U.S. Department of the Interior
Bureau of Land Management

Environmental Assessment
DOI-BLM-AZ-A010-2016-0008-EA

PROPOSED GRAZING PERMIT RENEWAL FOR BLAKE POND ALLOTMENT

MOHAVE COUNTY, ARIZONA

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August 2017

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Chapter 1

INTRODUCTION

1.1 BACKGROUND

In 2006, the BLM conducted an evaluation of rangeland conditions on the Blake Pond Allotment (see map in Appendix 1) – a detailed discussion on rangeland health in this allotment can be found on pages 17-29 of this environmental assessment (EA). The Interdisciplinary Assessment Team, during the land health evaluation process, recommended that resource conditions on the Blake Pond Allotment are progressing towards meeting all applicable Standards for Rangeland Health. A land health evaluation report was completed for the allotment in 2013. The BLM is now considering the renewal of an existing grazing permit on the allotment. Livestock grazing on public lands is managed according to grazing regulations found in the Code of Federal Regulations (CFR) at 43 CFR Part 4100. The BLM is responsible for determining the appropriate levels and management strategies for livestock grazing in this allotment.

This EA has been prepared to disclose and analyze the environmental consequences of the proposed grazing permit renewal, as well as alternative livestock management, for the Blake Pond Allotment. This analysis provides information as required by the BLM implementing regulations for the National Environmental Policy Act (NEPA), the Taylor Grazing Act, and the Federal Land Policy Management Act (FLPMA) to determine whether to authorize grazing within this allotment, and whether changes to current management are necessary. This EA also serves as a tool to help the authorized officer make an informed decision that is in conformance with the Arizona Strip Field Office Resource Management Plan (RMP) (BLM 2008a). The action culminates an evaluation conducted on the allotment under the Arizona BLM Standards for Rangeland Health and Guidelines for Grazing Management. In addition, this EA determines if current grazing management practices would maintain desirable conditions and continue to allow improvement of public land resources, or whether changes in grazing management for the allotment are necessary. This EA is intended to evaluate the findings of the land health evaluation as it relates to vegetation conditions and resource values in the allotment. This is done in an effort to balance demands placed on the resources by various authorized uses within the allotment.

The EA is a site-specific analysis of potential impacts that could result with the implementation of a proposed action or alternatives to the proposed action. The EA assists the BLM in project planning and ensuring compliance with the NEPA, and in making a determination as to whether any "significant" impacts could result from the analyzed actions. "Significance" is defined by NEPA and is found in regulations 40 CFR 1508.27. An EA provides evidence for determining whether to prepare an environmental impact statement (EIS) or a statement of "Finding of No Significant Impact" (FONSI). If the decision maker determines that this project has "significant" impacts following the analysis in the EA, then an EIS would be prepared for the project. If not, a decision record (DR) may be signed for the EA approving the selected alternative. A DR, including a FONSI statement, documents the reasons why implementation of the selected

alternative would not result in "significant" environmental impacts (effects) beyond those already addressed in the Arizona Strip Field Office RMP/Final EIS (BLM 2007).

1.2 PURPOSE AND NEED

The grazing permit for this allotment expired on 11/30/2007; the BLM renewed the permit for ten years with the same terms and conditions pursuant to Division F, Title III, Section 325 of Public Law 108-108. The grazing permit will now expire 11/30/2017. The grazing permittee has submitted a request to renew the term grazing permit, and the BLM now intends to consider whether to renew, renew with modifications, or not renew the grazing permit, in accordance with 43 CFR Part 4130. When issued, grazing permits must include appropriate terms and conditions designed to "achieve management and resource condition objectives for the public lands… and to ensure conformance with part 4180" (43 CFR Part 4130.3). The BLM is proposing to analyze the ten year term grazing permit on the Blake Pond Allotment in accordance with all applicable laws, regulations, and policies Compliance with all applicable laws and regulations includes consultation, coordination and cooperation with affected individuals, interested publics, States, and Indian Tribes; completion of the applicable level of NEPA review; consultation with the United States Fish and Wildlife Service (USFWS) under Section 7 of the Endangered Species Act; and ensuring that the allotment is achieving or making significant progress toward achievement of land health standards and RMP objectives.

The purpose of this action is to provide for livestock grazing opportunities on public lands where consistent with meeting management objectives, including the Arizona Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 1997, Appendix 2) and the Arizona Strip Field Office RMP (BLM 2008a).

BLM Arizona adopted the Arizona Standards for Rangeland Health and Guidelines for Livestock Grazing Management in 1997 (BLM 1997, Appendix 2); these Standards for Rangeland Health were incorporated into the Arizona Strip Field Office RMP. Standards for rangelands should be achieving or making significant progress towards achieving the standards and to provide for proper nutrient cycling, hydrologic cycling, and energy flow. Guidelines direct the selection of grazing management practices and, where appropriate, livestock facilities to promote significant progress toward, or the attainment and maintenance of, the standards. The RMP identifies resource management objectives and management actions that establish guidance for managing a broad spectrum of land uses and allocations for public lands in the Arizona Strip Field Office. The RMP identified public lands within the Blake Pond Allotment as available for domestic livestock grazing. Where consistent with the goals and objectives of the RMP and land health standards, allocation of forage for livestock use and the issuance of grazing permits to qualified applicants are provided for by the Taylor Grazing Act and FLPMA.

The land health evaluation completed for the Blake Pond Allotment identified Standard 1 as being met and Standard 3[1] as progressing towards being met on the allotment, including the majority of desired plant community (DPC) objectives being met.

A performance review of the permittees past use was completed and BLM found the permittees record of performance, pursuant to 43 CFR 4110.1(b), to be substantially in compliance. This conclusion was based on: grazing percent utilization at acceptable levels (below 50%), bills were paid on time, actual use information was turned in yearly, use was within permitted dates. Forage consumption was within the permitted AUMs, permit terms and conditions were adhered to, base property (base water) requirements were met. This performance review is available in the Arizona Strip range administration files.

The Arizona Strip Field Manager is the authorized officer responsible for the decisions regarding management of public lands within this allotment. Based on the results of the NEPA analysis, the authorized officer will issue a determination of the significance of the environmental effects and whether an EIS would be required. If the authorized officer determines that it is not necessary to prepare an EIS, the EA will be deemed sufficient and will provide information for the authorized officer to make an informed decision whether to renew, renew with modifications, or not renew the permit and if renewed, which management actions, mitigation measures, and monitoring requirements will be prescribed for the Blake Pond Allotment to ensure management objectives and Arizona Standards for Rangeland Health are achieved.

1.3 CONFORMANCE WITH LAND USE PLAN

The alternatives described in Chapter 2 of this EA are in conformance with the Arizona Strip Field Office RMP, approved January 29, 2008 (BLM 2008a). The alternatives are consistent with the following decisions contained within this plan.

The following decisions are from Table 2.11 in the RMP regarding management of livestock grazing:

- **DFC-GM-01:** Healthy, sustainable rangeland ecosystems will be maintained or improved to meet Arizona's Standards for Rangeland Health (1997), and produce a wide range of public values such as wildlife habitat, livestock forage, recreation opportunities, clean water, and functional watersheds.
- **DFC-GM-02:** Livestock use and associated management practices will be conducted in a manner consistent with other resource needs and objectives to ensure that the health of rangeland resources is preserved or improved so that they are productive for all rangeland values. Where needed, public rangeland ecosystems will be improved to meet objectives.

[1] As described in Section 2.1.1 of this EA, Standard 2 does not apply in the Blake Pond Allotment.

- **LA-GM-01:** All allotments will continue to be classified as available for grazing by livestock under the principle of multiple use and sustained yield, except where specifically noted.[2]
- **MA-GM-02:** Implementing the Arizona Standards for Rangeland Health will continue on all grazing allotments in accordance with established schedules and congressional requirements. The Arizona Standards for Rangeland Health and Guidelines for Grazing Management will apply to all livestock grazing activities. These guidelines address management practices at the grazing AMP-level and are intended to maintain desirable conditions or improve undesirable rangeland conditions within reasonable time frames.
- **MA-GM-03:** The interdisciplinary allotment evaluation process will continue to be used to provide specific guidance and actions for managing livestock grazing. Existing AMPs and other activity plans will be consistent with achieving the DFCs and standards for rangeland health. They will contain the site-specific management objectives, as well as actions, methods, tools, and appropriate monitoring protocols.
- **MA-GM-04:** 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 progress toward meeting the Arizona Standards for Rangeland Health. Appropriate and timely actions will be implemented to deal with those areas not meeting the standards.
- **MA-GM-05:** The allotment management categorization process will continue to be used to define the level of management needed to properly administer livestock grazing according to management needs, resource conflicts, potential for improvement, and BLM funding/staffing constraints. The allotment categories are Custodial, managed custodial to protect resource conditions and values; Maintain, managed to maintain current satisfactory resource conditions and are actively managed to ensure that the condition of resource values do not decline; and Improve, actively managed to improve unsatisfactory resource conditions.
- **MA-GM-07:** Allowable use on key forage species [3]is 50% on allotments with rotational grazing systems, except in tortoise habitat. On allotments in desert tortoise habitat or being less intensively managed, then utilization is set at 45%[4].
- **MA-GM-08:** Any hay or other feed used in administering the livestock operation will be certified weed-free.

The allotment analyzed in this EA is classified as available for grazing under the RMP, with no seasonal restrictions. The alternatives would meet these land use plan decisions. It has also been determined that the proposed action would not conflict with other decisions throughout the RMP.

1.4 RELATIONSHIPS TO STATUTES, REGULATIONS, OR

[2] No restrictions are associated with the Blake Pond Allotment.
[3] Forage species are of sufficient abundance and palatability to the kind and class of livestock permitted.
[4] The Blake Pond Allotment is managed under a rotational grazing system, so maximum utilization is set at 50%.

OTHER PLANS

The authority to renew grazing permits is provided for in 43 CFR 4100 where the objectives of the regulations are "....to promote healthy, sustainable rangeland ecosystems; to accelerate restoration and improvement of public rangelands to properly functioning conditions; to promote the orderly use, improvement and development of the public lands; to establish efficient and effective administration of grazing of public rangelands; and to provide for the sustainability of the western livestock industry and communities that are dependent upon productive, healthy public rangelands" (43 CFR 4100.0-2)

The proposed action complies with 43 CFR 4100.0-8 which states, in part, "The authorized officer shall manage livestock grazing on public lands under the principle of multiple use and sustained yield, and in accordance with applicable land use plans." The proposed action also complies with 43 CFR 4130.2(a) which states, in part, "Grazing permits or leases shall be issued to qualified applicants to authorize use on the public lands and other lands under the administration of the Bureau of Land Management that are designated as available for livestock grazing through land use plans".

The proposed action is consistent with the Fundamentals of Rangeland Health (43 CFR 4180.1) and Arizona's Standards and Guidelines, which were developed through a collaborative process involving the Arizona Resource Advisory Council and the BLM State Standards and Guidelines team. The Secretary of the Interior approved the Standards and Guidelines in April 1997. These standards and guidelines address watersheds, ecological condition, water quality, and habitat for special status species. These resources are addressed later in this document.

The regulations at 43 CFR Part 10 specifically require land use authorizations, including leases and permits, to include a requirement for the holder of the authorization to notify the appropriate Federal official immediately upon the discovery of human remains and other items covered by the Native American Graves Protection and Repatriation Act (see 43 CFR 10.4(g); the actual requirement for persons to notify the Federal agency official and protect the discovery is in 43 CFR 10.4(b) and (c)). This requirement has been incorporated into the alternatives.

Executive Order 13186 requires the BLM and other Federal agencies to work with the USFWS to provide protection for migratory birds. Implementation of the proposed action is not likely to adversely affect any species of migratory bird known or suspected to occur on the allotment. No take of any such species is anticipated**.**

The Blake Pond Allotment Management Plan (AMP)(USDI 1981) is incorporated by reference.

The subject allotment is in Mohave County, Arizona. The alternatives are consistent with the *Mohave County General Plan* (adopted in 1994 and revised December 5, 2005). While livestock grazing is not specifically addressed in the Mohave County General Plan, this action does not conflict with decisions contained within the Plan.

In addition, the proposed action would comply with the following laws and/or agency regulations, other plans and is consistent with applicable Federal, state and local laws, regulations, and plans to the maximum extent possible.

- Taylor Grazing Act of 1934
- Federal Land Policy and Management Act (FLPMA) of 1976 (43 U.S. Code 1701 et seq.)
- Public Rangelands Improvement Act (PRIA) of 1978
- Endangered Species Act of 1973, as amended
- 43 CFR 4100 Grazing Administration - Exclusive of Alaska
- Arizona Water Quality Standards, Revised Statute Title 49, Chapter II
- Section 106 of the National Historic Preservation Act of 1966, as amended
- Native American Graves Protection and Repatriation Act of 1990 (25 U.S. Code 3001-3013; 104 Stat. 3048-3058)
- National Environmental Policy Act (NEPA) of 1969.

1.5 IDENTIFICATION OF ISSUES

Identification of issues for this assessment was accomplished by considering the resources that could be affected by implementation of one of the alternatives. These issues were identified by the Rangeland Resources Team, Interdisciplinary Assessment Team, and livestock permittees during the scoping meeting held on November 10, 2005 and field visit held on September 5, 2006 for the Blake Pond Allotment (see Standards for Rangeland Health and Guidelines for Grazing Administration Implementation Project: Allotment Assessment for Blake Pond)[5] (BLM 2013). The issues identified through the process described above are:

- Livestock grazing – permit renewal is required in order to allow continued livestock use on this allotment.
- Vegetation – the potential exists for deterioration in ecological condition in the allotment if proper livestock grazing practices are not followed. The Blake Pond region has sagebrush dominated bottoms in north Main Street Valley with poor understory and erosion.
- Wildlife (including big game, sensitive species and migratory birds) – habitat for these species, as well as for their prey, is present and may be impacted by livestock grazing practices.
- Soils – the potential exists for impacts to soil quality or health in the allotment if proper livestock grazing practices are not followed.

[5] The Blake Pond Allotment evaluation is available at the Bureau of Land Management's Arizona Strip Field Office, 345 E. Riverside Drive, St. George, Utah 84790.

Chapter 2

DESCRIPTION OF THE ALTERNATIVES

This EA focuses on the proposed action, reduced grazing, increased grazing, and no grazing alternatives. The BLM interdisciplinary team explored and evaluated several different alternatives to determine whether the underlying need for the proposed action, ensuring that the allotment is achieving land health standards, would be met.

2.1 MANAGEMENT COMMON TO ALL ALTERNATIVES

There are currently four allotments within the current permit authorization, Blake Pond 04813, Lizard 04857, Wildcat 04854, and Wolfhole Lake 04823 Allotments. The Blake Pond Allotment is currently permitted under a base property lease. The other three allotments under the current authorization are not leased and should be on a separate authorization from the leased allotment. Having a separate authorization would allow for a transfer or relinquishment of a base property lease without affecting the permit of the three non-leased allotments. Upon selection of any of the four alternatives analyzed in this EA, a separate authorization would be issued for the Blake Pond Allotment. The Blake Pond Allotment would then be removed from the current authorization and a new authorization will be issued for Blake Pond Allotment.

2.1.1 Arizona Standards for Rangeland Health

The allotment would be managed to achieve the following objectives, as described in the Arizona Standards for Rangeland Health (BLM 1997, Appendix 2):

1) Upland soils exhibit infiltration, permeability, and erosion rates that are appropriate to soil type, climate, and landform (ecological site).
2) Riparian and wetland areas are in properly functioning condition.[6]
3) Productive and diverse upland and riparian-wetland plant communities of native species exist and are maintained.

2.1.2 Desired Plant Community

The allotment would be managed to achieve the DPC objectives included in the Standards for Rangeland Health and Guidelines for Grazing Administration Implementation Project: Allotment Assessment for Blake Pond. The allotment evaluation (BLM 2013) as well as trend data collected at regular intervals (Appendix 3) evaluates achievement of the allotment's DPC objectives. These objectives, expressed in species composition by weight (CBW), provide for the habitat needs (both forage and cover) of wildlife, protection for soils and hydrologic functions, and forage for livestock.

[6] This standard does not apply in the Blake Pond Allotment. As described in Table 9 (page 22) of this EA, there are no wetland/riparian areas in the allotment.

Many factors influence changes or differences in frequency of vegetation as shown in the ecological site guides developed by the Natural Resources Conservation Service (NRCS). It is important to note that the site guides are just that – they are "guides. Long-term monitoring of a site indicates what a particular area is capable of producing. The DPC objectives therefore reflect the potential of each site. The DPC objectives for Blake Pond Allotment key areas[7] are:

Key Area #1 – Atkin Spring
Ecological Site: Unclassified with multiple inclusions and transitions 6 - 10" precipitation zone (p.z.)

- Maintain total ground cover above 15%.
- Maintain native perennial grass (includes *Elymus elymoides ssp. elymoides, Pleuraphis jamesii, Tridens pulchellus, Poa, Muhlenbergia porteri, Aristida longiseta, Sporobolus cryptandrus* and other perennial grasses) at between 1 – 15% CBW.
- Maintain total shrub composition at 41 – 100% CBW (includes *Agave utahensis, Artemisia tridentata, Larrea tridentata, Lycium andersonii, Atriplex canescens, Gutierrezia sarothrae, Cowania mexicana, Ephedra nevadensis, Grayia spinosa, Opuntia, Yucca bacata* and other shrubs).
- Maintain forb composition at between 1 – 10% CBW (excludes non-native invasive species).

Key Area #1 – Ft. Pearce
Ecological Site: Loamy Wash 6 - 9" p.z. Gypsic

- Maintain total ground cover above 15%.
- Maintain native perennial grass (includes *Elymus elymoides ssp. elymoides, Pleuraphis jamesii, Sporobolus cryptandrus* and other perennial grasses) at between 11 – 72% CBW.
- Maintain total shrub composition at 18 – 100% CBW (includes *Larrea tridentata, Lycium andersonii, Atriplex canescens, Krascheninnikovia lanata, Gutierrezia sarothrae, Krameria grayi, Ambrosia dumosa, Acamptopappus sphaerocephalus, Ephedra nevadensis, Humenoclea salsola, Opuntia* and other shrubs).
- Increase forb composition to between 1 – 10% CBW (excludes non-native invasive species).

Key Area #2 – Blake-Larson East
Ecological Site: Moenkopi-Shallow Loamy 7 - 11" p.z.; Goblin-Gypsum Hills 7 -11" p.z.

- Maintain total ground cover above 15%.
- Increase native perennial grass (includes *Achnatherum hymenoides, Achnatherum speciosum, Elymus elymoides ssp. elymoides, Hesperostipa comata ssp. comata, Bouteloua gracilis, Bouteloua curtipendula, Bouteloua eriopoda, Pleuraphis jamesii, Sporobolus cryptandrus, Sporobolus contractus, Sporobolus flexuosus, Aristida, Muhlenbergia porteri, Scleropogon brevifolius* and other perennial grasses) at between 73 – 88% CBW.

[7] Although there are six key areas within this allotment, only four have trend monitoring sites established.

- Maintain total shrub composition at 10 – 21% CBW (*Atriplex canescens, Ephedra nevadensis, Krascheninnikovia lanata, Gutierrezia sarothrae, Lycium, Machaeranthera gracilis, Opuntia polyacantha* and other shrubs).
- Maintain forb composition at between 1 – 6% CBW (excludes non-native invasive species).

Key Area #1 – Blake-Larson Middle
Ecological Site: Loamy Upland 10 - 14" p.z.

- Maintain total ground cover above 15%.
- Maintain native perennial grass (includes *Pascopyrum smithii,Poa fendleriana, Hesperostipa comata ssp. comata, Achnatherum hymenoides, Elymus elymoides ssp. elymoides, Bouteloua gracilis, Pleuraphis jamesii, Sporobolus cryptandrus, Aristida, Muhlenbergia torreyi* and other perennial grasses) at between 68 – 78% CBW.
- Increase total shrub composition to 15 – 20% CBW (includes *Artemisia tridentata ssp. wyomingensis, Atriplex canescens, Ephedra, Mahonia trifoliolata, Gutierrezia sarothrae, Lycium, Mammillaria, Opuntia, Yucca* and other shrubs).
- Maintain forb composition at between 5 – 10% CBW (excludes non-native invasive species).
- Maintain tree composition at between 0 – 4% CBW (includes *Juniperus and Pinus edulis)*.

2.2 ALTERNATIVE A – PROPOSED ACTION

The livestock grazing management practices proposed under this alternative (i.e., season of use; utilization levels; and ecological condition and desired plant community objectives) were designed to manage the overall rangeland resources present, provide for a diversity of wildlife and plant species, maintain functioning ecosystems, and maintain and/or improve ecological condition. Specifically, under this alternative the BLM would:

- Renew the existing grazing permit for the Blake Pond Allotment for a period of ten years. The following Terms and Conditions would be added to the permit:

    - 1) When 50 percent forage utilization is reached, livestock will move to another pasture or off of the allotment. This term and condition currently exists in the Blake Pond Allotment Management Plan (AMP). Allowable use on key forage species on the allotment (which implements a rotational grazing system) would be no more than 50% utilization of current year's production, removed through grazing or other loss. (Key species for Blake Pond Allotment are listed in Section 3.3.2 of this EA.) The BLM would assess resource conditions through field inspections and determine, in consultation with the permittees, whether management changes (e.g., changes in livestock numbers, adjustment of move date, or other changes or use within the parameters identified under this alternative) may be implemented prior to reaching maximum utilization. Move dates (i.e., removal of livestock from a pasture) may be adjusted if monitoring indicates maximum utilization has been reached, or due to unusual climatic

conditions, fire, flood, or other acts of nature. If maximum utilization is reached on key species/areas in the allotment before a scheduled move date, the use of salt, herding, or other management options may be used to distribute livestock away from an area where maximum utilization has been reached, or livestock may be removed from the pasture (after consultation with the permittees), as deemed necessary by the BLM.

- 2) Placement of supplements (includes salt, molasses, cottonseed, other protein supplement) ¼ mile from any known water sources, and cultural or any other sensitive sites.

- 3) With prior approval, more livestock may be grazed for a shorter period, within the authorized dates, so long as the active Animal Unit Months (AUMs) are not exceeded.

- 4) Range improvements assigned in cooperative agreements and range improvement permits must be maintained in usable condition each year. This also includes wildlife escape ramps for both permanent and temporary water troughs.

- 5) Any hay or other feed used in administering the livestock operation will be certified weed-free and must be approved by the authorized representative prior to use.

- 6) If any human remains, funerary objects, sacred objects or objects of cultural patrimony as defined in the Native American Graves Protection and Repatriation Act (Public Law 101-601; 104 Stat. 3048; 25 U.S. Code 3001) are discovered in connection with allotment operations under the grazing permit, the permittee would be required to protect the immediate area of the discovery and immediately notify the BLM authorized officer or authorized representative.

There is no proposed change in number of livestock or season of use for the allotment. Livestock grazing would occur during the season of use, and with the number of Animal Unit Months (AUMs)[8] limited to the current active preference (Table 1).

[8] An AUM, or Animal Unit Month, is a unit of measurement indicating how much forage is eaten by a cow/calf pair in one month.

Table 1. Grazing Proposed Under Alternative A

Allotment Name	Livestock			Active AUMs	Suspended AUMs	Public Land (acres)	% Federal Range
	No.	Kind	Season of Use[9]				
Blake Pond	118	Cattle	3/1- 11/30	1,317	383	20,415	93
			12/1 - 2/28				

- Manage the allotment to achieve the DPC objectives listed in Section 2.1.2 of this EA.

