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Bureau of Land Management**

**Environmental Assessment
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Walker Butte Allotment Grazing Lease Renewal

File Number: #06041



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APPENDIX A: Walker Butte Allotment Land Health Evaluation

APPENDIX B: Arizona Standards for Rangeland Health and Guidelines for Grazing Administration

APPENDIX C: Special Ephemeral Rule

APPENDIX D: Standard Operating Procedures for Livestock Grazing

1. Introduction and Purpose and Need

1.1 Background

This Environmental Assessment (EA) has been prepared to disclose and analyze the environmental consequences of the proposed grazing lease renewal for the Walker Butte Allotment. The National Environmental Policy Act (NEPA) of 1969 requires that Federal agencies disclose to the public information about those projects or activities authorized by the agencies that have the potential to impact the human environment. Livestock grazing on public lands is a federally authorized activity with potential for environmental consequences.

Walker Butte Allotment is designated as an ephemeral allotment. This means that livestock are only permitted on the allotment in accordance with the Special Ephemeral Rule of 1968 (Appendix C). There is no year-long or seasonal forage allocation for this allotment. However, during years with abundant precipitation and annual forage availability, the lessee may apply to use the allotment for grazing. Details concerning the difference between perennial and ephemeral rangelands and grazing management are described in the 2014 Land Health Evaluation (LHE) in Appendix A of this EA.

In 2007 and 2008, a LHE was conducted on the Walker Butte Allotment to determine whether the allotment was meeting Standards for Rangeland Health. At that time, the 2008 LHE found that the allotment was meeting Standard 1 (Upland Sites) and Standard 3 (Desired Resource Conditions) of the Arizona Standards of Rangeland Health (Standard 2 did not apply, as there are no riparian areas on the allotment). A Determination of NEPA Adequacy (DNA) and the LHE were sent to the lessee and other interested publics on September 24, 2007. On August 19, 2008, the Bureau of Land Management, Lower Sonoran Field Office (LSFO) issued a Proposed Decision to renew a grazing lease for the Walker Butte Allotment to the lessee, for a period of 10 years (2008-2018).

On September 4, 2008, the BLM received a protest from Western Watersheds Project (WWP) that included several protest points. Additionally, management of the Queen Creek Quarry¹ provided information regarding their operation on the allotment, and expressed concern that cattle could inadvertently become a safety concern to the mining operation. Further, in 2010, a new applicant declared an interest in the allotment and has provided comments and proposed plans for use of the allotment. The applicant is qualified for the grazing preference because he leases several properties adjacent to the allotment which could serve as a new base property for the allotment (the former base property is now under commercial development).

In light of the WWP protest, and several other issues that have evolved during the process of renewing this grazing lease, the BLM, LSFO elected to re-evaluate the allotment, re-assess the technical recommendations, and conduct a full Environmental Assessment to support a new decision.

Between 2010 and 2014, new study sites were established and extensive monitoring was conducted to analyze rangeland conditions on the allotment. Analysis of existing allotment data

¹ On September 9, 2014, the mineral materials contract for Queen Creek Quarry was transferred from JADALL LLC to Vulcan Materials Company. While this revision has been made in the text of this EA, many of the maps herein and in the Land Health Evaluation (March 8, 2014) still show JADALL as the quarry operator.

indicates resource conditions are meeting Desired Plant Community objectives for the allotment (see LHE, Appendix A, for details). As a result, it was determined by the BLM's interdisciplinary team of specialists (ID Team) during the assessment process that resource conditions on the Walker Butte Allotment are meeting all applicable Standards for Rangeland Health (i.e., Standard 1 and Standard 3; Standard 2 does not apply) at the key area study sites. The observed apparent trend across the allotment was assessed as "Stable to Upward" overall (see LHE, Appendix A, for definition and qualifications of apparent trend). Vegetation attributes such as vigor, recruitment and composition are appropriate, and soils are stable.

1.2 Project Area Description

The Walker Butte Allotment (#06041) is a parcel of rangeland administered by the LSFO. It is located approximately 40 miles southeast of Phoenix, and seven miles northwest of the town of Florence. The allotment encompasses an area of approximately 1,330 acres in

- T. 4 S., R. 8 E., Sections 12 and 13
- T. 4 S., R. 9 E., Sections 7 and 18.

Approximately 994 of these acres are administered by the BLM, and 312 acres are administered by the Arizona State Land Department. Other lands in the immediate vicinity are privately owned (Figure 1). Until recently, most of the private lands in the area have been used for agriculture, pasture, mining, and industry. However, residential and commercial development is expanding into the area. A new development, Anthem, has been under construction since the 1990s and several new housing developments, shopping centers, and medical facilities now surround the allotment (see Figure 2).

Walker Butte Allotment (#06041):

Profile:

Lease Applicant: Bret Marchant
Percent Public Land Billed: 100%
BLM Grazing Preference: 0 Animal Unit Months (AUMs)
Rangeland Classification: Ephemeral

Land Status:

Public:	994.25 acres
State:	<u>311.81 acres</u>
TOTAL:	1306.06 acres

The Walker Butte Allotment is at an elevation of approximately 1450-1550 feet in north central Pinal County in the bottom of the broad Gila River Valley. Arid climatic conditions are typical of the region and are characterized by hot, dry summers and mild winters with intermittent storms occurring during all seasons. Precipitation for the area averages 7-10 inches annually with the majority of it occurring during storm events. Air quality is generally good but may occasionally be affected by dust storms or smog from the Phoenix area. The average maximum daily temperature in July ranges from 100-115 degrees F, while the January average minimum is 32-41 degrees F (see LHE for Florence weather and precipitation data).

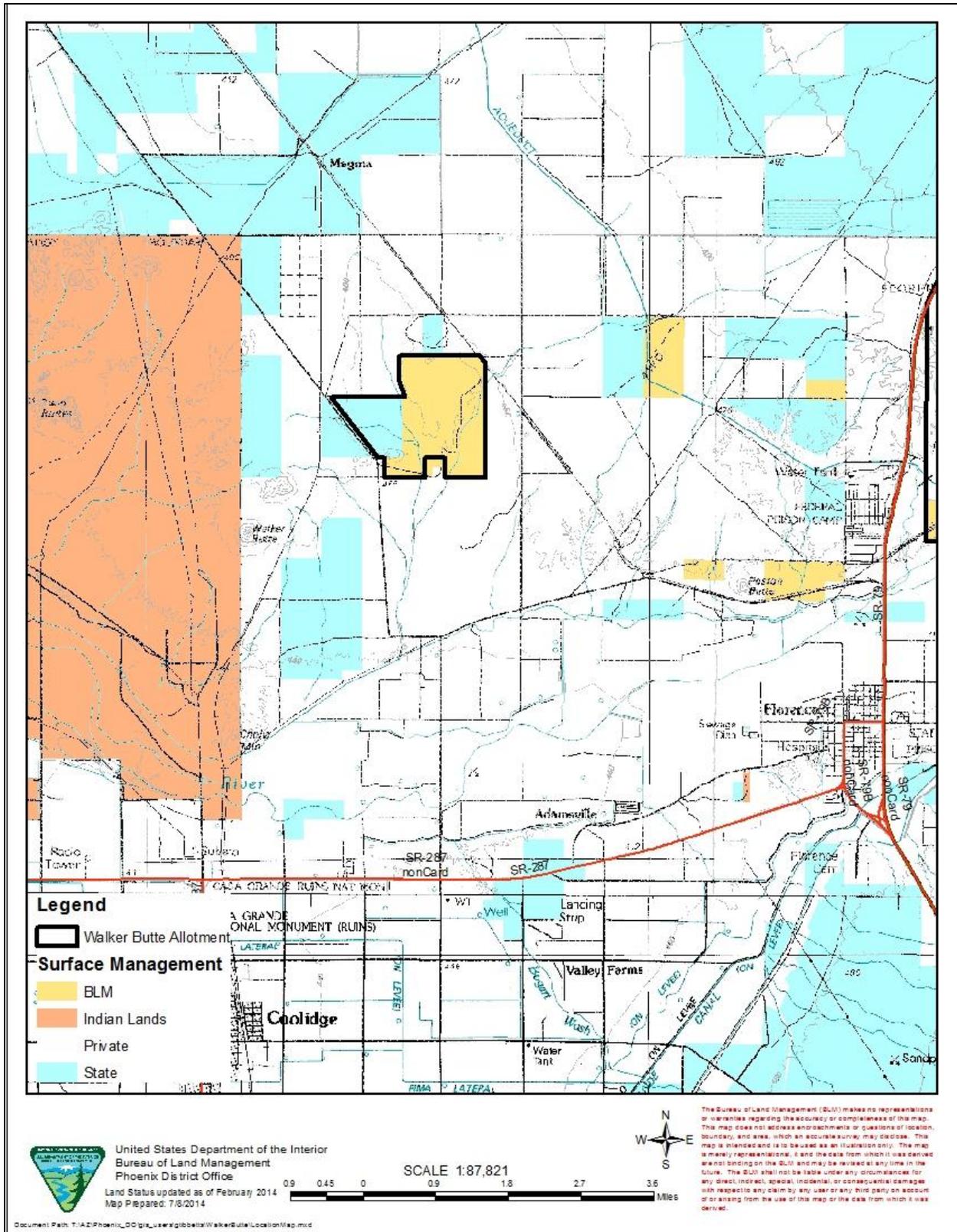


Figure 1. Location of the Walker Butte Allotment

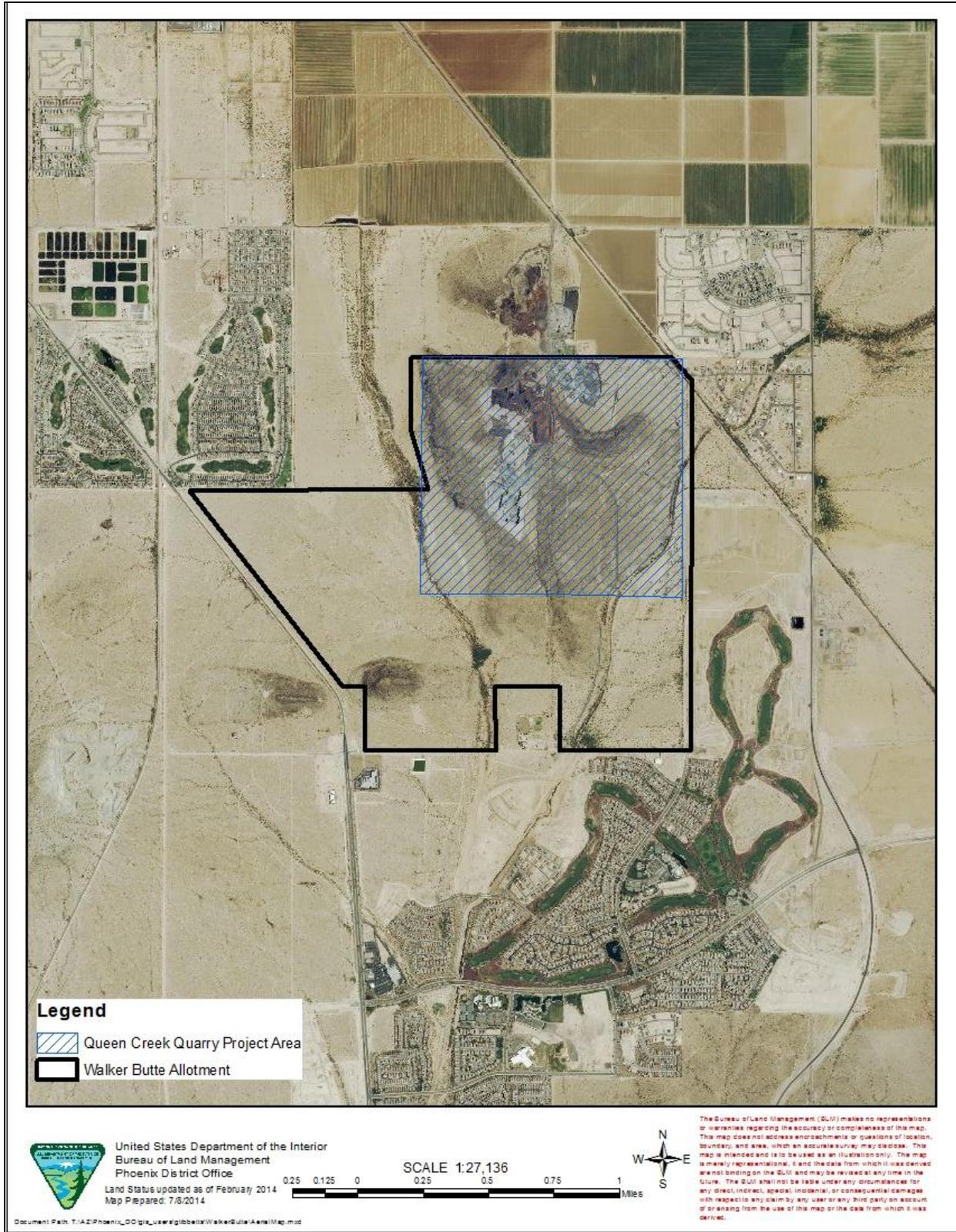


Figure 2. Aerial photo of the Walker Butte Allotment and Surrounding Land Uses

1.3 Purpose and Need

The purpose and need for this proposal is to manage livestock grazing on public lands to provide for a level of grazing consistent with multiple use, sustained yield, and watershed function and health; to authorize grazing use in accordance with applicable laws, regulations, policies, and land use plans; and to continue to achieve the standards for rangeland health. Additionally, this action is needed to fully process the term grazing lease for the Walker Butte Allotment (#06041) in accordance with all applicable laws, regulations, and policies, including Section 3 of the Taylor Grazing Act of 1934, as amended, which states, in part, “The Secretary of the Interior is hereby authorized to issue...permits to graze livestock...” and Section 402 of the Federal Land Management Policy Act of 1976, as amended.

Because this allotment is an ephemeral allotment, grazing would be approved pursuant to the Special Ephemeral Rule (Appendix C), which states that when forage becomes available, the lessee must file an application and include the desired number of livestock and period of use. BLM staff would monitor the rangeland condition and potential for continued soil moisture and forage growth before permitting livestock use. The BLM would be responsible for determining the appropriate levels and management strategies for livestock grazing in this allotment. Livestock grazing would be authorized in a manner that maintains achievement of land health standards, and to achieve resource condition objectives, in conformance with the Lower Sonoran RMP (USDI 2012a).

An additional need for the action is to establish a new base property for the allotment in accordance with 43 Code of Federal Regulations (CFR) 4110.2-1, since the current base property is now under commercial development.

