

Setting VRM Class objectives that will make it difficult to achieve management activities or uses identified elsewhere within the Approved Plan was avoided during the designation process. VRM Class I was typically used only for those areas where congressional and administrative decisions have been or will be made to preserve a natural landscape.

VRM Class objectives are set by Bureau policy and the critical concepts are summarized below in Table H-1 (also see Visual Resources decisions in the Approved Plan):

Table H-1. VRM Class Objectives.	
VRM Class I	VRM Class II
Preserve existing character of the landscape	Retain existing character of the landscape
Natural ecological changes	Changes repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape
Very limited management activity	Management activities may be seen
Level of Change- very low	Level of Change- low
Must not attract attention	Should not attract attention of casual observer
VRM Class III	VRM Class IV
Partially retain existing character of the landscape	Allow major modifications of existing character of the landscape
Changes should repeat the basic elements in the predominant natural features of the characteristic landscape	Make every attempt to minimize the impact of activities through careful location, minimal disturbance, and repeating the basic elements
(management activities not addressed)	Provide for management activities which require major modifications of existing landscape character
Level of Change- moderate	Level of Change- major
May attract attention but should not dominate the casual observer's view	May dominate the view and be the major focus of viewer attention

B. SPECIFIC CRITERIA FOR VRM CLASSES BY ALTERNATIVE

The following specific criteria are used to define VRM classes for the Monument and are reflected on the GIS maps and in the acreage numbers in the Approved Plan.

Class I

- Designated Wilderness (Paria Canyon-Vermilion Cliffs Wilderness)

Class II

- Vermilion Cliffs National Monument areas outside designated wilderness

Class III

- No Class III areas occur in Vermilion Cliffs National Monument

Class IV

- No Class IV areas occur in Vermilion Cliffs National Monument

APPENDIX I

RECLAMATION STIPULATIONS

APPENDIX I: RECLAMATION STIPULATIONS

Appendix I is a list of general requirements for preserving and protecting the special environmental and unique resource values of the Monument. These requirements will guide the formulation of specific stipulations, construction and/or operating standards, which will be applied to surface-disturbing activities. They are designed to provide public land users with a clear understanding of what constitutes prevention of unnecessary or undue degradation and what is required for reclamation. These requirements are supported by FLPMA and other environmental laws. Suitable site-specific stipulations regarding construction and reclamation and the prevention of unnecessary or undue degradation will be developed by the authorized officer and applied to each authorization. In order to minimize long-term impacts and ensure that sites are effectively reclaimed.

UNNECESSARY OR UNDUE DEGRADATION

1. All surface disturbance, including road construction and associated travel, shall be kept to the minimum necessary to accomplish the task. Road upgrade and realignment requests on BLM lands shall include plans for reclamation and a proposal for a post-operations final alignment.
2. All new temporary or existing upgraded roads on BLM lands may require mitigation to reduce the potential adverse impact of fugitive dust as specified by the authorized officer.
3. Where soil characteristics warrant, topsoil shall be stockpiled from a surface depth specified by the authorized officer.
4. All surface-disturbing activities on slopes greater than 15 percent shall include measures to stabilize soils and control surface water runoff.
5. During construction and operation of facilities or improvements, care shall be taken to minimize, to the extent practicable, impacts to the natural and human environments. This may be accomplished through the painting or screening of structures and facilities to blend with the surrounding environment; the suppression of dust and noise; the proper disposal of waste products; and provisions to safeguard public safety.
6. Coloration products may be required along travel corridors and in VRM Class II areas to reduce color contrast and restore the natural color balance.
7. Construction and reclamation activities shall be designed to minimize long-term impacts to natural lines, form, textures and color contrast. Reclamation methods shall avoid disturbing more area or exposing greater color contrast than resulted from the original operation.

8. All facilities or improvements that are no longer needed must be removed.
9. In order to protect the wildlife, the public or other important values and discourage unnecessary public contact with authorized activities, the authorized officer may require improvements or facilities to be fenced, gated and locked.
10. Mineral material disposal in VRM Class II areas shall not be allowed if reasonable alternative sources are available in other VRM classes. Any mineral material disposal sites authorized in VRM Class II shall not compromise the VRM class objectives.
11. All powerlines on BLM lands shall be constructed to minimize visual impacts. This may include burying them along existing roads in VRM Class II areas.
12. Applicants shall supply, at the discretion of the authorized officer, pertinent information regarding impacts from the proposal on surface and groundwater quality and quantity and anticipated impacts from 100-year, 24-hour storm events.
13. All forms of residential occupancy are discouraged on public lands within the Arizona Strip District. Exceptions may occur on BLM lands for the protection of public health and safety and the protection of private property. Residential occupancy not in conformance with applicable laws, Bureau guidelines and district policy will be subject to immediate trespass action by the Bureau.
14. Applicants may be required by the authorized officer to provide inventories for threatened or endangered plants and/or animals and cultural resources. All Inventories shall be performed to Bureau standards.
15. No surface disturbance shall be authorized which impacts any cultural sites prior to consultation with the State Historic Preservation Officer (SHPO) and threatened or endangered species prior to compliance with the Endangered Species Act.
16. No surface disturbance will be authorized which impacts any cultural property that is allocated to Conservation Use in an approved Cultural Resource Management Plan.