2.2.1 Grazing System

The Blake Pond Allotment is made up of three geographically separated "regions": Blake Pond region (comprised of four pastures); Ft. Pearce region (comprised of a single pasture); and Atkin Spring (comprised of two pastures, although they are currently run as one due to water availability). The Blake Pond Allotment is grazed in conjunction with the Lizard and Wolfhole Lake Allotments (same permittee), as described below.

- *Late June to December 1:* All cattle are moved to the Blake Pond region, and rotate around the four pastures.
- *December 1:* All cattle are removed from the Blake Pond Allotment (moved to Wolfhole Lake Allotment for approximately 3 weeks).
- *Late December to June 1:* 15-20 head of cattle graze the Atkin Spring region; the remainder of the herd rotates between state land on the Lizard Allotment and the Ft. Pearce region (based on forage availability).
- *June 1-late June:* All cattle removed from the Blake Pond Allotment and moved to the Lizard Allotment or Wolfhole Lake Allotment.

Because Blake Pond is used with Lizard and Wolfhole Lake, there is flexibility built into the operation.

2.2.2 Range Improvements

The land health evaluation for this allotment did not indicate the need for new range improvements. Thus, none are proposed under this alternative. Existing range improvements would be maintained as currently required. Any new range improvements proposed in the future to assist in grazing practices and promote rangeland health would be considered through a separate NEPA process.

2.2.3 Monitoring and Adaptive Management

[9] Grazing year for billing purposes is 3/1- 2/28.

The proposed action includes adaptive management, which provides a menu of management options that may be needed to adjust management decisions and actions to meet desired conditions as determined through monitoring. BLM resource specialists would periodically monitor the allotment over the 10-year term of the grazing permit to ensure that the fundamentals or conditions of rangeland health are being met, in accordance with 43 CFR 4180. If monitoring indicates that desired conditions are not being achieved and current livestock grazing practices are causing non-attainment of resource objectives, livestock grazing management of the allotment would be modified in cooperation with the permittee(s). Adaptive management allows the BLM to adjust the timing, intensity, frequency and duration of grazing; the grazing management system; and livestock numbers temporarily or on a more long-term basis, as deemed necessary. An example of a situation that could call for adaptive management adjustments is drought conditions. If a permittee disagrees with the BLM's assessment of the resource conditions or the necessary modifications, the BLM may nevertheless issue a Full Force and Effect Grazing Decision to protect resources.

2.3 ALTERNATIVE B – ISSUE NEW 10-YEAR GRAZING PERMIT with REDUCED GRAZING (Actual Use)

The livestock grazing management practices proposed under this alternative would be similar to those proposed for Alternative A. A new grazing permit would be issued for the Blake Pond Allotment for a period of ten years. However, Alternative B would reissue the ten-year term grazing permit based on the average actual use level of the allotment over the last 10 years 2006 -2015), which is 794 AUMs. The difference between actual use average AUMs and the current active preference (which amounts to 523 AUMs) would be converted to suspended AUMs; when added to the current 383 suspended AUMs, this would result in a total of 794 active AUMs and 906 suspended AUMs, or a 39.7% decrease from current active preference (see Table 2).

Table 2. Grazing Proposed Under Alternative B

Allotment Name	Livestock			Active AUMs	Suspended AUMs	Public Land (acres)	% Federal Range
	No.	Kind	Season of Use				
Blake Pond	71	Cattle	3/1- 11/30	794	906	20,415	93
	71	Cattle	12/1 - 2/28				

Proposed utilization levels, ecological condition and DPC objectives would be the same as those described for Alternative A in order to manage the overall rangeland resources present, provide for a diversity of wildlife and plant species, maintain functioning ecosystems, and maintain and/or improve ecological condition. Terms and conditions of the grazing permit would be the same as those for Alternative A. In addition, monitoring and adaptive management described for Alternative A would also be a part of this alternative (Alternative B).

Consistent with Alternative A, any existing range improvements would be maintained as currently required. No new range improvements are proposed under this alternative; any new

range improvements proposed in the future to assist in grazing practices and promote rangeland health would be considered through a separate NEPA process.

2.4 ALTERNATIVE C – ISSUE NEW 10-YEAR GRAZING PERMIT with INCREASED GRAZING (Potential Stocking Level Analysis)

Livestock grazing management practices proposed under this alternative would also be similar to those proposed for Alternative A. A new ten-year term grazing permit would be issued for the Blake Pond Allotment. The livestock grazing use that would occur in this alternative would be the result of a potential stocking level analysis average; this potential stocking level is calculated using utilization at six key areas[10] on the allotment and actual use data collected on the allotment from 2006 to 2015. The potential stocking level analysis formula is taken from BLM Technical Reference 4400-7 (BLM 1985).

Potential Stocking Level Formula: $\frac{\text{Actual Use}}{\text{Avg. Utilization}} = \frac{\text{Potential Actual Use}}{\text{Desired Avg. Utilization}}$

As shown, this formula factors in actual use, the average utilization percentage, and the desired average utilization (which is 50% for Blake Pond Allotment). From this data, a potential stocking level (permitted use) was calculated. As shown in Table 3, the potential carrying capacity calculated for Blake Pond based on the above formula ranges from a low of 1,553 AUMs to a high of 1,561 AUMs. The higher AUM number is based on years when both utilization and actual use data is available (6/10 years). The average potential stocking level based on all data for the past 10 years is 1,553 AUMs.

Table 3. Potential Stocking Level Analysis – Blake Pond Allotment

Grazing Year	Actual Use AUMs	% of Permitted Use	Utilization on all Key Species (Key Areas 1-6)	Proposed Actual Use Carrying Capacity
2006	547	42%	Not collected	1070
2007	790	60%	Not collected	1546
2008	735	56%	Not collected	1438
2009	853	65%	17%	1669
2010	697	53%	37%	1364
2011	772	59%	26%	1510
2012	687	52%	23%	1344

[10] Although there are six key areas, trend monitoring plots have been established at only four of the six sites. Utilization monitoring is regularly conducted at all six sites.

2013	871	66%	19%	1704
2014	907	69%	32%	1775
2015	1079	82%	Not collected	2111
Avgerage	**794**	**60.3%**	**25.56**	**1553**

This analysis shows that the carrying capacity of the allotment is 1,553 AUMs. Under this alternative, the active preference of the allotment would be increased by 236 AUMs, from 1,317 to 1,553 AUMs (approximately an 18% increase in active AUM's). Suspended AUMs would be reduced to 151 as this alternative would remove 236 AUMs from suspended to active. Utilization levels, ecological condition, DPC objectives, and goals to manage resources to meet rangeland health standards would be unchanged, as described for Alternative A. Terms and conditions of the grazing permit would also be the same as those for Alternative A. In addition, monitoring and adaptive management described for Alternative A would also be a part of this alternative (Alternative C). Consistent with Alternative A, any existing range improvements would be maintained as currently required. No new range improvements are proposed under this alternative; any new range improvements proposed in the future to assist in grazing practices and promote rangeland health would be considered through a separate NEPA process. Grazing use under this alternative would be as shown in Table 4.

Table 4. Grazing Proposed Under Alternative C

Allotment Name	Livestock			Active AUMs	Suspended AUMs	Public Land (acres)	% Federal Range
	No.	Kind	Season of Use				
Blake Pond	139	Cattle	3/1- 11/30	1553	151	20,415	93
	139	Cattle	12/1 - 2/28				

2.5 ALTERNATIVE D – NO GRAZING

Alternative D is to reissue a ten-year term grazing permit on the Blake Pond Allotment with 0 authorized AUMs for active preference – all 1,317 AUMs would be suspended (i.e., livestock grazing would be deferred for the ten-year permit period). No new range improvement projects would be constructed and no modifications would be made to existing projects.

2.6 ALTERNATIVE(S) CONSIDERED BUT ELIMINATED FROM FURTHER ANALYSIS

2.6.1 No Action – Renewing Grazing Permit with Current Terms and Conditions

Under this alternative, new ten-year term grazing permit would be issued for the Blake Pond Allotment with the same terms and conditions as the current permit (which was renewed in accordance with Division F, Title III, Section 325 of Public Law 108-108pending full processing of new permit, as described on page 2 of this EA). No new range improvement projects would be constructed and no modifications would be made to existing projects. Livestock grazing on the allotment would continue the same as outlined under Alternative A (Proposed Action). Potential impacts to elements of the environment would therefore be the same as those described for Alternative A, so a separate analysis of the No Action alternative is not required (BLM 2008b).

Chapter 3

AFFECTED ENVIRONMENT

This chapter provides information to assist the reader in understanding the existing situation and current grazing management on the Blake Pond Allotment. The affected environment is tiered to the Arizona Strip Proposed RMP/Final EIS (BLM 2007). This EA also incorporates by reference the Standards for Rangeland Health and Guidelines for Grazing Administration Implementation Project: Allotment Assessment for Blake Pond. This assessment describes the resources and issues applicable to the allotment.

The affected environment of this EA was considered and analyzed by an interdisciplinary team. Table 7 (found later in this chapter) addresses the elements and resources of concern considered in the development of this EA; this table indicates whether the element/resource is not present in the project area, present but not impacted to a degree that requires detailed analysis or present and potentially impacted. The resources identified below include the relevant physical and biological conditions that may be impacted with implementation of the proposed action and/or alternatives to the proposed action, and provides the baseline for comparison of impacts described in Chapter 4.

3.1 General Setting

The Arizona Strip is comprised of 2.8 million acres of BLM-administered land in the northwestern portion of Arizona. The Blake Pond Allotment (see map in Appendix 1 of this EA) is located in Mohave County, Arizona on lands managed by the BLM's Arizona Strip Field Office. The Blake Pond Allotment is located in Arizona and is made up of three geographically separated "regions". The three regions are 10 to 15 miles apart and located 10 to 25 miles south of St. George, Utah. The allotment lies outside of Grand Canyon-Parashant and Vermilion Cliffs national monuments.

3.1.1 Topography

Elevation in the allotment ranges from 2,800 to 5,300 feet. Vegetation varies greatly as the Ft. Pearce and Atkin Spring regions are found within the Mojave Desert Ecological Zone and the Blake Pond region is found in the Great Basin Ecological Zone.

3.1.2 Climate

Average annual precipitation over the allotment varies greatly between Ft. Pearce, Atkin Spring, and Main Street Valley (Blake Pond region). There are no rain gauges within the allotment boundaries. Lizard, Slope Catchment, and Wolfhole rain gauges are the nearest to the three allotment regions.

The Lizard rain gauge is located approximately 1.5 miles west of the Ft. Pearce pasture and 8

miles east of the Atkin Spring region. It averages 8.15 inches of precipitation per year; 17.7% (1.44") comes in the fall, 33.4% (2.72") comes in the winter, 16.7% (1.36") comes in the spring and 32.3% (2.63") comes in the summer.

The Slope Catchment gauge is located approximately .1 mile east of the Blake Pond region. It averages 10.09 inches of precipitation per year; 14.2% (1.43") comes in the fall, 32.9% (3.32") comes in the winter, 18.2% (1.84") comes in the spring and 34.7% (3.50") comes in the summer.

The Wolfhole gauge is located approximately 2.5 miles southwest of the Blake Pond region. It averages 10.55 inches of precipitation per year; 15.8% (1.67") comes in the fall, 37.9% (4.00") comes in the winter, 14.7% (1.55") comes in the spring and 31.5% (3.32") comes in the summer. See Appendix C for complete precipitation data.

Precipitation and weather patterns affect the amount of vegetation produced on the allotment; fluctuating amounts and the seasonal distribution of precipitation results in varying amounts of forage from year to year. Normal grazing schedules and livestock management practices may have to be modified during periods of drought. WO IM No. 2002-120 and Arizona IM No. AZ-2002-025 outline guidance strategies when evaluating impacts to rangelands due to drought. The BLM works with livestock permittees to voluntarily reduce livestock numbers on public lands, or portions of or entire allotments may be temporarily closed. Livestock operators and the BLM jointly develop short and long-term strategies for modifying livestock use on public land to ensure the conservation and protection of soil and vegetation resources. For example, the BLM works cooperatively with livestock permittees to match available forage with appropriate livestock numbers. Historically, most livestock operators impacted by drought conditions have voluntarily reduced their numbers without issuance of formal livestock closure notices. However, if the BLM determines immediate protection of the range resource is merited; closures or modifications to an allotment may be issued effective upon issuance under the authority of 43 CFR 4110.3-3.

Temperatures in the region average 30 degrees in winter and 80+ degrees in summer, with an average annual precipitation between 8 and 10.5 inches. The climate at the Blake Pond Allotment has an average frost-free period of 160 days with temperatures ranging from a high of 100°F in summer to a low of 0°F in winter. A breakdown of average precipitation by season for each gauge is presented in Table 5.

Table 5. Precipitation Data for Blake Pond Allotment

Rain Gauge	Fall Average		Winter Average		Spring Average		Summer Average		Annual Average
	Percent of total	Inches	Percent of total	Inches	Percent of total	Inches	Percent of total	Inches	Inches
Lizard	17	1.41	32	2.66	16	1.30	35	2.83	8.2
Slope Catchment	14	1.44	32	3.22	17	1.75	36	3.66	10.07
Wolfhole	16	1.66	36	3.79	14	1.52	34	3.58	10.54

Precipitation in Arizona typically occurs in a bimodal fashion, with a very dry May and June. Winter moisture is influenced by Pacific oceanic temperatures and airstreams; summer moisture is influenced by the North American monsoon. Summer moisture generally occurs from July through September. It should be recognized that summer rainstorms exhibit considerable variability in their location and intensity (Sprinkle et al. 2007).

Precipitation over the last 10 years has been at or above normal[11] for 5 of those years at the Lizard rain gauge, 6 of those years at the Wolfhole rain gauge, and 3 of those years at the Slope Catchment rain gauge. Precipitation has been below 95 percent for the other years. The three segments of this allotment are spatially separated by considerable distance and topography as well as the rain gauges that represent each segment. The highest precipitation was received in the past five years ranging from 120 – 142% of normal (depending on the rain gauge and year); the lowest was in 2006 - 2009 when precipitation was 50 - 70% of normal (depending on the rain gauge and year). It should be noted that departures from normal are not unusual – in fact, departures from normal are quite typical (Doswell 1997), and precipitation may very often be either well above or well below the seasonal average (National Drought Mitigation Center 2015).

3.1.3 Land Health Evaluation

The BLM regularly conducts inventories and assessments of natural resource conditions on public lands. The need for natural resource inventories was established in 1976 by Congress in Section 201(a) of FLPMA and reaffirmed in 1978 in Section 4 of PRIA. These Acts mandate that Federal agencies develop and maintain inventories of range conditions and trends on public rangelands and update inventories on a regular basis.

Rangeland landscapes are divided into ecological sites for the purposes of inventory, evaluation, and management. An ecological site is a distinctive kind of land with specific physical characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation. It is the product of all the environmental factors responsible for its development. Within each precipitation zone, ecological sites are classified based on the differences in site factors (soil, slope, aspect, parent material, topographic potential, etc.) that affect the potential to produce vegetation.

Ecological sites have developed a characteristic composition and cover of vegetation. The natural plant community on an ecological site is typified by an association of species that differs from that of other ecological sites in the kind and/or proportion of species or in annual production (BLM 2001). While the natural plant community of a particular ecological site is recognized by characteristic *patterns* of species associations and community structure, the *specific species* present from one location to another may exhibit natural variability - the natural plant community is not a precise assemblage of species for which the proportions are the same from place to place, or even in the same place from year to year. Variability is the rule rather

[11] "At or above normal" for this analysis is considered 95% of average annual precipitation or greater.

than the exception. The distinctive plant communities associated with each ecological site (including the variability which frequently occurs) can be identified and described, and are called ecological site descriptions.

The BLM measures range condition, or ecological condition, by the degree to which the existing vegetation of a site is different from the Potential Natural Community (PNC) for the respective ecological site, as identified in the ecological site description. PNC is "the biotic community that would become established if all successful sequences were completed without interferences by humans under the present environmental conditions. It may include naturalized non-native species" (BLM 2005 and BLM 2001). This differs from "historic climax plant community" in that an historic climax plant community is "the plant community that existed before European immigration and settlement" (BLM 2001). The BLM uses "potential natural community" terminology rather than "historic climax plant community" because PNC recognizes past influences by man. Knowing the PNC of the area, and using the ecological site descriptions as a guide, DPC objectives can be developed. The DPC then becomes the objectives by which management actions would be measured (see page 9 of this EA for the DPC objectives for this allotment).

Ecological condition expresses the relative degree to which the kinds, proportions, and amounts of plants in a plant community resemble that of the potential natural plant community for the site. Ecological condition for most of the sites in this area change slowly. Ecological condition is reported in the following four classes, or seral stages, which are the developmental stages of ecological succession:

- **Early Seral:** 0-25% of the expected potential natural community exists.
- **Mid Seral:** 26-50% of the expected potential natural community exists.
- **Late Seral:** 51-75% of the expected potential natural community exists.
- **Potential Natural Community or PNC:** 76-100% of the expected potential natural community exists.

In 2006, a land health evaluation was conducted for this allotment, and an evaluation report was completed in 2013 (BLM 2013). This evaluation was made in accordance with the Arizona Standards and Guidelines for the Fundamentals of Rangeland Health (Appendix 2) standard BLM methods for estimating ecological condition and current trend. Attempting to monitor 100% of any given rangeland is not practical. Instead, representative study sites are selected based on their ability to predict range conditions over much larger areas (University of Arizona 2010). Evaluation sites, or key areas as defined in Technical Reference 1734-4 (BLM 1999b), were selected (location and amount) using professional judgment based upon terrain, past uses of the area, and location of waters. Specific locations of key areas are available in the project file. Existing trend studies, ecological condition data, actual use, and utilization studies for the allotment was analyzed. The trend identified in the rangeland health assessment survey assessed erosion status, vegetative cover, vigor, species diversity, location of the most palatable plants in relation to access to a grazing animal, and general age classes. The land health evaluation identified trend over a wider area within each ecological site or sites surveyed than the 3- foot x 3-foot and 5-foot x 5-foot areas the monitoring studies represent.

See Appendix 3, Tables 20-23 for data and trend determination by pasture.
The trend of an area may be judged by noting changes in vegetation attributes such as species composition, density, cover, production, and frequency. Vegetation data is collected at different points in time on the same key area, and the results are then compared to detect change.

Trend monitoring was collected using the Pace-Frequency method, which measures the occurrence frequency of forage and non-forage vegetative species[10]. Cover data, which determines the percent of bare ground, litter, rock, cryptogram, and live basal vegetation, is also collected. Ground cover is determined by dividing the total number of hits for all categories except bare ground by the total number of hits (including bare ground) – see page 73 of BLM Technical Reference 1734-4 (BLM 1996). Change in ground cover is an important aspect of trend. It is also used to determine if favorable or unfavorable conditions exist for germination and establishment of new plants, and to estimate nutrient cycling. In addition, the occurrence frequency of all plant species is collected. The first readings established a baseline for comparison to all future readings. Trend is considered up when the species increases by 10+ points from the first reading to the last shown reading. The trend of a species is static or not apparent if it shows a change of 0 to 10 or 0 to -10 from the first to the last reading. Down trend is a reading of more than -10 from the first reading.

The key species frequency, which is the ratio between the number of sample units that contain key species and the total number of sample units, comparing the most recent data to the base year. A summary of this data is in Table 6. Detailed tables with data by year and species is available in Appendix 3. Overall trend at a key area is determined by assessing the sum percentages of the following attributes: key species, live vegetation cover/basal cover, and ground cover (surface litter). Both basal cover and surface litter are important attributes when evaluating Standard #1.

Monitoring data has been collected at the four key areas with established trend plots from 1981 to present. These plots have been read at five year intervals. The most recent trend readings for this allotment occurring in 2015. The data to date shows a static trend at the Atkin Spring and Ft. Pearce Key Areas; and an upward trend at the East and Middle Key Areas. For detailed analysis see Appendix 3, Trend Data Tables 20-23

The majority of the public lands within the Blake Pond Allotment are in mid to late seral stages. Seral stage is determined for the three of the four key areas with established trend monitoring. Trend data is important as it is necessary to compare the key area composition to what is thought to be the potential for the site based on ecological parameters including soils, aspect, and elevation. Atkin Spring key area has no ecological status determined. The reason for this is that the key area is located in a site that contains multiple inclusions and transitions between ecological sites. Because there is not a specific ecological site (it is considered “unclassified”), a similarity index is not possible. For the three remaining key areas, Ft. Pearce and Middle Pastures are in a late seral stage based on current composition when compared to potential composition for the sites. The East Key Area is in a mid-seral stage. See Appendix 3, Trend Data Tables 20-23 for detailed composition by key area.

It should be noted that the vegetative composition listed in the site guide is an average across the entire ecological site; variations in an ecological site (due to inclusions or transition zones) may result in an actual plant composition that is different from that listed in the site guide. This is likely the reason for the Blake-Larson East key area being in mid-seral.

Utilization data has been collected on a regular basis based on pasture use within the Blake Pond Allotment. This data is documented sine 1981 in this allotment. Table 6 depicts the average utilization by pasture and by vegetative category for all years of data collection from 1981 to present. As this allotment is managed on a pasture rotation grazing system, allowable use by livestock is 50 percent by key species. See Appendix 3, Utilization Data Tables 24-29 for utilization data by year and species.

Table 6. Average Utilization Data for Blake Pond Allotment Six Key Areas.

Pasture	Warm Season Grasses	Cool Season Grasses	Browse
Atkin Spring	40	29	43
Ft. Pearce	26	16	34
East	19	13	27
Middle (North)	28	30	21
South	27	31	10
West	30	22	31

Based on analyses of the allotment monitoring data (Appendix 3 Vegetation and Soil Monitoring and Inventory Data), and supporting documentation contained in the land health evaluation report (BLM 2013) , including achievement of DPC objectives, resource conditions on the allotment meet all applicable standards for rangeland health.

3.2 Elements/Resources of the Human Environment

The BLM is required to consider many authorities when evaluating a Federal action. Those elements of the human environment that are subject to the requirements specified in statute, regulation, or executive order, and must be considered in all EAs (BLM 2008b), have been considered by BLM resource specialists to determine whether they would be potentially affected by the proposed action or alternatives. These elements are identified in Table 7, along with the rationale for determination on potential effects. If any element was determined to be potentially impacted, it was carried forward for detailed analysis in this EA; if an element is not present or would not be affected, it was not carried forward for analysis. Table 7 also contains other resources/concerns that have been considered in this EA. As with the elements of the human environment, if these resources were determined to be potentially affected, they were carried forward for detailed analysis in this document.