1.4 Land Use Plan Conformance

The Lower Sonoran Record of Decision (ROD) and Approved Resource Management Plan (RMP) was approved by the BLM Arizona State Director in September 2012 (USDI 2012a). This RMP guides the overall management of activities, as well as the use and protection of BLM-administered resources within the planning area. It outlines provisions for the BLM Lower Sonoran Field Office to administer grazing authorizations within the grazing allotment boundaries and provides management actions applicable to livestock use on public lands:

Livestock grazing use and associated practices will be managed in a manner consistent with other multiple use needs and other desired resource condition objectives to ensure that the health of rangeland resources and ecosystems are maintained or improved. Management will achieve, or make significant progress toward achieving, Land Health Standards and produce a wide range of public values, such as wildlife habitat, livestock forage, recreation opportunities, clean water, and functional watersheds. (GR-1.1)

Additionally, the Lower Sonoran RMP classified the Walker Butte Allotment under its previous ephemeral use designation. An ephemeral designation institutes a grazing system in accordance with the Special Ephemeral Rule (Federal Register, Vol. 33, No. 238, December 7, 1968).

The Proposed Action would also conform to the Lower Sonoran RMP (USDI 2012a), Appendix A, Best Management Practices and Standard Operating Procedures, including, but not limited to, the following:

- Fence construction and maintenance will follow guidance provided in BLM Handbook on Fencing No. 1741-1.
- 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).
 - Ephemeral use will be authorized up to March 31 when conditions warrant. After April 1, authorizations will be limited to 30 days, subject to further evaluation. This will ensure maintenance for habitat for special status species (e.g. Sonoran Desert tortoise).
 - Monitoring is conducted during grazing to determine if objectives are being met.

1.5 Relationship to Statutes, Regulations, or other Plans

Grazing permit/lease renewals are provided for in 43 CFR 4100. The objectives of these 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).

In addition, the actions considered under this EA are designed to be consistent with all federal, state, and local laws, regulations, and policies deemed relevant to the proposed undertaking, including, but not limited to, the following:

- Taylor Grazing Act of 1934
- Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 et seq.)
- Public Rangelands Improvement Act of 1978
- Arizona Water Quality Standards, Revised Statute Title 49, Chapter II
- Clean Water Act of 1972, as amended
- Clean Air Act of 1970, as amended
- Endangered Species Act of 1973, as amended
- Section 106 of the National Historic Preservation Act of 1966, as amended
- Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. 3001-3013; 104 Stat. 3048-3058)
- National Environmental Policy Act of 1969
- Migratory Bird Treaty Act of 1917, and Executive Order 13186 – *Responsibilities of Federal Agencies to Protect Migratory Birds*

The following documents also provide program constraints, general management practices, and land use objectives to achieve desired resource conditions and provide direction for public lands within the Walker Butte Allotment.

- Strategy for Desert Tortoise Habitat Management on Public Lands in Arizona, 1990. This strategy requires the following:
 - Manage livestock to allow adequate and suitable native forage and cover for tortoises throughout the year.
 - Where ecological site potential permits, manage livestock grazing to increase native perennial grasses, forbs and shrubs that are required by tortoises.
 - Allotment Management Plans or other grazing systems in tortoise habitat will incorporate tortoise habitat values in their objectives, to assist in attaining appropriate category goals and objectives.
 - Within desert tortoise habitats, grazing on ephemeral allotments will not be authorized unless adequate ephemeral forage exists or there is a high probability (based on rainfall accumulation prior to turn-out) that sufficient ephemeral forage will be produced.
 - Short-term supplemental use authorizations may be allowed only if abundant forage remains, and provided other rangeland resources and use needs are fully ensured.
 - Ephemeral ranges are managed for the protection of perennial vegetation and dependent wildlife species.
 - When acting on ephemeral grazing applications for either ephemeral or ephemeral/perennial permits, the Manager must consider the requirements for protection of vegetation, soil, and wildlife. The length of authorized grazing period should not extend into normally dry months.

1.6 Scoping and Issue Identification

The BLM LSFO conducted both internal scoping with BLM staff and external scoping with the public and interested/affected groups and agencies in order to identify issues for this environmental analysis.

Internal scoping was conducted by an interdisciplinary team of specialists from LSFO to discuss the purpose and need of the project, various alternatives, potential environmental impacts, past, present, and reasonably foreseeable projects that may have cumulative effects, and possible mitigation measures. Refinements to the proposal were made over the course of this project to address conflicts and issues identified as part of this process.

External scoping was initiated with the distribution of annual Consultation, Coordination and Cooperation (CCC) letters to inform the lease applicant, interested public, and other stakeholders of the proposal, and to generate input on the preparation of this EA. These letters have requested allotment-specific resource data that would assist BLM in analyzing resource conditions on the allotment.

On March 8, 2014, the LSFO sent the Walker Butte Land Health Evaluation (LHE) out to the lease applicant and interested publics for a 30-day comment period. Western Watersheds Project (WWP) provided the only comments, which have been incorporated into this EA, as applicable. Table 1 lists issues identified during internal and external scoping as needing to be fully addressed in this EA.

Table 1. Issues identified during scoping

What is the Issue Identified?	Who Identified this Issue?	How has this Issue been Addressed?
With no pasture fencing inside the allotment, how will livestock be prevented from entering the Queen Creek Quarry and getting injured or causing damage to the facility and/or equipment?	Queen Creek Quarry owners/operators; Livestock operator (applicant); BLM ID team	This issue is addressed by the Proposed Action Alternative of this EA.
The allotment boundary fencing is in disrepair. How will livestock be prevented from getting onto neighboring private properties, agricultural fields, and onto Hunt Highway?	Livestock operator (applicant); Queen Creek Quarry owners/ operators; BLM ID team; Western Watersheds Project	This issue is addressed by the Proposed Action Alternative and Alternative 2 of this EA.
How does the BLM plan to address the potentially hazardous fuel load caused by the build-up of woody debris and dried vegetation, some of which are invasive species, in the mesquite bosque on the west side of the allotment close to urban development?	BLM ID team	This issue is addressed by the Proposed Action Alternative and Alternative 2 of this EA.
<p>How are the recent developments of the Florence area, such as urban sprawl and increased off-highway vehicle (OHV) use, addressed?</p> <p>Likewise, how are impacts of livestock grazing and increased recreational activities on resources such as Sonoran Desert tortoise and other sensitive wildlife species, soils, vegetation, and invasive species addressed?</p>	Western Watersheds Project, BLM ID team	These issues from WWP's protest of the Proposed Decision in 2008 caused the BLM to re-evaluate the allotment, re-assess the technical recommendations, and prepare this new EA. This EA is based on the data compiled and analyzed in the Walker Butte Allotment LHE issued in 2014 and the technical recommendations suggested therein. These technical recommendations helped formulate the Proposed Action and Alternative Actions of this EA, which examines potential environmental impacts of these actions. Urban sprawl is outside the scope of this grazing lease renewal EA.
How will livestock grazing be authorized and monitored on the Walker Butte Allotment?	Livestock operator (applicant); Queen Creek Quarry owners/ operators; Western Watersheds Project; BLM ID	Ephemeral turnout will be authorized in accordance with the Special Ephemeral Rule (1968) and is addressed in the Proposed Action and Alternative 2.

What is the Issue Identified?	Who Identified this Issue?	How has this Issue been Addressed?
	team	
Heavy recreational use of the allotment, specifically OHV use from the surrounding neighborhoods, has led to destruction of property at the quarry and cultural resources, soils and vegetation. How does the BLM propose to address these issues through livestock grazing authorizations, which is seemingly unrelated?	Native Americans, BLM ID team, Queen Creek Quarry owners/ operators, Livestock operator (applicant)	This issue is addressed in the alternatives examined in this EA.
Given the recent urban sprawl around the allotment, and the Queen Creek Quarry inside the allotment, wouldn't it make sense to close the allotment to livestock grazing?	BLM ID team, Queen Creek Quarry owners/ operators, Western Watersheds Project	This issue is addressed in the No Action/ No Grazing Alternative in this EA.

2. DESCRIPTION OF THE ALTERNATIVES

Development of alternatives for this EA was based on the results of the Walker Butte Allotment LHE and issues raised through scoping. The LHE concluded that the objectives of the Lower Sonoran RMP and the Arizona Standards for Rangeland Health were being achieved throughout the allotment. The Proposed Action and the action alternatives were designed to help the allotment continue to meet Standards and RMP objectives while addressing the issues identified through consultation and coordination with the affected and interested parties.

2.1 No Action/No Grazing Alternative

NEPA requires the BLM to analyze a No Action Alternative, which represents the continuation of current policies in order to provide a baseline from which other alternatives can be compared. The No Action Alternative would typically analyze the renewal of the current grazing lease without changes to the existing terms and conditions. However, presently the Walker Butte Allotment is in “Hold” status because the preference was cancelled in 2011 due to the loss of the base property by the previous lessee. The lease could not be transferred to the new applicant because changes to the terms and conditions are proposed. Therefore, in this situation, the No Action Alternative is the same as a No Grazing Alternative.

Under this alternative, the application for the new lease would be declined, and livestock grazing would not be authorized for the Walker Butte Allotment. The BLM would amend the current RMP in accordance with 43 CFR parts 4100 and 1600 to eliminate grazing on this allotment. Fences would be removed when funding and staffing allow.

2.2 Proposed Action Alternative

1. Under the Proposed Action Alternative, a new 10-year grazing lease (2015-2025) would be issued to the applicant. The current applicant has shown to be qualified for the transfer by a) currently holding a lease of private property adjacent to the allotment that would serve as the new base property (see Figure 3), and b) having a past history of compliance with the BLM per 43 CFR 4110.1. The Proposed Action would transfer the preference to the new base property, and would transfer the grazing lease to the new applicant, with standard terms and conditions as shown in Table 2.

Table 2. Grazing preference: mandatory terms and conditions¹

Allotment	Percent Public Land Billed	Number and Kind of Livestock	Season of Use	Total AUMs
Walker Butte (#06041)	100%	0 Cattle ¹	Ephemeral	0 ¹

¹In accordance with the Special Ephemeral Rule, the lessee is required to file an application to include the desired number of livestock and period of use when forage becomes available. The number of livestock authorized would then be determined by the BLM after an on-site inspection of rangeland condition, available forage, and potential for continued soil moisture to sustain ephemeral forage.

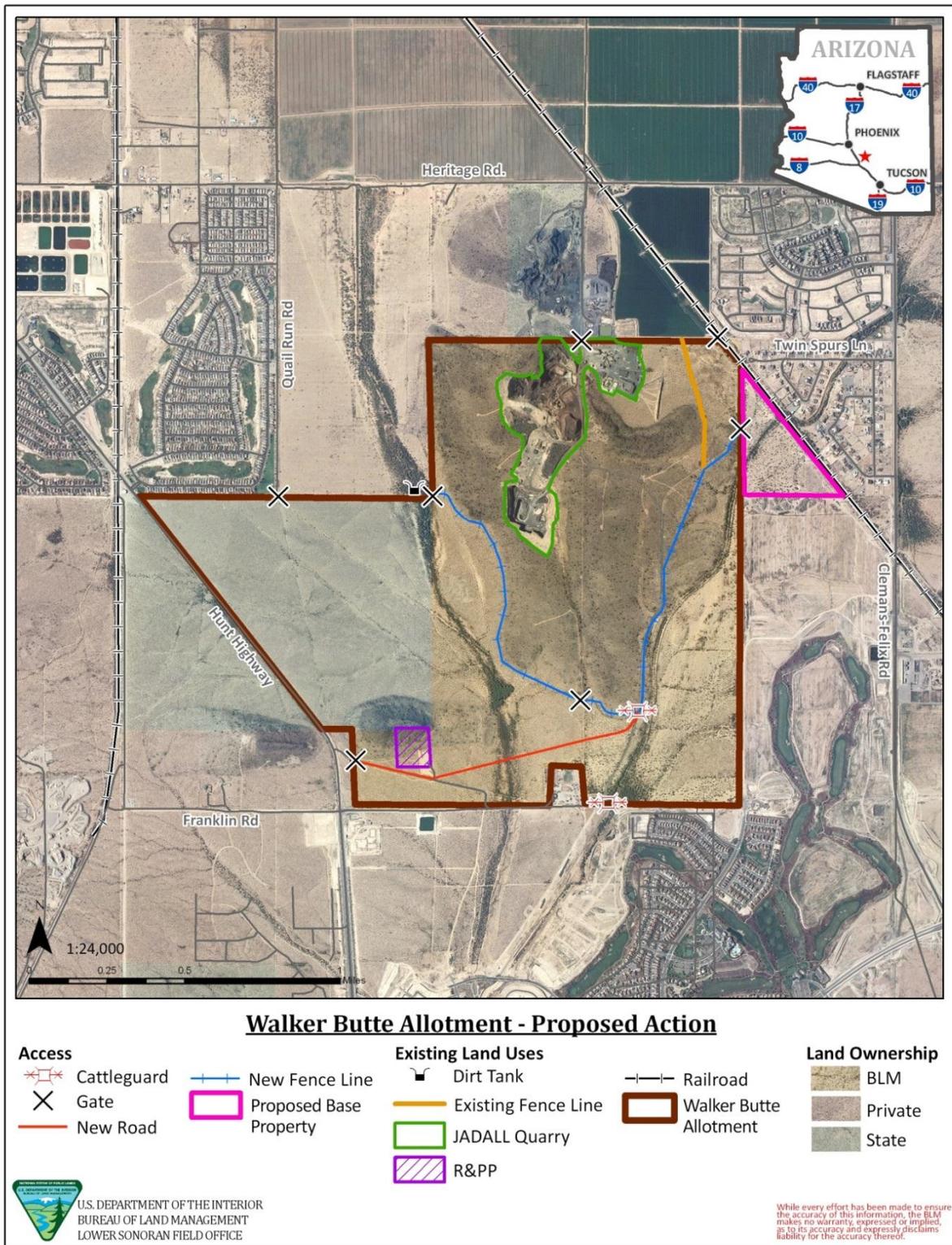


Figure 3. Proposed Action, including proposed base property and pasture fence.

2. In addition to the standard terms and conditions, the following terms and conditions would be added to the grazing lease:
 - a) The Walker Butte Allotment was designated for ephemeral grazing use by agreement dated December 1968. As such, this allotment will be grazed on an ephemeral basis only. Therefore, when forage becomes available, you must file an application and include the desired number of livestock and period of use. After BLM staff has monitored the allotment for adequate moisture and forage potential, and when applicable fees are paid, your billing notice becomes your authorization to make a specific amount of grazing use.
 - b) In accordance with the Special Ephemeral Rule, you must make water available and repair and/or maintain all existing allotment boundary and pasture fences before livestock are turned out onto the allotment.
 - c) In order to improve livestock distribution on the public lands, all salt blocks and/or mineral supplements shall be placed a minimum of 1/8 mile upslope from drainages/dry washes, and minimum of 1/4 mile away from watering facilities if water sources (either permanent or temporary) are developed within the allotment in the future. Supplements shall be removed when livestock are removed from the public lands.
3. Establish the base property shown in Figure 3 of the EA as the new base property for the allotment.
4. Under new cooperative agreements with the BLM, construct and maintain the “pasture” fence two cattle guards, and six gates shown in Figure 3 and further described in Section 2.2 of the EA.