RECLAMATION

1. Reclamation of all surface disturbances must be initiated immediately upon completion of activities, unless otherwise approved by the authorized officer. Reclamation of disturbed areas shall, to the extent practicable, include contouring disturbances to blend with the surrounding terrain, replacement of topsoil, smoothing and blending the original surface colors to minimize impacts to visual resources, and seed the disturbed areas with a mix specified by the authorized officer.

2. All chemicals, trash, garbage or other foreign material must be removed completely from the project area by the applicant immediately upon completion of the project. All material must be properly disposed of in an approved disposal facility. Exceptions to this limitation shall be approved by the authorized officer.
3. At no time shall vehicle or equipment fluids be dumped on public lands. All accidental spills must be reported to BLM and be cleaned up immediately, using best available practices and requirements of the law. All spills of federally or state listed hazardous materials which exceed the reportable quantities shall be promptly reported to the appropriate state agency and the Arizona Strip District.
4. Disturbed areas, where soil and rainfall are adequate for anticipated success, shall be revegetated. In all VRM Class II areas, revegetation of native species shall be preferred. Rates and seed mixes shall be determined by the authorized officer.
5. Revegetation efforts must establish a stable biological groundcover equal to or exceeding that which occurred prior to disturbance. Mulching may be appropriate for conserving moisture and holding seed on-site thus improving the chances for successful establishment.
6. All unnecessary roads shall be reclaimed and closed immediately upon termination of the project. Recontouring all cut slopes to approximately the original contour shall be required. Reclaimed roads shall be barricaded or signed to protect them until reclamation is achieved. All existing roads that require upgrading shall be reclaimed to their original dimensions upon completion of the project. Exceptions must be approved in writing by the authorized officer.

APPENDIX J

RECREATION MANAGEMENT AREAS

APPENDIX J: RECREATION MANAGEMENT AREAS

OVERVIEW

Two types of Recreation Management Areas (RMAs) are identified in the Approved Plan: Special Recreation Management Areas (SRMAs) and Extensive Recreation Management Areas (ERMAs).

SPECIAL RECREATION MANAGEMENT AREAS

SRMAs are identified in the planning process as areas with a distinct primary recreation-tourism market (who are the targeted visitors and where do they come from) as well as a corresponding and distinguishing recreation management strategy; either Community, Destination, or Undeveloped. SRMAs will undergo further activity-level planning following the completion of the land use plan in either Recreation Area Management Plans (RAMP) and/or project plans.

In identifying SRMAs and prescribing the management regime for each, and to the extent feasible with the information on-hand, a benefits-based management (BBM) approach is used. BBM or “beneficial outcomes” planning focuses on the outcomes of recreation and leisure activities to determine how the experiences benefit the visitor and uses this information as the premise for the planning process. BBM focuses on “why” people visit an area and participate in a particular activity. Recent visitor surveys as well as public scoping comments and input from cooperating entities were used to develop the appropriate proposed recreation strategy for each SRMA.

Recreation Management Strategies

As stated previously, each SRMA identified will have a distinct, primary recreation-tourism market as well as a corresponding and distinguishing recreation management strategy. For each SRMA selected, that primary market-based strategy will be to manage for one of three possibilities:

Community recreation-tourism market ~ a community or communities dependent on public lands recreation and/or related tourism use, growth, and/or development. Major investments in facilities and visitor assistance are authorized within SRMAs where BLM’s strategy is to target demonstrated community recreation-tourism market demand. Here, recreation management actions are geared toward meeting primary recreation-tourism market demand for specific activity, experience, and benefit opportunities. They are produced by maintaining prescribed natural resource and/or community setting character and by structuring and implementing management, marketing, monitoring, and administrative actions accordingly.

Destination recreation-tourism market ~ national or regional recreation-tourism visitors and other constituents who value public lands as recreation-tourism destinations. Major investments in facilities and visitor assistance are authorized within SRMAs where BLM’s strategy is to target demonstrated destination recreation-tourism market demand. Here, recreation management actions are geared toward meeting primary recreation-tourism market demand for specific activity, experience, and benefit opportunities. These opportunities are produced through maintenance of prescribed natural resource setting character and by structuring and implementing management, marketing, monitoring, and administrative actions accordingly.