Table 7. Elements/Resources of the Human Environment

NP = not present in the area impacted by the proposed action
NI = present, but not affected to a degree that detailed analysis is required
PI = present with potential for impact – analyzed in detail in the EA

Resource	Determination	Rationale for Determination
Air Quality	NI	The Blake Pond Allotment is included in an area that is unclassified for all pollutants and has been designated as Prevention of Significant Deterioration Class II. Air quality in the area is generally good. Exceptions include short-term pollution (particulate matter) resulting from vehicular traffic on unpaved roads. Fugitive dust is also generated by winds blowing across the area, coming from roads and other disturbed areas. Although livestock congregating at waters can create fugitive dust, this dust creation is very localized and temporary. Thus, none of the alternatives would cause Class II standards to be exceeded. The alternatives would therefore not measurably impact air quality.
Areas of Critical Environmental Concern	NP	There are no Areas of Critical Environmental Concern within this grazing allotment.
Environmental Justice	NI	The alternatives would have no disproportionately high or adverse human health or other environmental effects on minority or low income segments of the population. Also, continued livestock grazing would have no effect on low income and minority populations.
Farmlands (Prime or Unique)	NP	There are no prime or unique farmlands within the allotment.
Floodplains	NI	No actions are proposed that result in permanent fills or diversions, or placement of permanent facilities, in floodplains or special flood hazard areas. Continued properly managed livestock grazing use would not affect the function of the floodplains within the allotment.
Native American Religious Concerns	NP	During consultations with the American Indian Tribes that claim cultural affiliation to northern Arizona, no Native American religious concerns have been identified in relation to livestock grazing within this allotment.
Threatened, Endangered or Candidate Plant Species	NP	No Threatened, Endangered, or Candidate plant species occur in the allotment.
Threatened, Endangered or Candidate Animal Species	NI	The California condor is the only known federally listed animal species that may occur within this allotment – condors may occasionally fly over or feed in this allotment at any time of year. California condors are federally listed as endangered and a population of these condors was reintroduced on the Arizona Strip in 1996. This population is designated as experimental non-essential under Section 10(j) of the Endangered Species Act. Condors are strictly scavengers and prefer to eat large, dead animals such as mule deer, elk, pronghorn, bighorn sheep, cattle, and horses. Condors range widely, easily covering over 100 miles in a day, and their current range includes the entire Arizona Strip. Although condors may either fly over or feed within the allotment, they have not been observed doing so. There is no evidence that rangeland health on this allotment is limiting or

Resource	Determination	Rationale for Determination
		restricting condor population growth. Thus, no effect to this species is expected from any of the alternatives.
Cultural Resources	NI	Livestock grazing has continued as an historic use of the public land in this allotment. The BLM would manage the allotment to ensure that livestock grazing would continue to be in compliance with Section 106 of the National Historic Preservation Act (36 CFR 800.3). Cultural resources project files (CRPR# AZ BLM-110-2006-2) contain documentation of compliance with Section 106 of the National Historic Preservation Act. New range improvement actions, including fences, water facilities, and vegetation treatments, are subject to a Class III inventory and consultation with the Arizona State Historic Preservation Office. No new range improvements are proposed under any alternatives analyzed in this EA. Previous Class II or III intensive inventories have occurred within this allotment – there are nineteen previous inventories completed in the Blake Pond Allotment, and sites have been recorded. No known impacts to significant resources resulting from grazing have been identified. In addition, the BLM followed the Cultural Resource Compliance on Grazing Permit/Lease Renewals guidance contained within BLM Arizona's "Guidelines for Protecting Cultural Resources" handbook (Arizona H-8120, Appendix 12) in reviewing potential impacts to cultural resources on the Blake Pond Allotment. The BLM used existing data, including site records and data from the sites in the allotment, to consider the potential for impacts to cultural resources across the allotment. This data was extrapolated from the existing site records and from on-the-ground observations provided by archaeologists, qualified archaeological volunteers, range specialists, and permittees. Since no impacts to significant and vulnerable cultural resources have been documented, no additional cultural resources inventory was recommended by the Arizona Strip Field Office archaeologist. In the event that significant archaeological resources (standing walled historic or prehistoric structures, rock art, or other sites potentially eligible to the National Register of Historic Places) are found to be adversely impacted by cattle, preventative and mitigation measures will be implemented including but not limited to fencing, recordation, data collection, and monitoring as is standard operating procedure under the National Historic Preservation Act. "If in connection with allotment operations under this authorization, any human remains, funerary objects, sacred objects or objects of cultural patrimony as defined in the Native American Graves Protection and Repatriation Act (NAGPRA) (P.L. 101-601; 104 Stat. 3048; 25 U.S.C. 3001) are discovered, the permittee shall stop operations in the immediate area of the discovery, protect the remains and objects, and immediately notify the Authorized District Manager (Timothy Burke (435-216-8933). The permittee shall continue to protect the immediate area of the discovery until notified by the Authorized Officer that operations may resume." The 43 CFR 10 regs specifically require land use authorizations,

Resource	Determination	Rationale for Determination
		including leases and permits, to include a requirement for the holder of the authorization to notify the appropriate federal official immediately upon the discovery of human remains and other items covered by NAGPRA (see 43 CFR 10.4(g). The actual requirement for persons to notify the federal official and protect the discovery is in 43 CFR 10.4(b) and (c)).The renewal of grazing permits, in the absence of any construction of new range improvements, therefore does not constitute a potential adverse effect to cultural resources.
Invasive, Non-native Species	NI	No noxious weeds are documented or known for this allotment. Cheatgrass, an invasive weed, is present in some areas across the allotment. Cheatgrass is not on the Arizona Noxious Weed list. However it can be a very invasive non-native grass species. Research by Douglas et al. (1990) and Hunter (1991) shows that cheatgrass readily invades areas that have not been disturbed and do not have livestock influence. Young and Evans (1978) speculated that removal of livestock would actually accelerate conversion to cheatgrass because of increased fuel accumulations and more frequent wildfires. Proper range practices can help prevent the spread of undesirable plant species (Sheley 1995). Sprinkle et al (2007) found that grazing exclusion does not make vegetation more resistant to invasion by exotic annuals. Reasons for this may include: 1) grazing may result in a more diverse age classification of plants due to seed dispersal and seed implementation by grazing herbivores, and 2) grazing removes senescent plant material, and if not extreme, helps open up the plant basal area to increase photosynthesis and rainfall harvesting (Holechek 1981). Loeser et al. (2007) reported that moderate grazing was superior to both grazing exclusion and high-impact grazing in maintaining plant diversity and in reducing exotic plant recruitment in a semiarid Arizona grassland. It is also important to note that removal of grazing by domestic livestock does not automatically lead to disappearance of cheatgrass (Young and Clements 2007). Proper grazing use which maintains stable plant communities (as is the case in the Blake Pond Allotment – the majority of the public lands within the allotment are in late seral, which is a very stable condition, and the allotment meets all applicable standards for rangeland health) should minimize or have no effect on the spread of invasive non-native species. The renewal of the grazing permits and continued livestock grazing are therefore not anticipated to increase the rate at which invasive species are spread throughout the area.
Wastes (hazardous or solid)	NP	No known hazardous or solid waste issues occur in the allotment.
Water Quality (drinking / ground)	NI	Site visits to the allotment (during rangeland health evaluations and subsequent monitoring) did not indicate that current livestock use is altering water quality – no surface water within this allotment is used for domestic drinking water. Thus, no effect to water quality is expected from the alternatives.
Wetlands / Riparian Zones	NP	No wetland/riparian areas occur in the allotment.
Wild and Scenic Rivers	NP	There are no river segments within the allotment that are designated, eligible, or suitable as wild, scenic, or recreational under the Wild and

Resource	Determination	Rationale for Determination
		Scenic Rivers Act.
Wilderness	NP	There is no designated wilderness within the Blake Pond Allotment.
Livestock Grazing	PI	Permit renewal is required to allow continued livestock use on the allotment; this issue is therefore analyzed in detail in this EA.
Woodland / Forestry	NI	Continued livestock use would not affect the availability of, or access to, these resources.
Vegetation	PI	Grazing has a direct impact on vegetation resulting from the practice of grazing in which livestock eat and trample plants within the allotment. This issue is therefore analyzed in detail later in this EA.
BLM or State Sensitive Plant Species	NP	There are no known Special Status Plant Species known to this allotment.
Wildlife (including sensitive species and migratory birds)	PI	Multiple sensitive animal species, including migratory birds, may occur within the Blake Pond Allotment Mule deer and pronghorn are big game species that are known to occur throughout the allotment. Interactions with livestock and competition for forage could occur; this issue is therefore analyzed in detail later in this EA.
Soil Resources	PI	Some soil disturbance occurs around water sites where livestock gather and trail. In addition, small bottom land areas of the allotment have soils that are sensitive to compaction. This issue is therefore analyzed in detail in this EA.
Recreation	NI	A portion of the allotment is within the Arizona Strip St George Basin Special Recreation Management Area (SRMA), this area receives some of the heaviest use area in the field office with a strong motorized use. The remaining area of this allotment is within the Arizona Strip Extensive Recreation Management Area and receives custodial management for dispersed, unstructured recreation opportunities that focus only on visitor health and safety, user conflict, and resource protection issues while maintaining the area's naturalness/remoteness. The Blake Pond Allotment is considered to have recreation values for its geology, scenic viewsheds, and remoteness. Visitors to the allotment engage in a variety of recreation activities including sightseeing, horseback riding, hiking, camping, hunting, rock collecting, photography, bird watching, and nature study. The alternatives are not expected to impact the availability of recreational opportunities within this allotment.
Visual Resources	NI	The majority of the Blake Pond Allotment is designated as Visual Resource Management (VRM) Class III , with the exception of a powerline transmission right of way, which is VRM Class IV, and the Atkin Spring/Blake Pond Pastures which are VRM Class II. The objective for Class II is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. The objective for Class III is to partially retain the existing character of the landscape. The level of change to the

Resource	Determination	Rationale for Determination
		characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape. The objective for Class IV is to provide for management activities that require major modification of the existing character of the landscape. The level of change to the characteristic landscape in these areas can be high. Continuing livestock grazing as proposed would not affect visual resources because no new range improvements are proposed, so the existing character of the landscape would not change.
Geology / Mineral Resources / Energy Production	NI	Continuing livestock grazing would not alter geological features or mineral resources. Mineral exploration activities (uranium and oil and gas) are occurring across the Arizona Strip, but grazing of livestock would not alter or impair the opportunities to explore for these resources.
Paleontology	NP	No paleontological resources are known to occur in the allotment.
Lands / Access	NI	Access to public lands would not be altered or impaired by implementation of the alternatives. No other lands issues have been identified in connection with the alternatives.
Fuels / Fire Management	NI	No hazardous fuel reduction or fuels management projects are proposed for the area. Continued livestock use would not affect fire management, other than the continued reduction of some light fuels through livestock grazing.
Socio-economic Values	NI	The economic base of the Arizona Strip is mainly ranching with a few gypsum/selenite and uranium mines. Nearby communities are supported by tourism (including outdoor recreation), construction, mining activities, and light industry. The social aspect involves remote, unpopulated settings with moderate to high opportunities for solitude. Issuance of the permit under the proposed action would allow the permittee to continue his grazing operation with some degree of predictability during the 10-year period of the term permit and would allow a historical and traditional use of the land to be maintained. The proposed action and alternatives would have no overall effect on the economy of the county since other industries and tourism/recreational uses are contributing increasing amounts to the economy of the region and cattle ranching is no longer a significant contributor.
Wild Horses and Burros	NP	There are no wild horses or burros, or herd management areas, within the allotment.
Wilderness characteristics	NP	There are no areas managed to maintain the wilderness characteristics of naturalness, opportunities for solitude, and opportunities for primitive and unconfined recreation within this allotment.

3.3 RESOURCES BROUGHT FORWARD FOR ANALYSIS

3.3.1 Livestock grazing

A grazing permit is issued for livestock forage produced annually on the public lands and is allotted on an AUM basis. (An AUM is a unit of measurement indicating how much forage is eaten by a cow/calf pair in one month.) The BLM does not control adjacent private lands owned by the permit holders. The livestock operator assumes grazing management responsibility with the intent to maintain or improve existing resources. Livestock are to be grazed on public lands only during the established season of use. If private land is used during different periods, it is the permittee's responsibility to keep livestock off the public land during non-grazing periods. The BLM retains the right to manage the public lands for multiple uses and to make periodic inspections to ensure that inappropriate grazing does not occur. If inappropriate grazing should occur, then the BLM would work with affected permittee to identify and prescribe actions to be taken that would return the allotment to compliance.

The allotment is categorized as a "maintain" (M) allotment. The *Arizona Strip Field Office RMP* (BLM 2008a) defines maintain allotments as those in which:

a) Present range condition is satisfactory;
b) The allotment has high or moderate resource potential and is producing near its potential (or trend is moving in that direction);
c) No serious resource-use conflicts/controversy exists;
d) Opportunities may exist for positive economic return from public investments; and
e) Present management is satisfactory.

Land ownership in the Blake Pond Allotment consists primarily of Federal land with some State land included (Table 10). Active grazing use on the allotment is 1,317 AUMs, with 383 suspended non-use AUMs.

Table 8. Land Ownership

Ownership	Blake Pond Allotment
Federal	20,415 acres
State	1,047 acres
Total	21,462 acres

The Atkin Spring region and Ft. Pearce Pasture are used during the winter and spring. The Blake Pond region is used during the summer and fall.

For the last 29 years the Blake Pond Allotment has been grazed in connection with the Lizard and Wolfhole Lake Allotments. The four pastures in the Blake Pond region have been grazed from approximately June 15 to November 30. Prior to entering the Blake Pond pastures, the herd grazes the Wolfhole Lake Allotment for approximately 1 month. The herd also grazes the Wolfhole Lake Allotment after leaving these pastures in December. The Wolfhole Lake Allotment acts as a transition pasture between the four Blake Pond pastures and Ft. Pearce and

Atkin Spring regions. During the remaining 6 ½ months the cattle are rotated between the Ft. Pearce pasture, Atkin Spring region and the Lizard Allotment. Because Blake Pond is used with Lizard and Wolfhole Lake, there is flexibility built into the operation. However, should one of the allotments transfer to a different permittee, this flexibility would likely be reduced.

Actual use within the Blake Pond Allotment has varied between 42 percent and 82 percent between 2006 and 2015. Non-use reflects seasonally dry periods, drought years or other factors.

3.3.1.1 Range Improvements

The Blake Pond Allotment contains a number of structural range improvements, as shown in Table 9 and on the Range Improvement map in Appendix 1. These range improvements consist of fences, water troughs, reservoirs, cattleguards, and a corral.

Table 9. Blake Pond Allotment Existing Range Improvements.

Range Improvement Type	quantity
Fence	*50 miles
Water Troughs	8
Reservoirs	6
Cattleguards	1
Corral	1

*allotment and division fences. Additional 15-20 miles of natural barriers (rims/ridges) form remaining allotment boundaries.

3.3.2 Vegetation

Healthy diverse plant communities exist on the allotment. Endemic plant species, including native grasses (such as squirreltail, galleta, blue grama, dropseed, Indian ricegrass, and needle-and-thread) and native shrubs (such as creosote, sagebrush, wolfberry, cliffrose, bursage, Mormon tea, and fourwing) are present.

The Blake Pond region of the allotment (Great Basin Ecological Zone) contains roughly 4,900 acres of sagebrush habitat which is interspersed with small areas of pinyon-juniper woodlands and grasslands. Fragmentation of sagebrush is low and attributable to natural diversity consistent with Great Basin Ecological Zone characteristics. In addition, a chemical treatment of sagebrush occurred in 2006 in order to restore and rehabilitate a portion of the sagebrush community (to improve perennial grass cover and reduce the risk of erosion). This treatment in conjunction with ecological site potentials and their inclusions have created a diverse sagebrush community containing different height and age structures and a diverse horizontal continuity filled with grasses and forbs. Current observations indicate that grasses are increasing in this area. Shrub composition in this region was measured between 5-27% with grass composition measured between 71-79%. Forbs varied from 4% to 15% at the two key areas, but forb composition is highly variable from year to year, based upon precipitation.

The majority of DPC objectives are being met. The exceptions to this are forbs at the Ft. Pearce key area, perennial grass at the Blake-Larson East key area, and shrubs at the Blake-Larson Middle key area. As stated above, forb composition is highly variable and will fluctuate from year to year. The grass composition at Blake-Larson East is only 2% below meeting objectives and should be capable of meeting desired levels in the future. Shrubs at Blake-Larson Middle (North) were treated in the past to promote growth of understory species (grasses and forbs) to reduce the risk of soil erosion. Additionally, DPC objectives may need to be adjusted to more accurately reflect the actual ecological site occurring at the key area. The DPC objectives have been developed on the allotment as goals which should improve watershed condition as well as improve communities with a healthier diverse habitat, including vertical and horizontal structures and vegetative age classes (BLM 2013).

The Blake Pond Allotment has two distinct ecological zones and vegetation types (as mentioned above). The northern three pastures which include the Blake, Atkin Spring, and Ft. Pearce Pastures are lower elevation ranging from approximately 2800-3500 feet above mean sea level (AMSL) and are comprised of Mojave Desert type vegetation. The southern four pastures which include the Middle (North), West, East, and South Pastures are higher elevation ranging from 3500-5300 feet AMSL. These pastures are comprised of more typical Great Basin/Colorado Plateau ecological zones. Based on data collected by the Natural Resource Conservation Service (NRCS), the dominant ecological sites on the Blake Pond Allotment in the northern pastures are: Unclassified with multiple inclusions and transitions 6 - 10" precipitation zone (p.z.); and Loamy Wash 6 - 9" p.z. Gypsic. The two principal vegetative types that correspond to these ecological sites within these northern pastures are: Mojave mixed desert scrub and Sonora-Mojave desert scrub. Dominant perennial grasses for these sites include bottlebrush squirreltail (*Elymus elymoides ssp. elymoides),* Galleta *(Pleuraphis jamesii),* low wollygrass *(Tridens pulchellus),* and bluegrass *(Poa* sp.*).* Dominant shrubs include: big sagebrush *(Artemisia tridentata),* creosote bush *(Larrea tridentata),* water jacket (*Lycium andersonii),* fourwing saltbush (*Atriplex canescens),* winterfat (*Krascheninnikovia lanata),* and snakeweed (*Gutierrezia sarothrae)*. See Appendix 1, Major Vegetation Types Maps 5-7 for maps representing the data in the following tables.

Table 10. Atkin Spring Pasture Dominant Vegetation Types

Vegetation community	Acres	Percent of Pasture
Mojave Mid-Elevation Mixed Desert Scrub	641	74
North American Warm Desert Bedrock Cliff and Outcrop	106	12
Inter-Mountain Basins Semi-Desert Shrub Steppe	78	9

Table 11. Blake Pond Pasture Dominant Vegetation Types

Vegetation community	Acres	Percent of Pasture
Mojave Mid-Elevation Mixed Desert Scrub	2241	87
North American Warm Desert Bedrock Cliff and Outcrop	182	7
Inter-Mountain Basins Semi-Desert Shrub Steppe	50	2

Table 12. Ft. Pearce Pasture Dominant Vegetation Types

Vegetation community	Acres	Percent of Pasture
Sonora-Mojave Creosotebush-White Bursage Desert Scrub	5631	72
North American Warm Desert Volcanic Rockland	1271	16
Sonora-Mojave Mixed Salt Desert Scrub	215	4
North American Warm Desert Bedrock Cliff and Outcrop	77	1

Dominant ecological sites for the southern pastures are: Moenkopi-Shallow Loamy 7 - 11" p.z.; Goblin-Gypsum Hills 7 -11" p.z. and Loamy Upland 10 - 14" p.z. The two principal vegetative types that correspond to these ecological sites within these southern pastures are: Salt Desert Scrub and Sagebrush Shrubland. The dominant perennial grasses for these sites include: Indian ricegrass (*Achnatherum hymenoides),* needlegrass *(Achnatherum speciosum),* bottlebrush squirreltail (*Elymus elymoides ssp. elymoides),* needle and thread (*Hesperostipa comata ssp. comate),* blue gramma *(Bouteloua gracilis),* western wheatgrass *(Pascopyrum smithii),* bluegrass (*Poa fendleriana).* Dominant shrubs include: Wyoming big sagebrush (*Artemisia tridentata ssp. Wyomingensis),* fourwing saltbush *(Atriplex canescens),* Nevada Mormon tea or Nevada jointfir *(Ephedra nevadensis),* winterfat *(Krascheninnikovia lanata), and* snakeweed *(Gutierrezia sarothrae),* cactus *(Opuntia* sp.*)* and *yucca (Yucca* sp.*).*

Table 13. Middle (North) Pasture Dominant Vegetation Types

Vegetation community	Acres	Percent of Pasture
Inter-Mountain Basins Mixed Salt Desert Scrub	374	83
Inter-Mountain Basins Big Sagebrush Shrubland	50	11
Colorado Plateau Blackbrush-Mormon-tea Shrubland	8	3
Inter-Mountain Basins Semi-Desert Grassland	3	1

Table 14. West Pasture Dominant Vegetation Types

Vegetation community	Acres	Percent of Pasture
Inter-Mountain Basins Big Sagebrush Shrubland	2792	68
Great Basin Pinyon-Juniper Woodland	411	10
Inter-Mountain Basins Mixed Salt Desert Scrub	221	5
Inter-Mountain Basins Semi-Desert Grassland	106	3
Inter-Mountain Basins Big Sagebrush Shrubland	22	1

Table 15. East Pasture Dominant Vegetation Types

Vegetation community	Acres	Percent of Pasture
Colorado Plateau Mixed Bedrock Canyon and Tableland	1358	31
Inter-Mountain Basins Mixed Salt Desert Scrub	989	22
Inter-Mountain Basins Big Sagebrush Shrubland	236	5
Colorado Plateau Pinyon-Juniper Shrubland	121	3

Table 16. South Pasture Dominant Vegetation Types

Vegetation community	Acres	Percent of Pasture
Inter-Mountain Basins Big Sagebrush Shrubland	525	45
Inter-Mountain Basins Mixed Salt Desert Scrub	494	41
Inter-Mountain Basins Semi-Desert Grassland	68	6
Great Basin Pinyon-Juniper Woodland	11	1

Key Species

Management of the allotment is based on a selection of key species. These species are selected for their similarity to other grasses and browse species that occur in the allotment. The definition of key species is: (1) forage species of sufficient abundance and palatability to justify its use as an indicator to the *degree of use* of associated species; and (2) those species which must, because of their importance, be considered in the management program. Key species for the allotment are:

<u>Cool season grasses</u>	
Indian ricegrass	*Achnatherum hymenoides*
Squirreltail	*Elymus elymoides ssp. elymoides*
Needle and thread	*Stipa comata*
<u>Warm season grasses</u>	
Big galleta	*Pleuraphis rigida*
James' galleta	*Pleuraphis jamesii*
Blue grama	*Bouteloua gracilis*
Sand dropseed	*Sporobolos cryptandrus*
Black grama	*Bouteloua eriopoda*
<u>Browse</u>	
Fourwing saltbush	*Atriplex canescens*
Cliffrose	*Cowania mexicana*
Winterfat	*Krascheninnikovia lanata*
Mormon tea	*Ephedra nevadensis*
Spiny hopsage	*Grayia spinosa*

For further discussion about key species and associated trend monitoring data see Section 3.1.3 Land Health Evaluation and Appendix 3 Trend Monitoring Tables 20-23.

Table 17 displays the phenological development stages for some of the key species for the allotment.

Table 17. Phenological Development of Key Species for the Blake Pond Allotment

Key Species	Development Stages (dates vary based upon yearly fluctuations in specific climatic conditions and elevation)			
	Begin Growth	Flowering	Seed Ripe	Seed Dissemination
Fourwing saltbush	4/01	6/01 – 6/15	10/15 – 11/01	11/15 – 12/01
Winterfat	3/01	6/01 – 6/15	9/15	11/15 – 12/01
Mormon tea	4/15	5/15	7/15	10/01
Indian ricegrass	3/15	5/15 – 6/15	7/01 – 7/15	8/01 – 8/15
Squirreltail	3/01	5/15 – 6/01	6/15 – 7/01	7/15 – 8/01
Sand dropseed	4/15	5/20	7/15	8/30
Black grama	5/01	8/01	9/15	10/15
Galleta	4/01	6/01 – 7/15	7/15 – 9/01	8/15 – 10/15

3.3.3 Wildlife, Including Big Game Species, Migratory Birds, and Sensitive Species

3.3.3.1 Big Game Species

The Blake Pond Allotment is located in AGFD's Game Management Unit (GMU) 13B. Mule deer can be found throughout this allotment. Sixty eight percent of the allotment is considered pronghorn habitat. Pronghorn habitat occurs in the Ft. Pearce and Blake Pond regions of the allotment and desert bighorn sheep habitat is found in the Atkin Spring region. Population survey data, counts, and estimates of total mule deer and pronghorn populations within GMU 13B are included as Appendix 4 of this EA.