Figure 3 also shows a proposed “New Road.” This proposal was suggested by the quarry operator during initial scoping in 2011 to provide access to the Queen Creek Quarry from the south. This proposed road is discussed briefly under the cumulative impacts section in this EA as a potential and reasonably foreseeable future project, but is not part of the Proposed Action analyzed herein, and would require separate NEPA to be considered separately in the future.

As stated in #2 of the above terms and conditions, all existing boundary fences would be repaired before livestock are turned out onto the allotment, in accordance with the Special Ephemeral Rule (Appendix C). Gates would be incorporated along the boundary fence to ensure continued access to public users. Heavy-duty cattle guards would be installed to provide access to vehicles associated with the quarry operation. The Proposed Action Alternative proposes an alteration of some of the current access points at the allotment boundary (Figure 3), as follows:

- a gate at the southwest corner of the allotment to allow continued access to the law enforcement shooting range authorized under a Recreation and Public Purpose Lease;
- a gate from the railroad and powerline right-of-way on the northeast corner of the allotment;
- a heavy-duty cattle guard at the south entrance from Franklin Road into the quarry;
- 2 gates on state land to access the lessee’s private lease on the northwest side of the allotment;
- a gate on the east side boundary between the allotment and the base property;
- a gate at the north entrance of the quarry from Arizona Farms Road, unless a cattle guard is installed at the expense of the Queen Creek Quarry operator.

Additionally, the Proposed Action would require the lessee to construct a “pasture” fence line to prevent cattle from wandering into the Queen Creek Quarry and facility as shown on Figure 3. The 2-mile long fence would be constructed through permit or cooperative agreement with the BLM, and would conform to standard BLM fencing requirements as outlined in BLM Handbook on Fencing No. 1741-1. The proposed fence line was developed in consultation with the Queen Creek Quarry operators to account for the ongoing mining operation and the potential quarry expansion. The U-shaped fence would essentially surround the quarry on three sides, virtually eliminating the possibility for livestock to enter the facility to cause damage to any of the machinery or facilities associated with the mining operation. The proposed heavy-duty cattle guards would accommodate the heavy machinery associated with the mineral operation, and would only affect the south entrance and quarry road.

Additionally, the proposed U-shaped “pasture” fence would require interior access points, as follows:

- a heavy-duty cattle guard would be needed across the road where the proposed “pasture” fence meets the quarry road. Cattle guards would be installed in consultation with BLM, the quarry operator, and the lessee to ensure the structures will accommodate the heavy machinery and vehicles travelling the road;
- a gate would be required at each end of the north-south power line trail that traverses the center of the allotment;
- a gate would be installed where the pasture fence crosses the access road to the northwest corner rights-of-way.

In all, 6.7 miles of boundary fencing, 0.75 miles of existing internal fencing, and 2.0 miles of new “pasture” fencing would be repaired, replaced, or newly installed, for a total of 9.5 miles of functional fencing on the Walker Butte Allotment. This would create a 454 acre BLM pasture available for livestock grazing; it would not affect the 312 acres of State Trust Lands. Additionally, a total of 6 gates and 2 cattle guards would be installed under the Proposed Action.

2.3 Alternative 2: Allotment Boundary fencing only

Under this alternative, the preference and terms and conditions would be the same as the Proposed Action. However, no new fencing would be constructed inside the boundaries of the allotment. All existing boundary fences would be repaired before livestock are turned out onto the allotment, in accordance with the Special Ephemeral Rule. Gates would be designed into the boundary fence to ensure continued access to public users. Heavy-duty cattle guards would be installed to provide access to vehicles associated with the quarry operation. All other terms and conditions of the lease described in the Proposed Action Alternative would be the same under Alternative 2. This alternative was developed to minimize the impacts of new fencing in the area.

Alternative 2 proposes the following access points along the boundary fence:

- a gate at the southwest corner of the allotment to allow continued access to the law enforcement shooting range authorized under a Recreation and Public Purpose Lease;
- a gate at the trail from the right-of-way on the northeast corner of the parcel;
- a heavy-duty cattle guard is proposed for the south entrance from Franklin Road into the quarry;

- a heavy-duty cattle guard at the entrance into the Queen Creek Quarry from Arizona Farms Road.

In all, 6.7 miles of boundary fencing, and 0.75 miles of existing interior fencing would be either repaired or replaced on the Walker Butte Allotment.

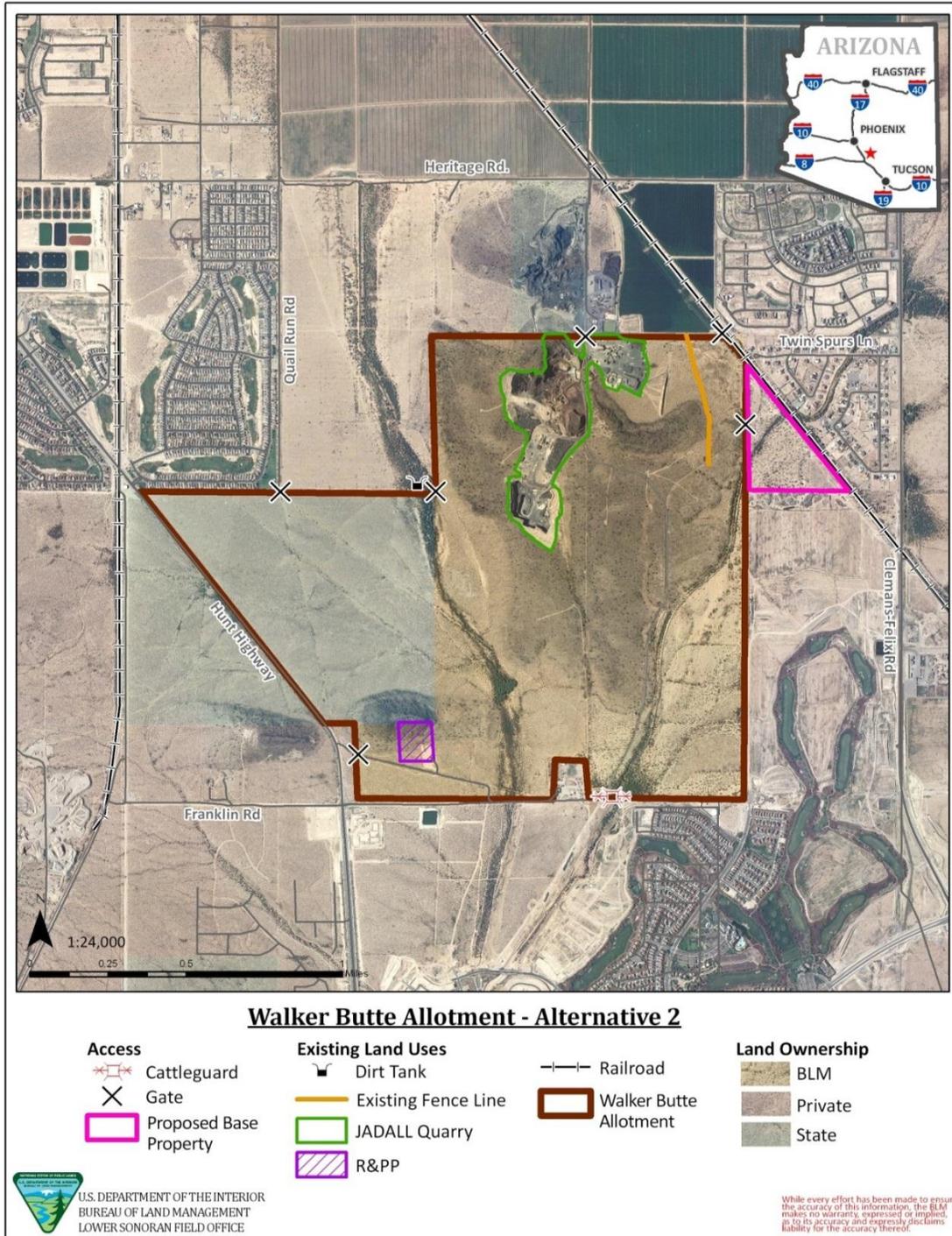


Figure 4. Alternative 2, with proposed base property and boundary fence improvements.

3. AFFECTED ENVIRONMENT

Chapter 3 describes the baseline condition of the environmental resources in the allotment that have the potential to be affected by implementation of the alternatives. The affected environment was considered and analyzed by the ID Team. This EA incorporates by reference the Land Health Evaluation for the Walker Butte Allotment (Appendix A).

3.1 Critical Elements and Other Resources Considered in the Analysis

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 2008), have been considered by BLM resource specialists on the ID Team to determine whether they would be potentially affected by any of the alternatives. Because the intent of a NEPA document is to concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail (40 CFR 1500.1(b)), elements that are not present or would not be affected are not carried forward for analysis in the EA. Elements determined to be potentially impacted are carried forward for detailed analysis in this EA.

3.2 Resources Considered but not Carried Forward for Analysis

Upon review it was determined that the following elements are not present on the Walker Butte Allotment or are present but would not be affected to a degree that requires detailed analysis.

Air Quality: The Walker Butte Allotment is located in Pinal County, portions of which have been classified as a nonattainment area for PM₁₀ (particulates) and SO₂ (sulfur dioxide) under the Clean Air Act. However, the Walker Butte allotment itself is outside the Pinal County nonattainment areas. Because of the infrequency of ephemeral turn-out, and short duration and low intensity of livestock movement in the allotment during periods of use, the effects of any of the alternatives with regard to air quality is expected to be localized and negligible.

Areas of Critical Environmental Concern: There are no Areas of Critical Environmental Concern within or near the boundaries of the Walker Butte allotment.

Environmental Justice: In compliance with Executive Order 12898, the BLM has identified no minority or low-income populations that could be disproportionately affected as a result of the proposed action or alternatives. There are no low-income or minority populations located within the allotment boundaries. No environmental justice effects are anticipated from implementation of any of the alternatives.

Floodplains: There are no floodplains within the allotment boundaries. Therefore, there would be no impacts to this resource from any of the alternatives.

Paleontological Resources: There are no known paleontological resources located in the allotment and soil compositions present are not the types that tend to support them. Therefore, none of the alternatives considered in this analysis would affect this resource.

Prime and Unique Farmlands: There are no prime and unique farmlands on public lands within the allotment. There would be no effects to this resource from any of the alternatives.

Socio-economic Values: Grazing use on this particular allotment is infrequent and minimal. Construction of boundary and pasture fences and tending livestock would offer brief

employment for approximately four people on an as-needed basis. This action would not result in any measurable impacts to the local economy.

Wastes, Hazardous or Solid: Hazardous materials on site are primarily petroleum products required for the operation and maintenance of the mining equipment, but also include some solvents and other chemicals used for maintenance purposes. All hazardous materials are handled, stored, and disposed of in accordance with applicable safety and environmental laws and regulations. It is not expected that any hazardous materials will come in contact with any livestock or livestock handlers or that the livestock operations would produce or require the use of hazardous or solid waste.

Water Quality: Surface water resources consist of intermittent runoff from the exposed bedrock areas into the surrounding alluvium. No permanent surface water or ground water exists in the allotment. Based on current information, there are no other concerns regarding water quantity or quality that would be affected by any of the alternatives.

Wetland/ Riparian Areas: There are no wetlands or riparian areas located within the Walker Butte Allotment. Therefore there would be no potential for effects to this resource from any of the alternatives.

Wild and Scenic Rivers: There are no designated wild and scenic rivers within the allotment. Therefore there would be no potential for effects to this resource from any of the alternatives.

Wild Horse and Burro: There are no wild horse and burro herd areas or herd management areas in this part of Arizona. Therefore, there would be no potential for effects to this resource from any of the alternatives.

Wilderness: There are no designated Wilderness Areas or Wilderness Study Areas in the Walker Butte Allotment. Therefore there would be no potential for effects to this resource from any of the alternatives.

Wildland Fire Management: Fire data indicates no reported fires on the allotment or vicinity in the past 20 years. The potential for fires in this area is remote (Tibbetts, personal communication, 2014).

3.3 Resources Brought Forward for Analysis

The following sections contain descriptions of the elements that were determined to be potentially impacted by the alternatives and were therefore carried forward for detailed analysis in this document. The description of the resources identified below provides the baseline for comparison of impacts described in Chapter 4.

3.3.1 Cultural Resources and Native American Religious Concerns

Cultural and heritage resources within the LSFO resource area represent evidence of more than 10,000 years of human occupation of the region. The majority of the cultural resources on public lands are archaeological sites reflecting both pre-Columbian and post-contact occupation (BLM 2011). Cultural resources are present within the Walker Butte Allotment, and contain Native American habitation sites of “major historic or cultural significance” (43 CFR 2071.2 1971). In addition, other archaeological sites are present within the allotment.

In 2003, SWCA Environmental Consultants completed a 100% archaeological survey of the lands associated with Queen Creek Quarry (they surveyed 640 acres around the proposed mine

expansion area). This survey included some of the areas in the lands that can still be grazed (not impacted by the gravel operation). The BLM determined that five archaeological sites within the area are eligible for nomination to the National Register of Historic Places (NRHP) by virtue of their information potential. The BLM stipulated that these sites would be avoided by cinder mining operations and facilities. In a memorandum dated September 23, 2004, a BLM archaeologist recommended several actions to be incorporated into contract stipulations with Queen Creek Quarry. These are outlined as attachments to the Queen Creek Quarry Mineral Material Sale Environmental Assessment (DOI-BLM-AZ-P020-2012-004-EA).

Other cultural resource surveys have been conducted within the assessment area, primarily for gravel pits, mineral exploration, power lines, roads and/or road improvement projects, and for the proposed action for this grazing lease renewal.

In compliance with Section 106 of the National Historic Preservation Act (NHPA), the effect of the undertaking on cultural resources eligible for the NRHP would be determined and mitigation measures would be designed where appropriate. Since there would be no adverse effect to any historic properties as a result of this action, it was not necessary to consult with the State Historic Preservation Office (National Park Service).

As required by the Native American Graves Protection and Repatriation Act regulations at 43 CFR 10.4(g), the following would be added to the lease as a term and condition:

“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 (P.L. 101-601; 104 Stat. 3048; 25 U.S.C. 3001) are discovered, the lessee shall stop operations in the immediate area of the discovery, protect the remains and objects, and immediately notify the Authorized Officer of the discovery. The lessee shall continue to protect the immediate area of the discovery until notified by the Authorized Officer that operations may resume.”

