U.S. Department of the Interior

Bureau of Land Management

Environmental Assessment
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PROPOSED GRAZING LEASE RENEWAL FOR

JV Bar Allotment #06222

YAVAPAI COUNTY, ARIZONA

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Chapter 1 – Purpose and Need

Introduction

The Bureau of Land Management (BLM) is proposing to fully process the term grazing authorization on the JV Bar grazing allotment. A Rangeland Health Evaluation (RHE) was prepared for the allotment in 2014 (BLM 2014) and is attached as Appendix C.

The JV Bar allotment is located northeast of Wickenburg, AZ in the Wickenburg Mountains and is bisected by King Solomon wash. The allotment contains two Major Land Resource Areas as defined by the USDA NRCS. Lower elevations on the allotment lie within the Sonoran Basin and Range (MLRA 40) while higher elevation areas within the allotment fall within the Mogollon Transition zone (MLRA 38). The allotment encompasses approximately 22,504 acres in Yavapai County. Public lands constitute the majority of the allotment, accounting for 15,750 acres. The remaining acreage is Arizona State Trust Lands (3,523 acres) and privately held lands (3,231 acres).

This Environmental Assessment (EA) has been prepared to analyze and disclose the potential environmental consequences associated with the Proposed Action and alternatives for livestock management on the JV Bar allotment. The analysis was conducted in accordance with the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations (CFR) 1500-1508), and direction provided under BLM NEPA Handbook H-1790-1 (2008).

JV Bar Allotment Profile

In 2002, Douglas Miller acquired the base property associated with the allotment. The allotment is fully fenced along the boundary, and contains 4 interior pasture fences, dividing the allotment into 6 pastures. Livestock are moved between these pastures, however, there is no formal rotation system in place on the allotment. Cattle are moderately distributed across the allotment based on available water sources.

Since 2008, the lessee has applied for a reduced stocking rate on the allotment. During this time, livestock numbers have fluctuated on the allotment between 42 and 100 head of cattle and between zero and eight head of horses. Reference the JV Bar RHE (Appendix C, Section 6.1) for stocking rates by grazing year.

Table 1 JV Bar Allotment Profile

JV Bar Allotment	
Lessee	Douglas Miller
Percent/Acres BLM Land	70 percent/15,750 acres
Percent/Acres State Land	16 percent/3,523 acres
Percent/Acres Private Land	14 percent/3,231 acres
Grazing Preference	1713 Animal Unit Months (AUMs) Cattle 68 Animal Unit Months (AUMs) Horse
Season of Use	Yearlong
Range Classification	Perennial
Management Category	Maintain
Kind and class of livestock use	201 Cattle 8 Horse

Range Improvements

The range improvement projects on the JV Bar allotment were inspected in 2009, 2011, and 2013. Fences within the allotment are in generally good condition, with the exception of some fence cutting occurring due to off-highway vehicle use. Livestock water sources on the east side of the allotment have not been maintained and are currently not functional. Water sources along King Solomon Gulch are currently functional. Stock tanks are generally in need of maintenance and currently only hold water seasonally.

Purpose and Need

The purpose of this action is to consider livestock grazing opportunities on public lands where consistent with management objectives, including the BLM *Arizona Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (Rangeland Health Standards) (BLM 1997).

The need for this action is established by the Taylor Grazing Act, the Federal Land Policy and Management Act, Fundamentals of Range Health (43 CFR 4180), and the Hassayampa Field Office Resource Management Plan (RMP) (BLM 2010) to respond to an application for renewal of an expiring livestock grazing lease to graze livestock on public land. In detail, the action is needed because:

- The Bradshaw-Harquahala RMP identifies resource management objectives and management actions that establish guidance for managing a broad spectrum of land uses and allocations for public lands in the Hassayampa FO. The RMP allocated public lands within the JV Bar allotment as available for domestic livestock grazing. Where consistent with the goals and objectives of the RMP and Land Health Standards, the issuance of grazing permits or leases to qualified applicants are provided for by the Taylor Grazing Act and the Federal Land Policy and Management Act.
- BLM Arizona adopted the Arizona Rangeland Health Standards (Land Health Standards) and Guidelines for Livestock Grazing Management (Arizona S&Gs) in all Land Use Plans in 1997 (Appendix A). The Land Health Standards and Guidelines for Grazing Administration were also incorporated into the RMP. The Land Health Standards for Rangeland should be achieving or making significant progress toward achieving the standards. Guidelines direct the selection of grazing management practices and, where appropriate, livestock facilities to promote significant progress toward, or the attainment and maintenance of, the standards. The RHE completed for the JV Bar allotment determined that Standards 1 and 3 are being achieved on upland sites, while Standard 2 and 3 are not being met in the riparian areas of the allotment.