Mule deer (*Odocoileus hemionus*)

Unit 13B is famous for producing large antlered "trophy" class mule deer bucks. The mule deer population is managed under alternative management guidelines which focus on the harvest of older age class, mature bucks. Mule deer exist at low densities throughout the unit in all habitat types and good numbers of deer can typically be found in the higher elevations, generally over 4,000 feet (AGFD & BLM 2015).

Mule deer occur in a wide variety of habitat types; although vegetative communities vary throughout the range of mule deer, habitat is nearly always characterized by areas of thick brush or trees interspersed with small openings. The thick brush and trees are used for escape cover whereas the small openings provide forage and feeding areas. Game Management Unit (GMU) 13A (where the Rock Pockets Allotment is located) contains extensive Great Basin short grass

prairie, extensive pinyon-juniper woodlands, grassland pinyon-juniper association, and a ponderosa pine ecotype in the Mt. Logan and Mt. Trumbull areas (south of this allotment). Mule deer inhabit most of the unit; total numbers of mule deer in the habitat area generally range from 125 to 175 with the majority of animals occupying summer range to the north in Utah and south towards Mt. Trumbull. As described in Section 3.3.2, the two principal vegetative types within the allotment are grassland and desert shrub. The grassland type consists of plant species such as galleta, sand dropseed, squirreltail, and Indian ricegrass. The desert shrub vegetative type consists of fourwing saltbush, winterfat, Mormon tea, sagebrush, and annual species such as globemallow, Indian wheat and six weeks fescue. Deer eat a wide variety of plants including browse, forbs and grasses. Deer are especially reliant on shrubs for forage during critical winter months. Fawn production is closely tied to the abundance of succulent, green forage during the spring and summer months.

AGFD has categorized habitat characteristics for big game species within the state. Habitat categories are based on several factors such as topography, forage and cover, availability of water, and limiting factors such as prohibitive fencing. Blake Pond Allotment is categorized by AGFD as 27% yearlong habitat, 37% winter crucial, and 36% limited habitat for mule deer.

Pronghorn (*Antilocapra americana*)

Pronghorn are native to the Arizona Strip, but were extirpated in the early 1900s. They were first re-introduced to the Strip in 1961 and to the area of this allotment in 1979 when 84 head were released near Diamond Butte. There have been several subsequent releases.

The pronghorn population in Game Management Unit 13B appears stable to slightly increasing. Annual fawn production varies considerably from year to year. This variation is attributed to predation, annual differences in timing and amount of precipitation and subsequent forb production. Because there is some natural interchange between the 13A and the 13B pronghorn herds, AGFD has periodically conducted supplemental releases of pronghorn in 13B in order to increase numbers and to provide more genetic diversity.

Habitat for pronghorn on this allotment is considered to be low quality. Although no population estimates are available specifically for this allotment, the pronghorn population trend/status for GMU 13B as of 2016 is increasing with a population estimate of 167.

A variety of factors are considered management concerns related to the pronghorn population in this unit, with three factors identified by AGFD as being the primary reasons (AGFD 2015). First, water is a limited resource in the area, with few year-round waters available for use. Pronghorn rely heavily on livestock waters; recent dry summers have shown that these waters are dry for most of the summer months, especially during fawning periods. Second, many miles of fence do not meet game standards and restrict pronghorn movement and survival (Autenrieth, et al. 2006), although the BLM is working cooperatively with AGFD to remedy this. Third, coyote

predation on fawns has been identified as a probable limiting factor to pronghorn recruitment, especially during drought periods when fawning cover is limited or absent.

Desert bighorn sheep (*Ovis canadensis nelsoni*)

Desert bighorn sheep habitat has been identified from habitat analysis that evaluates a combination of slope, topography, aspect, vegetation, proximity to escape cover, and water availability (Bighorn Sheep Core Team 2011). To escape predators, bighorn sheep prefer rough, rocky terrain with slopes greater than 20%.

Desert bighorn sheep likely obtain some of the moisture they need from succulent vegetation. During the hot summer months, the sheep stay in shaded areas near water as much as possible and are seldom found more than three miles from dependable water sources. When rain or snowfall occurs, bighorn sheep expand their use of suitable habitat and range out from permanent waters. They also commonly drink from ephemeral pools of water found in rock pockets (Bighorn Sheep Core Team 2011).

Desert bighorn sheep are present in the allotment on the Blake Pond and Atkin Spring Pastures. Sixty-two desert bighorn were released into the Virgin and Beaver Dam Mountains from 1979 to 1982 in three locations. Key habitat use areas for bighorn sheep include concentration areas along the Virgin River and at reliable waters in the Virgin and Beaver Dam Mountains. In 2016, the area supported an estimated population of 120 desert bighorn.

3.3.3.2 Migratory Birds

The Migratory Bird Treaty Act of 1918 protects against the take of migratory birds, their nests, and eggs, except as permitted. An MOU between the BLM and USFWS states that the BLM shall: "At the project level, evaluate the effects of the BLM's actions on migratory birds during the NEPA process, if any, and identify where take reasonably attributable to agency actions may have a measurable negative effect on migratory bird populations, focusing first on species of concern, priority habitats, and key risk factors. In such situations, BLM will implement approaches lessening such take." (BLM and USFWS 2010)

The USFWS is mandated to identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act. The USFWS *Birds of Conservation Concern 2008* (USFWS 2008) is the most recent effort to carry out this mandate. Bird species considered as Birds of Conservation Concern (BCC) include nongame birds, gamebirds without hunting seasons, subsistence-hunted nongame birds in Alaska, ESA candidate, proposed, and recently delisted species. Birds of Conservation Concern found on the Arizona Strip within the habitat types on the Blake Pond Allotment are summarized in Table 18.

Table 18. USFWS Birds of Conservation Concern Found in the Blake Pond Allotment.

Species	Habitat Type in the Project Area
Ferruginous Hawk	Open grassland or shrubland with isolated trees (typically juniper) for nesting. (*BLM Sensitive, see section 3.3.3.3*)
Golden Eagle	Habitat generalist, but usually forages in open country for small mammals and carrion. Large cliff faces are used for nesting. (*BLM Sensitive, see section 3.3.3.3*)
Peregrine Falcon	Habitat generalist, but usually associated with canyons (especially near water) where they hunt for other bird species. Cliff faces are used for nesting. (*BLM Sensitive, see section 3.3.3.3*)
Prairie Falcon	Typically occupy drier and more open country than peregrine falcons, but there is some overlap in habitat. Cliff faces are used for nesting. Found year-round on the Arizona Strip in low numbers.
Burrowing Owl	Sparsely vegetated grassland or shrubland with existing burrows excavated by badgers, rabbits, or ground squirrels. (*BLM Sensitive, see section 3.3.3.3*)
Gray Vireo	Found nearly exclusively in pinyon-juniper woodlands during the breeding season. Fairly common on the Arizona Strip.
Pinyon Jay	Associated with pinyon-juniper woodlands and nearby open country such as sagebrush or saltbush shrublands. Prefers dense stands of pinyon-juniper for nesting. (*BLM Sensitive, see section 3.3.3.3*)
Juniper Titmouse	Year-round resident of pinyon-juniper woodlands. Common on the Arizona Strip.
Bendire's Thrasher	Favors open habitat with scattered junipers, cliffrose, and sagebrush. An uncommon breeder on the Arizona Strip.
Brewer's Sparrow	Breeds in sagebrush shrublands, but can be found in a variety of open habitats and riparian areas during migration and winter. Typically only nests on the Arizona Strip during years of high precipitation, otherwise breeding occurs to the north. Fairly common in large migrating flocks in spring and fall, otherwise uncommon on the Arizona Strip.
Black-chinned Sparrow	Breeds in the chaparral habitat type within rocky canyons, especially where cliffrose is present. Fairly common on the west side of the Arizona Strip within its limited habitat type.

3.3.3.3 Sensitive Species

Sensitive species are usually rare within at least a portion of their range. Many are protected under certain State and/or Federal laws. Species designated as sensitive by the BLM must be native species found on BLM-administered lands for which the BLM has the capability to significantly affect the conservation status of the species through management, and either:

1. There is information that a species has recently undergone, is undergoing, or is predicted to undergo a downward trend such that the viability of the species or a distinct population segment of the species is at risk across all or a significant portion of the species range; or

2. The species depends on ecological refugia or specialized or unique habitats on BLM-administered lands, and there is evidence that such areas are threatened with alteration such that the continued viability of the species in that area would be at risk."

All federally-designated candidate species, proposed species, and delisted species in the 5 years following delisting are included as BLM sensitive species. Based on occurrence records and monitoring data, the sensitive species that may occur within the Blake Pond Allotment and that may be affected by actions proposed in one of the alternatives presented in Chapter 2 are displayed in Table 19.

Table 19. Sensitive Species Associated with the Blake Pond Allotment

Species	Potential for Occurrence
Peregrine falcon (*Falco peregrinus*)	potential
Ferruginous hawk (*Buteo regalis*)	potential
Western burrowing owl (*Athene cunicularia hypugea*)	potential
Golden eagle (*Aquila chrysaetos*)	potential
Pinyon jay (*Gymnorhinus cyanocephalus*)	potential

Five additional sensitive species may also occur within the allotment. However, it has been determined by BLM wildlife biologists that these species would not be affected by actions proposed in this EA. These species are therefore not addressed further in this document. Table

20 lists the sensitive species that will not be discussed in further detail, along with the rationale for their exclusion from further analysis.

Table 20. Sensitive Species Excluded from Further Analysis

Species	Rationale for Excluding from Further Analysis
Allen's big-eared bat *Idionycteris phyllotis*	Roost sites such as caves and abandoned mineshafts are inaccessible to livestock and impacts from grazing would not alter prey species (insects) populations or distribution. No measurable impacts (changes from the existing condition) would be expected.
Townsend's big-eared bat *Corynorhinus townsendii*	Roost sites such as caves and abandoned mineshafts are inaccessible to livestock and impacts from grazing would not alter prey species (insects) populations or distribution. No measurable impacts (changes from the existing condition) would be expected.
California leaf-nosed bat *Macrotus californicus*	Roost sites such as boulder piles, caves, and abandoned mineshafts are inaccessible to livestock and impacts from grazing would not alter prey species (insects) populations or distribution. This species is primarily found in Sonoran desert scrub south of the Mogollon Plateau and is unlikely to occur in the project area. No measurable impacts (changes from the existing condition) would be expected.
Greater western mastiff bat *Eumops perotis californicus*	Roost sites such as rock crevices are inaccessible to livestock and impacts from grazing would not alter prey species (insects) populations or distribution. No measurable impacts (changes from the existing condition) would be expected.
Spotted bat *Euderma maculatum*	Roost sites such as crevices in cliff faces are inaccessible to livestock and impacts from grazing would not alter prey species (insects) populations or distribution. No measurable impacts (changes from the existing condition) would be expected.

Peregrine falcon (*Falco peregrinus*)

Habitat and Range Requirements. Peregrine falcons utilize areas that range in elevation from 400 to 9,000 feet and breed wherever sufficient prey is available near cliffs. Preferred habitat for peregrine falcons consists of steep, sheer cliffs that overlook woodlands, riparian areas, and other habitats that support a high density of prey species. Nest sites are usually associated with water. In Arizona, peregrine falcons now occur in areas that had previously been considered marginal habitat, suggesting that populations in optimal habitats are approaching saturation (AGFD 2002).

Nesting sites, also called eyries, usually consist of a shallow depression scraped into a ledge on the side of a cliff. Peregrine falcons are aerial predators that usually kill their prey in the air. Birds comprise the most common prey item, but bats are also taken (AGFD 2002).

Project Area Evaluation. Potential nesting habitat is found along the steep cliff faces adjoining the east side of the allotment along the Hurricane Cliffs. Peregrine falcons may also occur in the allotment during foraging flights.

Ferruginous hawk (*Buteo regalis*)

Habitat and Range Requirements. Ferruginous hawks are large hawks that inhabit the grasslands, deserts, and open areas of western North America – they are the largest North American hawk and are often mistaken for eagles due to their size. Ferruginous means "rusty color" and refers to the bird's colored wings and legs. During the breeding season, they prefer grasslands, sagebrush, and other arid shrub country. Nesting often occurs in isolated trees or utility poles surrounded by open areas (Olendorff 1993). Mammals generally comprise 80 to 90 percent of the prey items or biomass in the diet with birds being the next most common mass component.

Project Area Evaluation. Suitable habitat for the ferruginous hawk is present on the allotment in the Blake Pond region. Although nesting habitat is available, no nest sites are known to occur within the allotment.

Burrowing owl (*Athene cunicularia hypogea*)

Habitat and Range Requirements. Burrowing owls occupy a wide variety of open habitats including grasslands, deserts, or open shrublands. Burrowing owls do not dig their own burrows and must rely on existing burrows dug by prairie dogs, ground squirrels, badgers, skunks, coyotes, and foxes but will also use manmade and other natural openings Nest-site fidelity is high and burrows are often reused for several years if not destroyed (Haug et al. 1993). Moderate grazing can have a beneficial impact on burrowing owl habitat by keeping grasses and forbs low (MacCracken et al. 1985) but the control of burrowing rodent colonies in grazed areas is believed to be a significant factor in the burrowing owl's decline (Desmond and Savidge 1996). Burrowing owls are infrequently encountered on the Arizona Strip likely due to the lack of prairie dog or other large rodent colonies.

Project Area Evaluation. Suitable habitat for the burrowing owl is present on the allotment in the Blake Pond region. Although nesting habitat is available, no nest sites are known to occur within the allotment.

Golden eagle (*Aquila chrysaetos*)

Habitat and Range Requirements. Typically found in open country, prairies, arctic and alpine tundra, open wooded country and barren areas, especially in hilly or mountainous regions. Black-tailed jackrabbits and rock squirrels are the main prey species taken (Eakle and Grubb 1986). Carrion also provides an important food source, especially during the winter months.

Nesting occurs on rock ledges, cliffs, or in large trees. Several alternate nests may be used by one pair and the same nests may be used in consecutive years or the pair may shift to an alternate nest site in different years. In Arizona they occur in mountainous areas and vacate desert areas after breeding. Nests were observed at elevations between 4,000 and 10,000 feet. Nests are commonly found on cliff ledges; however, ponderosa pine, junipers, and rock outcrops are also used as nest sites.

Project Area Evaluation. Potential nest sites occur along the Hurricane Cliffs east of the allotment. Recently active golden eagle nests occur in areas adjacent to the Blake Pond Allotment and eagles likely utilize the entirety of the allotment for hunting and scavenging. The presence of water developments may attract small mammals, such as black-tailed jackrabbits, which are prey species for golden eagle.

Pinyon Jay (*Gymnorhinus cyanocephalus*)

Habitat and Range Requirements. The pinyon jay is a medium-sized corvid that inhabits much of the intermountain west and is particularly associated with pinyon-juniper ecosystems. Pinyon jays are highly social birds that nest communally and form large flocks that may number into the hundreds. Pinyon jays harvest seeds of pinyon pine, and to a lesser extent ponderosa and limber pine, during the fall and cache these seeds for use in late winter and early spring when other food sources are scarce (Balda & Bateman 1971). Caches are often located in areas that receive little snow, such as under pine and juniper tree crowns or on south slopes where snow melts early, allowing the caches to be accessible during late winter and early spring (Wiggins 2005). Spatial memory is highly developed in pinyon jays and cache relocation is efficient and reliable (Stotz & Balda 1995). Seeds that are not relocated and consumed will often germinate and contribute to pinyon pine regeneration.

Pinyon jay habitat preferences include mosaics of large tracts of pinyon-juniper woodlands especially those areas that contain large, mature, seed-producing pinyon pines, and relatively open structure with mixed shrubs (especially sagebrush) and grasses (Gabaldon 1979, Latta et al. 1999). One nesting colony of pinyon jays typically requires an area of about 230 acres for nesting and about 5,120 acres for total home range (Balda & Bateman 1971).

Project Area Evaluation. Open-structure pinyon-juniper woodlands are found in the Blake Pond region of the allotment and likely support foraging opportunities for pinyon jays.

3.3.4 Soils

Soil map units are from Soil Survey of Shivwits Area, Arizona, Part of Mohave County. Arizona (NRCS, 1993). The Blake Pond Allotment consists of three geographically separate regions. The allotment consists of Kaibab limestone, Harrisberg gypsum, Moenkopi mudstones and gypsum, and basalts. Alluvial fans and floodplains are derived from all the formations. The

landscape slopes range from one to seventy percent. Detailed descriptions of the soil map units present on the allotment can be found in the project file at the Arizona Strip Field Office. One of the two dominant soil types or complexes in this allotment is the Mellenthin-Rock Outcrop-Torriorthents complex, 10-70 percent slopes. Much of this allotment is comprised of mesas, plateaus and hills. This soil as expected is found on mesas and hills and is a gravelly loam. The second dominant soil type is Hobog very gravelly sandy loam, 5 to 30 percent slopes, also typical to plateaus and mesas.. This is also cobbly or gravelly surface and is a sandy loam. Although there are many other soil types throughout the allotment, cobbly or gravely loams or sandy loams comprise the majority of the allotment. Refer to Appendix 3, Table 33, as well as Vegetation section of this document for corresponding vegetation types by pasture, also Ecological Site Inventory Data Tables 30-32.

Soil Condition Assessment

The Atkin Spring pasture is a mesa which has shallow gravelly soils which are not very cryptobiotic or compactable. The Fort Pearce and Blake Pond pastures have some cryptobiotic and compactable soils on stream terraces and alluvial fans. Soil samples were taken from the near surface layers in these areas and tested for texture and bulk density (Db). Percent change from normal bulk density for those textures and the differences in porosity were noted. Erosion is minimal, but the soils are at risk if ground cover is lessened. The bulk densities for all samples were well below the root restricting bulk density for those soils (BLM 2013).

Chapter 4

ENVIRONMENTAL CONSEQUENCES

The potential consequences or effects of each alternative are discussed in this chapter. Only impacts that may result from implementing the alternatives are described in this EA. If an ecological component is not discussed, it is because BLM resource specialists have considered effects to the component and found the alternatives would have minimal or no effects (see Table 7). The intent of this analysis is to provide the scientific and analytical basis for the environmental consequences. General effects from projects similar to the proposed action are also described in the Arizona Strip Proposed RMP/Final EIS (BLM 2007).

The affected environment and environmental consequences of the Proposed Action, Reduced Grazing, Increased Grazing, and No Grazing Alternatives were considered and analyzed by an interdisciplinary team as documented in the interdisciplinary analysis record checklist, Appendix A. This section analyzes the direct and indirect impacts of the alternatives to those resources described in the Chapter 3.

4.1 LIVESTOCK GRAZING

4.1.1 Impacts of Alternative A – Proposed Action

The proposed action would affect the livestock grazing permittees on the Blake Pond Allotment by renewing the term grazing permit. The proposed action would maintain the current level of livestock grazing authorized for the permittees for an additional ten years, which would result in a continued viable ranching operations for the livestock operators, and provide some degree of stability for the permittees' livestock operations. Permit renewal would also meet the purpose and need for action identified in Chapter 1 of this EA – to provide for livestock grazing opportunities on public lands where consistent with meeting management objectives, including the Arizona Standards for Rangeland Health and Guidelines for Livestock Grazing Management and the Arizona Strip Field Office RMP (BLM 2008a), and to respond to applications to fully process and renew permits to graze livestock on public land.

4.1.2 Impacts of Alternative B – Issue New 10-Year Grazing Permits with Reduced Grazing (Actual Use)

This alternative would directly affect the livestock grazing permittee on the Blake Pond Allotment. Although new term grazing permits would be issued, this alternative would reduce AUMs authorized for the permittee by 523 or 39.7%, which would affect the permittees' livestock operations by not allowing as many livestock to graze on the allotment. The reduced AUMs would not provide as much stability or flexibility of operations to the livestock grazing

permittee. This would thereby force the permittee to shrink their herds or pursue other options for the unpermitted livestock, such as leasing private pasture or obtaining substitute federal grazing permits on a different allotment. This could be challenging because federal permits do not become available very often and are in high demand.

4.1.3 Impacts of Alternative C – Issue New 10-Year Grazing Permit with Increased Grazing (Potential Stocking Level Analysis)

Under this alternative, new ten-year term grazing permit would be issued with increased grazing preference (an increase of 18% over current permitted use, or 236 AUMs). Similar to Alternative A, this alternative would result in continued viable ranching operations for the livestock operators, and provide some degree of stability for the permittees' livestock operations – increased preference would allow the permittees to increase the size of their herds. Permit renewal would meet the purpose and need for action identified in Chapter 1 of this EA – to provide for livestock grazing opportunities on public lands where consistent with meeting management objectives, including the Arizona Standards for Rangeland Health and Guidelines for Livestock Grazing Management and the Arizona Strip Field Office RMP (BLM 2008a), and to respond to applications to fully process and renew permits to graze livestock on public land.

4.1.4 Impacts of Alternative D – No Grazing

This alternative would drastically affect the livestock grazing permittees on the Blake Pond Allotment by not authorizing any active preference under the term grazing permit. The action would cancel the current level of livestock grazing numbers and seasons of use authorized. This would not provide current or future use, stability and compatibility for the permittees' livestock operations because they would not be authorized to use the allotment. This would force them to seek alternate arrangements for their herds, such as leasing private pasture or obtaining substitute federal grazing permits on a different allotment (which, as described in Section 4.1.2 could be challenging). It would most likely be devastating to them, possibly putting them out of business. This alternative would not meet the purpose and need for action identified in Chapter 1 of this EA – to provide for livestock grazing opportunities on public lands where consistent with meeting management objectives, including the Arizona Standards for Rangeland Health and Guidelines for Livestock Grazing Management and the Arizona Strip Field Office RMP (BLM 2008a), and to respond to applications to fully process and renew permits to graze livestock on public land. (See Section 3.3.2 for a discussion on the current vegetative condition on the allotment, including the Arizona Standards for Rangeland Health and Guidelines for Livestock Grazing Management.)

4.2 VEGETATION

4.2.1 Impacts of Alternative A – Proposed Action

Plants live in ecosystems full of herbivores that range from small insects to large grazing animals. Losing leaves or stems to herbivores is a common event in the life of a rangeland plant. For rangeland plants to remain healthy and productive, enough vegetation must remain after grazing so that plants can photosynthesize and manufacture energy to produce more leaves, stems, and seeds. Plants also need to produce and store energy as starches and sugars in roots and crowns to successfully start the next season of growth. Only when too much of the plant is removed does the plant suffer in a way that yields lasting detrimental effects. Substantial damage to rangeland plants generally only occurs under repeated and heavy grazing.