Erosion, vandalism, and unauthorized collection of artifacts present threats to cultural resources. The increase in all-terrain vehicle (ATV) use has led to far higher rates of damage from vehicles to many sites and increased site visitation throughout the field office area in recent years. Virtually all Native American Tribes are concerned about preserving archaeological sites regarded as ancestral and the disturbance of human remains associated with some of them. Some Tribal groups continue to collect natural resources, such as plant materials traditionally used for food, medicine, ceremonies, or crafts and are concerned about public lands access to collect such items (BLM 2011).

Native American consultation and a site visit with the Gila River Indian Community occurred on August 8, 2013, and revealed the tribe’s desire for fencing to protect cultural sites within the allotment boundaries. The tribe voiced concerns about the quarry operation’s effect on cultural sites, and past consultations revealed that their concerns revolve around specific sites. BLM asked the quarry operator to install fencing and large boulders to keep ATVs and public out of the area. The quarry has a vested interest in keeping the public out, due to considerable safety concerns.

The concerns about the important sites in the areas lying outside of the quarry operations on the adjacent lands within the allotment boundary were also discussed in the field visits with the

Tribe. No Native American religious concerns were identified in relation to livestock grazing within this allotment during consultation with the Native American tribes that claim cultural affiliation to the area.

3.3.2 Soils

The Walker Butte Allotment is located in the Major Land Resource Area (MLRA) 040—Sonoran Basin and Range. It has an annual average precipitation of 7-10 inches per year. The soil survey for this area is the Pinal County, Arizona, Western Part (AZ659). Ecological sites and soil types found on the Walker Butte Allotment are provided in Table 3. However, information regarding these soils and ecological sites on the allotment are available in the LHE and will not be described in detail in this EA.

Geographically, the lands on the north end of the allotment constitute an isolated area of extrusive volcanic rock (basalt and cinders) which erupted during the Miocene time (5.3-23.8 million years ago) into the middle of an alluvial plain. These rocks are currently being made into decorative stone and gravel by the Queen Creek Quarry operation.

Table 3. Soils and ecological sites of the Walker Butte Allotment

Map Unit Name	Ecological Site	Percentage of Area
Laveen loam:	Limy Fan 7-10" PZ	49%
Cherioni rock outcrop complex:	Basalt Hills 7-10" PZ	21%
Cipriano cobbly loam:	Limy Upland 7-10" PZ	12%
Coolidge sandy loam:	Limy Fan 7-10" PZ	11%
Mohall loam:	Loamy Upland 7-10" PZ	7%
		100%

(Source: <http://websoilsurvey.nrcs.usda.gov>).

As analyzed in the LHE, soils and ecological sites on the allotment were determined to be achieving Standard 1, Upland Sites. The BLM interdisciplinary team evaluated the ratings of 17 indicators on a site-by-site basis and made a collective rating of none-to-slight, which is the least departure from normal. Rangeland health assessments indicate that the upland soils at each of the key areas exhibit infiltration, permeability, and erosion rates that are appropriate to the soil type, climate and landform (ecological site). Each key area has appropriate canopy cover for its ecological site, and soil-related indicators such as cryptogamic crusts, flow patterns, bare ground, soil and litter movement, and soil compaction, etc. are appropriate for each site.

Soil disturbance and erosion are currently evident on the east side of the allotment and along the western boundary adjacent to Hunt Highway (on State lands). These disturbances have been primarily caused by heavy OHV use and maintenance of the railroad and powerline rights-of-way.

3.3.3 Vegetation

The Walker Butte Allotment is generally characterized as a foothills paloverde/ creosotebush/ triangle bursage association. The western portion is slightly more sloped and is characterized as a foothills paloverde/ white ratany/ brittlebush association. Cactus species include saguaro, barrel cactus, and pencil cholla. Vegetative density is relatively low across the allotment, except in the bottomlands. Velvet mesquite and catclaw acacia dominate the bottomlands of the allotment, with a dense understory of annual forbs and grasses. Annuals were present, but not abundant, in the uplands. Except for the mesquite bosque along the western boundary of the allotment, vegetative density is relatively low and the area is very xeric.

Because the Walker Butte Allotment is within 7 miles of the Gila River, it has historically experienced heavy ranching and agricultural use. Old irrigation ditches can be seen on the southern and eastern portions of the allotment. These areas are now reclaimed agricultural lands consisting primarily of creosotebush-bursage communities.

Sixty percent of the allotment is made up of Limy Fan ecological sites. Due to the unpalatable nature of the shrubby species in the potential community there is little change in species composition even with heavy grazing pressure. This site produces no herbaceous forage for year-round use. Shrubby species on the site are not palatable. In wet winters the production of cool season annuals can be very abundant and provide for a high stocking rate in the spring grazing season.

In the Loamy Bottom ecological site on the western side of the allotment (i.e, the mesquite bosque), plant-soil moisture relationships are excellent for deep rooted trees due to the extra water these soils receive as runoff from upland watersheds and/or the presence of shallow ground water tables. This site produces up to 2,000 pounds per acre of spring annual forbs and grasses, and in the summer the mesquite trees can produce an abundant bean crop. This site has a mixed plant community with an overstory of mesquite and palo verde, a midstory of tall shrubs (creosotebush, crucifixion thorn) and an understory of low shrubs (e.g., bursage species) and perennial and annual grasses and forbs. Mesquite canopy made up 76% of the plant community on this site. Undesirables, such as greythorn and alkali goldenweed are present, and could increase to dominate the plant community if the mesquite cover is removed. Invasive species such as filaree and Carolina canarygrass dominate the understory. Salt cedar exists at the stock tank on private land north of the allotment.

The mesquite is not located in a wash, but in a Loamy Bottom, which is not a riparian area. There is no surface water on this allotment, and the vegetation community is consistent with uplands. Xeroriparian areas (i.e. washes and bottomlands) consist of less than 1% of the Walker Butte Allotment (websoilsurvey.nrcs.usda.gov). However, proportionately more browsing and loafing by cattle and wildlife occurs on these sites than upland sites, and therefore a key area was established and assessed for rangeland health condition (LHE, Appendix A).

There was heavy growth and curing of annual forbs and grasses on Key Area 3, and a build-up of non-persistent litter (often in the form of large pack rat nests) may be creating a potentially hazardous fuel load for an area so close to urban areas. Ephemeral grazing on this site could serve to reduce the fuel load and break up much of the non-persistent litter to create more organic material for the soils.

All three Upland Health Assessment Attributes at Walker Butte Key Areas 2 and 3 showed no to slight departure from the respective NRCS Ecological Site Description. The Similarity Index score indicated that Key Area 2 was in Late-Seral stage and Key Area 3 is likely at Potential

Natural Community. Soil/site stability, hydrologic function, and biotic integrity met expectations for Key Area 2 and exceeded expectations on Key Area 3. Any variations from the Ecological Site Description were positive. For instance, the canopy cover was higher than reference sites for Loamy Bottom sites, and the percentage of bare ground was less than expected at both sites. Due to its proximity to historically populated areas, past heavy grazing has likely removed the perennial grass component across the allotment (Bahre, C. J. 1991). However, because this allotment is designated for ephemeral use only, the abundant annual forage should provide adequate forage and cover for livestock and wildlife species in years of above-average precipitation.

All Desired Plant Community (DPC) objectives developed for the LHE were met for Key Area 2 and 3. No DPC objectives were established for Key Area 1, which is now obsolete (as part of the quarry operation). All key areas within the allotment were determined to be achieving Standard 3 for upland native plant communities: Plant community structure and distribution were appropriate for each ecological site. Data collected and analyzed from each key area demonstrated that the areas were productive and diverse. Details of the vegetation composition, cover, and all analyses are found in the LHE (Appendix A).

No plants that require protection under the Endangered Species Act have been identified within the allotment boundary.

3.3.4 Noxious Weeds and Invasive, Non-native Species

Monitoring conducted in 2010-2013 identified invasive, noxious species at Key Area 3. The Loamy Bottom ecological site on the western side of the allotment where Key Area 3 is located produces large quantities of spring annual forbs and grasses. This site has a mixed plant community with velvet mesquite making up 76% of the overstory plant cover on this site, and the understory consists of shrubs and perennial and annual grasses and forbs. Annual (ephemeral) forage, such as fillaree and Canarygrass, dominates the understory (Figure 5). These species are invasives, but highly palatable by cattle when the forage is green. Salt cedar exists at the stock tank on private land north of the allotment but has not encroached onto public land because of lack of available water.



Figure 5. Annual vegetation at Key Area 3.

3.3.5 Minerals

The BLM manages the surface and subsurface minerals on the eastern 2/3 of the Walker Butte Allotment. The surface and subsurface of the western 1/3 of the allotment is managed by the State of Arizona. The active Queen Creek Quarry comprises the northern 2/3 of the BLM portion of the allotment, which is currently being operated by Vulcan Materials Company (Vulcan) as a source of crushed & broken basalt (contract AZA-35796) and volcanic cinder fines (contract AZA-3579601). BLM originally issued both contracts to JADAAL, LLC (JADAAL) in January 2014, with renewable 10-year terms. Both contracts were assigned from JADAAL to Vulcan in September 2014. (Some maps in this EA and the LHE still show JADALL as the quarry operator.)

The operations that occur at the Queen Creek Quarry include mining of material through the use of heavy equipment and where necessary, drilling and blasting of rock. The material is then processed on site using a series of crushers, screens, and conveyors that transport the finished product to various stockpiles. The material is then loaded into haul trucks for transport to the point of use or sale.

3.3.6 Wildlife Resources

General Wildlife: Wildlife species that occur within the Walker Butte Allotment are typical and representative of the vegetative communities present in the area. Species present include, but are not limited to mule deer, coyote, javelina, mountain lion, bobcat, gray fox, raccoon, desert cottontail, black-tailed jackrabbits, morning and white-winged doves, Gambel's quail, great horned owls, and various reptiles, small mammals and migratory birds.

The Loamy Bottom ecological site (i.e., the mesquite bosque on the western side of the allotment) is the primary source of forage and cover for both livestock and wildlife on the allotment. This site is well-wooded with seasonal water supplies in natural charcos and/or discontinuous gullies. Forage diversity is low but seed production is high. The site may be suitable for large mammals such as mule deer and javelina, though it is not certain if these species frequent the allotment due to its close proximity to housing developments and an active quarry. Low-lying areas on the southeast side near Franklin Road also provide light mesquite and paloverde cover and forage. These trees are also home to a variety of bird species. There are no Wildlife Habitat Areas or wildlife movement corridors in or near the allotment.

Because the Florence area is becoming increasingly developed, the Walker Butte Allotment and neighboring rangelands are becoming increasingly fragmented. Habitat loss from urbanization and associated fragmentation are among the leading threats to area wildlife.

- **Migratory Birds:** There are approximately 450 non-game bird species native to Arizona, with about 291 species documented as breeding in the State. Of the breeding species, 237 are neotropical migrants, or birds that breed in the United States or Canada and winter to the south, from Mexico to South America. While a migratory bird inventory has not been completed, 163 of Arizona's neotropical migrants are known to nest in the Lower Sonoran RMP Planning Area regularly or irregularly (AGFD 2001). Such species depend on quality habitats containing adequate substrate and cover for nesting purposes, as well as diverse vegetation to supply food for brood rearing. The Walker Butte allotment contains breeding, nesting, brood rearing, and wintering areas in the mesquite bosques, as well as migration routes along the Gila River that are important for migratory birds. The agricultural and

irrigated lands on the private lands near the allotment provide suitable habitat for a number of migratory birds including the BLM sensitive great egret (*Ardea alba*) and the snowy egret (*Egretta thula*) which use the irrigated areas for foraging.

- **Threatened or Endangered Species:** Based on BLM’s current GIS database, species and/or designated critical habitat listed under the Endangered Species Act (ESA) do not exist within the Walker Butte Allotment. However, the U.S. Fish and Wildlife Service’s Information, Planning, and Conservation planning tool (<http://ecos.fws.gov/ipac/>) returns the following species when queried for the Walker Butte Allotment area.
 - **Lesser long-nosed bat** (Endangered). The Walker Butte Allotment lies 4 miles northeast of the nearest lesser long-nosed bat forage buffer, which extends in a 40-mile radius from the nearest known roost site. As described above, the Walker Butte Allotment is characterized as a foothills paloverde/ creosotebush/ triangle bursage association, and with the exception of velvet mesquite and catclaw acacia in the bottomlands, vegetative density is relatively low. While columnar cacti, such as saguaros, are present within the allotment, they are not expected to occur in stands of sufficient density (e.g., averaging more than 5 individuals per acre, Tim Hughes, personal communication) to concentrate foraging lesser long-nosed bats.
 - **Southwestern willow flycatcher** (Endangered). According to BLM’s current GIS database, the nearest southwestern willow flycatcher individuals or designated critical habitat within the Lower Sonoran Field Office, is approximately 50 miles northwest of the Walker Butte Allotment on the Gila River.
 - **Yellow-billed cuckoo** (Proposed Threatened, Proposed Designated Critical Habitat). As with the flycatcher, the nearest documented individuals or proposed designated critical habitat is approximately 50 miles northwest of the allotment.
 - **Northern Mexican gartersnake** (Threatened, Proposed Critical Habitat). BLM’s current GIS database indicates that the nearest proposed critical habitat and/or individuals is approximately 50 miles northeast of the Walker Butte Allotment along the riparian corridor feeding the northwest end of Roosevelt Lake.
- **Special Status Species:** BLM sensitive species require special management consideration to avoid potential future listing under the ESA. State sensitive species, that is, “species of greatest conservation need” as identified by the Arizona Game and Fish Department (AGFD), are species that are critically imperiled, imperiled, or vulnerable to rangewide extinction or extirpation. All of the State sensitive species in this report are also BLM sensitive species and thus are discussed together. In most cases, actions that impact sensitive species may also impact general wildlife species and thus are not discussed separately from BLM sensitive species.
 - **Sonoran Desert tortoise.** The Sonoran population of desert tortoise includes tortoises south and east of the Colorado River in Arizona and extends south into Mexico. In December 2010, the Sonoran population was added to the USFWS’s candidate species list (FR Vol. 75, No. 239, page 78094). The Sonoran population is vulnerable to habitat loss and degradation, habitat fragmentation, genetic contamination, collection, and disease (AGFD 1996). To address its management responsibilities, the BLM has developed a management plan for desert tortoise on public lands and a strategy for carrying out the plan in Arizona, *Strategy for Desert Tortoise Habitat Management on Public Lands in Arizona: A Rangewide Plan* (BLM 1990).

Tortoises generally use natural and excavated cover sites between or under boulders and in caliche caves along washes wherever they occur. Although they could be present anywhere in the allotment, tortoises tend to occupy hillsides and ridges with outcrops of large boulders as well as areas with incised washes and caliche caves, which are habitat characteristics not found in abundance on the portions of the Walker Butte Allotment not used by the Queen Creek Quarry. Their diet consists of annual forbs (30.1%), perennial forbs (18.3%), grasses (27.4%), woody plants (23.2%) and prickly pear fruit (1.1%) (Van Devender et. al. 2002).