Decision to be Made

The Hassayampa Field Manager is the authorized officer responsible for the decisions regarding management of public lands within these allotments. Based on the results of the NEPA analysis, the authorized officer will determine whether the impacts of the Proposed Action described in this analysis are significant and would require preparation of environmental impact statement (EIS). If the authorized officer determines that the impacts are not significant, this analysis will help to inform the decision to renew, renew with modifications, or not renew the leases and permits. If renewed, management actions, mitigation measures, and monitoring requirements will be prescribed for the JV Bar allotment to ensure management objectives and Rangeland Health Standards are achieved.

Scoping & Public Participation

Internal scoping was conducted with BLM specialists. External scoping was conducted via letters sent to individuals and organizations on the Consultation, Coordination, and Cooperation list. Recipients were asked to comment on the RHE and the Proposed Action. The scoping period was July 3rd through July 21st, 2014. Two external scoping comments were received and the issues they identified are summarized below.

Issues for Analysis

For the purpose of BLM NEPA analysis, an "issue" is a point of disagreement, debate, or dispute with a Proposed Action based on some anticipated environmental effect. An issue is more than just a position statement, such as disagreement with grazing on public lands. An issue:

- has a cause and effect relationship with the Proposed Action or alternatives;
- is within the scope of the analysis;
- has not been decided by law, regulation, or previous decision; and
- is amenable to scientific analysis rather than conjecture.

For the purposes of this EA, the BLM analyzed issues if the analysis of the issue is necessary to make a reasoned choice between alternatives, or the issue is significant or may have potentially significant effects (BLM H-1790-1 2008). The Interdisciplinary Team (IDT) carefully considered comments by BLM specialists, interested publics, the permittee, and affected agencies in order to identify issues relevant to issuing a 10-year grazing lease. The issues derived from internal and external scoping on technical recommendations of the JV Bar Allotment RHE (BLM 2014) are as follows:

- *Issue 1 – Upland vegetation: How would continued livestock grazing affect the health of upland vegetation?*
- *Issue 2 – Riparian Systems: How would continued livestock grazing impact riparian areas and riparian-dependent species?*
- *Issue 3 – Riparian Systems: How would seasonal use by livestock affect riparian area vegetation?*
- *Issue 4 – Soils: Does livestock grazing affect cryptogamic crust presence?*
- *Issue 5 – Wildlife: How would riparian area fencing affect wildlife use of the riparian area?*
- *Issue 6- Wildlife: How is desert tortoise habitat affected by livestock grazing?*
- *Issue 7- Grazing Management: What is the expected difference in use patterns between cattle and horse livestock classes?*
- *Issue 8- Economics: What is the cost associated with infrastructure implementation for season of use restrictions?*
- *Issue 9- Water Availability: How will the use of well water affect riparian surface waters within the allotment?*

Conformance with Land Use Plans

Rangeland Management (GM)

Desired Future Conditions

GM-1 Rangeland conditions conform to the Land Health Standards described in Arizona Standards for Rangeland Health and Guidelines for Grazing Administration, which describe the desired

conditions needed to encourage proper functioning of ecological processes. These standards are described in greater detail in the above section on Land Health Standards.

GM-2 Watersheds are in properly functioning condition, including their upland, riparian, and aquatic components. Soil and plant conditions support infiltration, storage, and release of water that are in balance with climate and landform.

GM-3 Ecological processes are maintained to support healthy biotic populations and communities.

Land Use Allocation

GM-4 Administer 93 grazing authorizations within the grazing allotment boundaries shown on Map 13.

GM-5 Public lands without a grazing permit or lease authorization will remain unauthorized for livestock grazing.

Management Actions

GM-6 Build livestock control fences and alternative water sources where needed to meet natural resource objectives. Fence construction and maintenance will follow guidance provided in BLM's Handbook on Fencing No. 1741-1.