Undeveloped recreation-tourism market ~ national, regional, and/or local recreation-tourism visitors, communities, or other constituents who value public lands for the distinctive kinds of dispersed recreation produced by the vast size and largely open, undeveloped character of their recreation settings. Major investments in facilities are excluded within SRMAs where BLM’s strategy is to target demonstrated undeveloped recreation-tourism market demand. Here, recreation management actions are geared toward meeting primary recreation-tourism market demand to sustain distinctive recreation setting characteristics; however, major investments in visitor services are authorized both to sustain those distinctive setting characteristics and to maintain visitor freedom to choose where to go and what to do—all in response to demonstrated demand for undeveloped recreation.

While Destination and Community SRMAs are targeting for demands that may require major facilities and visitor assistance as stated above, Undeveloped SRMAs target for a demand that may requires primarily visitor services, not major facilities, to sustain distinctive settings and maintain the unstructured, freedom to choose activities appropriate in undeveloped settings. It should be noted that “visitor freedom to choose where to go and what to do” does not mean freedom from rules, regulations, travel restrictions, etc., but it refers to the visitors’ ability to choose from a variety of unstructured, dispersed recreation activities and locations, versus choosing more structured recreation opportunities tied to specific places and activities in the other two types of SRMAs.

RECREATION MANAGEMENT ZONES

Within each SRMA, one or more potential Recreation Management Zones (RMZs) were identified, with each zone providing a particular recreation niche within the larger targeted recreation-tourism market strategy. (See Maps 2.7, 2.16, 2.25, and 2.34 for SRMAs with RMZs in the Arizona Strip Proposed Plan/Final Environmental Impact Statement [FEIS]). Each RMZ was characterized by a description of its desired outcomes (management objective(s), benefits, experiences, activities) and setting prescriptions (physical, social, and administrative conditions required to produce the outcomes.[see Appendix 3.H, Recreation Opportunity Spectrum, in the Proposed Plan/FEIS]) Each RMZ within a SRMA is thus presented to show what the targeted activities will likely be, the potential experiences derived from participation, and the possible benefits to be realized. Additionally, an activity planning framework (see below) was described

that addresses basic but broad types of recreation actions (management, marketing, monitoring, and administration) that will be needed to achieve desired outcomes.

EXTENSIVE RECREATION MANAGEMENT AREAS

Areas not delineated as a SRMA are identified as one or more ERMA, which will primarily provide for the wide variety of dispersed recreation activities. Only a custodial level of management will be performed to address visitor health and safety, user conflicts and resource protection issues, and only project plans will be developed. Therefore, actions within ERMA are generally implemented directly from land use plan decisions. Land use plan decisions identified in the various sections of Chapter 2, Table 2.1, for Recreation and Visitor Services include recreation management objectives for all ERMA, while Table 2.4 includes custodial recreation management, marketing, monitoring, and administrative support actions.

ACTIVITY PLANNING FRAMEWORK

The activity planning framework is intended to outline the essential conditions or actions needed to begin implementing the management of new SRMA. This section addresses the framework for all actions to be taken by BLM and its collaborating community recreation-tourism providers who affect both recreation setting character and the kinds of recreation opportunities being produced in SRMA. The framework addresses recreation management, marketing, monitoring, and administrative support actions necessary to achieve the various explicitly stated recreation management objectives and setting prescriptions found in the tables below.

Unless the essential conditions or structure are met, neither management objectives nor prescribed recreation setting character can be achieved because implementing actions are the engine that makes everything happen. In other words, “What are the primary types of actions to which BLM and its collaborating providers must commit so that planned recreation management objectives and recreation setting prescriptions will, in fact, be achieved?” Much of this structure is found in the Chapter 2, Table 2.14a Recreation and Visitor Services under Part C, Actions to Achieve and Allowable Uses of the Proposed Plan/Final EIS. Additionally, the following content supplements the Chapter 2 content.

RECREATION-TOURISM SERVICE DELIVERY SYSTEM

To implement land use plan decisions within the SRMA, a recreation-tourism service delivery system must be in place and engaged. The delivery system is that combination of public lands and adjoining service communities, including local governments and service providing businesses through which recreation and visitor services are delivered for one or more Special Recreation Management Areas to both visitors and affected community residents. Because BLM is not the only provider of essential recreation and visitor services for the Planning Area, the

focus of the system must include other service providers within adjoining service communities upon whom visitors and community residents alike depend.

The recreation-tourism delivery system for the Monument SRMAs involves more than just programs and activities provided on public lands. In addition to the BLM, the Forest Service and National Park Service, local counties, such as Coconino County in Arizona and Kane County in Utah, as well as American Indian Tribes, such as the Southern Paiute and Navajo, also contribute to recreation-tourism delivery, primarily through the management of access to and through landscapes. State governments in Arizona and Utah also play important roles in various facets of recreation delivery, including the management of game and fish and recreation activities on state trust lands, creation and funding of grant programs that enhance OHV and non-motorized recreation opportunities, and providing state law concerning vehicle-related licensing.

For the Monument SRMAs, local communities such as Big Water and Kanab, Utah and Fredonia, Marble Canyon, and Page, Arizona, will continue to contribute to the delivery of recreation-tourism opportunities to local, regional, national, and international visitors and residents.