The impact of grazing on plant growth depends greatly on when the grazing occurs during the growing season and at what stage of the plant's life cycle. Plants are generally less damaged by grazing early in the season when time, soil moisture, and nutrients needed for regrowth are abundant. Plants are most likely to be damaged by grazing when the plant is beginning to produce flowers and seeds. At this time, the plant has high energy demands to produce seeds, complete growth for the season, and store energy to get through the dormant season. Plus, this generally occurs at the peak of summer when the environment is hot and dry and not favorable for regrowth. Once the plant produces seeds and turns brown (i.e., begins to senesce and becomes dormant), it is no longer sensitive to grazing. At this time, the leaves are not photosynthesizing and are no longer being used by the plant (University of Idaho 2011).

Livestock can directly affect vegetation by reducing plant vigor, decreasing or eliminating desirable forage species, increasing soil instability and erosion, reducing water quantity and quality, and causing loss of, or injury to, individual plants from trampling, particularly near water developments. Long-term changes in vegetation may result if livestock use consistently exceeds established allocations, or drought or other environmental factors reduce range carrying capacity. Improper grazing practices (such as excessive utilization which removes vegetative cover) may lead to soil compaction, reduced infiltration rates, increased runoff and erosion, and declines in watershed condition. Grazing impacts on vegetation are mitigated by timing of use, adjustment of stocking rates, limiting utilization rates, and conformance with the Arizona Standards for Rangeland Health and Guidelines for Grazing Management.

Livestock grazing in this allotment is managed under a system in which the seven pastures are grazed in conjunction with the Lizard and Wolfhole Lake Allotments. This rotation provides periodic rest to each pasture, which allows for maintenance or improvement in the ecological condition of the allotment. These actions ensure that rangeland resources (including habitat for special status species and other wildlife, native vegetation, watershed function, and soil productivity) are maintained or improved. For proposed grazing use period and AUM's for the Blake Pond Allotment see Table 1.

Grazing vegetation during the non-growing (or dormant) season allows plants to fix carbon, reproduce and set seed as the growing season progresses into the summer. Dormant season grazing would have neutral to negligible effects on plant communities because plants would be able to fix a significant amount of carbon prior to biomass removal and would be able to set seed. Perennial grasses would have increased capability to produce seed because grazing would

occur after they have produced much of their above-ground biomass. Overall plant vigor would be maintained by dormant season grazing because plants would be grazed only after senesce (the plant growth phase from full maturity to death or dormancy). After the grasses go dormant they are affected little by grazing. Late winter/spring grazing defers use during the growing season for warm season plants, while summer grazing defers use during the growing season for cool season plants. In addition, utilization in each pasture has been light-moderate in recent years (see Tables 6 and 11-16), which leaves ample foliage on palatable plants to produce and store carbohydrates. This grazing system allows plants to rest and replenish root reserves before they are grazed again, which would maintain plant vigor and therefore vegetative condition.

Range plants evolved to withstand grazing and can withstand a heavy grazing event if done in the right season and if plants are given enough time to recover after grazing. Thus, plants can withstand removal of a part of their current year's growth and still achieve normal growth the following year. Most rangeland grasses and forbs can have 40-50% of their leaves and stems removed every year and still remain healthy and productive. In general, light use is considered less than 40%, moderate 41-60%, and heavy greater than 60% of biomass removed. The season during which the grazing occurs, and periodic rest from grazing, are very important. Properly managed livestock grazing is designed to cause minimal impacts to rangeland resources. The deferred rest-rotation grazing system developed for this allotment provides for the physiological needs of the key species – the scheduled graze and rest periods benefit key species and other vegetation by increasing plant vigor, aiding in seed dissemination, and providing periodic rest during critical growing periods.

When considering effects of grazing on shrub species, one must look at the amount of usage of current year's growth – these include the leaves and young stems that are important for photo-synthesis. The current year's growth of shrubs is the most digestible part of the plant and is the portion generally removed by browsing animals such as deer and goats. The buds are especially important to protect from grazing because they will be the source of new stems and leaves for continued growth after grazing. In winter, shrubs survive by using energy compounds (i.e., starches and sugars) stored in the stems. Thus, although the shrub is dormant, it is important to watch browsing of these stems. An indicator of "overgrazing" of shrubs is moderate or heavy hedging (i.e., growth of lateral stems just below a grazed point) and a lack of new or juvenile plants (University of Idaho 2011). Tables 6 and 11-16 shows recent and past utilization on shrubs, based on current year's growth by weight, during the grazing season. As shown, utilization has typically been well below the allowed 50% at all seven key areas.

As described in Chapter 3 of this EA, current monitoring indicates that trend at Atkin Springs Key Area and Ft. Pearce Key Area are static, while trend at East Key Area and Middle (North) Key Area are up. The first two key areas represent the Mojave ecological zone of the allotment and the last two represent the GreatBasin/Colorado Plateau ecological zone. The four key areas are represented by a good mix of shrubs and grasses remaining light. All these key indicators show that livestock grazing is not affecting trend at Key Area #1.

Allotment monitoring data also indicates that resource conditions on the allotment currently meet all applicable standards for rangeland health. One factor in making this determination was the assessment that DPC objectives for vegetation components at the key areas (as outlined on page 9 of this EA) are being met on the Blake Pond Allotment. Since this same management regime has been in place for many years, it is expected that livestock grazing proposed under this alternative would minimally affect vegetation, and ecological condition would be maintained (the key areas are in mid to late seral stage, which is a very stable condition). Monitoring of the allotment would continue – if future monitoring indicates any areas within the allotment are not in compliance with the Fundamentals of Rangeland Health, changes to the grazing use would be made (as described in Section 2.2.5 of this EA). However, current monitoring data does not indicate that any changes to grazing management are necessary.

4.2.2 Impacts of Alternative B – Issue New 10-Year Grazing Permit with Reduced Grazing (Actual Use)

Under this alternative, grazing would be authorized for the Blake Pond Allotment with the same grazing system as that described for Alternative A (see Tables 1 and 3). Since the seasons of use for each of the seven pastures would be the same as for Alternative A, impacts to vegetation would be similar to those described for Alternative A (see Table 1). However, fewer livestock would be authorized under this alternative (794 vs. 1,317, or a 39.7% decrease), so grazing intensity under this alternative would be less (i.e., lighter utilization). Thus, additional foliage would remain on palatable plants (both grasses and shrubs) within the allotment, which would maximize their herbage producing ability (Holecheck et al. 1999).

As stated in Section 4.2.1, allotment monitoring data indicates that resource conditions on the allotment currently meet all applicable standards for rangeland health. Livestock grazing as proposed under this alternative would minimally affect vegetation, and overall plant vigor would be maintained. Monitoring of the allotment would continue – if future monitoring indicates any areas within the allotment are not in compliance with the Fundamentals of Rangeland Health, and livestock grazing is a causal factor, changes to the grazing use would be made (as described in Section 2.2.5 of this EA).

4.2.3 Impacts of Alternative C – Issue New 10-Year Grazing Permit with Increased Grazing (Potential Stocking Level Analysis)

Under this alternative, grazing would be authorized for the Blake Pond Allotment, with the same grazing system as that described for Alternative A (see Tables 1 and 4). Since the seasons of use for each of the seven pastures would be the same as for Alternative A, impacts to vegetation would be similar to those described for Alternative A (see Table 1). However, more livestock would be authorized under this alternative (1,553 vs. 1,317, or an 18% increase), so grazing intensity under this alternative would be greater, although maximum utilization would not exceed 50%. Thus, while utilization would still be in the "moderate" category, less total foliage would remain on palatable plants (both grasses and shrubs) within the allotment. This alternative

has the potential to have the greatest impacts on vegetation. However, as described in Section 4.2.1 above, most rangeland grasses and forbs can have 40-50% of their leaves and stems removed every year and still remain healthy and productive.

As stated in Section 4.2.1, allotment monitoring data indicates that resource conditions on the allotment currently meet all applicable standards for rangeland health. Livestock grazing as proposed under this alternative is not anticipated to significantly affect vegetation (due to not exceeding 50% utilization, and also due to rotating season and deferred use in each pasture to provide periodic rest for vegetation); it is therefore expected that overall plant vigor would be maintained. Monitoring of the allotment would continue – if future monitoring indicates any areas within the allotment are not in compliance with the Fundamentals of Rangeland Health, and livestock grazing is a causal factor, changes to the grazing use would be made (as described in Section 2.2.5 of this EA).

4.2.4 Impacts of Alternative D – No Grazing

Under this alternative, no livestock grazing would occur so plants would only be minimally grazed by wildlife. Vegetation would therefore have the most rest and recovery as compared to the other alternatives. Although the allotment is already meeting all applicable standards for rangeland health, plant communities would still benefit from rest. Because no livestock grazing would occur, plants would remain ungrazed or minimally grazed (by wildlife) each year. All plant species would benefit from no grazing. This alternative would therefore result in the least grazing on vegetation, meaning the plants would have the maximum amount of energy compounds in their stems for survival and reproduction.

4.3 Wildlife, Including Big Game, Migratory Birds, and Sensitive Species

Herbaceous vegetation provides forage and concealment cover for wildlife species, particularly during the spring breeding period when calving, fawning, nesting, and rearing of young occurs. Livestock grazing reduces the height and amount of herbaceous vegetation. The presence of livestock and the movement of livestock between areas of use could result in the direct disturbance or displacement of some wildlife from preferred habitats, nesting/birthing sites, or water sources. Both the disturbance and displacement of wildlife and the reduction of herbaceous forage and cover could limit the productivity and reproductive success of some species. However, the livestock grazing proposed in Alternatives A, B, and C would rotate season of use among the various pastures so that each pasture is grazed during a different season over the 3-year rotation cycle, which would help maintain vegetative condition, and therefore wildlife habitat components (see "Vegetation" section above).

4.3.1 Impacts of Alternative A – Proposed Action

Big Game

Mule deer

As described in Chapter 3, mule deer are present year-round in this allotment, although densities are most likely low. The presence of livestock and the trailing of livestock between use areas could displace some wildlife from preferred habitats and/or water sources. However, this displacement would only be temporary.

As described previously, allotment monitoring data indicates that resource conditions on the allotment currently meet all applicable standards for rangeland health, including meeting the DPC objectives for vegetation components at the key areas (as outlined on page 9 of this EA). Since the same management regime has been in place for many years, it is expected that livestock grazing proposed under this alternative would minimally affect habitat for mule deer, and ecological condition of that habitat would be maintained (see Section 4.2.1 above). Since utilization on vegetation has been light in recent years (see Table 7), and composition of grasses and palatable shrubs is high (see Table 16), competition for forage between livestock and deer should be minimal. Monitoring of the allotment would continue – if future monitoring indicates any areas within the allotment are not in compliance with the Fundamentals of Rangeland Health, changes to the grazing use would be made (as described in Section 2.2.5 of this EA). However, current monitoring data does not indicate that any changes to grazing management are necessary. The proposed action would therefore not affect meeting habitat (i.e., forage) objectives for mule deer.

Pronghorn

Cattle, sheep, and horses are the primary domestic livestock species sharing rangelands with pronghorn, and about 99% of pronghorn roam rangelands with livestock at some time during the year (Yoakum and O'Gara 1990). Although those animals have coexisted with pronghorn for centuries, there can be specific situations that are cause for concern. The abundance of forbs and grasses during late gestation and early lactation is a major factor in pronghorn fawn survival. Reduced availability of that forage component due to consumption by livestock can result in reduced carrying capacity for pronghorn. On rangelands in good ecological condition, however, competition for forage is not generally a significant factor. In areas dominated by grasses, cattle can have a positive effect on pronghorn by removing the grasses and increasing the availability of forbs and shrubs preferred by pronghorn. Several researchers have observed competition between sheep and pronghorn for forbs and shrubs (Yoakum and O'Gara 1990). The presence of domestic livestock on pronghorn fawning areas has been shown to displace does to less suitable habitat during this critical time (McNay and O'Gara 1982).

Pronghorn distribution in Unit 13B occurs primarily to the east and south of the Blake Pond Allotment in the Antelope and Mainstreet Valleys. The Blake Pond Allotment consists of low quality habitat for this species, with very low densities of pronghorn occurring within the allotment. While the presence of livestock and the trailing of livestock between use areas could displace does during fawning, pronghorn densities in this area are low so few does would be

potentially affected; in addition, this potential for displacement would occur no more than once every three years due to the rotational grazing system in place.

Allotment monitoring data indicates that resource conditions on the allotment currently meet all applicable standards for rangeland health, including meeting the DPC objectives for vegetation components at the key areas (as outlined on page 9 of this EA). Table 16 also demonstrates that RMP forage objectives for pronghorn are currently being met at all three key areas. Competition for forage between livestock and pronghorn should therefore be minimal. Since the same management regime has been in place for many years, it is expected that livestock grazing proposed under this alternative would minimally affect vegetation (i.e., habitat for pronghorn), and ecological condition of that habitat would be maintained. Monitoring of the allotment would continue – if future monitoring indicates any areas within the allotment are not in compliance with the Fundamentals of Rangeland Health, changes to the grazing use would be made (as described in Section 2.2.5 of this EA). However, current monitoring data does not indicate that any changes to grazing management are necessary. The proposed action would therefore not affect meeting habitat (i.e., forage) objectives for pronghorn.

Desert Bighorn Sheep

The rugged and steep nature of bighorn habitat limits contact between sheep and livestock to a few areas of the Atkin Spring region within this allotment. The majority of habitat used by desert bighorn sheep in the allotment is essentially ungrazed due to its steep nature and resulting inaccessibility to livestock.

Migratory Birds

Properly managed livestock grazing is designed to cause minimal impacts to rangeland resources, including wildlife habitat. As described previously, allotment monitoring data indicates that resource conditions on the allotment currently meet all applicable standards for rangeland health. One factor in making this determination was the assessment that DPC objectives for vegetation components at the key areas (as outlined on page 9 of this EA) are being met on the Blake Pond Allotment. Managing this allotment to achieve DPC objectives and implementation of the proposed levels would result in maintaining the ecological condition of the allotment (see "Vegetation" discussion above). In addition, rotating the season of use for each of the three pastures would provide periodic rest for vegetation to help maintain plant vigor. Implementation of the proposed action is therefore unlikely to impact any species of migratory bird known or suspected to occur on the allotment. No take of any migratory bird species is anticipated.

Sensitive Species

Peregrine Falcon and Golden Eagle

Nesting sites for peregrine falcons or golden eagles would not be impacted by livestock within the allotment because these sites are located on ledges in cliff faces that are inaccessible to livestock.

Prey species for peregrine falcons, such as mourning doves and band-tailed pigeons, generally do well in human altered environments including grazed areas. Habitat for golden eagle prey species, such as black-tailed jackrabbits, could be adversely impacted if overutilization occurs. However, the effects of moderate grazing can be negligible to slightly beneficial for many prey species (Olendorff 1993). Vegetation in the allotments is sufficient to provide food and shelter requirements for populations of prey species for the peregrine falcon. Habitat for prey for these species would be minimally affected because grazing under this alternative rotates season of use for each of the three pastures to provide periodic rest for the plant communities (see "Vegetation" discussion above). Managing the allotment to achieve DPC objectives and implementation of the proposed utilization level would result in maintaining or improving the ecological condition of the allotment. Disturbance to nest sites from livestock management operations is unlikely given the remote and inaccessible locations these species choose for nesting. Implementation of the proposed action is not likely to impact peregrine falcon or golden eagle habitat or nesting success.

Ferruginous Hawk

Nesting sites and habitat for ferruginous hawk prey species have the potential to be impacted by livestock grazing within the allotment. Isolated nest trees used by this species could be impacted through rubbing of the trunk or by damaging the root system from congregations of cattle seeking shade. Habitat for prey species, such as black-tailed jackrabbits, could be adversely impacted if overutilization occurs. However, the effects of moderate grazing can be negligible to slightly beneficial for many prey species (Olendorff 1993). Vegetation in the allotment is sufficient to provide food and shelter requirements for populations of prey species for the ferruginous hawk. Managing the allotment to achieve DPC objectives and implementation of the proposed utilization level would result in maintaining or improving the ecological condition of the allotment. Ferruginous hawks are sensitive to disturbance near the nest site. However, no nesting has been documented in this allotment so impacts to nesting are unlikely and would not lead to a trend toward listing.

Burrowing Owl

Nesting burrows for burrowing owls could potentially be impacted by livestock within the allotment through trampling. However, burrowing owls prefer open country with sparse vegetation and can do well in moderately to heavily grazed areas. Occupied burrows in the allotment frequently have cows nearby during monitoring visits (Langston, personal obs.). Prey species are numerous in the allotment and include small mammals, insects, reptiles, and amphibians. Vegetation in the allotment is sufficient to provide food and shelter requirements for populations of prey species for the burrowing owl. Managing the allotment to achieve DPC objectives and implementation of the proposed utilization level would result in maintaining or improving the ecological condition of the allotment. Disturbance to nest sites from livestock management operations may occur but this species is known to tolerate moderate levels of disturbance. Implementation of the proposed action is not likely to impact burrowing owl habitat or nesting success in the allotment.

Pinyon Jay

Livestock grazing on the Blake Pond Allotment is not likely to impact pinyon jay nesting or foraging. Pinyon jays nest in trees within dense pinyon-juniper forest which typically has less forage available for livestock. Pinyon jays rely heavily on pinyon nuts as a food source which are not consumed by livestock. Some minor, short-term disturbance from livestock management operations may impact nesting pinyon jays but this would be expected to be negligible.

4.3.2 Impacts of Alternative B – Issue New 10-Year Grazing Permit with Reduced Grazing (Actual Use)

Big Game Species

Under this alternative, grazing would be authorized with the same grazing system as that described for Alternative A (see Table 11). The presence of livestock and the trailing of livestock between use areas could displace some wildlife from preferred habitats and/or water sources. However, this displacement would only be temporary.

Since the seasons of use for each of the three pastures would be the same as for Alternative A, impacts to vegetation (i.e., habitat) would be similar to those described for Alternative A (see Table 15). However, fewer livestock would be authorized under this alternative (1,388 vs. 1,760, or a 21% decrease) so grazing intensity under this alternative would be less. Thus, additional foliage would remain on palatable plants (both grasses and shrubs) within the allotment.

As stated in Section 4.2.1, allotment monitoring data indicates that resource conditions on the allotment currently meet all applicable standards for rangeland health. Livestock grazing as proposed under this alternative would minimally affect vegetation – overall plant vigor would be maintained and composition of grasses and palatable shrubs would remain high, resulting in minimal competition for forage between livestock and deer. Monitoring of the allotment would continue – if future monitoring indicates any areas within the allotment are not in compliance with the Fundamentals of Rangeland Health, and livestock grazing is a causal factor, changes to the grazing use would be made (as described in Section 2.2.5 of this EA). Implementation of this alternative is not likely to impact mule deer within the allotment.

Migratory Birds

Impacts under this alternative would be similar to those described for Alternative A except that fewer (21% less) livestock would be authorized to graze on the allotment. Decreased grazing would result in overall plant vigor being maintained and additional foliage would remain on vegetation to provide necessary forage and shelter habitat components for migratory birds.

Allotment monitoring data indicates that resource conditions on the allotment currently meet all applicable standards for rangeland health. One factor in making this determination was the assessment that DPC objectives for vegetation components at the key areas (as outlined on page 9 of this EA) are being met on the Blake Pond Allotment. Managing this allotment to achieve DPC objectives and implementation of the proposed rotational grazing system would help ensure that habitat components for migratory birds are maintained. Implementation of this alternative is therefore unlikely to impact any species of migratory bird known or suspected to occur on the allotment, and no take of any migratory bird species is anticipated.

Sensitive Species

Impacts under this alternative would be similar to those described for Alternative A except that fewer (21% less) livestock would be authorized to graze on the allotment. Vegetation in the allotment is currently sufficient to provide food and shelter requirements for populations of prey species (small mammals, birds, and rabbits) for these birds, although plants would likely benefit from decreased grazing pressure. Allotment monitoring data indicates that resource conditions on the allotment currently meet all applicable standards for rangeland health. Managing the allotment to achieve DPC objectives and implementation of the proposed rotational grazing system would result in maintaining the ecological condition of the allotment (see "Vegetation" discussion above). Nesting sites and habitat for peregrine falcons and golden eagles would not be impacted by livestock within the allotment because these species select sites that are inaccessible to livestock. Minor disturbance at ferruginous hawk and burrowing owl nest sites, as described under Alternative A, could potentially occur but with reduced potential due to reduced grazing. Therefore, implementation of this alternative is not likely to impact BLM sensitive species within the allotment, and would not lead to a trend toward listing.

4.3.3 Impacts of Alternative C – Issue New 10-Year Grazing Permit with Increased Grazing (Potential Stocking Level Analysis)

Big Game Species

Under this alternative, grazing would be authorized for the Blake Pond Allotment, with the same grazing system as that described for Alternative A (see Table 11). The presence of livestock and the trailing of livestock between use areas could displace some wildlife from preferred habitats and/or water sources. However, this displacement would only be temporary. Since the seasons of use for each of the three pastures would be the same as for Alternative A, impacts to vegetation communities (i.e., habitat for mule deer) would be similar to those described for Alternative A. However, more livestock would be authorized under this alternative (2,077 vs. 1,760, or an 18% increase), so grazing intensity under this alternative would be greater, although maximum utilization would not exceed 50%. Thus, while utilization would still be in the "moderate" category, less total foliage would remain on palatable plants (both grasses and

shrubs) within the allotment. Although most rangeland grasses and forbs can have 40-50% of their leaves and stems removed every year and still remain healthy and productive, this alternative has the greatest potential to result in competition for forage between livestock and big game species.

As stated in Section 4.2.1, allotment monitoring data indicates that resource conditions on the allotment currently meet all applicable standards for rangeland health. Livestock grazing as proposed under this alternative is not anticipated to significantly affect vegetation (due to not exceeding 50% utilization, and also due to rotating season of use in each pasture over a 3-year rotation cycle to provide periodic rest for vegetation); it is therefore expected that overall plant vigor would be maintained. Monitoring of the allotment would continue – if future monitoring indicates any areas within the allotment are not in compliance with the Fundamentals of Rangeland Health, and livestock grazing is a causal factor, changes to the grazing use would be made (as described in Section 2.2.5 of this EA).

Migratory Birds

Impacts under this alternative would be similar to those described for Alternative A except that additional (18% more) livestock would be authorized to graze on the allotment so grazing intensity would be greater, although maximum utilization would not exceed 50%. Thus, while utilization would still be in the "moderate" category, less total foliage would remain on vegetation to provide necessary forage and shelter habitat components for migratory birds. Although most rangeland grasses and forbs can have 40-50% of their leaves and stems removed every year and still remain healthy and productive, this alternative has the greatest potential to impact migratory birds. Allotment monitoring data indicates that resource conditions on the allotment currently meet all applicable standards for rangeland health. One factor in making this determination was the assessment that DPC objectives for vegetation components at the key areas (as outlined on page 9 of this EA) are being met on the Blake Pond Allotment. Managing this allotment to achieve DPC objectives and implementation of the proposed rotational grazing system would help ensure that habitat components for migratory birds are maintained. Implementation of this alternative is therefore unlikely to impact any species of migratory bird known or suspected to occur on the allotment, and no take of any migratory bird species is anticipated.

Sensitive Species

Impacts under this alternative would be similar to those described for Alternative A except that additional (18% more) livestock would be authorized to graze on the allotment so grazing intensity would be greater, although maximum utilization would not exceed 50%. Thus, while utilization would still be in the "moderate" category, less total foliage would remain on vegetation to provide food and shelter requirements for populations of prey species (small mammals, birds, and rabbits) for these birds. Although most rangeland grasses and forbs can have 40-50% of their leaves and stems removed every year and still remain healthy and productive, this alternative has the greatest potential to impact sensitive species.