The BLM characterizes tortoise habitat on their managed lands in three categories. Category I desert tortoise habitat includes habitat that is necessary to maintain populations with the highest densities, which are stable or increasing, and experiences the fewest conflicts with current land uses. Category II habitat may support stable populations and/or are contiguous with medium to high-density habitat. Category III habitat is the least manageable and contains medium to subpar habitat; however, these areas do exist between Category I and II habitats and should be managed for dispersal between Category I and II habitats. The goal of the BLM is to maintain stable and viable populations with no net loss of habitat in Category I and II habitats and to limit population declines to the extent possible in Category III habitats by mitigating impacts.

The Walker Butte Allotment is 3 miles west of the nearest Category III (lowest suitability rank) desert tortoise habitat (based on current BLM GIS information.) In 1998 suitable desert tortoise habitat associated with what is now the Queen Creek Quarry (Figure 4) in the north end of the allotment was mitigated through compensation for minerals extraction. According to the 2004 EA analyzing the mineral material operation, there is no remaining desert tortoise habitat in the vicinity (BLM file # AZA-30420). Although mitigation through compensation of tortoise habitat was completed in 1998, live tortoise may be encountered. If a live desert tortoise is encountered, operators must remove the tortoise from danger and immediately contact the AGFD so that they may determine if they need to recover the animal.

3.3.7 Recreational Resources and Travel Management

Recreational activities include, but are not limited to hunting, prospecting, hiking, horseback riding, off-highway-vehicle use, target shooting, rock-hounding, and photography. These activities cause heavy recreational use because of its proximity to nearby housing developments, agricultural fields, and parks. Except for a 5-acre Recreation and Public Purposes (R&PP) lease currently allocated to Pinal County for law enforcement firearms training, the allotment does not have a special recreation designation and there are no developed recreation sites in the allotment. Hunting and recreational target shooting occur within the allotment, as evidenced by litter such as shotgun shells and targets left behind. Horseback riders have been observed crossing the allotment, and hikers have been observed climbing the hills up to the rock quarry. Numerous fire rings can be seen across the area.

All vehicular traffic is limited to designated routes, although berms created along the railroad and utility rights-of-way attract ATV and motorcycle use. The west side of the allotment borders on Hunt Highway, and considerable OHV activity occurs along the highway on State and BLM lands as OHVs are used to travel between the housing communities and the shopping centers.

Fences have not been maintained, which encourages use of the public lands rather than restricting use to the highway right-of-way and other designated routes.

3.3.8 Lands and Realty

Possible lands and realty actions that may be affected by the Proposed Action include:

- AZA-23362 - City of Coolidge (Recreation and Public Purposes [R&PP] Lease)
- AZA-2336201 - City of Coolidge (R&PP, see above)
- AZA-29465 - BLM (Community Pit)
- AZA-22783 - Arizona Public Service Company (Power line)
- AZA-23681 - City of Coolidge (Road right-of-way for R&PP access)
- AZA-35796 - Vulcan Materials Company (Mineral Materials Sale)
- AZA-3579601 - Vulcan Materials Company (Minerals Material Sale Renewal)
- AZA-36590 - Southwest Rock Product LLC (Pending)
- AZA-33652 - SRP (Power line)
- PHX-0086615 - Copper Basin Railway Inc. (Railroad right-of-way)

Because it is an isolated parcel of public lands and is therefore difficult to manage, the Walker Butte Allotment has been designated as suitable for disposal (2012a).

In addition to the Queen Creek Quarry that has been authorized on a large portion of the north part of the allotment, development has also occurred on private lands nearby. The Florence Hospital at Anthem is located adjacent to the southwest corner of the allotment boundary. The Sun City Anthem residential development is located along the southern and eastern boundaries of the allotment. Many homes, a golf course, and a community center have already been constructed and additional development will occur in phases over the next several years. Additional residential development exists just outside the northeast corner of the allotment along with more lots that have been cleared for construction. Agricultural fields and vacant land are located north of the allotment as well as additional facilities related to the Queen Creek Quarry. Another golf course and residential development are located directly north of the allotment at the northwest corner. Hunt Highway is located along the western boundary of the allotment.

3.3.9 Visual Resources

Visual resources in the vicinity of the allotment include typical Sonoran Desert landscape features. Views consist of rangelands in the foreground, with housing developments in the mid distance, and the Catalina Mountains in the far distant view southward and the Superstition Mountains to the north. The visual resource management classification for this allotment is Class IV, meaning that actions, projects, and facilities can be visible, but should not dominate the landscape. The objective for Class IV is to provide for management activities that could require major modification of the existing character of the landscape, and the level of change to the characteristic landscape can be high.

4. ENVIRONMENTAL EFFECTS

The potential direct, indirect, and cumulative environmental consequences or effects of the alternatives are discussed in this chapter. The No Action/ No Grazing Alternative serves as a baseline against which to evaluate the environmental impacts of the Proposed Action and alternatives. Direct and indirect effects are discussed first by resource, and cumulative effects are discussed at the conclusion of this chapter.

Methods for analyzing potential impacts of livestock grazing on the Walker Butte Allotment:

All steps were completed within the ArcGIS Desktop 10.1 environment and extensions, explicitly the Image Classification tools.

1. One meter 2013 National Agriculture Imagery Program (NAIP) imagery was classified (using Maximum Likelihood Classification) into the following categories using the Image Classification tools. Area data from each of the following were used to quantify and analyze existing impacts to the evaluation area (see Figure 6).
 - a. Agriculture
 - b. Creosote Flats
 - c. Exposed Soil
 - d. Mesquite Bosque
 - e. Mine Quarry
 - f. Paved Roads
 - g. Residential
 - h. Residential Vegetation
 - i. Rock Outcrop
 - j. Unpaved Roads
 - k. Uplands
 - l. Water
2. For the Area of No Expected Use, it was assumed that with the proposed action of the new fence line together with the existing fence line surrounding the Queen Creek Quarry and beyond would result in no entrance of cattle.
3. For the Area of High Expected Use, the areas identified as Mesquite Bosque from the image classification were outlined. Any small, isolated clusters of the class resulting in less than five contiguous acres were eliminated to smooth the expected use area.
4. For the Area of Moderate Expected Use, the areas identified between the existing fence line, proposed fence line, and mesquite bosque were identified through the image classification process as uplands, and creosote flats. Any small, isolated clusters of the classes resulting in less than five contiguous acres were eliminated to smooth the expected use area.
5. For the Area of Low Expected Use, the areas identified between the proposed fence line and mesquite bosque were identified through the image classification process as exposed soil, rock outcrops, and creosote flats with little vegetation. Any small, isolated clusters of the classes resulting in less than five contiguous acres were eliminated to smooth the expected use area.
6. The four areas were merged together to create the final expected use dataset.

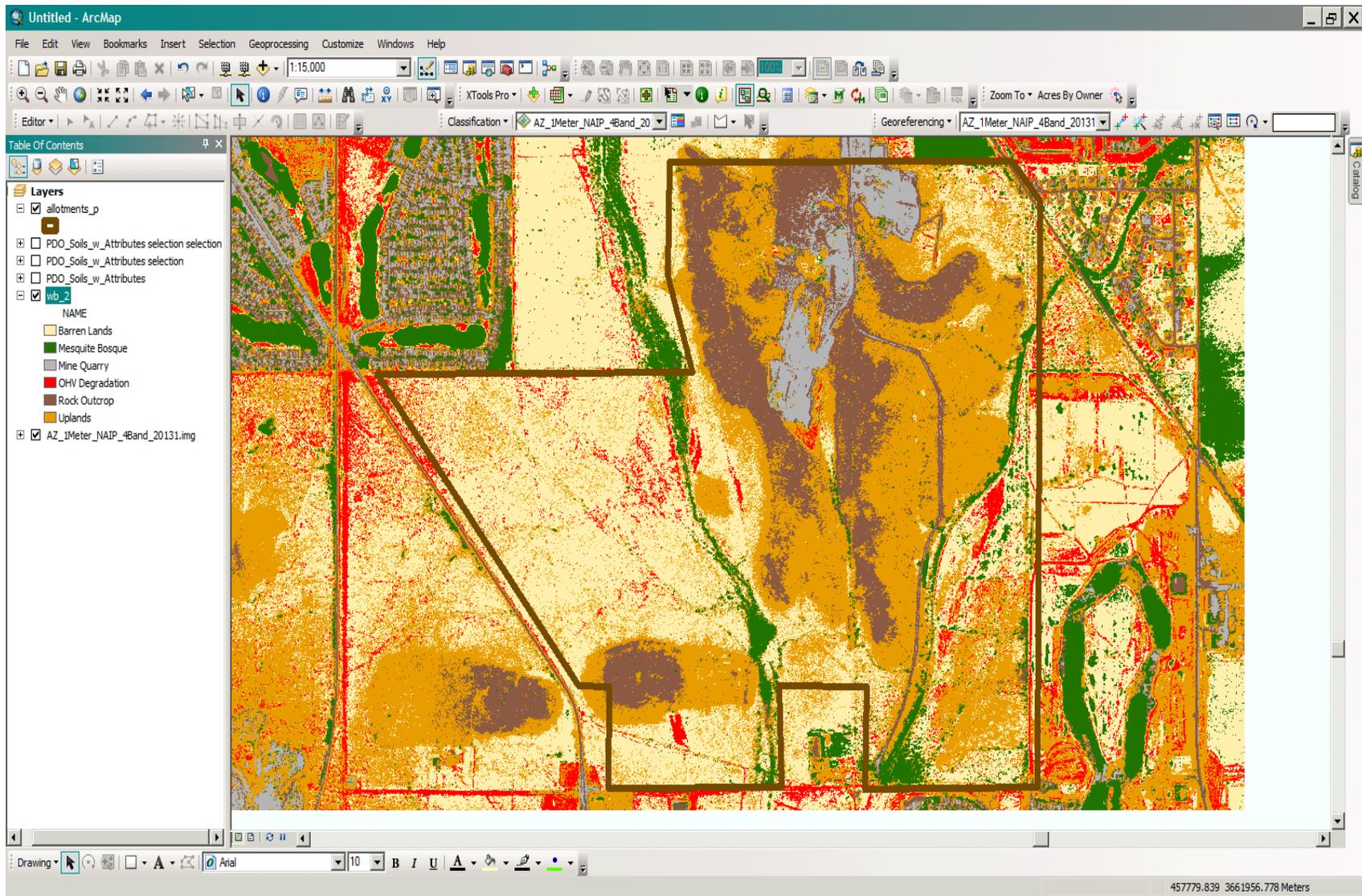


Figure 6. Remote Sensing NAIP Imagery used to delineate land surface classifications