Non-government recreation providers also play an important role in delivering recreation-tourism outcomes. Many local and regional businesses provide for a variety of direct recreation opportunities in the areas identified as SRMAs that enable customers to realize specific recreation experience outcomes via numerous commercial and competitive activities or events. Many other private sector businesses also provide indirectly, or ‘off-site’, to the recreation-tourism delivery, such as local bike shops, OHV dealerships, outdoor equipment retailers, hotels, and restaurants. Taken all together, recreation-tourism opportunities on the Arizona Strip are influenced, guided, constrained, and managed by many providers.

In implementing land use plan decisions for SRMAs, collaborative efforts with other key providers will be essential to achieving desired outcomes. Various types of cooperating agreements will be developed to forge sustainable service partnerships with these providers. Additionally, other existing or new “opportunistic” partnerships with users, interest groups, and NGOs will be developed, restructured, expanded, or otherwise tailored to fit within these overarching agreements among all key affected providers.

IMPLEMENTATION OF ESSENTIAL ACTIONS

Following the completion of the land use plan, a RAMP could be developed for each SRMA through a public process. RAMP contents will address the variety of specific actions that the BLM and other key collaborating recreation-tourism providers within adjoining communities will undertake to achieve the production of recreation opportunities and resulting attainment of targeted experience and benefit outcomes.

Through the development of RAMPs for SRMAs, BLM will integrate and constrain all of the traditional recreation-related programs and initiatives (e.g., OHVs and transportation, rivers and trails, permits and fees, concessions management, accessibility, interpretation, facility management, VRM, etc.) to address only those essential functional actions required to achieve planned outcomes.

Implementing actions, whether in RAMPs, developed directly from the Approved Plan, or developed adaptively during implementation, will need to conform to the overall management framework established by the Plan. In other words, as sets of more specific management actions are developed during activity planning, each and every action will need to conform to the planning criteria, laws, regulations, policies, and planning allocations. Additionally specific management actions need to conform with State and local provider laws and policies that pertain to activities on public lands.

To better focus on achieving integration and balance of the essential implementation actions, the BLM will shift the operational framework from the more traditional approach of managing individual recreation programs as discrete objects to the following four functional areas of recreation and visitor services.

MANAGEMENT (of resources, visitors, and facilities [i.e., developed recreation sites, roads and trails, recreation concessions, etc.):

Many of the recreation programs listed above involve recreation management actions, but, in a benefits-based SRMA, only those actions which, produce targeted outputs (i.e., maintain or enhance settings) and facilitate the attainment of targeted outcomes will be considered essential. Planned management programs and actions for SRMAs will be constrained by the management framework of the Approved Plan, specifically the Recreation and Visitor Services section. Planned management programs and actions will be held accountable for how they impact recreation setting character and the ability of those settings to produce targeted recreation opportunities.

Additionally, planned travel management actions, including route designation actions, will be constrained by recreation management objectives and setting prescriptions, as well as other management objectives related to sensitive resources. Likewise, planned travel-related engineering construction and maintenance actions will be guided in part by Travel Management Area setting prescriptions (Appendix 2.S Travel Management Areas, Part C, Route Construction and Maintenance Standards) that are integrated with RMZ setting prescriptions.

MARKETING (including outreach, information and education, promotion, interpretation, environmental education, and other visitor services):

Marketing actions must support and compliment planned management actions. Marketing seeks to connect a customer with a product. In the case of managing for beneficial outcomes on public lands, marketing will connect the visitor with a desired setting and set of activities that will facilitate the realization of desired experiences and benefits.

As part of marketing, definitive information about recreation setting character and activity, experience, and benefit opportunities will be integrated into BLM's own information and other outreach media. The BLM will also work more closely with industry media through collaborative efforts to add definitive content to existing and planned industry outreach media and messages to ensure that promotional pieces match customers with the opportunities they seek rather than sell them what media wants. It will be essential that all entities involved with marketing, both BLM and industry media, know and understand:

- how each SRMA is targeting a specific recreation-tourism market and who that market is and where it is located;
- how each such market has one or more specific recreation niches that prescribe RMZ-specific recreation setting characteristics critical to the production of specific outcomes of activity, experience, and benefits; and
- what the ramifications of “off-target” promotional efforts can be; and
- that only the marketing tools (e.g., information, promotion, education, interpretation, etc.) that are best suited for each locale will be selected as implementing actions.

Monitoring (including social, environmental, and administrative indicators and standards (including outreach, information and education, promotion, interpretation, environmental education, and other visitor services):

Various monitoring frameworks will be available for BLM and its collaborating partners to implement specific planned monitoring actions. Monitoring recreation outcomes and prescribed recreation setting conditions is what will drive adaptive management. Monitoring will measure outcomes and settings indicators gauge if, when, and how to readjust management and marketing actions to achieve standards set for those indicators (i.e., monitoring indicators and standards will be extracted directly from the outcomes-based management objectives and setting prescriptions).