Allotment monitoring data indicates that resource conditions on the allotment currently meet all applicable standards for rangeland health. Livestock grazing as proposed under this alternative is not anticipated to significantly affect vegetation (due to not exceeding 50% utilization, and also due to rotating season of use in each pasture over a 3-year rotation cycle to provide periodic rest for vegetation); it is therefore expected that overall plant vigor, and therefore food and shelter requirements for populations of prey species, would be maintained. Implementation of this alternative would therefore not significantly impact any sensitive species known or suspected to occur on the allotment, and would not lead to a trend toward listing.

4.3.4 Impacts of Alternative D – No Grazing

Big Game Species

Under this alternative, no livestock would occur so plants would only be minimally grazed (by wildlife). Vegetation would therefore have the most rest and recovery as compared to the other alternatives – although the allotment is already meeting all applicable standards for rangeland health, plant communities would still benefit from rest. Since this alternative would result in the least grazing on vegetation, plants would have the maximum amount of energy compounds in their stems for survival and reproduction; plant communities would continue to provide sufficient forage for pronghorn, and RMP forage objectives for pronghorn would continue to be met at all three key areas. In addition, since no livestock would be present on the allotment, no potential for displacement of females during fawning would occur.

Migratory Birds

Under this alternative, vegetation would have the most rest and recovery as compared to the other alternatives. Although the allotment is meeting all applicable standards for rangeland health, plant communities would still benefit from rest. Because no livestock grazing would occur, plants would remain ungrazed or minimally grazed (by wildlife) each year. Grasses would continue to fix a significant amount of carbon, produce seed, and set seed; shrubs would have the maximum amount of energy compounds in their stems for survival over the winter dormant season. Vegetation in the allotment would therefore continue to provide sufficient food and shelter requirements for migratory birds. In addition, nesting sites for migratory birds would not be impacted by livestock within the allotment. No take of any migratory bird species would be anticipated from implementation of this alternative.

Impacts to migratory birds would primarily be beneficial in the form of increased vegetation for forage and cover for prey species and no disturbance from livestock operations. Implementation of this alternative is therefore likely to benefit any species of migratory bird known or suspected

to occur on the allotments. No take of migratory birds is anticipated.

Sensitive Species

Under this alternative, vegetation would have the most rest and recovery as compared to the other alternatives. Although the allotment is meeting all applicable standards for rangeland health, plant communities (which provide habitat components for prey species) would still benefit from rest. Because no livestock grazing would occur, plants would remain ungrazed or minimally grazed (by wildlife) each year. Grasses would continue to fix a significant amount of carbon, produce seed, and set seed; shrubs would have the maximum amount of energy compounds in their stems for survival over the winter dormant season. Vegetation in the allotment would continue to be sufficient to provide food and shelter requirements for populations of prey species (small mammals, birds, and rabbits) for these birds.

Impacts to sensitive species would primarily be beneficial in the form of increased vegetation for forage and cover for prey species and no disturbance from livestock operations. Livestock grazing can directly affect vegetation by reducing plant vigor, decreasing or eliminating desirable forage species, increasing soil instability and erosion, reducing water quantity and quality, and causing loss of, or injury to, individual plants from trampling, particularly near water developments. Therefore, implementation of this alternative would be expected to benefit BLM sensitive species within these allotments.

4.4 Soils

4.4.1 Impacts of Alternative A – Proposed Action

Under this alternative, livestock grazing would continue with the current level of active preference and with the same rotational grazing system. Impacts to soils from livestock grazing occur from trampling and vegetation removal, resulting in compaction and erosion. As described in Section 3.3.4 of this EA, the vast majority of the soils in this allotment are in fair to good condition and the natural vegetation is not detrimentally affected except for a few small areas. Livestock grazing as proposed under this alternative would minimally affect vegetation, and overall plant vigor would be maintained, which would minimize impacts to soils across the allotment.

4.4.2 Impacts of Alternative B – Issue New 10-Year Grazing Permit with Reduced Grazing (Actual Use)

The protective canopy formed by vegetation reduces the impact of rain drops on the soil surface, thereby decreasing the breakdown of soil aggregates. It also slows the velocity of runoff from rainfall and snowmelt, reducing soil loss due to sheet and rill erosion (NRCS 2015). Under this

alternative, livestock grazing would occur on the allotment with the same rotational grazing system as is currently authorized, but the number of active AUMs would be reduced by approximately 40%. Grazing intensity proposed under this alternative would be less than that under Alternative A, resulting in additional foliage remaining on vegetation. Some of the areas of concentrated use might show an increase in vegetative cover through time, which would benefit soils in the allotment.

4.4.3 Impacts of Alternative C – Issue New 10-Year Grazing Permit with Increased Grazing (Potential Stocking Level Analysis)

Under this alternative, livestock grazing would occur on the allotment with the same rotational grazing system as is currently authorized, but the number of active AUMs would be increased by approximately 18%. Grazing intensity would be greatest under this alternative, resulting in the most removal of foliage from vegetation and the least amount of protective canopy for soils formed by the vegetation (although it is important to note that the maximum utilization level of 50% would still not be exceeded). While the vast majority of the soils in this allotment are in fair to good condition, the areas of concentrated livestock use would likely not show an increase in vegetative cover through time due to the increase in grazing animals (i.e., cattle). This alternative would therefore have the greatest adverse impacts to soils of all the alternatives.

4.4.4 Impacts of Alternative D – No Grazing

Impacts under this alternative would be similar to those described for Alternative B except that no livestock grazing would occur. Vegetation, which provides a protective canopy for soils, would have the most rest and recovery as compared to the other alternatives. In addition, removing all livestock from the allotment would result in surface compaction being minimized which would increase infiltration rates, root space, available water holding capacity, and aeration. Thus, over time shallow compacted layers would slowly break up, via freeze-thaw and wetting-drying cycles, root action, soil organisms, and animals. Vegetative soil cover and organic crusts, including cryptogams, should increase. The small areas of concentrated use would slowly heal as vegetation increases. Alternative would have the greatest beneficial impacts to soils of all the alternatives.

4.5 Cumulative Impacts

"Cumulative impacts" are those impacts resulting from the incremental impact of an action when added to other past, present, or reasonably foreseeable actions regardless of what agency or person undertakes such other actions. The impact analysis area is the This EA attempts to qualify and quantify the impacts to the environment that would result from the incremental impact of the proposed action or alternatives when added to other past, present, and reasonably foreseeable

future actions. These impacts can result from individually minor but collectively important actions taking place over a period of time.

There are a wide variety of uses and activities occurring on the lands within and adjacent to the Blake Pond Allotment, including livestock grazing, vehicle touring, mining, etc. Specific actions that are occurring, or are likely to occur in the reasonably foreseeable future are:

- *Livestock grazing* – The Blake Pond Allotment and the adjacent BLM-administered land are active grazing allotments. Each of these allotments is managed under a grazing system that is documented and described in an AMP. Livestock grazing has occurred in the area for 150+ years.
- *Mining and Mineral Resources* – Public lands within and adjacent to the Blake Pond Allotment are open to mineral development. The primary economic mineral resource in the area consists of locatable mineral deposits, including breccia pipe deposits (i.e., vertical collapse features formed from the collapse of karst solution caverns in the underlying Redwall limestone). Other potential mineral resources in the area are salable minerals (consisting primarily of sand, stone and gravel but also clay). The potential for gravel is high. Several existing mineral material pits occur in the area. Approximately 24 percent of the allotment has active mining claims. Most of these are gypsum claims with a smaller number of gravel/rock quarries. This is somewhat misleading, as less than 1 percent of the allotment has mining activity occurring on the ground. The number of claims can indicate the potential for future activity based primarily on economics of the particular resource.

- *Recreation* – Recreation activities occurring throughout the area involve a broad spectrum of pursuits ranging from dispersed and casual recreation to organized, BLM-permitted group uses. Typical recreation in the area consists primarily of activities such as vehicle touring, wildlife viewing, camping, and hunting. The Arizona Strip is known for its large-scale undeveloped areas and remoteness, which provides an array of recreational opportunities for users who wish to experience primitive and undeveloped recreation, as well as those seeking more organized or packaged recreation experiences. There is approximately 57 miles of roads and trails that bisect the allotment. The majority of these are narrow two track or ATV routes that are not regularly maintained. These roads and trails account for a fraction of a percent of the total acreage of the grazing allotment.

4.5.1 Livestock Grazing

Past and Present Actions

Livestock grazing

Livestock grazing in the region has evolved and changed considerably since it began in the 1860s, and is one factor that has created the current environment. At the turn of the century, large herds of livestock grazed on unreserved public domain in uncontrolled open range.

Eventually, the range was stocked beyond its capacity, causing changes in plant, soil, and water relationships. Some speculate that the changes were permanent and irreversible, turning plant communities from grass and herbaceous species to brush and trees. Protective vegetative cover was reduced, and more runoff brought erosion, rills, and gullies.

In response to these problems, livestock grazing reform began in 1934 with the passage of the Taylor Grazing Act. Subsequent laws, regulations, and policy changes have resulted in adjustments in livestock numbers, season-of-use changes, and other management changes. Given the past experiences with livestock impacts on public land resources, as well as the cumulative impacts that could occur on the larger ecosystem from grazing on various public and private lands in the region, management of livestock grazing is an important factor in ensuring the protection of public land resources. Past, present, and reasonably foreseeable actions within the analysis area would continue to influence range resources, watershed conditions and trends. The impact of vegetation treatments (addressed under 4.5.2 Vegetation below), voluntary livestock reductions during dry periods, and implementation of a grazing system have improved range conditions. The net result has been greater species diversity, improved plant vigor, and increased ground cover from grasses and forbs.

The effects of livestock grazing on resources in the allotments identified in this EA have been analyzed under chapter 4.0. Although no new range improvements are proposed under any of the alternatives, existing range improvements within the allotment including fencing and water developments are identified in Chapter 3.3.1.1 Table 9. These improvements have the potential for both positive and detrimental effects to wildlife. Fencing may restrict or impede wildlife movement or migration. However, fences that accommodate wildlife movement have been installed and where necessary, retro fit throughout the Arizona Strip District.

Since livestock grazing occurs throughout the area and on adjacent private lands, it is reasonable to assume that impacts similar to those identified here and earlier in this chapter would occur elsewhere in the area. This additive impact may affect wildlife habitat or corridors and the greater ecosystems by altering vegetation associations or decreasing water quality. These systems and the health of the region as a whole are important for the survival of many native species. Consultation with AGFD in regard to renewal of livestock grazing permits did not identify any issues directly related to livestock grazing beyond those already discussed above.

Reasonably Foreseeable Actions
Livestock grazing is anticipated to continue into the foreseeable future.

Aggressive wildland fire suppression on federal lands within the allotments is anticipated to continue into the foreseeable future with the possibility of implementing fire for resource benefit.

Weed treatments are expected to continue through chemical and mechanical treatments as they are detected.

There are no known or planned vegetation treatments within the Blake Pond Allotment. No cumulative impacts are therefore predicted to result from implementation of the proposed action

analyzed within this EA.

The effects of livestock grazing on vegetation in the Blake Pond Allotment have been analyzed under the "Direct and Indirect Effects" section of this chapter. Past, present, and reasonably foreseeable actions within the analysis area would continue to affect this resource, as described above. However, continuing to monitor plant communities and to implement the Arizona Standards for Rangeland Health should help ensure the long-term health of rangeland resources, including vegetation (see 4.6 Monitoring below). Given the fact that the allotment currently meets all applicable standards for rangeland health (which takes into account all uses of public rangelands, not just livestock grazing), and none of the alternatives are anticipated to change that determination, it is anticipated that the alternatives would not result in cumulative impacts to vegetation resources when added to other past, present, and reasonably foreseeable activities in the area.

4.5.2 Vegetation

Livestock grazing, mineral extraction, and recreation have a potential to effect vegetation as well as soil resources. Vegetation on the Arizona Strip has gone through significant changes since the 1870s due to historic land use practices and the introduction of non-native species. Beyond decisions for the Blake Pond permit renewal, livestock grazing would continue across the area on BLM-administered lands. The land health evaluation and permit renewal processes would help ensure grazing practices are conducted in a manner to maintain or improve the ecological health of the area. Rangeland management practices would act to prevent and control the spread of invasive plant species, maintain diverse and natural plant communities, improve wildlife habitat, reduce erosion, and improve water quality. The objectives developed to manage for healthy rangelands have a goal of keeping the entire ecosystem healthy and productive in order to ensure that it yields both usable products and intrinsic values.

Vegetation treatments

There are a total of 3 vegetation treatments on record that have occurred on the Blake Pond Allotment. The treatments are as follows:

1. Blake Pond Tebuthiuron Treatment : Occurred in 2006 in the Blake Pond West Pasture and treated approximately 2095 acres. The purpose of the project was hazardous fuels reduction and improving biodiversity in sagebrush to help achieve desired plant community objectives.
2. Pocum Tank Tebuthiuron Treatment : Occurred in 2007 in the Blake Pond West Pasture and treated approximately 4 acres (majority of acreage treated within the neighboring Pocum Tank Allotment). The purpose of the project was hazardous fuels reduction and improving biodiversity in sagebrush to help achieve desired plant community objectives.
3. East Seegmiller Mountain reseeding: Occurred in 1963 in the Blake Pond West Pasture and reseeded approximately 40 acres following the above Blake Pond Tebuthiuron

Treatment. The purpose of this project was to plow big sagebrush and seed understory with desirable perennial grasses to protect soils that were eroding and starting to form channels. Seeding was performed by a rangeland drill and the following species were planted: intermediate wheatgrass, western wheatgrass, crested wheatgrass, smooth brome, sweet clover and Russian wildrye. Monitoring performed in 2010 showed the key area in this treatment contained 1% composition by weight (CBW) crested wheatgrass and 56% CBW Russian wildrye of those species planted in the 1983 treatment.

Wildland fire

Since the early to mid-1900's, wildland fire has effectively been excluded from the allotments due to aggressive fire suppression policies, domestic livestock grazing (removal of fine fuels), and other land-use practices. BLM fire occurrence records for the allotments indicate that between 1980 and 2013, wildland fires accounted for approximately:

	Blake Pond
• Total Number of Fires	15
• Number of Fires less than 10 acre in size (included in total above)	5
• % of fires less than 1 acre in size	25%
• Total Acres Burned	5900* (Represents approximately 20% of allotment)
• Of total acres burned, how many acres repeatedly burned?	0

*acreage data represents fires burning within and adjacent to allotment.

The relatively large fires that burned in and adjacent to the Blake Pond Allotment consisted of Mohave mixed shrub and great basin blackbrush/sagebrush vegetation communities (See Appendix 1 for Major Vegetation Type Maps 5-7 and Map 8 for Wildfire Perimeters).

Mining and Minerals

There are active gypsum mining claims within the allotment. There is a free use soil pit and most of the area is open to locatable mineral claims including brecca pipe minerals and bentonite. Gypsum mining in the region, as well as use of mineral material sites in the area, would cumulatively affect vegetation through the loss of vegetation, higher rates of erosion and sedimentation in drainages/waterways, increased deposition of dust on vegetation adjacent to roadways (i.e., haul routes), and introduction and spread of invasive plants. Reclamation activities would counter some of the reduction in vegetative cover, and preventative measures to inhibit the spread of invasive species could curtail infestation by species such as Scotch thistle.

4.5.3 Wildlife, Including Big Game, Migratory Birds, and Sensitive Species

Wildlife may be affected by other activities occurring within and adjacent to the allotment, including mineral development and various dispersed recreational activities. The effects of livestock grazing on wildlife in the Blake Pond Allotment have been analyzed under the "Impacts" section of this chapter. In addition to livestock grazing, there are a wide variety of uses and activities occurring on the lands within and adjacent to the Blake Pond Allotment, as described above. This additive impact may affect wildlife habitat or corridors and the greater ecosystems by altering vegetation associations. These systems and the health of the region as a whole are important for the survival of many native species. Consultation with AGFD in regard to renewal of livestock grazing permits did not identify any issues directly related to livestock grazing beyond those already discussed above. Given the fact that the allotment currently meets or is making significant progress towards meeting all applicable standards for rangeland health (which takes into account all uses of public rangelands, not just livestock grazing), and none of the alternatives are anticipated to change that determination.

Mineral development has led to reduction of habitat quality and physical disturbance in a variety of habitats. Public lands within and adjacent to the Blake Pond Allotment are open to mineral development. The primary economic mineral resource in the area consists gypsum, as well as locatable mineral deposits, including breccia pipe deposits (i.e., vertical collapse features formed from the collapse of karst solution caverns in the underlying Redwall limestone). Other potential mineral resources in the area are salable minerals (consisting primarily of sand, stone and gravel but also clay). The potential for gravel is high. Several existing mineral material pits occur in the area.

Recreational pursuits, particularly off-highway vehicle (OHV) use, have caused disturbance to most all species and their habitats. With the increase in local populations has come a dramatic increase in the level of OHV use, resulting in increased disturbance, injury, and mortality to wildlife, particularly ground dwelling species with low mobility. Transportation corridors exist through the habitat of virtually all species found within the planning area. Impacts vary by species and by the location, level of use, and speed of travel over the road.

It is anticipated that the action alternatives would continue to have incremental cumulative impacts to wildlife, particularly when added to other past, present, and reasonably foreseeable activities in the area.

4.5.4 Soils

Soils in the area formed under conditions that had no vehicles or large numbers of large animals to impact them. Population growth, grazing, and developments over the past 150 years have resulted in soil disturbance on hundreds of thousands of acres at and near homesteads, communities, roads, and waters across the Arizona Strip. Continued population growth and the resulting growth in vehicle and OHV use and visitation in the region would continue to add to the acreage of soil disturbance. Continued AMP implementation, watershed plans, and the land health evaluation process would continue to examine livestock grazing areas for impacts and would apply remedies to decrease compaction and erosion. Continued and/or additional mining

would increase disturbance to soils, although reclamation would stabilize the replaced soils. Droughts would reduce overall vegetative cover making soils more susceptible to erosion, especially where there is surface disturbance. Wildfire would continue to make soils more susceptible to erosion.

The effects of livestock grazing on soils in the Blake Pond Allotment have been analyzed under the "Direct and Indirect Effects" section of this chapter. In addition to livestock grazing, there are a wide variety of uses and activities occurring on the lands within and adjacent to the Blake Pond Allotment, as described above. However, continuing to monitor soils and to implement the Arizona Standards for Rangeland Health should help ensure that soils exhibit infiltration, permeability, and erosion rates that are appropriate to soil type, climate, and ecological site. Given the fact that the allotment currently meets all applicable standards for rangeland health (which takes into account all uses of public rangelands, not just livestock grazing), including Standard #1 which addresses soil condition, and none of the alternatives are anticipated to change that determination, it is anticipated that the alternatives would not result in cumulative impacts to soils when added to other past, present, and reasonably foreseeable activities in the area.

4.6 Monitoring

Dry weight ranking (DWR) studies would be used to measure attainment of the key area DPC objectives. In addition, pace frequency studies would be used at each key area to detect changes of individual species which determines a trend or change in vegetation composition. Pace frequency and DWR would be completed on each key area. DWR and pace frequency study methodologies are described in *Sampling Vegetation Attributes*, Interagency Technical Reference 1734-4 (BLM 1999b).

Livestock use on forage plants is determined by conducting grazing utilization studies using the Grazed-Class Method as described in the *Utilization Studies and Residual Measurements* Interagency Technical Reference 1734-3 (BLM 1999a). Utilization studies would be completed by the BLM when livestock are removed from the pasture. Study data would be compiled each year. Other information to be collected and compiled includes precipitation and actual use. All monitoring data would be used to evaluate current management of the allotment and assist the BLM in making management decisions that help achieve vegetation objectives.

The monitoring addressed above and in Chapter 2 is sufficient to identify changes in vegetation as a result of livestock grazing activities. In addition to those methods described, there are efforts in place to inventory for noxious weed establishment.

Chapter 5

CONSULTATION AND COORDINATION

5.1 Summary of Public Participation

Public involvement for the Blake Pond Allotment permit renewal process began with scoping meetings for the allotment land health evaluation on November 10, 2005. The evaluation was conducted by an interdisciplinary assessment team of BLM resource specialists assisted by the Rangeland Resources Team appointed by the Arizona Resource Advisory Council. Draft evaluations were sent out for public review and comment to individuals, groups, and agencies. Comments were incorporated into the final Blake Pond land health evaluation report. The Blake Pond land health evaluation report was completed and signed 3/22/2013.

This EA reflects the analysis of the proposed grazing permit renewal. The EA was posted on the BLM web page for review to those persons and groups listed on the Arizona Strip interested publics mailing list; a notice of public comment period letter was also sent out to those individuals to direct them to the web page address. No comments were received in response to this public comment period.

5.2 List of Preparers and Contributors

The following table lists persons who contributed to preparation of this EA.