GM-8 Inventory and/or monitoring studies are used to determine if adjustments to permitted use levels, terms and conditions, and management practices are necessary in order to meet and/or make significant progress towards meeting the Arizona Standards for Rangeland Health and other management objectives.

GM-9 Implement grazing management changes as needed to produce riparian areas that are in or making progress toward proper functioning condition.

GM-11 Range improvements needed for proper management of the grazing program will be determined and completed, including repair and/or installation of fences, cattle guards, water developments, and vehicle routes needed to access improvement areas.

GM-12 Vehicular access to repair range improvements by the grazing permittee or lessee is considered administrative access. Use of vehicle routes closed to public use, but limited to administrative uses, will be allowed to maintain or repair range improvements. Off-route vehicle use will require prior authorization unless the needed access is to resolve an immediate risk to human health, safety, or property.

GM-13 One-time travel off designated routes to access or retrieve sick or injured livestock would be authorized as an administrative use for transporting the animal to obtain medical help.

GM-14 Management practices to achieve Desired Plant Communities (DPCs) will consider protecting and conserving known cultural resources, including historical sites, prehistoric sites, and plants of significance to Native American people.

GM-15 Apply management actions outlined in the Arizona Standards for Rangeland Health and Guidelines for Grazing Administration (*Arizona Standards for Rangeland Health*) to recognize and correct potential erosion problems that could degrade other resources, with prioritized emphasis

on sites that might directly affect species that have been listed as threatened, endangered, or candidate by the United States Fish and Wildlife Service (USFWS).

Guidelines for Standard One

GM-17 Management activities will maintain or promote ground cover that will provide for infiltration, permeability, soil moisture storage, and soil stability appropriate for the ecological sites. The ground cover should maintain soil organisms, plants, and animals to support the hydrologic and nutrient cycles and energy flow. Ground cover and signs of erosion are surrogate measures for hydrologic and nutrient cycles, and energy flow.

Guidelines for Standard Two

GM-19 Management practices maintain or promote sufficient vegetation to maintain, improve, or restore riparian-wetland functions of energy dissipation, sediment capture, groundwater recharge, and stream bank stability, thus promoting stream channel morphology (e.g. gradient, width/depth ratio, channel roughness, and sinuosity), and functions suitable to climate and landform.

Guidelines for Standard Three

GM-27 DPC objectives will be quantified for each allotment through the rangeland monitoring and evaluation process. Ecological site descriptions available through the Natural Resources Conservation Service and other data will be used as a guide for addressing site capabilities and potentials for change over time. These DPC objectives are vegetation values that BLM is managing over the long term. Once established, DPC objectives will be updated and monitored by the use of indicators for Land Health Standard Three.

Travel Management (TM)

Motorized and Mechanized Travel and Public Access (TM)

TM-8 All motorized and mechanized travel is limited to existing roads and trails, according to the BLM inventory of routes, until final route designations are made. Where inventories are not complete, use is limited to existing routes. Inventoried routes may be updated with new information from BLM, citizens, or partners. Livestock and game trails are not considered existing routes or trails.

TM-9 Cross-country travel is prohibited away from existing, inventoried routes. This prohibition will continue after routes are formally designated. The following exceptions apply in both cases

- Public health, safety, and law enforcement emergencies;
- Administrative uses; or
- BLM-authorized tasks approved by the authorized officer.

TM-13 Motorized vehicles may not be used off designated routes to retrieve game. The cross-country use of wheeled game carriers is permitted, except in wilderness areas. Permittees, including livestock operators, may not use motorized vehicles off designated routes without express permission from the Field Manager.

Relationship to Statutes, Regulations, or other Plans

The Taylor Grazing Act and the Federal Land Policy and Management Act (FLPMA) recognize grazing as a valid use of the public lands and require BLM to manage livestock grazing in the context of multiple use. Additionally, livestock grazing on public lands is managed according to grazing regulations found in the Code of Federal Regulations (at 43 CFR Part 4100).

The Taylor Grazing Act of 1934 provides for two types of authorized use: (1) A grazing permit, which is a document authorizing use of the public lands within an established grazing district, and are administered in accordance with Section 3 of the Taylor Grazing Act; and (2) a grazing lease, which is a document authorizing use of the public lands outside an established grazing district, and are administered in accordance with Section 15 of the Taylor Grazing Act. The JV Bar grazing allotment is a Section 15 grazing lease.