Limits of Acceptable Change (LAC) will be the primary framework used to clarify the identity of other indicators, inventory the indicators, evaluate data and set standards for the indicators, and monitor selected indicator sites over time to assess the condition and trend of various recreation settings. In addition to LAC, visitor satisfaction and preference surveys will be used to evaluate the success or failure achieving the objectives. BLM will use standard, approved

survey instruments while other providers may employ other methods to monitor conditions and achievement of objectives.

In implementing specific monitoring actions, BLM's collaborating providers will be encouraged to assist by providing visitor and community assessments. A monitoring plan will facilitate achieving the essential conditions needed for coordinated, integrated, efficient monitoring actions to occur.

ADMINISTRATIVE SUPPORT (regulations; permits and fees, including use restrictions where necessary and appropriate; recreation concessions; fiscal; data management; and customer liaison):

Administrative actions, such as those listed above, will be implemented only if they ensure that they:

- support rather than lead the management, marketing, and monitoring actions
- do not thwart the attainment of targeted experience and beneficial outcomes,
- fit within recreation setting prescriptions
- are all complementary and balanced with each other, and
- are limited to only those necessary to achieve all of the above.

APPENDIX K

TRAVEL MANAGEMENT AREAS, TRANSPORTATION PLAN CONTENTS, AND APPROPRIATE ROUTE CONSTRUCTION AND MAINTENANCE STANDARDS BY TRAVEL MANAGEMENT AREA

APPENDIX K: TRAVEL MANAGEMENT AREAS, TRANSPORTATION PLAN CONTENTS, AND APPROPRIATE ROUTE CONSTRUCTION AND MAINTENANCE STANDARDS BY TRAVEL MANAGEMENT AREA

TRAVEL MANAGEMENT AREAS

Comprehensive travel management planning addresses all resource use aspects (such as recreational, traditional, casual, agricultural, commercial, and educational) and accompanying modes and conditions of travel on the public lands. In the Approved Plan for this Monument, three Travel Management Areas (TMAs; polygons) are delineated. Acceptable modes of travel for each TMA are identified in the Approved Plan as Allowable Uses. In developing these areas, the following components were considered:

- a. Management units developed in the plan
- b. Consistency with all resource program goals and objectives;
- c. Primary travelers;
- d. Objectives for allowing travel in the area;
- e. Setting characteristics that are to be maintained (including recreation opportunity system and VRM settings); and
- f. Primary means of travel allowed to accomplish the objectives and to maintain the setting characteristics.

A transportation plan will be developed within 3-5 years of issuance of the ROD that will coordinate the implementation of the Travel Management and Transportation Facilities decisions over the life of the Plan. The potential contents of the transportation plan are shown below. The transportation plan will also include Appropriate Route Construction and Maintenance Standards by TMA, also shown below.

TRANSPORTATION PLAN CONTENTS

DESIGNATED TRAVEL MANAGEMENT SYSTEM

Implementation and management of the defined travel management network (a system of areas, roads and/or trails available for public use, and the specific limitations placed on use) will be documented in the transportation plan including, at a minimum, the following components:

- a. A map that displays and describes the intended use of the individual geographic units within the planning area and displays roads and trails for all travel modes.
- b. A listing of specific road types and designations such as Federal, state, county, and Tribal roads, BLM administered/maintained roads, and BLM public roads.
- c. A listing of roads in congressionally designated conservation units, Presidential conservation designations, and administrative conservation designations.
- d. Definitions and additional limitations for specific roads and trails (defined in 43 CFR 8340.0-5(g)).
- e. Criteria to add new roads or trails and to specify limitations.
- f. A set of guidelines for management, monitoring, and maintenance of the system.
- g. A set of indicators to guide future plan maintenance, amendments, or revisions related to travel management network.
- h. A list of needed easements and rights-of-way (to be issued to the BLM or others) to maintain the existing road and trail network providing public land access.
- i. A schedule for periodic review of travel management networks to ensure that current resource and travel management objectives are being met (see 43 CFR 8342.3).