Table 21. List of BLM Preparers/Reviewers

Name	Title	Responsible for the Following Program(s)
Gloria Benson	Tribal Liaison	Native American Religious Concerns
Michael Cutler	Rangeland Management Specialist	Invasive, Non-Native Species, Range
Lorraine Christian	Arizona Strip Field Manager	Project Oversight
Jeff Young	Wildlife Biologist	Special Status Animals, Wildlife
Shawn Langston	Wildlife Biologist	Special Status Animals, Wildlife
Jace Lambeth	Rangeland Management Specialist	Special Status Plants
David Van Alfen	Archaeologist	Cultural Resources
Amanda Harrington	Realty Specialist	Lands/Realty/Minerals
Kevin Schoppmann	Rangeland Management Specialist	Range/Vegetation/Weeds/S&G
John Sims	Supervisory Law Enforcement	Law Enforcement
Brian McMullen	Soil Scientist	Soils, Water, Air
Jon Jasper	Recreation Planner	Recreation/Wilderness/VRM
Richard Spotts	Environmental Coordinator	NEPA Compliance

Table 22. List of Persons, Agencies and Organizations Consulted

Name	Agency/Organization	Consulted for the Following Program(s)
Luke Thompson	Arizona Game and Fish Department	Wildlife and Vegetation
Rob Nelson	Arizona Game and Fish Department	Wildlife and Vegetation
Daniel Bulletts	Kaibab Paiute Tribe	Cultural Resources, Native American Religious Concerns
Dawn Hubbs	Hualapai Tribe	Cultural Resources, Native American Religious Concerns

Chapter 6

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Acronyms and Abbreviations

AGFD	Arizona Game and Fish Department
AMP	Allotment Management Plan
AUM	Animal Unit Month
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
CBW	Composition by Weight
DFC	Desired Future Condition
DPC	Desired Plant Community
DR	Decision Record
DWR	Dry Weight Rank
EA	Environmental Assessment
EIS	Environmental Impact Statement
FLPMA	Federal Land Policy and Management Act
FONSI	Finding of No Significant Impact
GMU	Game Management Unit
IBLA	Interior Board of Land Appeals
LHE	Land Health Evaluation
NEPA	National Environmental Policy Act
NOFD	Notice of Final Decision
NOPD	Notice of Proposed Decision
NRCS	Natural Resources Conservation Service
OHV	Off-Highway Vehicle
PL	Public Law
PNC	Potential Natural Community
PRIA	Public Rangelands Improvement Act
p.z.	Precipitation Zone
RMP	Resource Management Plan
S&G	Standards and Guidelines
SWIFL	Southwestern Willow Flycatcher
UBWR	Utah Board of Water Resources
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
VRM	Visual Resource Management

Chapter 7

APPENDICES

Appendix 1 – Allotment Maps

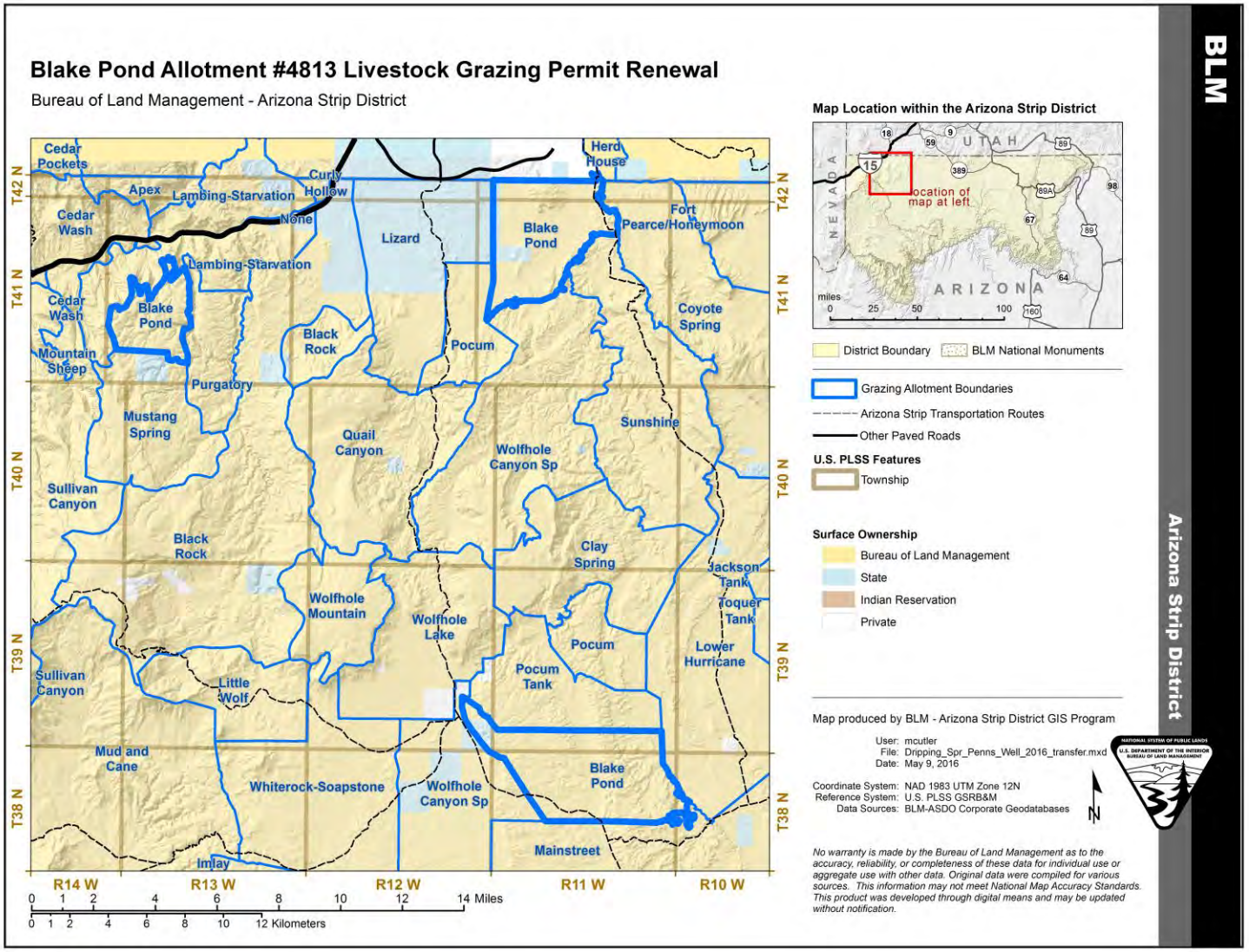
Appendix 2 – Arizona Standards for Rangeland Health and Guidelines for Grazing Administration

Appendix 3 – Vegetation, Soil Monitoring, and Inventory Data.

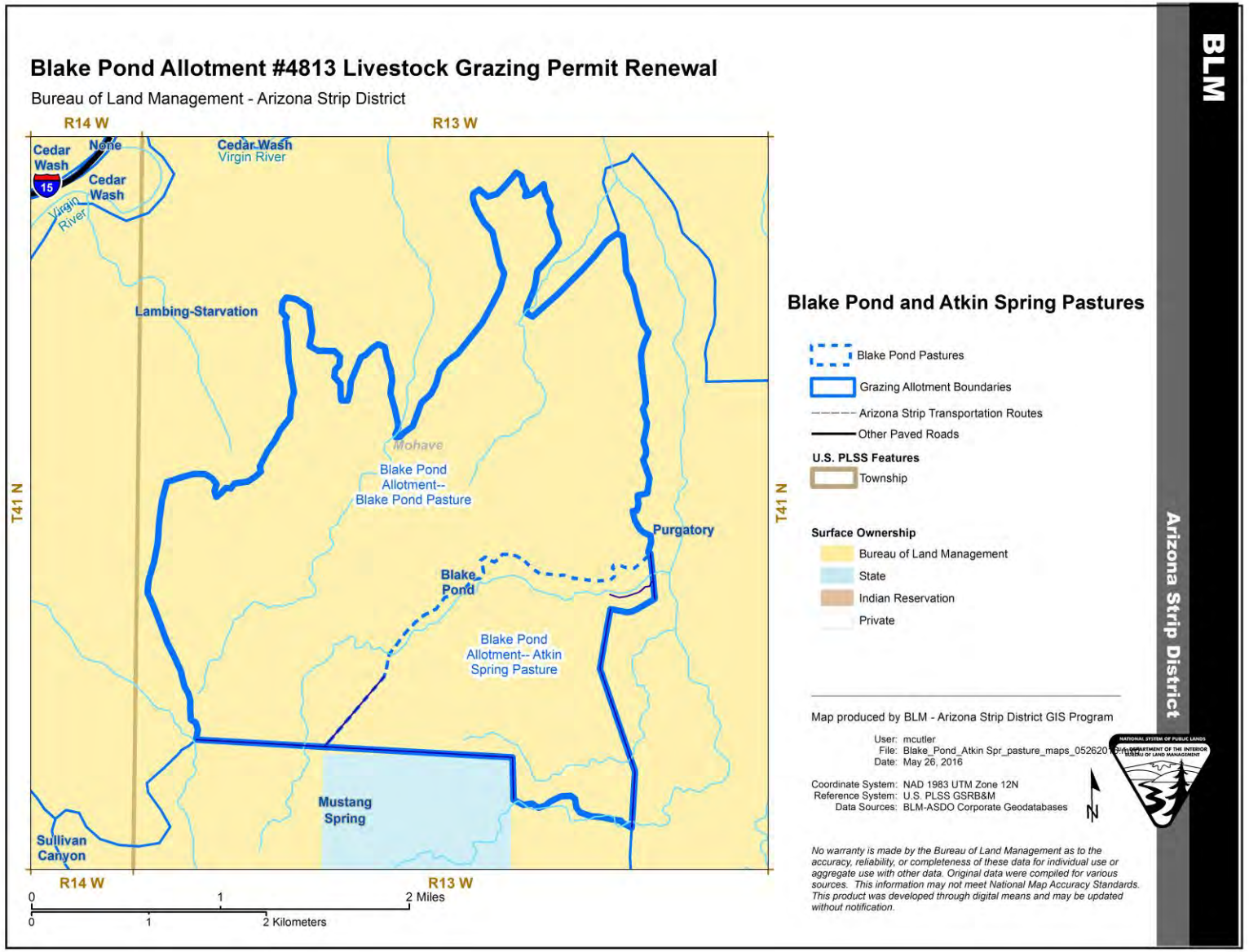
Appendix 4 – Wildlife Monitoring and Survey Data.

Appendix 1: Blake Pond Allotment Maps

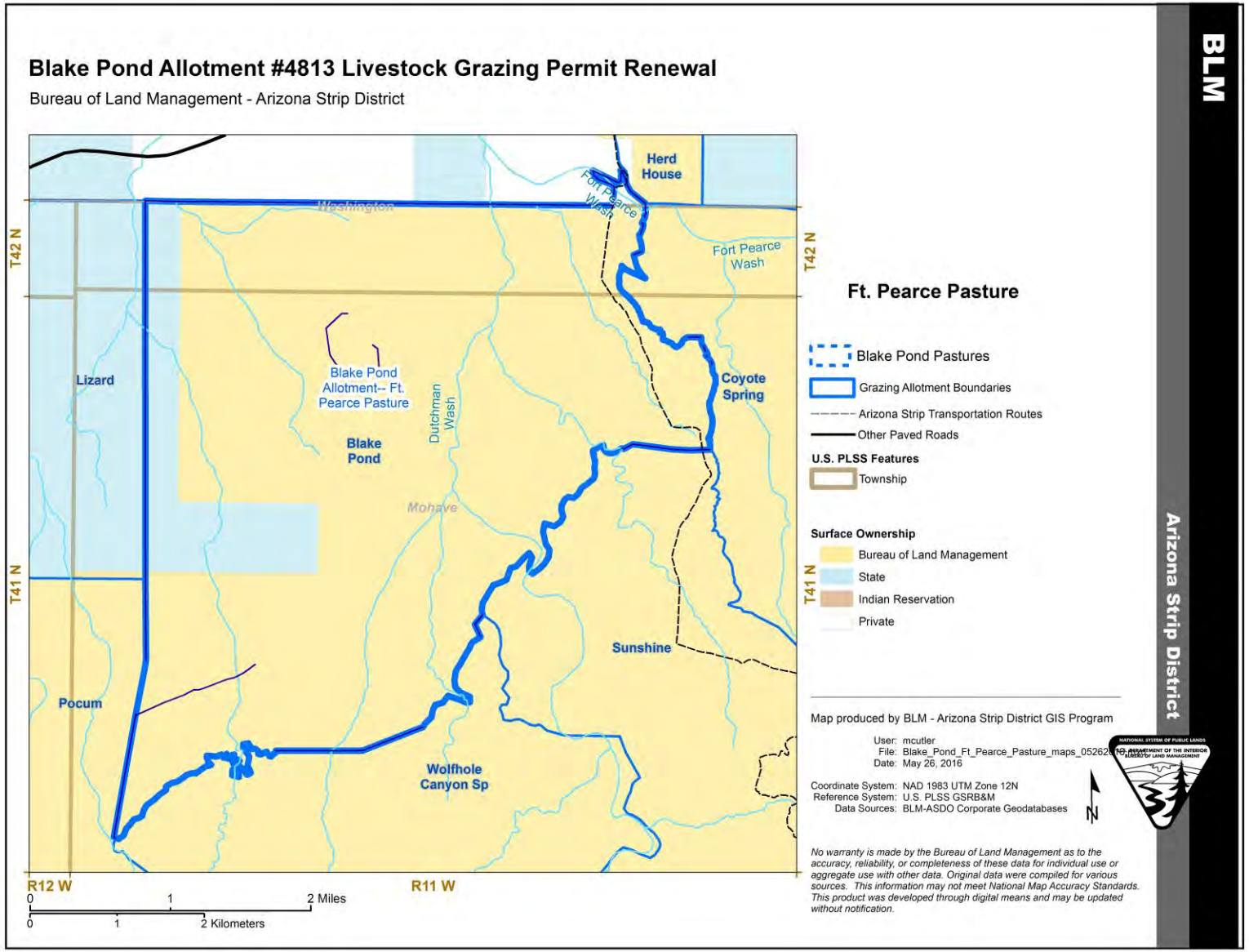
Map 1: Blake Pond Allotment Vicinity Map.



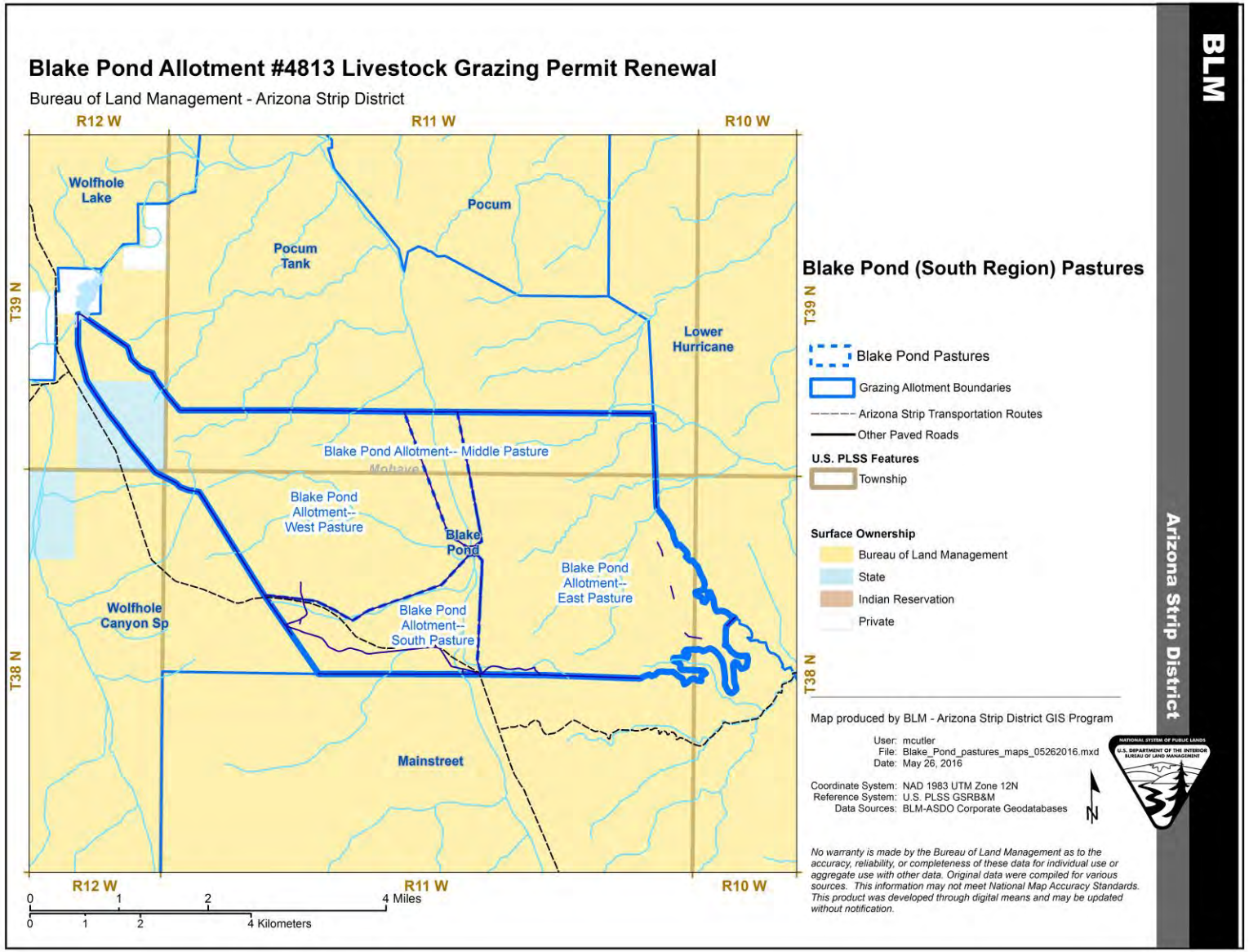
Map 2: Blake Pond Allotment-Atkin Spring and Blake Pond Pastures.



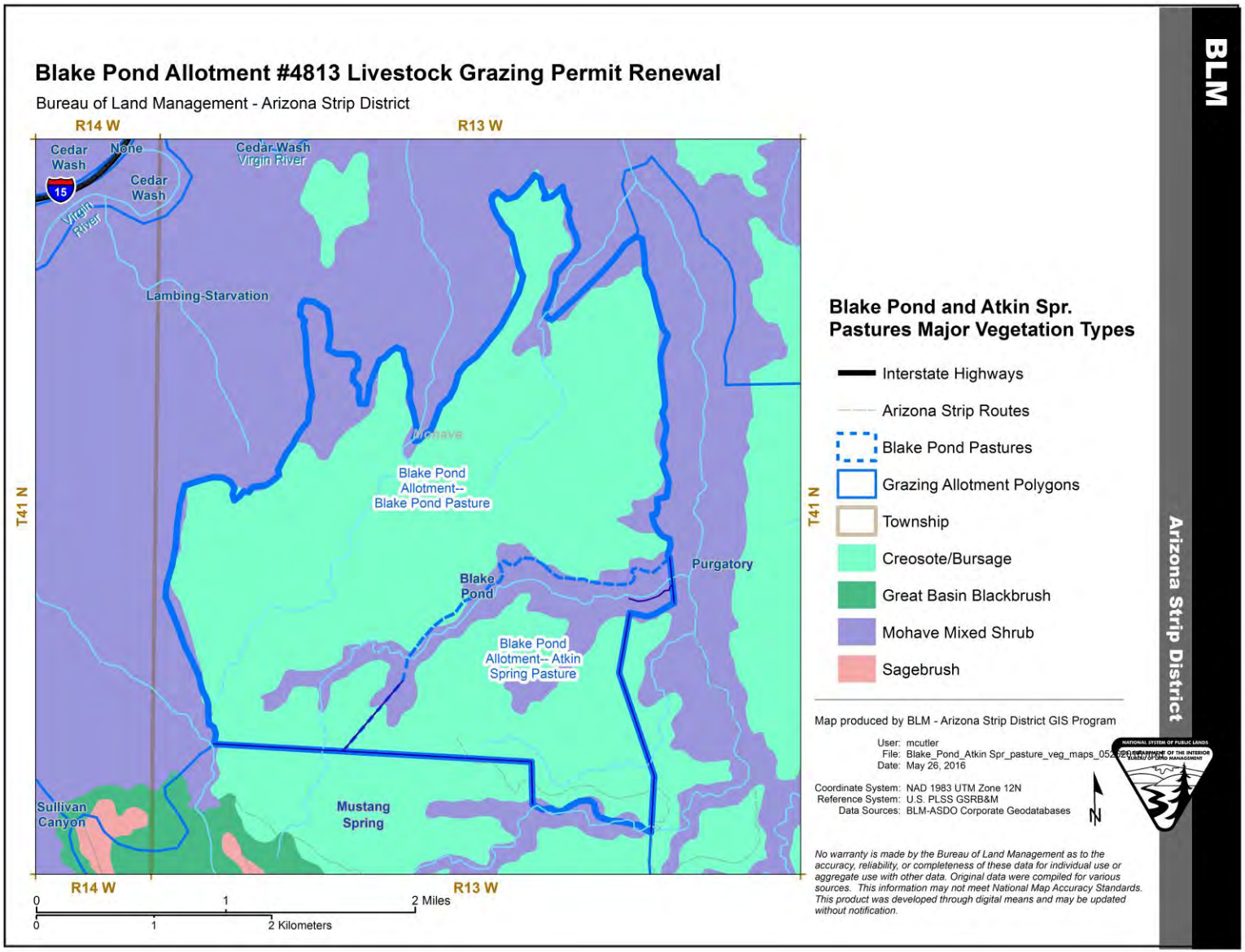
Map 3: Blake Pond Allotment-Ft. Pearce Pasture.



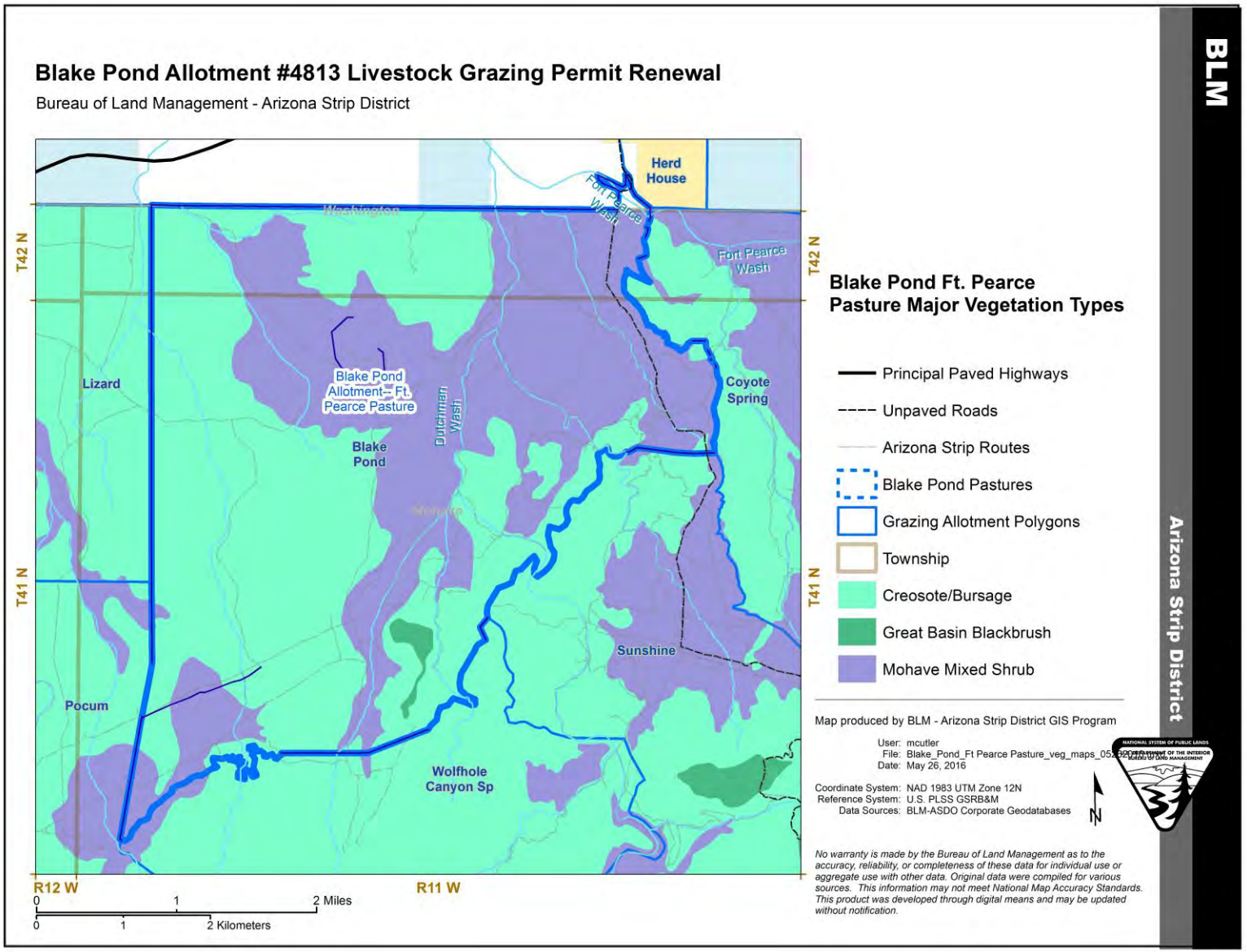
Map 4: Blake Pond Allotment-Middle (North), East, West, and South Pastures.