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

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

The Biological Opinion for the Bradshaw-Harquahala RMP (2006, 22410-05-F-0785) provides USFWS review of the continued implementation of the RMP. The opinion provides terms and conditions and/or conservation measures for individual threatened or endangered species found within the boundaries of the Bradshaw-Harquahala management area.

Additionally, the following pertinent laws and/or agency regulations also apply:

- 43 CFR 4100 Grazing Administration - Exclusive of Alaska
- 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
- 43 CFR 4100 Grazing Administration - Exclusive of Alaska
- 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

- Wild Free-Roaming Horses and Burros Act of 1971
- Migratory Bird Treaty Act of 1917, and Executive Order 13186 – *Responsibilities of Federal Agencies to Protect Migratory Birds*

Chapter 2: Alternatives

This chapter describes the alternatives to be analyzed in detail in Chapter 3. The IDT developed three alternatives – Proposed Action, No Action, and No Grazing – based on the analysis and technical recommendations presented in the JV Bar RHE and to respond to issues identified during scoping. The alternatives are designed to meet the purpose and need for action, conform to existing land use plans, and satisfy the legal and regulatory requirements for rangeland management.

Actions Common to All Action Alternatives

The following actions apply to each of the three action alternatives below.

Arizona Standards for Rangeland Health

All the alternatives were designed to meet the following objectives, as described in the Rangeland Health Standards:

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

Stipulations

No road construction would be permitted in conjunction with the Proposed Action. Routine maintenance would be performed on existing range improvements as required.

Alternative A – Proposed Action

The Proposed Action is to renew the JV Bar grazing allotment lease for a period of 10 years with the following mandatory terms and conditions (Table 2). These mandatory terms and conditions reflect a reduction in the stocking rate from 1,713 AUMs to 824 AUMs, suspending 889 AUMs. These proposed changes are based upon a desired stocking rate analysis and the current condition of livestock waters within the allotment. The percentage of public land has also been modified to account for the change in forage allocation in relation to the forage allocation on state lands. Of the 889 suspended AUMs, 577 may be reauthorized after 5 years if the range improvements are repaired and livestock distribution on the allotment improves. 312 AUMs will remain suspended due to the season of use restrictions in the river pasture. In the case of reinstatement of suspended AUMs on the allotment, a new lease will be issued for the remainder of the 10 year grazing term, which will include the updated terms and conditions of the lease, including appropriate adjustment to the livestock number and percent public land.

Table 2 JV Bar Allotment Mandatory Terms and Conditions under the Proposed Action

Allotment	Livestock Number and Kind	Grazing Period	AUMs	% Public Land
JV Bar	106 Cattle	3/1-2/28	824	65%
JV Bar	8 Horse	3/1-2/28	62	65%

Other Terms and Conditions

Standard terms and conditions are found on Grazing Permit/Lease Form 4130-2a. In addition to the mandatory terms and conditions, other terms and conditions would be added to the lease under the Proposed Action:

1. Supplemental feeding is limited to salt, mineral, and/or protein in block, granular, or liquid form. If used, these supplements must be placed at least one-quarter (1/4) mile from livestock water sources, and one-eighth (1/8) mile away from major drainages and washes and sensitive wildlife habitat.
2. The lessee must properly complete, sign and date an Actual Grazing Use Report Form (BLM Form 4230-5) annually. The completed form(s) must be submitted to the BLM, Hassayampa Field Office (HFO) within 15 days from the last day of authorized annual grazing use (43 CFR 4130.3-2 9d).
3. 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 permittee 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 permittee shall continue to protect the immediate area of the discovery until notified by the authorized officer that operations may resume.
4. Livestock grazing in the riparian pasture is limited to November 1st through March 1st annually. Season of use dates may be modified by the authorized officer as riparian conditions warrant. These modifications include delaying turn in dates by up to 28 days, advancing turn out dates by up to 28 days, or closure of the riparian pasture to grazing for the duration of the grazing authorization.

Range Improvements

There are 2 proposed range improvements based on comments received through the scoping process. One is a small holding corral and livestock water, the other is a livestock water.

The Monte Cristo mine site is the first proposed location. This will include the construction of a corral, a livestock drinking trough, a short pipeline, and the installation of an electric pump to pull water from the flooded mineshaft located on site. For administrative purposes, this improvement will be referred to as the “Monte Cristo corral and trough”.