Table K.1. Route Construction and Maintenance Standards							
Appropriate Route Construction and Maintenance Standards by TMA							
Asset Type ¹ and Access Vehicle Type	Route Type ²	Route Width ³ (ft)	Maintenance Intensity ⁴	Maintenance Frequency	Speed (mph)	Comments	Hiking, Equestrian, and Bicycle Types
Rural TMA							
State, Federal	Primary Paved, Secondary Paved	Varies	High standards		55-75	ADOT responsibility	
Road-all vehicle types	Primary Unpaved, Secondary Unpaved	14-28	3, 5	Annually	20-50	Mainly County and BLM routes	Native tread surface to nonnative tread for interpretive trails
Primitive Road-high clearance or 4X4	Tertiary	10 or two-track	1	As needed	10-15	Maintenance is typically as needed, site-specific	
Trail-hiking, biking, motorcycle or equestrian	Single Track	1.6	3	Annually	≤40 M ≤15 NM	Use generally year-round	
Non-system	Closed, Reclaiming, Abandoned	--	0	None	--	Routes to be closed and rehabilitated	
Backways TMA							
Road-all vehicle types	Primary Unpaved, Secondary Unpaved	14-20	3, 5	Annually	40-50	Mainly County and BLM/NPS routes	Native tread surface to nonnative tread for interpretive trails
Primitive Road-high clearance or 4X4	Tertiary	10 or two-track	1	As needed	5-15	Maintenance is typically as needed, site-specific	
Trail-hiking, biking, motorcycle or equestrian	Single Track	1.6	1, 3	As needed	≤40 M ≤15 NM	Use generally year-round	
Non-system		--	0	None	--	Routes to be closed and rehabilitated	
Specialized TMA							
Road-all vehicle types	Secondary Unpaved	14	3	Annually	20-30	Mainly BLM/NPS routes	Native tread surface, widths to be determined
Primitive Road-high clearance or 4X4	Tertiary	10 or two-track	1	As needed	5-15	Maintenance is typically as needed and/or site-specific	
Trail-hiking, biking, motorcycle or equestrian	Single Track	1.6	1, 3	As needed	≤40 M ≤15 NM	Use generally year-round	
Non-system	Closed, Reclaiming, Abandoned	--	0	None	--	Routes to be closed and rehabilitated	

Table K.1. Route Construction and Maintenance Standards							
Appropriate Route Construction and Maintenance Standards by TMA							
Asset Type ¹ and Access Vehicle Type	Route Type ²	Route Width ³ (ft)	Maintenance Intensity ⁴	Maintenance Frequency	Speed (mph)	Comments	Hiking, Equestrian, and Bicycle Types
Primitive TMA							
Primitive Road-high clearance or 4X4	Tertiary	10 or two-track	1	As needed	5-15	Administrative motorized use and open to non-motorized public use. Maintenance is typically as needed, site-specific	Native tread surface, widths to be determined
Trail-hiking or equestrian	Single Track	1.6	1, 3	As needed	≤40 M ≤15 NM	Use generally year-round	
Non-system	Closed, Reclaiming, Abandoned	--	0	None	--	Routes to be closed and rehabilitated	
<p>1. Asset type: From Instruction Memorandum No. 2006-173, Implementation of Roads and Trails Terminology Report: Road: A linear route declared a road by the owner, managed for use by low-clearance vehicles having four or more wheels, and maintained for regular and continuous use. Primitive Road: A linear route managed for use by four-wheel drive or high-clearance vehicles. These routes do not normally meet any BLM road design standards. Trail: A linear route managed for human-powered, stock, or off-highway vehicle forms of transportation or for historical or heritage values. Trails are not generally managed for use by four-wheel drive or high-clearance vehicles.</p> <p>2. Route Type: Derived from formal route inventory, which uses these standard types for inventory on BLM and U.S. Forest Service jurisdictions and for Arizona State Trust Lands.</p> <p>3. Route Width: Width of travel surface only. Does not include associated ditches, bridges, culverts, route cut and fill areas, etc.</p> <p>4. Route Maintenance Intensities :</p> <p>Level 0 - Maintenance Description: Existing routes that will no longer be maintained and no longer be declared a route. Routes identified as Level 0 are identified for removal from the Transportation System entirely. Maintenance Objectives: No planned annual maintenance; Meet identified environmental needs; No preventive maintenance or planned annual maintenance activities</p> <p>Level 1 - Maintenance Description: Routes where minimum (low intensity) maintenance is required to protect adjacent lands and resource values. These roads may be impassable for extended periods of time. Maintenance Objectives: Low (Minimal) maintenance intensity; Emphasis is given to maintaining drainage and runoff patterns as needed to protect adjacent lands. Grading, brushing, or slide removal is not performed unless route bed drainage is being adversely affected, causing erosion; Meet identified resource management objectives; Perform maintenance as necessary to protect adjacent lands and resource values; No</p>							