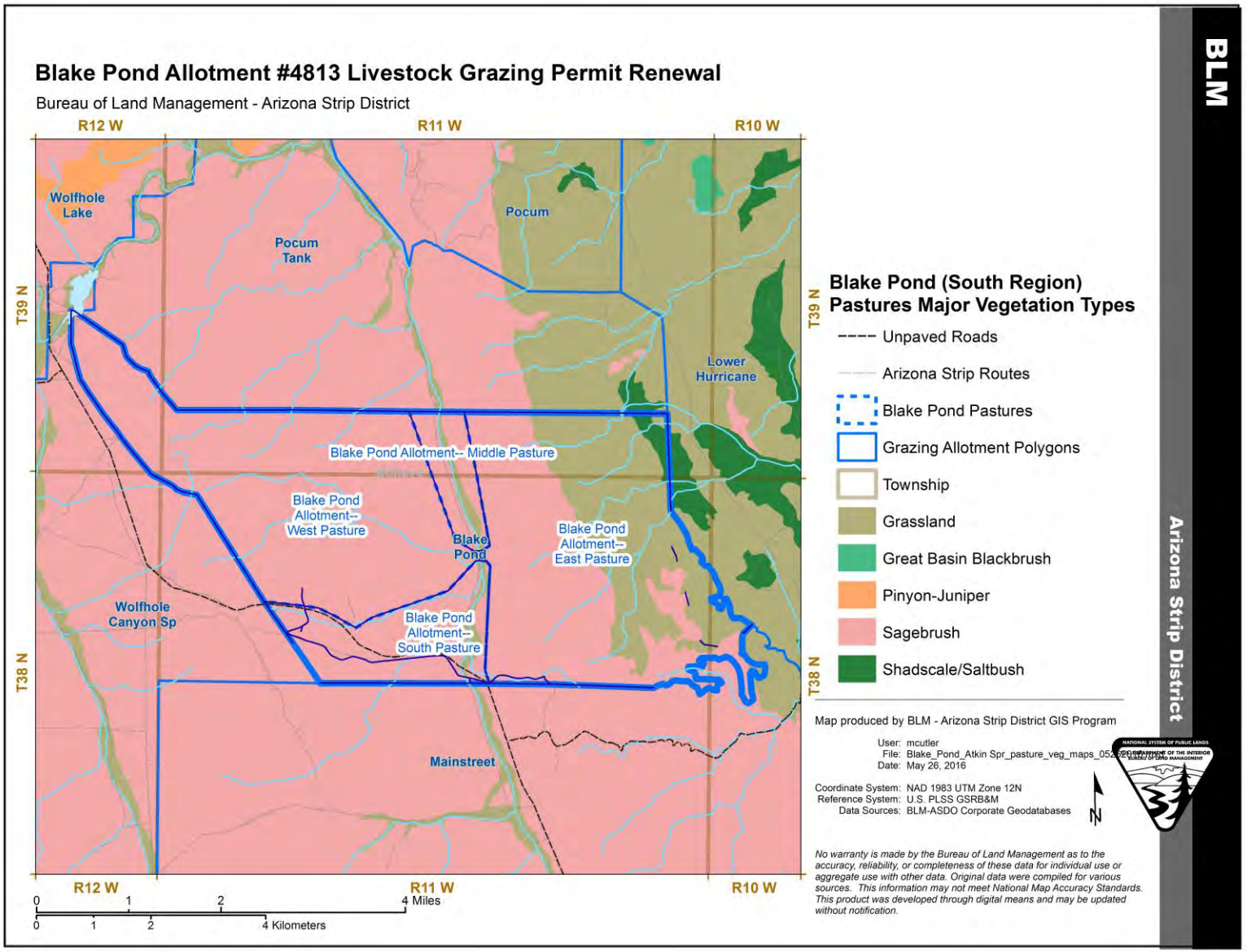
Map 5: Blake Pond Allotment-Atkin Spring and Blake Pond Pastures Major Vegetation Types.



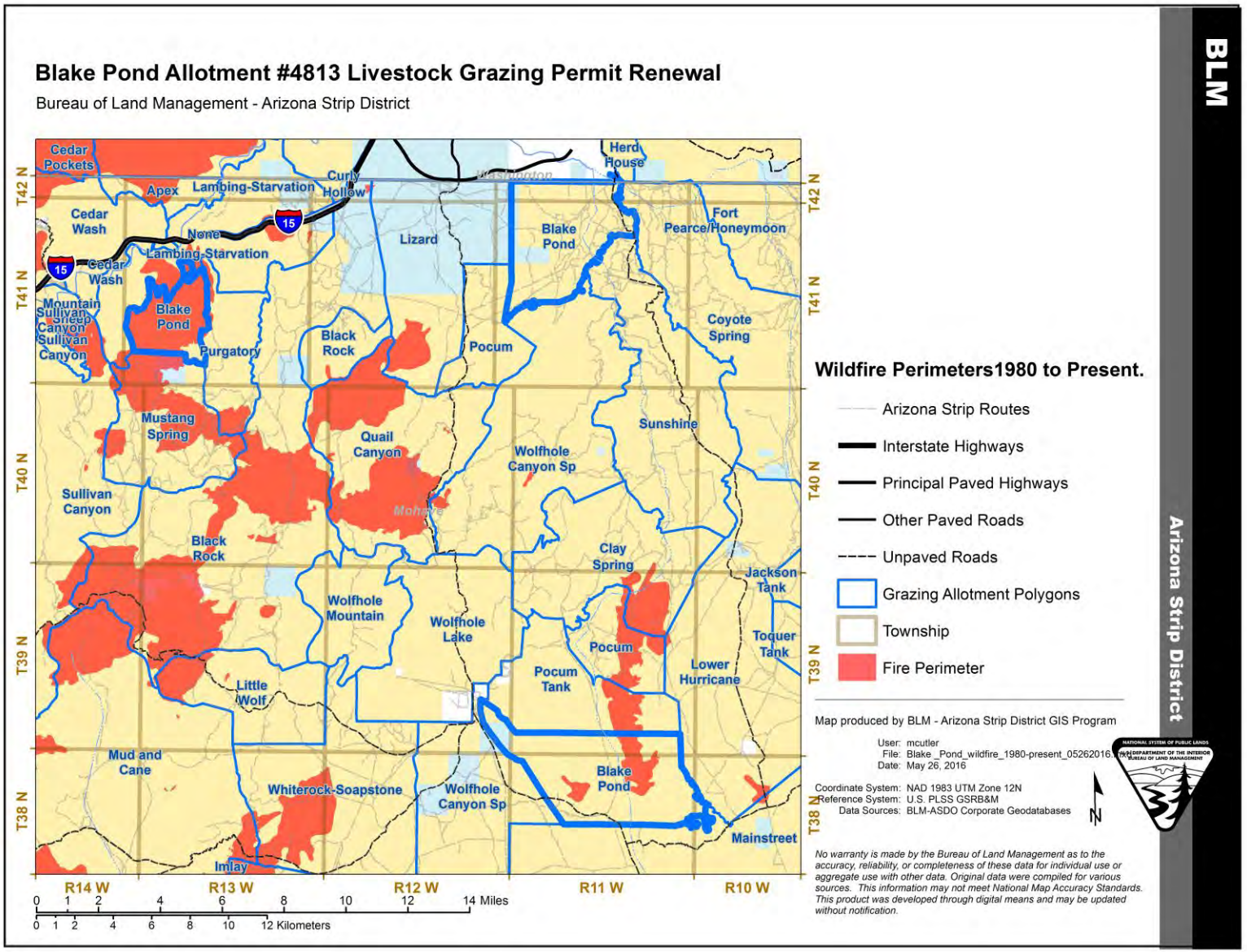
Map 6: Blake Pond Allotment-Ft. Pearce Pasture Major Vegetation Types.



Map 7: Blake Pond Allotment-Middle (North), East, West, and South Pasture Major Vegetation Types.



Map 8: Blake Pond Allotment Wildfires 1980 to Present.



Appendix 2

ARIZONA STANDARDS FOR RANGELAND HEALTH AND GUIDELINES FOR GRAZING ADMINISTRATION

INTRODUCTION

The Department of the Interior's final rule for Grazing Administration, issued on February 22, 1995, and effective August 21, 1995, requires that 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 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.

> "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 grazing by livestock. 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 the commitment of BLM 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 would reduce the ability of BLM and interested publics to select specific objectives, monitoring strategies, and grazing permit terms and conditions appropriate to specific land forms.

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 as 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 which 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 would 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 have been 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 guidelines.

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 and 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."

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 which 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.

Appendix 3. Vegetation, Soil Monitoring, and Inventory Data.

Overall trend at the key area is the direction of change in frequency observed between the initial reading (base year) and the current reading, as depicted by the arrows, i.e., (↗) up, (↘) down, and (→) no apparent static or static.

Table 23. Blake Pond Allotment – Atkin Spring Pasture Trend Data

Atkin Spring Key Area				
Year	**Percent Frequency of key species**	**Percent Live basal vegetation**	**Percent Litter**	**Total**
1981	5.2	2.3	31.9	39.4
1984	14	2.5	15.5	32
1988	10.5	0	46	56.5
2005	18	2	62	82
2010	10	0	43	53
2015	5	0.2	35	40.2
Overall Trend for Atkin Spring Key Area: (→) Static				

Table 24. Blake Pond Allotment – Ft. Pearce Pasture Trend Data

Ft. Pearce Key Area				
Year	**Percent Frequency of key species**	**Percent Live basal vegetation**	**Percent Litter**	**Total**
1981	6.8	1	3.9	11.7
1984	10.5	2	15.5	28
1985	13	6	11	30
1988	10.5	1.5	24.5	36.5
1997	26	6	41	73
2005	13	3	65	81
2010	2	0.5	17	19.5
2015	2.5	0	11.2	13.7
Overall Trend for Ft. Pearce Key Area: (→) Static				

Table 25. Blake Pond Allotment – East Pasture Trend Data

East Key Area				
Year	**Percent Frequency of key species**	**Percent Live basal vegetation**	**Percent Litter**	**Total**
1981	86	1	35.5	122.5
1985	156.5	8	28	192.5
1989	142.5	1.5	80.5	224.5
1992	154.5	9.5	36	200
2005	113	12	38	163
2010	95.5	3	22	120.5
2015	115.67	7.6	41.25	164.5
Overall Trend for East Key Area: (↑) Up				

Table 26. Blake Pond Allotment – Middle (North) Trend Data

Middle (North) Key Area				
Year	**Percent Frequency of key species**	**Percent Live basal vegetation**	**Percent Litter**	**Total**
1981	67	2	11.5	80.5
1985	122.5	8.5	6	137
1988	96.5	7	45	148.5
1992	105.5	5	36.5	147
1997	106.5	14	50.5	171
2005	83	9	41	133
2010	93	3	25	121
2015	102	7.5	55.8	
Overall Trend for Middle (North) Key Area: (↑) Up				

Table 27. Utilization Data – Blake Pond Allotment – Atkin Spring Pasture

Arizona Strip Blake Pond Utilization Summary	Atkin Spring Key Area														
Utilization expressed as a percent for each species.															
Year	82	83	84	85	86	87	90	92	2009	2010	2012	2013	2014	Avg.	Category Avg.
Cool Season															
Achnatherum hymenoides				0		61	37	51	33			0		30	29
*Elymus elymoides ssp. elymoides**				0			26	51	33					28	
Warm Season															
*Pleuraphis rigida**	50	45	76	0	32	69	39	39	30	50		45	23	42	40
*Sprorobolus cryptandrus**	55	40	82	0	43	73	61	46	33			0	0	39	
Browse															
*Ephedra nevadensis**	59	47	90	0	45	58	56	45	18	39	49	30	48	45	43
*Atriplex canescens**	55	56	69	0	53	79	45	44		37	35	58	48	48	
*Grayia spinosa**	67	56	42	0			32							39	
*Purshia mexicana**	48	45	59	0	35	49	28	46	18	35	47	49	50	39	
Average of year	56	48	70	0	42	65	41	46	28	40	44	30	34	42	

* Key species

Table 28. Utilization Data – Blake Pond Allotment – Ft. Pearce Pasture

Arizona Strip Blake Pond Utilization Summary											Ft. Pearce Key Area																
Utilization expressed as a percent for each species.																											
Year	81	82	83	84	85	86	87	88	89	90	91	95	96	97	2009	2010	2011	2011[1]	2012	2012[1]	2013	2013[1]	2014	2014[1]	Avg.	Category Avg.
Cool Season																										
Achnatherum hymenoides *											3	2	2	2		40			30		30				16	16
Warm Season																										
*Pleuraphis rigida**	44	52	23	35	36	30	39	22	30	40	6	2	7	T	19	20	14		6	45	6	39	1	11	24	26
*Sprorobolus cryptandrus**																	40			57		39		24	40	
Muhlenbergia porteri												0		2		40									14	
Browse																										
*Ephedra nevadensis**				70	50	60	60	45	40	22	3		0	T	24	31	4	10	22	9	22	70	26	38	32	34
*Krascheninnikovia lanata**		49	14	20				38		50	3	0	2	T	24			37		56		51		39	29	
*Atriplex canescens**			27		18	54	52	50	53	41															42	
Average of year	44	51	21	42	35	48	50	39	41	38	4	1	3	2	22	33	19	24	19	42	19	50	14	28	29	

* Key species. [1]Supplemental Key Area (0.7 miles from water, closer to water troughs than original key area).

Table 29. Utilization Data – Blake Pond Allotment – East Pasture

Arizona Strip Utilization Summary									East Key Area									
Utilization expressed as a percent for each species.																		
Year	81	83	84	85	86	89	90	91	92	94	2001	2009	2011	2012	2013	2014	Avg.	Category Avg.
Cool Season																		
*Achnatherum hymenoides**	30			10	13	22	45	9	12	9	47	1		0	0	0	15	13
*Elymus elymoides ssp. elymoides**				10				9	12	9		1					8	
*Stipa comata**				20	11	22	45	9	12	9		1	30	0			16	
Warm Season																		

Arizona Strip Utilization Summary									East Key Area									
Utilization expressed as a percent for each species.																		
Year	81	83	84	85	86	89	90	91	92	94	2001	2009	2011	2012	2013	2014	Avg.	Category Avg.
*Pleuraphis jamesii**	49	41	30	28	21	23	31	11	6	6	41	1	17	2	0	0	19	19
*Sprorobolus cryptandrus**			27	27	31	27	48	10	5								25	
*Bouteloua gracilis**								11			16		23	0	0	0	8	
*Bouteloua eriopoda**	30			23	24	29	45		5	29							26	
Muhlenbergia porteri									5	29							17	
Browse																		
*Ephedra nevadensis**	30	35	62	20	25	26	22		21	30	26	2	30	37	0	0	24	27
*Atriplex canescens**		75	66	54	42	51	54	9	21	30							45	
*Krascheninnikovia lanata**				13		17	27	9						13	0	0	11	
Average of year	34.8	50.3	46.3	23	24	27	40	10	11	19	33	1	25	9	0	0	22	

* Key species

Table 30. Utilization Data – Blake Pond Allotment – Middle (North) Pasture

Arizona Strip	Utilization Summary			Middle (North) Key Area										
Utilization expressed as a percent for each species.														
Year	81	83	83	84	85	86	91	92	2001	2011	2012	2013	2014	Avg.	Category Avg.
Cool Season															
*Elymus elymoides ssp. elymoides**	50	40	48	0	16	4	31	11	7	53	59	52	62	33	30
*Stipa comata**		29			22	14	31	29	32	9	5			21	
*Achnatherum hymenoides **					27	9	31	29	32	31	40	49	63	35	

Arizona Strip	Utilization Summary				Middle (North) Key Area										
Warm Season															
*Pleuraphis jamesii**	36	34	68	0	26	8	15	12	12	1	16	0	39	21	28
*Sprorobolus cryptandrus**	74	30		0	33	10	23			10	7	5	34	23	
*Bouteloua gracilis**	28	20			19	9								19	
Bouteloua eriopoda		50												50	
Browse															
*Ephedra nevadensis**							12	50			0			21	21
Average of year	47	34	58	0	24	9	24	26	21	21	21	27	50	28	

* Key species

Table 31. Utilization Data – Blake Pond Allotment – South Pasture

Arizona Strip	Utilization Summary				Key Area #South							
Utilization expressed as a percent for each species.												
Year	86	88	90	91	92	94	2011	2012	2013	2014	Avg.	Category Avg.
Cool Season												

Arizona Strip	Utilization Summary				Key Area #South							
Achnatherum hymenoides *	40	41	52	13	26	18			35	36	33	31
*Elymus elymoides ssp. elymoides**	13	16	25	13	26	18	19		15	58	23	
*Stipa comata**	40	41	52	13							37	
Warm Season												
*Pleuraphis jamesii**	24	37	44	11	24	17	33		2	31	25	27
*Sprorobolus cryptandrus**	39	30	47	3							30	
Browse												
*Ephedra nevadensis**												10
*Purshia mexicana**						10					10	
Average of year	31	33	44	11	25	16	26		17	42	27	

* Key species

Table 32. Utilization Data – Blake Pond Allotment – West Pasture

Arizona Strip	Utilization Summary	Key Area #West								
Utilization expressed as a percent for each species.										
Year	86	91	92	2009	2011	2012	2013	2014	Avg.	Category Avg.
Cool Season										
Achnatherum hymenoides *		19	10	24	20		19	50	24	22
*Elymus elymoides ssp. elymoides**		19	10	24	42		26	47	28	

Arizona Strip	Utilization Summary	Key Area #West								
Utilization expressed as a percent for each species.										
Year	86	91	92	2009	2011	2012	2013	2014	Avg.	Category Avg.
*Stipa comata**	14	19	10	18					15	
Warm Season										
*Pleuraphis jamesii**	16	36	19	16	45		0	12	21	30
Sprorobolus cryptandrus	22	57							40	
Browse										
*Ephedra nevadensis**		45	9	13	41		37	46	32	31
Krascheninnikovia lanata	43	45							44	
*Purshia mexicana**			1	13			16	37	17	
Average of year	24	34	9.8	18	37		20	38	26	

* Key species

Table 33. Blake Pond Allotment Ecological Site Inventory Data

Key Area #1 Ft. Pearce Loamy Wash 6 - 9" p.z. Gypsic			
Key Area and Plant Species	**Current Composition**	**Site Guide Composition**	**Current Score[12]**
Ambrosia dumosa	7%	5%	5
Krameria parvifolia	2%	2%	2
Larrea tridentata	76%	42%	42
Lycium andersonii	4%	10%	4
Pleuraphis rigida	11%	25%	11
Score: 64 – Late Seral			

Table 34. Blake Pond Allotment Ecological Site Inventory Data

Key Area #2 Blake-Larson East Moenkopi-Shallow Loamy 7 – 11"p.z.			
Key Area and Plant Species	**Current Composition**	**Site Guide Composition**	**Current Score**
Atriplex canescens	1%	8%	1
Ephedra nevadensis	3%	5%	3
Gutierrezia sarothrae	2%	7%	2
Lycium andersonii	2%	7%	7
Lycium pallidum	18%		
Aristida longiseta	1%	3%	1
Bouteloua gracilis	1%	8%	1
Pleuraphis rigida	67%	16%	16

[12] "Current score" = lower of either Column 2 (current composition) or Column 3 (site guide composition)

Sporobolus cryptandrus	1%	5%	1
Hesperostipa comata ssp. comata	1%	17%	1
Sphaeralcea	4%	5%	4
Score: 37 – Mid Seral			

Table 35. Blake Pond Allotment Ecological Site Inventory Data

Key Area #1 Blake-Larson Middle Loamy Upland 10 - 14" p.z.			
Key Area and Plant Species	**Current Composition**	**Site Guide Composition**	**Current Score**
Artemisia tridentata	2%	15%	2
Gutierrezia sarothrae	2%	5%	2
Lycium pallidum	1%	5%	1
Aristida longiseta	2%	5%	2
Bouteloua gracilis	28%	29%	28
Pleuraphis rigida	33%	15%	15
Achnatherum hymenoides	1%	20%	1
Elymus elymoides ssp. elymoides	3%	10%	3
Sporobolus cryptandrus	9%	3%	3
Hesperostipa comata ssp. comata	3%	10%	3
Aster arenosus	1%	5%	1
Sphaeralcea coccinea	14%	5%	5
Score: 66 – Late Seral			

Table 36. Blake Allotment Dominant Soil Map Units, SSA 623

Soil Series Name	**Soil Series Drainage**	**Pasture Name**	**Soil Series Acreage**	**Soil Series % of Allot.**
Mellenthin-Rock outcrop-Torriorthents complex , 10 to 70 percent slopes	Well drained	West Pasture	7053	33

Soil Series Name	Soil Series Drainage	Pasture Name	Soil Series Acreage	Soil Series % of Allot.
Hobog very gravelly sandy loam, 5 to 30 percent slopes	Well drained	Blake Pond Pasture	2928	14
Grapevine-Hobcan complex, 1 to 5 percent slopes	Well drained	Ft. Pearce Pasture	1888	9
Moenkopie-Goblin complex, 5 to 50 percent slopes	Well drained	East	1803	8
Gypill fine sandy loam, 15 to 40 percent slopes	Well drained	Ft. Pearce Pasture	1624	8
Nikey family-Ruesh family-Rock outcrop complex, 10 to 40 percent slopes	Well drained	Ft. Pearce Pasture	1607	7
Strych very gravelly loam, 2 to 10 percent slopes	Well drained	South	1308	6
Ruesh very gravelly fine sandy loam, 3 to 20 percent slopes	Somewhat excessively drained	Ft. Pearce Pasture	1037	5
Hobcan fine sandy loam, 1 to 5 percent slopes	Well drained	Ft. Pearce Pasture	946	4
Hindu-Rock outcrop-Gypill complex, 35 to 70 percent slopes	Well drained	Ft. Pearce Pasture	839	4
Meadview very gravelly sandy loam, 2 to 18 percent slopes	Well drained	Ft. Pearce Pasture	238	1

Appendix 4

Arizona Game & Fish Unit 13A Mule Deer Population Counts			
Year	**Number of Animals Surveyed**	**Bucks / 100 does**	**Fawns / 100 does**
1989	86	52	39
1990	44	10	27
1991	15	29	57
1992	Insufficient Data		-
1993	9	0	13
1994	43	42	84
1995	51	29	35
1996	55	42	69
1997	No Survey		-
1998	59	8	44
1999	108	23	31
2000	170	27	33
2001	165	36	68
2002	57	28	50
2003	148	39	59
2004	140	40	75
2005	136	38	84
2006	230	43	61
2007	145	54	38
2008*	97	50	42
2009*	68	14	70
2010	125	33	48
2011	243	39	78
2012	113	31	104
2013	182	38	99
2014	199	60	83

* Surveys were minimal in 2008 and 2009 due to AGFD wildlife manager position in this unit being vacant.

Arizona Game & Fish Unit 13A Pronghorn Population Counts				
Year	**Total Animals Surveyed**	**Bucks / 100 does**	**Fawns / 100 does**	**Population Estimate**
1981	171	35	18	No data available
1982	206	31	40	No data available
1983	141	47	33	No data available
1984	186	25	11	No data available
1985	145	22	16	No data available
1986	141	20	13	No data available
1987	139	42	25	No data available
1988	215	21	28	No data available
1989	174	40	21	No data available
1990	222	30	13	No data available
1991	196	17	43	No data available
1992	214	41	34	No data available
1993	282	61	51	No data available
1994	372	43	29	No data available
1995	398	49	34	No data available
1996	339	45	16	No data available
1997	447	27	20	No data available
1998	357	25	17	No data available
1999	209	21	23	No data available
2000	205	22	10	No data available
2001	278	24	38	No data available
2002	284	37	4	No data available
2003	333	21	33	No data available
2004	358	26	61	No data available
2005	335	20	67	No data available
2006	221	30	20	244
2007	184	29	5	237
2008*	101	19	8	178
2009*	112	33	21	153
2010	74	14	12	51
2011**	178	14	24	233
2012	104	15	5	133
2013	175	24	13	No data available
2014	126	24	25	No data available

* Surveys were minimal in 2008 and 2009 due to AGFD wildlife manager position in this unit being vacant.

** Bad survey year due to overcast skies and rain throughout every survey day.