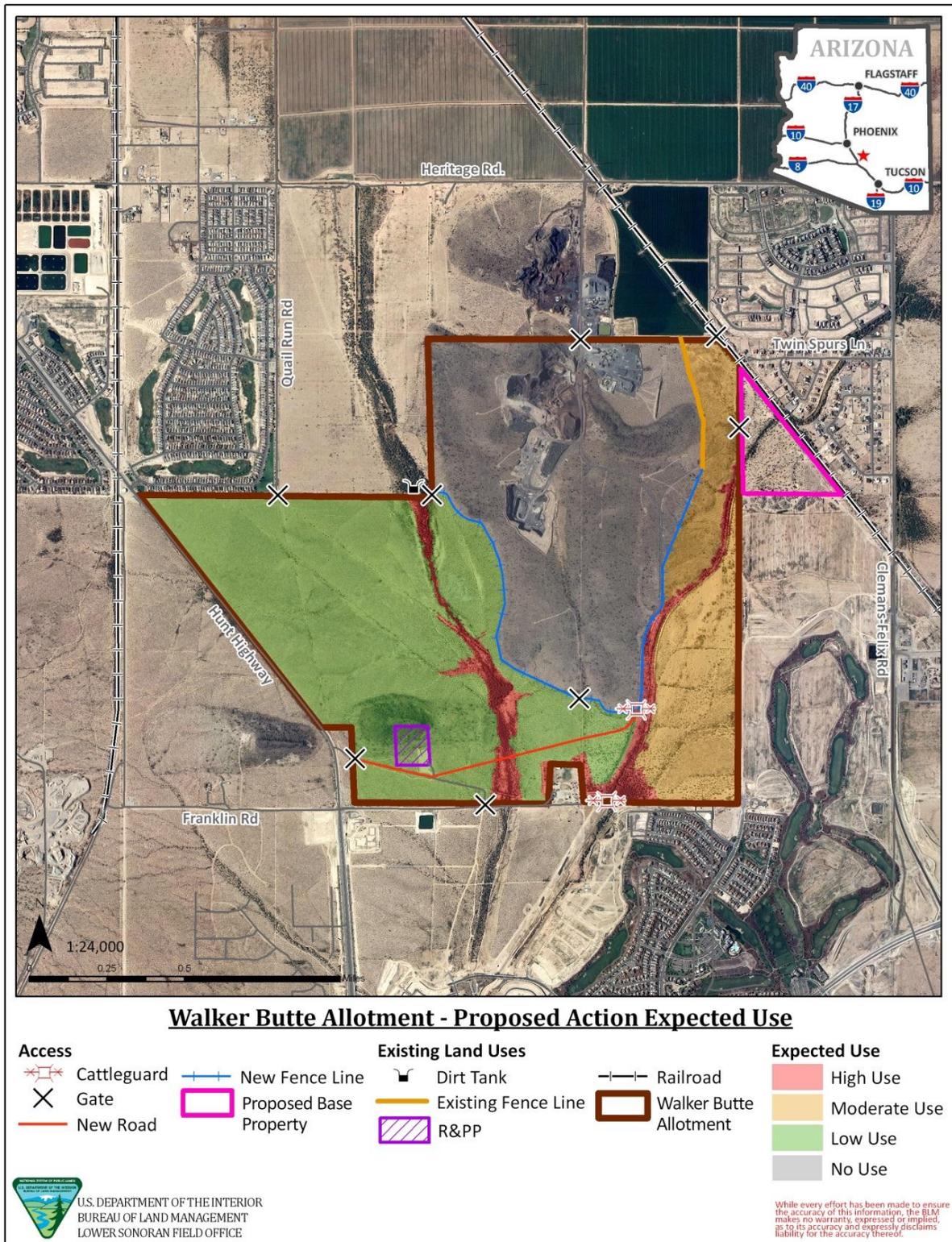


Figure 7. Area of Expected Livestock Use under the Proposed Action

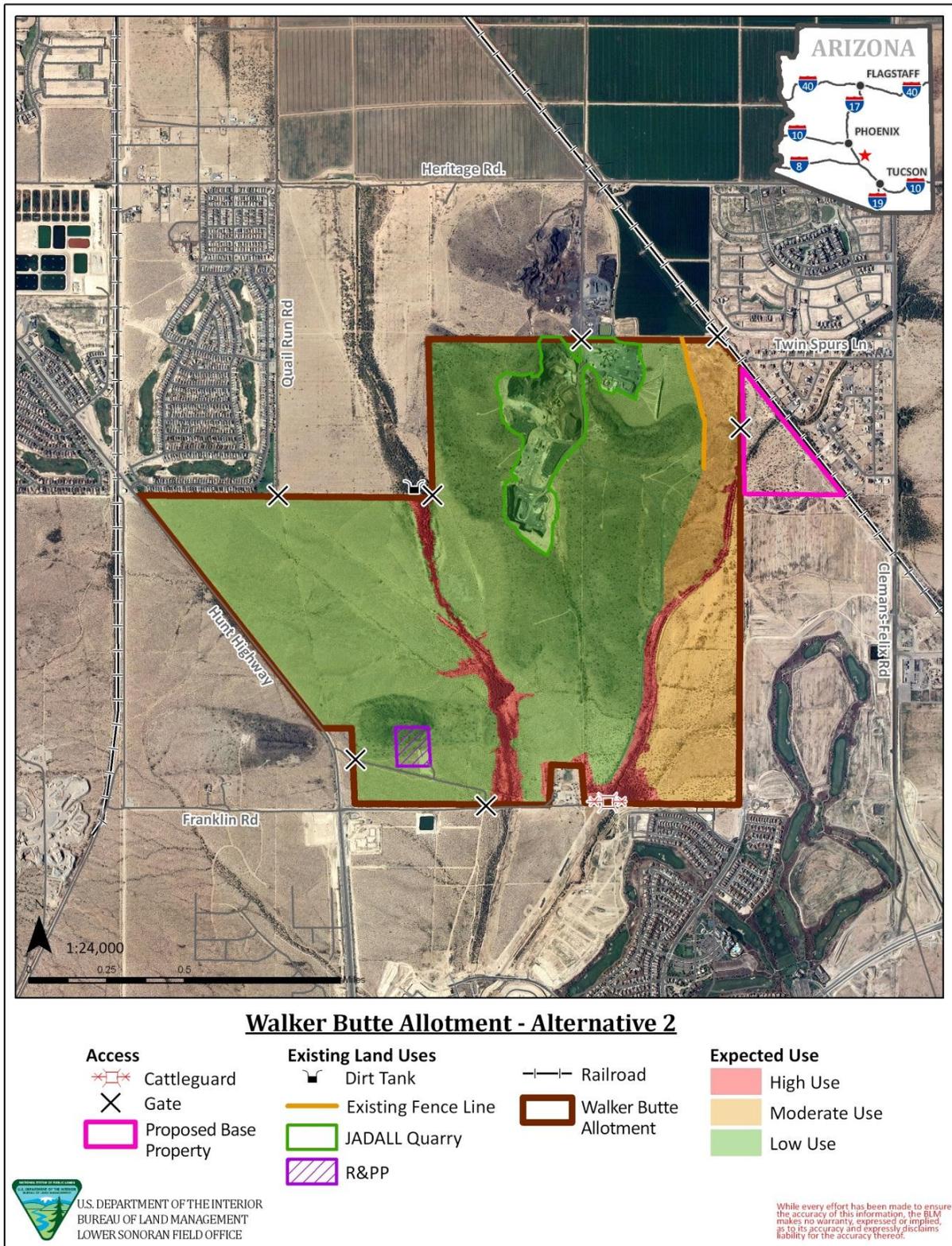


Figure 8. Area of Expected Livestock Use under Alternative 2

4.1 Cultural Resources

- *Issue: Heavy recreational use of the allotment, specifically OHV use from the surrounding neighborhoods, has led to destruction of property at the quarry and cultural resources, soils and vegetation. How does the BLM propose to address these issues through livestock grazing authorizations?*

4.1.1 No Action/No Grazing Alternative

The No Action/ No Grazing Alternative would mean the continuation of current conditions on the Walker Butte Allotment without the repair of existing fencing or construction of new fencing. This alternative would eliminate the potential for impacts from livestock grazing to cultural resources. However, because there would be no fencing to limit OHVs and other recreationists from entering the Queen Creek Quarry, cultural sites may be more accessible than they would be under the Proposed Action or Alternative 2. Increased site visitation, damage from vehicles, vandalism and unauthorized collection of artifacts may continue to threaten cultural resources and would likely increase as the area becomes more developed and populated.

4.1.2 Proposed Action Alternative

The impacts of the BLM's livestock grazing program on cultural resources have been considered in a series of EIS documents, including the 2012 *Lower Sonoran RMP*. According to those analyses, livestock grazing is an historic use of the land that has "no effect" on National Register properties for the purpose of Section 106 compliance. New range improvement actions, including fences, are subject to a Class III inventory in order to determine whether cultural resources are present. .

An archaeological survey was conducted along the route of the proposed internal fence line in 2011 and 2012 and the proposed alignment has been designed to avoid known sites. The majority of known cultural sites are located in the Area of No Expected Use (see Figure 7 above). Impacts to the few dispersed sites inside the pasture fencing would be minimal due to the infrequent use and short duration of livestock that would be authorized in the pasture during ephemeral use. Grazing activities would be unlikely to affect any of the previously identified sites.

The Proposed Action Alternative would be the most effective alternative at addressing this issue listed above because both the perimeter and internal fencing would prevent livestock from trampling any cultural sites outside of the pasture fencing, and would limit access by OHVs and other recreationists. While recreational use is permitted on the allotment, OHVs are required to stay on existing roads and trails. The Proposed Action would limit access to the allotment and to the quarry, thus reducing the impacts from current heavy OHV use, vandalism, and other potential threats to cultural resources across the allotment.

4.1.3 Alternative 2: Boundary fencing only

Because there would be no new fence lines within the allotment boundaries, there would be no potential impacts to cultural resources from new fence construction. Repair and maintenance of existing boundary fences would occur on previously-disturbed areas along the current fence line.

Protection of cultural resources would be less than under the Proposed Action Alternative, because known cultural sites do exist in the “Area of Low Expected Use” on the basalt hills near the quarry. Nevertheless, impacts to cultural sites from livestock grazing are expected to be very low because of the infrequent use and short duration of livestock that would be authorized in the pasture during ephemeral use. This alternative would also be less effective in minimizing impacts from recreational use because once recreationists are within the allotment boundary, they would have access to the entire allotment, including the quarry area where many of the cultural sites are located. However, cultural resources would be more protected under this alternative than under No Action/ No Grazing Alternative because the entire boundary fence would be repaired and maintained in order to control livestock. This fence would help reduce the access points to designated routes only, thus decreasing the potential for damage to cultural sites and artifacts from cross country travel.

4.2 Soils

- *Issue: How are impacts of livestock grazing and increased recreational activities on resources such as ... soils... addressed?*

4.2.1 No Action/ No Grazing Alternative

Because there has been no grazing on the allotment since 1995, all damage to soils that is occurring is from other resource users: mainly recreationists on OHVs and the surface disturbance associated with the quarry operation. Closing the Walker Butte Allotment to livestock grazing would not close it to other uses. However, the No Action/ No Grazing Alternative would mean that perimeter fences would continue to deteriorate and would therefore provide the least protection against increasing OHV use on the allotment, which is expected to continue with increased urbanization in the area.

4.2.2 Proposed Action Alternative

Under the Proposed Action Alternative, previously-disturbed soils along the 6.7-mile perimeter fence and the 0.75 existing interior fence would be disturbed again during repair and maintenance. There would be 2.0 miles of new disturbance associated with the proposed U-shaped fence construction.

Under the Proposed Action Alternative, approximately 213 acres of soils are located in the Area of Low Expected Livestock Use; 194 acres are found in the Area of Moderate Expected Livestock Use; and approximately 78 acres of soils are in the Area of High Expected Livestock Use, and may be most heavily impacted by ephemeral livestock grazing (Table 4). Under this alternative, nearly 500 acres of soils will not be impacted by livestock grazing because of the installation of the proposed pasture fence (Table 4).

The terms and conditions added to the lease would limit soil disturbance attributable to livestock because livestock distribution would be improved by placing salt blocks and/or mineral supplements at least 1/8 mile upslope from drainages/dry washes. Soil compaction from livestock could be expected in localized areas around the salt blocks and along the proposed fence line. However, this impact is expected to be minimal to negligible because of the infrequent occurrence of ephemeral use. Overall this alternative would be expected to continue to help the allotment meet Standard 1.

Although livestock grazing has not occurred on the allotment since the 1990s, soil conditions are not expected to change substantially as a result of ephemeral grazing because of the low frequency with which grazing would occur. Monitoring of rangeland condition would be conducted before and during ephemeral authorizations to avoid potential impacts on soils.

4.2.3 Alternative 2: Boundary Fencing Only

Although previously-disturbed soils would be disturbed again during repair and maintenance of the 6.7-mile perimeter fence, there would be no new fence construction along the 2.75 miles of proposed or existing fence lines inside the allotment boundaries to disturb new soils.

Impacts to soils in the Areas of Moderate Livestock Use (194 acres) and High Livestock Use (78 acres) are expected to be the same as under the Proposed Action (Table 4). However, under Alternative 2, the 500 acres that are closed to livestock under the Proposed Action would be available for grazing. With those acres around the quarry included, approximately 708 acres of Low Expected Livestock Use are located on the allotment (Table 4).

Table 4. Side-by-side comparison of impacts on Soils from the Action Alternatives

PROPOSED ACTION			ALTERNATIVE 2-BOUNDARY FENCE		
Area of Expected Use - Soils			Area of Expected Use - Soils		
No Use					
	<u>Total Acres</u>	<u>BLM Acres</u>			
Cherioni-Rock outcrop complex, 5 to 60 percent slopes	275.7	275.1	Under Alternative 2, there is expected to be negligible to slight use near the quarry because no fence exists to exclude livestock.		
Cipriano cobbly loam, 1 to 8 percent slopes	164.6	164.3			
Coolidge sandy loam	50.0	50.0			
Laveen loam	4.2	4.2			
	494.6	493.6			
Low Use			Low Use		
	<u>Total Acres</u>	<u>BLM Acres</u>		<u>Total Acres</u>	<u>BLM Acres</u>
Cherioni-Rock outcrop complex, 5 to 60 percent slopes	25.6	11.5	Cherioni-Rock outcrop complex, 5 to 60 percent slopes	301.7	287.0
Cipriano cobbly loam, 1 to 8 percent slopes	13.0	13.0	Cipriano cobbly loam, 1 to 8 percent slopes	177.6	177.3
Coolidge sandy loam	36.9	15.8	Coolidge sandy loam	87.5	66.5
Laveen loam	423.4	165.8	Laveen loam	427.8	170.2
Mohall loam	13.0	6.8	Mohall loam	13.0	6.8
	511.9	212.9		1007.7	707.7
Moderate Use			Moderate Use		
	<u>Total Acres</u>	<u>BLM Acres</u>		<u>Total Acres</u>	<u>BLM Acres</u>
Cherioni-Rock outcrop complex, 5 to 60 percent slopes	0.0	0.0	Cherioni-Rock outcrop complex, 5 to 60 percent slopes	0.0	0.0
Cipriano cobbly loam, 1 to 8 percent slopes	41.0	41.0	Cipriano cobbly loam, 1 to 8 percent slopes	40.9	40.9
Coolidge sandy loam	31.1	31.1	Coolidge sandy loam	31.0	31.0
Laveen loam	121.9	121.7	Laveen loam	121.8	121.7
	194.0	193.9		193.8	193.7
High Use			High Use		
	<u>Total Acres</u>	<u>BLM Acres</u>		<u>Total Acres</u>	<u>BLM Acres</u>
Cherioni-Rock outcrop complex, 5 to 60 percent slopes	0.1	0.1	Cherioni-Rock outcrop complex, 5 to 60 percent slopes	0.1	0.1
Cipriano cobbly loam, 1 to 8 percent slopes	3.9	3.9	Cipriano cobbly loam, 1 to 8 percent slopes	3.9	3.9
Coolidge sandy loam	5.1	5.1	Coolidge sandy loam	5.0	5.1
Laveen loam	68.2	67.4	Laveen loam	68.2	68.2
Mohall loam	7.6	2.7	Mohall loam	7.6	2.7
	77.3	76.5		77.3	77.3

Source: BLM GIS analysis based on expected livestock use patterns on the Walker Butte Allotment.

Table 5. Side-by-side comparison of impacts to Ecological Sites from the Action Alternatives

PROPOSED ACTION			ALTERNATIVE 2-BOUNDARY FENCE		
Area of Expected Use - Ecological Sites			Area of Expected Use - Ecological Sites		
No Use					
	Total Acres	BLM Acres			
Basalt Hills 7-10" p.z.	275.7	275.1	Under Alternative 2, there is expected to be negligible to slight use near the quarry because no fence exists to exclude livestock.		
Limy Upland 7-10" p.z.	164.6	164.3			
Coolidge sandy loam	54.2	54.2			
	494.6	493.6			
Low Use			Low Use		
	Total Acres	BLM Acres		Total Acres	BLM Acres
Basalt Hills 7-10" p.z.	25.6	11.5	Basalt Hills 7-10" p.z.	301.7	287.0
Limy Upland 7-10" p.z.	13.0	13.0	Limy Upland 7-10" p.z.	177.6	177.3
Limy Fan 7-10" p.z.	460.3	181.6	Limy Fan 7-10" p.z.	515.4	236.7
Loamy Upland 7-10" p.z.	13.0	6.8	Loamy Upland 7-10" p.z.	13.0	6.8
	511.9	212.9		1007.7	707.7
Moderate Use			Moderate Use		
	Total Acres	BLM Acres		Total Acres	BLM Acres
Basalt Hills 7-10" p.z.	0.0	0.0	Basalt Hills 7-10" p.z.	0.0	0.0
Limy Upland 7-10" p.z.	41.0	152.8	Limy Upland 7-10" p.z.	40.9	40.9
Limy Fan 7-10" p.z.	153.0	41.0	Limy Fan 7-10" p.z.	152.8	152.7
	194.0	193.9		193.8	193.7
High Use			High Use		
	Total Acres	BLM Acres		Total Acres	BLM Acres
Basalt Hills 7-10" p.z.	0.1	0.1	Basalt Hills 7-10" p.z.	0.1	0.1
Limy Upland 7-10" p.z.	3.9	3.9	Limy Upland 7-10" p.z.	3.9	3.9
Limy Fan 7-10" p.z.	73.3	72.5	Limy Fan 7-10" p.z.	73.2	72.5
Loamy Upland 7-10" p.z.	7.6	2.7	Loamy Upland 7-10" p.z.	7.6	2.7
	84.9	79.3		84.9	79.2

Source: BLM GIS analysis based on expected livestock use patterns on the Walker Butte Allotment.