Table K.1. Route Construction and Maintenance Standards							
Appropriate Route Construction and Maintenance Standards by TMA							
Asset Type ¹ and Access Vehicle Type	Route Type ²	Route Width ³ (ft)	Maintenance Intensity ⁴	Maintenance Frequency	Speed (mph)	Comments	Hiking, Equestrian, and Bicycle Types
preventive maintenance; Planned maintenance activities limited to environmental and resource protection; Route surface and other physical features are not maintained for regular traffic							
Level 2 - RESERVED FOR POSSIBLE FUTURE USE							
<p>Level 3 - Maintenance Description: Routes requiring moderate maintenance due to low volume use (e.g., seasonally or year-round for commercial, recreation, or administrative access). Maintenance Intensities may not provide year-round access but are intended to generally provide resources appropriate to keep the route in use for the majority of the year. Maintenance Objectives: Medium (Moderate) maintenance intensity; Drainage structures will be maintained as needed. Surface maintenance will be conducted to provide a reasonable level of riding comfort at prudent speeds for the route conditions and intended use. Brushing is conducted as needed to improve sight distance when appropriate for management uses. Landslides adversely affecting drainage receive high priority for removal; otherwise, they will be removed on a scheduled basis; Meet identified environmental needs; Generally maintained for year-round traffic; Perform annual maintenance necessary to protect adjacent lands and resource values; Perform preventive maintenance as required to generally keep the route in acceptable condition; Planned maintenance activities should include environmental and resource protection efforts, annual route surface; Route surface and other physical features are maintained for regular traffic</p>							
Level 4 - RESERVED FOR POSSIBLE FUTURE USE							
<p>Level 5 – Maintenance Description: Routes for high (Maximum) maintenance due to year-round needs, high volume traffic, or significant use. Also may include routes identified through management objectives as requiring high Intensities of maintenance or to be maintained open on a year-round basis. Maintenance Objectives: High (Maximum) maintenance intensity; The entire route will be maintained at least annually. Problems will be repaired as discovered. These routes may be closed or have limited access due to weather conditions but are generally intended for year-round use; Meet identified environmental needs; Generally maintained for year-round traffic; Perform annual maintenance necessary to protect adjacent lands and resource values; Perform preventive maintenance as required to generally keep the route in acceptable condition; Planned maintenance activities should include environmental and resource protection efforts, annual route surface; Route surface and other physical features are maintained for regular traffic</p>							

APPENDIX L

LIST OF PREPARERS

APPENDIX L: LIST OF PREPARERS

Those responsible for the preparation of this Approved Plan are presented in the table below:

LIST OF PREPARERS					
Name	Title	Agency	Assignment	Education	Years of Expertise
Michelle Bailey	Recreation Planner	BLM	Recreation	B.S., Parks and Recreation Mgmt.	8 Years
Gloria Benson	Native American Coordinator	BLM	Cultural Resources (American Indian Resources)		26 years
Jonathan Boswell	GIS, GPS Consultant	GEO-MM&C	GIS Analysis and Data Development GPS Data Collection and Management Map/Graphics Development	A.A., General Studies	4 years
David Boyd	Public Affairs Specialist	BLM	Outreach, Editing, Scoping Report, Planning Bulletins, Technical Coordinator	B.S., Wildlife Biology M.A., Journalism	18 years
Hilary Boyd	Fire Ecologist	BLM	Fire Ecology (Occurrence, Risk)	B.S., Wildlife Biology M.S., Wildlife Science	11 years
Jeff Bradybaugh	Superintendent, Parashant	NPS	Management Overview, NPS Planning	M.S., Wildlife Science	25 years
Paula Branstner	Interpretive Specialist	NPS	Environmental Education and Interpretation	A.S., General Studies/ Occupational Therapy	19 years
Whit Bunting	Rangeland Management Specialist	BLM	Livestock Grazing, Vegetation (Rangelands)	B.S., Range Science	16 years
Todd Calico	GIS, GPS Consultant	TLC-GIS	GIS Analysis and Data Development GPS Data Collection and Management Map/Graphics Development	A.S., General Studies BIS., Natural Resources and Environmental Studies	6 Years
Lorraine Christian	Field Manager, Arizona Strip Field Office	BLM	Management Overview, Planning Overview	B.S., Wildlife and Fisheries Biology	22 years
Rody Cox	Geologist, Lead for Minerals Program and Paleontological Resources	BLM	Geology, Paleontology, Minerals (Leasable and Locatable Minerals, Mineral Materials)	B.A., Biology M.S., Geology	24 years
Dennis Curtis	Monument Manager, Parashant	BLM	Management Overview, Planning Overview	M.S., Geography	39 years
Tom Denniston	Wildlife Biologist	BLM	Wildlife Biology	B.S., Wildlife (Mgmt & Conservation)	3 years