4.3 Vegetation

- *Issue: How are impacts of livestock grazing on resources such as ... vegetation... addressed?*

4.3.1 No Action/ No Grazing Alternative

Under the No Action/No Grazing Alternative, livestock grazing on this allotment would no longer be permitted. Because livestock grazing has been so infrequent over the past 20 years, vegetation conditions similar to those existing today would be expected to continue without future grazing. Impacts to the ecological function of these plant communities would continue to be caused by other disturbances (e.g. drought, recreation, mining, etc.).

Closing the Walker Butte Allotment to livestock grazing would not close it to other uses. Perimeter fences would not be repaired or maintained, and would therefore do the least of the three alternatives to curb the impacts of increasing OHV damage on vegetation in the allotment, which is expected to continue with increased urbanization in the area.

4.3.2 Proposed Action Alternative

Although livestock grazing has not occurred on the allotment since the 1990s, conditions of plant communities are not expected to change substantially as a result of ephemeral grazing under this alternative because of the low frequency with which grazing occurs and because livestock would typically use only annual grasses and forbs. In their literature review of impacts of livestock grazing on Sonoran Desert vegetation, Hall, et al., stated,

“The BLM’s use of ephemeral allotments could be an appropriate starting point for a Sonoran Desert-specific livestock grazing management strategy. For most of the Sonoran Desert, as described in this report, only grazing in response to winter rains may be feasible...[T]he ability to set flexible stocking rates and to remove livestock quickly in response to changing conditions will be paramount.” (Hall et al, 2005, p. ES.4)

In addition, the changes to the grazing lease’s terms and conditions under this alternative would protect vegetation communities on the allotment by improving livestock distribution when grazing is authorized. While localized adverse effects on vegetation could result, it is expected that overall the allotment would continue to meet Standard 3 and Desired Future Conditions as stated in the Lower Sonoran RMP.

Minor impacts to vegetation along the proposed fence line are expected during initial fence construction. These impacts include crushing some vegetation along the fence route. However, the fence location was selected specifically to follow an existing road along the base of the basalt hill and other existing roads. This would minimize impacts to vegetation along the proposed fence line.

Utilization of forage species by livestock would be expected where annual vegetation is most productive, which is often in loamy soils. It is estimated that approximately 78 acres of Loamy Bottom on the east and the west sides of the allotment are the Areas of High Expected Livestock Use, and would sustain the most impacts to vegetation on the allotment (Tables 5 and 6, and Figure 7). Approximately 192 acres of Loamy Uplands on the east side of the allotment closest to the base property have more sustained forage during ephemeral months, and are expected to have moderate use during ephemeral turnout. In comparison, approximately 211 BLM acres of

Limy Fan ecological sites on the west side of the allotment produce very little forage, and are expected to see low livestock use (Tables 5 and 6).

Any impacts to vegetation from livestock grazing would occur only during ephemeral authorizations, which tend to occur about 3 out of 10 years, and last from 1 to 4 months, depending on climatic and forage conditions. In accordance with the Special Ephemeral Rule (Appendix C) and Standard Operating Procedures for the Lower Sonoran RMP, monitoring of forage availability would be conducted before and during ephemeral authorizations to avoid negative impacts to vegetation.

The Proposed Action Alternative would do more than the other alternatives to protect vegetation resources by maintaining both a perimeter fence around the allotment and installing a new fence to limit off-road access, which would likely reduce potential impacts to vegetation.

4.3.3 Alternative 2: Boundary Fencing Only

Impacts to vegetation resources under this alternative would be similar to those described under the Proposed Action Alternative. For instance, the same 78 acres of High Expected Livestock Use, and the 192 acres of Moderate Expected Livestock Use occur under this alternative. However, Alternative 2 does less to protect vegetation on the allotment because there is no proposed interior pasture fence under this alternative, and approximately 702 acres of BLM lands could be impacted by Low Expected Livestock Use, as compared to 211 affected acres under the Proposed Action (Table 6 and Figure 8).

Table 6. Side-by-side comparison of impacts to Vegetation from the Action Alternatives

PROPOSED ACTION			ALTERNATIVE 2-BOUNDARY FENCE		
Area of Expected Use - Vegetation			Area of Expected Use - Vegetation		
No Use			No Use		
	494.6				
	Total Acres	BLM Acres	Under Alternative 2, there is expected to be negligible to slight use near the quarry because no fence exists to exclude livestock.		
Sonoran Paloverde-Mixed Cacti Desert Scrub	354.3	353.4			
Sonora-Mojave Creosotebush-White Bursage	118.9	118.9			
Sonora-Mojave Mixed Salt Desert Scrub	17.9	17.8			
Barren Lands	1.0	1.0			
Agriculture	1.4	1.4			
	493.5	492.5			
Low Use			Low Use		
	511.9			1007.70	
	Total Acres	BLM Acres		Total Acres	BLM Acres
Sonoran Paloverde-Mixed Cacti Desert Scrub	71.9	49.7	Sonoran Paloverde-Mixed Cacti Desert Scrub	426.2	403.1
Sonora-Mojave Creosotebush-White Bursage	17.6	17.6	Sonora-Mojave Creosotebush-White Bursage	136.6	136.6
Sonora-Mojave Mixed Salt Desert Scrub	418.9	143.8	Sonora-Mojave Mixed Salt Desert Scrub	437.0	161.9
	508.4	211.2	Barren Lands	1.0	1.0
			Agriculture	1.5	1.5
				1002.3	701.6
Moderate Use			Moderate Use		
	194.0			193.8	
	Total Acres	BLM Acres		Total Acres	BLM Acres
Sonoran Paloverde-Mixed Cacti Desert Scrub	26.8	26.8	Sonoran Paloverde-Mixed Cacti Desert Scrub	26.7	26.7
Sonora-Mojave Creosotebush-White Bursage	37.4	37.4	Sonora-Mojave Creosotebush-White Bursage	37.4	37.3
Sonora-Mojave Mixed Salt Desert Scrub	126.2	126.2	Sonora-Mojave Mixed Salt Desert Scrub	126.2	126.2
Agriculture	1.1	1.1	Agriculture	1.1	1.1
	191.5	191.5		191.3	191.3
High Use			High Use		
	84.9			84.9	
	Total Acres	BLM Acres		Total Acres	BLM Acres
Apacherian-Chihuahuan Mesquite Upland Scrub	1.1	1.1	Apacherian-Chihuahuan Mesquite Upland Scrub	1.1	1.1
Sonoran Paloverde-Mixed Cacti Desert Scrub	20.5	19.6	Sonoran Paloverde-Mixed Cacti Desert Scrub	20.5	19.6
Sonora-Mojave Creosotebush-White Bursage	24.9	23.8	Sonora-Mojave Creosotebush-White Bursage	24.9	23.8
Sonora-Mojave Mixed Salt Desert Scrub	37.5	33.9	Sonora-Mojave Mixed Salt Desert Scrub	37.5	33.9
	84.0	78.4		84.0	78.4

Source: BLM GIS analysis based on expected livestock use patterns on the Walker Butte Allotment.

4.4 Noxious Weeds and Invasive, Non-native Species

- *Issue: How are impacts of livestock grazing and increased recreational activities on resources such as invasive species addressed?*

4.4.1 No Action/ No Grazing Alternative

Because livestock grazing has been so infrequent over the past 20 years, vegetation conditions similar to those existing today are expected to continue under this alternative. Regardless of which alternative is selected, noxious weeds are likely to continue to spread farther along the Loamy Bottom ecological site, further impacting the ecological function of native plant communities.

The No Action Alternative would prevent livestock from acting as a vector by spreading seeds of invasive plant species across the allotment. However, closing the Walker Butte Allotment to livestock grazing would not close it to other uses. OHVs are also known vectors for spreading seeds of invasive weeds (Sheley, 1995). The No Action/ No Grazing Alternative would do nothing to decrease recreation and cross country OHV use across the allotment, thus perpetuating the risk of spreading invasive species by that method.

4.4.2 Proposed Action Alternative

It is possible that seeds could be introduced from cattle turned out onto the allotment during ephemeral use. Additionally, livestock could potentially spread the seeds to other areas of the allotment, or to private or state lands where they are also permitted to graze, although many low-lying areas within the allotment have already been infested without the presence of livestock over the last 20 years.

Invasive species, such as Canary grass and filaree, are found in the 78 acres of Loamy Bottom on the west side of the allotment, and are highly palatable and desirable livestock forage when still green. Under the Proposed Action Alternative, those 78 acres would be expected to receive high livestock use during times of adequate precipitation and abundant annual forage production when the invasive species are the most prolific, helping to reduce those species before they go to seed. Livestock grazing would be authorized in accordance with the Special Ephemeral Rule and the Lower Sonoran RMP's Standard Operating Procedures.

Livestock can be a vector for spreading seeds of invasive species. The Proposed Action Alternative would do more than Alternative 2 to prevent the spread of invasive species by maintaining both a perimeter fence around the allotment and installing a new pasture fence to limit access to both livestock and cross country OHV use.

4.4.3 Alternative 2: Boundary Fencing Only

Impacts of livestock use on invasive species under this alternative would be similar to those described under the Proposed Action Alternative. However, this alternative would be less effective at preventing seed dispersal in approximately 500 acres around the quarry, which could increase the spread of weeds to areas where they do not currently exist.

4.5 Minerals

- *Issue: With no pasture fencing inside the allotment, how will livestock be prevented from entering the Queen Creek Quarry and getting injured or causing damage to the facility and/or equipment?*
- *Issue: Heavy recreational use of the allotment, specifically OHV use from the surrounding neighborhoods has led to destruction of property at the quarry. How does the BLM propose to address these issues through livestock grazing authorizations, which is seemingly unrelated?*
- *Issue: Given the recent urban sprawl around the allotment, and the Queen Creek Quarry inside the allotment, wouldn't it make sense to close the allotment to livestock grazing?*

4.5.1 No Action/No Grazing Alternative

This alternative would eliminate the potential for livestock to impact mineral resources. There would be no potential for livestock to access the gravel pit and be trapped, or to cause damage to any of the machinery or facilities associated with the mining operation. Further, with no cattle permitted on the allotment, access and travel by the haul trucks and machinery would be unaffected, with no potential of hitting livestock on the quarry road with a vehicle.

However, because there would be no fencing to limit OHVs from entering the Queen Creek Quarry, the facility would be less protected from unauthorized access than it would be under the Proposed Action or Alternative 2.

4.5.2 Proposed Action Alternative

Under this alternative, access into the quarry from Arizona Farms Road would not be affected. The Proposed Action Alternative would have no influence on the operation and expansion of the Queen Creek Quarry. Approximately 500 acres of lands that encompass the quarry and its potential future enlargement would not be accessible to livestock. The U-shaped fence would essentially surround the quarry on three sides, virtually eliminating the possibility for livestock to enter the area to cause damage to any of the machinery or facilities associated with the mining operation. The proposed heavy-duty cattle guards would accommodate the heavy machinery associated with the mineral operation, and would only affect the south entrance and quarry road.

During consultation in 2011 that included JADALL managers, the grazing lease applicant, and the BLM, JADALL recognized that, for their gravel pit operation, the advantage of the proposed action outweighed Alternative 2, and far outweighed the No Action Alternative. This consultation between resource users helped shape the alternatives and developed a relationship between them to divide labor and resources.

4.5.3 Alternative 2: Boundary fencing only

Because there would be no new fences within the allotment boundaries, there would be greater risk of livestock entering the quarry and damaging equipment or injuring themselves. Additionally, under Alternative 2, recreationists could continue to gain access to the gravel facility once they have entered the allotment. However, mineral resources would be more protected under this alternative than under the No Action/ No Grazing Alternative because the entire boundary fence would be repaired and maintained

in order to control livestock. This fence would help reduce the access to OHVs to designated access points only when entering the allotment.

4.6 Wildlife Resources (including Special Status Species)

- *Issue: How are impacts of livestock grazing and increased recreational activities on resources such as Sonoran Desert tortoise and other sensitive wildlife species addressed?*

4.6.1 No Action/ No Grazing Alternative

Elimination of livestock grazing on the 1,306 acres that make up this allotment would reasonably be beneficial to most wildlife species that use the allotment, as potentially fewer animal burrows would be trampled, fewer nests would be disturbed, and less ephemeral forage would be removed if grazing was eliminated. In general, though, given that ephemeral use is infrequent, of short duration, and mostly concentrated in the mesquite bosques of the allotment, the exclusion of livestock may not result in measurable or detectable changes to wildlife species or their habitat over the majority of the allotment.

Under this alternative, fences would not be repaired, and no new fences would be constructed. Fences would be removed when funding and staffing allow. No fences would result in continued freedom of movement that occurs presently for wildlife species in the area. Without the installation of cattle guards to hinder movement, terrestrial wildlife could more easily travel along the quarry road.

However, because this alternative does not require the repair and maintenance of the entire boundary fence, there would be little to limit the continued use, or increased use, by OHV riders. Wildlife and their habitat across the allotment would remain unprotected by perimeter fencing, which may have more impacts than would occur if boundary fencing were repaired to limit recreational activities to designated access points.

4.6.2 Proposed Action Alternative

Livestock operations can affect wildlife by changing vegetation composition, function, and structure, as well as through direct alteration from soil compaction, and indirect effects from rilling and erosion related to soil and vegetation disturbance. Livestock grazing can reduce the amount of forage available to native herbivores (e.g., mule deer), as well as reduce vegetative cover for ground nesting birds, burrowing rodents, and other wildlife species dependent on ground cover for protection, food, and breeding sites (Johnson et al, 1987). Livestock can affect desert tortoise and their habitat by trampling of individuals above ground or in their burrows, reduction in forage, reduction in cover, soil compaction, damage to soil crusts and introduction of non-native plants (BLM 1990, Oftedal, 2002.). The presence of livestock can also change local distribution and habitat use by native species by temporarily displacing some wildlife from preferred habitats and/or water sources, potentially resulting in habitat fragmentation (Bisonette and Stienkamp, 1996).

In years of abundant annual forage, cattle would be authorized on the allotment for 1-4 months, depending on climatic and forage conditions, and upon approval of the BLM. Impacts to wildlife would be greatest around cattle concentration areas of use such as in the mesquite bosques on the east and west drainages of the allotment. However, ephemeral forage in those areas may at times support ephemeral livestock grazing. The Special Ephemeral Rule of 1968, and Desired Plant Community objectives from the Walker Butte LHE were developed to ensure

that adequate forage remains for wildlife during and after ephemeral livestock grazing has occurred. Therefore, occasional ephemeral forage consumption by livestock is not expected to negatively impact wildlife.

As stated in Chapter 3, the Walker Butte Allotment was once within Category III desert tortoise habitat. Although mitigation through compensation of tortoise habitat was completed in 1998, live tortoise may be encountered. However, tortoises tend to occupy hillsides and ridges with outcrops of large boulders as well as areas with incised washes and caliche caves (Van Devender et. al, 2002), which are habitat characteristics that occur primarily within the quarry lease and outside the proposed fenced area. Therefore, between the mitigation in 1998, the proposed fence prohibiting livestock from using tortoises' preferred habitat, and the infrequent ephemeral use, it is unlikely that livestock would impact live desert tortoise or their burrows under the Proposed Action Alternative.