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Name	Title	Agency	Assignment	Education	Years of Expertise
William Dickinson	Superintendent, Lake Mead NRA	NPS	Management Overview	B.A., Landscape Architecture	33 years
Timothy Duck	Ecologist	BLM	Forest Products, Ecozones, Ecology, Restoration	B.S., Ecology and Evolutionary Biology	26 years
Scott Florence	District Manager	BLM	Management Overview, Planning Overview	B.S. Range and Wildlife	31 years
Tom Folks	Recreation, Wilderness, Cultural Team Leader	BLM	Travel Management, Recreation, Visual Resources, Back Country Byways, National and Regional Trails, Wild and Scenic Rivers, Wilderness	B.S., Recreation Park Planning and Resource Management	31 years
Laurie Ford	Lands and Geological Sciences Team Lead	BLM	Management Overview, Lands and Realty, Utility and Communication Corridors		26 years
Becky Hammond	Manager, Arizona Strip FO	BLM	Management Overview, Geology	B.S., Geology M.S., Geology	20 years
Kathleen Harcksen	Assistant Manager Parashant	BLM	Management Overview, Vegetation (Forests and Woodlands, Riparian and Wetlands)	B.S., Natural Resource Management	32 years
Diana Hawks	Planning Coordinator	BLM	Planning Team Lead, Cultural Resources (Archaeological, Historic, and American Indian Resources), ACECs	B.S., Archaeology M.A., Archaeology	33 years
Michael Herder	Wildlife Team Leader	BLM	Fish and Wildlife, Special Status Species (Animals), ACECs, Management Overview	B.S., Wildlife Management B.A., Zoology M.A., Marine Biology	28 years
John Herron	Archaeologist	BLM	Cultural Resources (Archaeological and Historical Resources), ACECs	B.A., Archaeology, Ecology and Evolutionary Biology	31 years
Jim Holland	Management Assistant, Lake Mead NRA	NPS	Management Overview, Lands and Reality, Recreation, Planning Overview	B.S., Zoology & Botany M.S., Biology	29 years
Lee Hughes	Ecologist	BLM	Special Status Species (Plants), Vegetation (Riparian and Wetlands), ACECs	A.S., Forestry B.S., Fishery and Range Management	34 years
Lilian Jonas	Writer/Editor	EnviroSystems Management	Document Writing and Editing	B.S., Biology M.A., Applied Sociology Ph.D., Sociology	17 years

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Name	Title	Agency	Assignment	Education	Years of Expertise
Dave Kiel	GIS Specialist, Recreation Planner	BLM	GIS Data Development GIS Analysis Map/Graphics Development	B.S., Geography	19 years
Shirley Kodele	Budget Technician	NPS	Comment Analysis Document Preparation GIS Assistance		13 years
Marisa Monger	GIS Specialist	BLM	GIS Data Development GIS Analysis Map/Graphics Development	B.A., Psychology	9 years
Kenneth Moore	Lead Natural Resource Specialist	BLM	Access, Vegetation (Forests and Woodlands), Forest Products, Restoration	B.S., Forest Management	38 years
Rosie Pepito	Cultural Resource Manager, Lake Mead NRA	NPS	Cultural Resources (Archaeological, Historical, and American Indian Resources)		21 years
Linda Price	Standards and Guides Team Leader, Vermilion Manager	BLM	Standards for Rangeland Health, Management Overview	B.S., Ecology	17 years
Robert Sandberg	Range Team Leader	BLM	Range and Vegetation, Management Overview	B.S., Botany & Zoology	30 years
Kathy Seegmiller	Information Technology Specialist	BLM	Comment Analysis Database Management		26 years
Phillip Seegmiller	Rangeland Management Specialist	BLM	Vegetation (Forests and Woodlands, Rangelands, Riparian and Wetlands)	B.S., Outdoor Recreation/Range Management	27 years
Darla Sidles	Superintendent, Parashant	NPS	Lead Planner, Management Overview	B.A., Business Administration	21 years
Robert Smith	Hazmat, Soil, Water and Air Programs Lead	BLM	Air Quality, Water (Ground and Surface Water) Soil Resources, Health and Safety (Hazardous Materials)	B.S., Soil Science Graduate Certificate in Hazardous Waste Land Management	32 years
Richard Spotts	Environmental Coordinator	BLM	NEPA Compliance Review	B.A., Political Science J.D., Law	25 years
Jo Starr	GIS Specialist	NPS	GIS Data Development GIS Analysis	B.S., Natural Resources and Environmental Studies	9 years

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Name	Title	Agency	Assignment	Education	Years of Expertise
Roger Taylor	District Manager, Arizona Strip	BLM	Management overview	B.S., Range Management	40 years
Kent Turner	Resource Management Chief, Lake Mead NRA	NPS	Management overview	B.S., Biology	27 years
Ron Wadsworth	Lead Law Enforcement Officer	BLM	Public Safety (Crime), Law Enforcement	B.S., Wildlife Biology	22 years
L.D. Walker	Noxious Weed Coordinator	BLM	Vegetation (Noxious Weeds), Fish and Wildlife (Invasive Species), Wild Horses and Burros	B.S., Zoology	30 years
Gary Warshefski	Assistant Superintendent, Lake Mead NRA	NPS	Management overview	B.S., Forestry M.S., Public Administration	30 years
Les Weeks	Consultant, Route Evaluations	ARS, Inc	Transportation/Access	B.A., Ecosystems Analysis M.A., Biogeography	25 years
Aaron Wilkerson	Forester	BLM	Restoration, Forestry	B.S., Forestry	7 years
Ericka Wilkerson	Administrative Assistant	Contractor	Comment Analysis Document Preparation	B.S., Criminal Justice	12 years
Kari Yanskey	Botanist	NPS	Vegetation (Forests and Woodlands, Rangelands, Riparian and Wetlands), Special Status Species (Plants)	B.S., Biology	24 years