The Proposed Action Alternative would likely have more impact on wildlife species and their habitat because a total of 9.5 miles of fencing is proposed to be constructed or mended. The proposed fencing between the "pasture" and the quarry would prevent cattle from entering the quarry, but could serve to fragment wildlife habitat further. "Wildlife-friendly" fencing would be constructed per BLM specifications to minimize impacts to wildlife species. Ephemeral livestock grazing is not expected to reduce available forage or preferred nesting habitat for bird species, especially given the infrequent and short duration of ephemeral grazing in this allotment.

4.6.3 Alternative 2: Boundary fencing only

Under Alternative 2, only 6.7 miles of perimeter fencing would impact wildlife movement and habitat. Impacts of the boundary fence would be similar to those described in the Proposed Action. However, only the perimeter fence would be maintained, so wildlife species' movement would not be impacted by an interior fence, as described above.

A cattle guard at the north and south end of the quarry road would hinder movement of wildlife along the road, but they are free to move under or around the fence instead.

4.7 Recreational Resources and Travel Management

- *Issue: How are the recent developments of the Florence area, such as urban sprawl and increased off-highway vehicle (OHV) use, addressed?*
- *Issue: Heavy recreational use of the allotment, specifically OHV use from the surrounding neighborhoods has led to destruction of property at the quarry. How does the BLM propose to address these issues through livestock grazing authorizations, which is seemingly unrelated?*
- *Issue: Given the recent urban sprawl around the allotment, and the Queen Creek Quarry inside the allotment, wouldn't it make sense to close the allotment to livestock grazing?*

4.7.1 No Action/ No Grazing Alternative

Currently, remote sensing shows that 47 acres of soils have been impacted by recreational and OHV use (see Figure 6 above). This alternative would do nothing to curb authorized or improper recreational use of the allotment. Under the No Action Alternative, impacts from recreation would continue on the allotment, and would likely increase in correlation to population growth and urban development in the Florence area. Particularly impacted areas

include the west side along Hunt Highway, and on the east side near the railroad right-of-way where cross country travel is common.

This alternative would not alter any of the current designated roads and access points onto the allotment, including the access to the law enforcement R&PP (shooting range) on the southwest side of the parcel and the access from the right-of-way on the northeast side. Additionally, the north entrance from Arizona Farms Road into the quarry and the south entrance from Franklin Road into the quarry would not be affected.

4.7.2 Proposed Action Alternative

This alternative would require new construction or alteration of some of the current access points onto the allotment, as described in Section 2.2. Recreation would still be permitted on the allotment. However, under this alternative, the interior “pasture fence” would hinder free movement across the allotment, requiring people to open and close gates that do not currently exist. Further, because there would be limited access points, the proposed fence lines would help keep recreationists on designated roads and trails. Impacts from livestock on recreationists are expected to be negligible because of the infrequency of livestock grazing on the allotment.

4.7.3 Alternative 2: Boundary Fencing Only

This alternative would have similar impacts on recreation and travel management as described for the Proposed Action Alternative. However, because there would only be a boundary fence and no an internal “pasture” fence, recreational use would not be as restricted under this alternative as under the Proposed Action Alternative. Otherwise, impacts from livestock grazing and fence maintenance would be the same as under the Proposed Action Alternative.

4.8 Land Uses

- *Issue: The allotment boundary fencing is in disrepair. How will livestock be prevented from getting onto neighboring private properties, agricultural fields, and onto Hunt Highway?*

4.8.1 No Action/ No Grazing Alternative

The No Action/ No Grazing Alternative does not impact any of the current land uses in and around the Walker Butte Allotment. No new or reconstructed fences that are proposed in the other two alternatives would impact any current land uses, such as the railroad, the R&PP lease (shooting range), and the powerlines under this alternative.

The elimination of domestic livestock grazing on the allotment would force the livestock operators to look for alternative forage or to graze cattle only on the private lands. Instead of livestock being able to move freely between the lease applicant’s privately-held leases on the east and west sides, he would have to transport the cattle from one pasture to another, or divide his herd to utilize each pasture simultaneously. Because there would be no livestock permitted on this allotment, the fencing would not have to be maintained other than on those private lands adjacent to it that hold livestock. Only about 150 feet of the applicant’s private lease on the east side abuts the eastern boundary of the allotment, so most of the eastern allotment boundary fence would not be repaired or maintained. Approximately one mile of fence line separates his private lease on the northwest side from State and BLM lands. Other than the livestock operator’s responsibility to not allow his livestock to trespass on public lands, all other fencing would remain in disrepair until such time as BLM removes it or the parcel is disposed of.

4.8.2 Proposed Action Alternative

The proposed fence line would address the issues concerning the potential hazard of cattle entering the quarry and facility. Repairing the boundary fences would prevent livestock from trespassing onto various land uses (shooting range and the railroad), private property or Hunt Highway outside the allotment. Under the Ephemeral Rule, the permittee/lessee is required to maintain fencing or otherwise control his livestock only when cattle are turned out onto the allotment during years of ephemeral use. However, the applicant has stated that he plans to maintain the fence regularly in order to prevent vandalism, theft, and OHV damage to the allotment.

This alternative would require utility crews to have to open two gates, one on each end of the allotment, to maintain the phone lines and power lines. This alternative would not affect the railroad right-of-way, which is outside the boundary fence. Likewise a gate, or possibly a cattleguard, would allow access onto the west side of the allotment from Hunt Highway for law enforcement training. A maintained fence line would help keep this R&PP more secure. Livestock on the allotment are not expected to impact law enforcement training because of the infrequent and short duration of authorized grazing.

4.8.3 Alternative 2: Boundary fencing only

The impacts from livestock grazing on lands and realty under Alternative 2 would be the same as under the Proposed Action Alternative, except that the internal “pasture fence” would not be installed, thus eliminating the need to open and close gates to maintain power lines and phone lines that cross through the middle of the allotment. Under either of the Action Alternatives, the risk of damage from livestock to any of these rights-of-way and land uses is very slight.

4.9 Visual Resources

4.9.1 No Action/ No Grazing Alternative

Under the No Action/ No Grazing Alternative, the existing fenceline would continue to deteriorate and look unattractive and abandoned. Removal of broken, unsightly fences would be an improvement of the current condition, and would be based on available staffing and funding.

4.9.2 Proposed Action Alternative

Potential impacts to visual resources could occur from the presence of new fencing under the Proposed Action. These fences would not change the existing character of the landscape and would meet the VRM objectives for the area.

4.9.3 Alternative 2: Boundary fencing only

Under Alternative 2, there would be no change to the visual resources of the area since the fence that would be repaired is already in existence.

4.10 Cumulative Effects

The Council on Environmental Quality (CEQ, 2005) regulations implementing NEPA defines cumulative impacts as: “...the impact on the environment which results from incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (Federal or Non-Federal) or person undertakes such actions.

Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time (40 CFR 1508.7).”

The temporal scope of the cumulative impacts analysis of this EA spans from about 1995 when livestock were last grazed on the allotment through 2023 when the new lease proposed in the action alternatives would be due for re-evaluation. The geographic scope of the proposed grazing lease renewal primarily encompasses the lands within the Walker Butte Allotment boundary, but also factors in general impacts of the urban, industrial, and agricultural development nearby.

The past and present actions that have occurred on the allotment include infrequent livestock grazing, dispersed recreational uses, OHV travel both on designated routes and cross country, urbanization of the surrounding area, development of the Queen Creek Quarry, and an R&PP lease for a target shooting range.

Reasonably foreseeable future actions include a continuation of all of the past and present uses above, possibly excluding livestock grazing pending the outcome of this process, and the continued expansion of residential and other developments in proximity to the allotment. Also foreseeable is the disposal of this BLM allotment, either by land sale or land exchange. Finally, it is possible that a new quarry could be developed on public lands immediately south of the Queen Creek Quarry contract area, given that in September 2014 BLM received a mineral material exploration permit application (Southwest Rock Products LLC, AZA-36590) to examine the basalt there.

An issue identified during consultation with the quarry operators and the grazing lease applicant was that OHV and other recreational use within the quarry area from the surrounding neighborhoods is causing damage to the facility and to the vegetation and soils. The Proposed Action Alternative would be the most effective alternative to address this issue because the perimeter and internal fencing would limit access by OHVs and other recreationists to specific entry points along designated roads. While recreational use is permitted on the allotment, OHVs are required stay on pre-existing roads and trails. The Proposed Action would limit cross country access to the allotment and to the quarry, thus reducing the impacts from current heavy OHV use, vandalism, rock hounding, and other potential threats to mineral resources and quarry operations on the allotment.

The No Action/ No Grazing Alternative would do nothing to address the cause and effects of recreation and travel impacts on the grazing allotment from OHVs, as mentioned throughout this EA. In order to protect natural resources, law enforcement would need a stronger presence in the area to curtail OHVs that do not stay on designated roads and trails.

Livestock grazing under the action alternatives, in combination with the other identified activities, has and will continue to alter upland vegetation composition and structure within the allotment. Livestock grazing would incrementally add to the impacts to natural resources that are already impacted by the increased recreational activities and OHV use resulting from population growth and urban development in the area.

The protection of plant communities would be less under Alternative 2 than under the Proposed Action because once recreationists are within the allotment boundaries, their access would be wider, with more likelihood of potentially injuring or killing individual plants. Vegetation would be more protected under this alternative than under the No

Action/ No Grazing Alternative because the entire boundary fence would be repaired and maintained in order to control livestock. This fence would help reduce the access to OHVs to designated access points only, thus decreasing the potential for damage to vegetation resources.

The Proposed Action Alternative is expected to decrease cumulative impacts from OHV use to soils and ecological sites across the entire allotment, but most notably in the 494 acres around the quarry that would be fenced off. Currently, remote sensing shows that 47 acres of soils have been impacted by recreational and OHV use. Livestock grazing would cause an incremental increase in compaction and disturbance from hoof action. The Proposed Action would help to protect soil resources by maintaining both a perimeter fence around the allotment and installing a new fence within the allotment. The Proposed Action would limit cross country access to the allotment, thus reducing the impacts from off-road driving, such as soil erosion and degradation, particularly on the east side of the parcel.

Under Alternative 2, protection of soils, vegetation, cultural sites, and minerals would be less than under the Proposed Action Alternative because once recreationists are within the allotment boundaries, they would have access to the entire allotment, including the east side where much of the soil degradation is already occurring. However, soil resources would be more protected under this alternative than under the No Action/ No Grazing Alternative because the entire boundary fence would be repaired and maintained in order to control livestock. This fence would help reduce the access to OHVs to designated access points only, thus decreasing the likelihood of damage to natural and cultural resources across the allotment.

Due to the potential cumulative impacts to vegetation and soils, which provides cover and forage for wildlife species, cumulative impacts to wildlife are also expected across the entire area, inside and outside allotment boundaries. With the loss of suitable habitat to surrounding development, livestock grazing would add further pressure to wildlife species, although it would only be temporary and occasional due to the intermittent nature of ephemeral grazing. It is expected that occasional livestock grazing, an approved biological treatment of invasive weeds, would reduce the potential for a catastrophic fire in the future, which improves the chances of keeping and improving the essential habitat “island” that the allotment provides.

Recreationists on OHVs and motorcycles can run over small wildlife species, such as ground squirrels, rabbits, lizards, snakes, tortoise, etc., and /or crush the burrows in which they live. Furthermore, heavy OHV use can damage or kill vegetation that is essential to wildlife for forage and cover. Livestock grazing and additional fencing, in combination with recreational activities, may contribute to wildlife habitat fragmentation, habitat loss, and other disturbances caused by wildlife/human interactions. Improving grazing distribution as proposed in the Proposed Action Alternative would potentially reduce these impacts. Through proper management of livestock, adequate habitat would be maintained within the allotment to support viable populations of the wildlife species discussed in this EA.

5 CONSULTATION AND COORDINATION

As described in Section 1.6 Scoping and Issue Identification, the public was invited to participate in the grazing lease renewal process for this allotment. An LHE was sent out for public review

and comment to individuals, groups, and agencies March 8, 2014. Comments received within 30 days were incorporated into this EA.

A site visit occurred on March 16, 2011 with three BLM geologists, a BLM archeologist, and a BLM rangeland management specialist. Also present were the qualified applicant for the Walker Butte Allotment lease and the owner and manager of the Queen Creek Quarry. The purpose of the meeting was to discuss the possible alternatives that would allow livestock grazing on the allotment along with the gravel operation. Discussions included various fence alternatives to prevent livestock from wandering into the quarry and causing damage to equipment.

Consultation among the above participants has continued throughout the permit/ lease renewal process to develop the most feasible and reasonable alternatives for all users of the allotment, including recreationists from the nearby housing communities, and those holders of various rights-of-way on the allotment.

Tribal consultation occurred in conjunction with the quarry leases. Letters were sent to leaders and staff of five tribes on July 10, 2013, requesting additional cultural information or areas of concern. Responses were received from the Tohono O’odham Nation, the Hopi Tribe, and the Gila River Indian Community. Some of these Native American concerns are addressed with the installation of fences and barriers described in the proposed action alternative.

- The Hopi Tribe indicated the quarry operation would not likely directly affect the five eligible prehistoric sites previously identified, as long mitigation by avoidance is maintained.
- The Tohono O’odham Nation concurred with the recommendation of avoidance of the five sites, with installation of barriers (fences and boulders) to prevent accidental disturbance from inadvertent public access from the surrounding residential complexes.
- The Gila River Indian Community requested an on-site consultation with BLM and the quarry operators, which occurred on August 8, 2013. This discussion focused on issues relating to the quarry operation, the condition of the public lands around the pits, and cultural resources. Access issues were discussed at length. The quarry has used large stockpiles of soils and large boulders to block access on two sides to the west side of two pits. They agreed to install fencing along an additional area as another safety measure. The BLM has required the quarry operators to install fencing around one or more of the cultural sites near the quarry operations, in order to protect it from possible damage. Although livestock grazing was not brought up during this on-site consultation, the BLM interdisciplinary team later collaborated to address the connected issues of using fencing and boulders as barriers for livestock control, cultural resource protection, and public safety.

Parties that have been involved in the Consultation, Coordination, and Cooperation of this grazing lease renewal include:

- Grazing Lease Applicant: James B. Marchant
- Arizona Cattlemen’s Association
- Arizona Game and Fish Department, Region 6
- Arizona State Land Department
- Center for Biological Diversity
- Southwest Rock Products, LLC
- Sierra Club
- United States Fish & Wildlife Service
- Vulcan Materials Company, West Region
- Western Watersheds Project

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