The second proposed location is an unnamed abandoned mine shaft located in King Solomon wash. This site will include a drinking trough, and a short pipeline. Water will gravity feed from the shaft to the drinker. For administrative purposes, this improvement will be referred to as “Miller trough”.

Riparian Management

The following conservation measures will be implemented to improve riparian condition and reduce potential impacts to yellow-billed cuckoo and its habitat:

- The pasture containing riparian habitat along the Hassayampa River area will be closed to livestock grazing from March 1st to November 1st of each year.
- Proper functioning condition will be assessed annually. The desired management outcome is for the riparian area to be in proper functioning condition as defined in BLM Technical Reference 1737-15.
- Bank alteration and woody species utilization will be measured annually according the "Multiple Indicator Monitoring" (MIM) protocol (BLM Technical Reference 1737-23) near the end, or shortly after the end, of the livestock season of use (between February 14th and March 15th).
- Riparian vegetation will be monitored once every 3 years according the MIM protocol (BLM Technical Reference 1737-23). To better assess the woody riparian plant species component, belt transects will be surveyed annually according to protocol described in the "Greenline Riparian-Wetland Monitoring" (BLM Technical Reference 1727-8). Proper functioning condition will be assessed annually according to "A User Guide to Assessing Proper Functioning Condition and the Supporting Science for Lotic Areas" (BLM Technical Reference 1737-15). These monitoring protocols will measure herbaceous riparian vegetation composition, woody riparian vegetation composition, stubble height of herbaceous vegetation, woody species utilization, woody species height class, woody species age class, greenline to greenline width, and streambank alteration. All of the above mentioned BLM Technical References are available online at the following web address: http://www.blm.gov/wo/st/en/info/blm-library/publications/blm_publications/tech_refs.html. The desired riparian plant community consists of stream banks dominated (>50%) by native riparian plant species. To ensure recruitment and retention of native riparian obligate tree species, the desired age class distribution is >15% seedling, >15% young, and >15% mature trees. If the desired plant community objectives are not met, or are not making progress toward being met, within three years because of livestock use, additional actions would be required such as, but not limited to, reducing the livestock season of use, and temporary or permanent closure to livestock use. Livestock use will be considered to be the causal factor for the riparian area not meeting, or making progress toward meeting, the desired plant community objectives if bank alteration exceeds 30%; and/or if woody species utilization exceeds 40%. The desired plant community objectives will be considered to be making progress toward meeting objectives if:
    - Within 3 years the riparian seedling age class represents > 15% distribution, and native riparian obligate herbaceous cover is greater than 10%.
    - Within 6 years the riparian tree seedling age class represents > 15% distribution, and native riparian obligate herbaceous cover is greater than 20%.
    - Within 9 years the riparian tree seedling age class represents > 15% distribution, the riparian tree young age class represents >15% distribution, and native riparian obligate herbaceous cover is greater than 30%.
- The BLM will survey the riparian habitat along the Hassayampa River area for yellow-billed cuckoos according to established protocols (call-playback survey) at least once during the ten year period of the grazing lease.
- The BLM will complete at least two compliance checks annually to ensure that the livestock pasture fencing is effective at excluding livestock from the Hassayampa River riparian when the

pasture is closed to grazing and that the grazing permittee is meeting the terms and conditions of the lease.

- Maintenance responsibilities for the pasture fencing surrounding the riparian habitat along the Hassayampa River will be assigned to the grazing permittee in the cooperative range improvement agreement.

Alternative B – No Action

A no action alternative is developed for two reasons. First, the no action alternative represents a viable and feasible choice in the range of management alternatives. Second, because a no action alternative represents the continuation of current management actions, it provides a benchmark of existing impacts continued into the future against which to compare the impacts of the other proposed management alternatives.

The No Action alternative would renew the JV Bar lease for a period of 10 years with the same terms and conditions as required by the current permit, as shown in Table 3. No restrictions would be placed on supplement placement or season of use in riparian areas. Actual use reporting would not be required. No new range improvement projects would be constructed, but the permittee would be required to maintain existing projects.

Table 3 JV Bar Allotment Mandatory Terms and Conditions under the No Action Alternative

Allotment	Livestock Number and Kind	Grazing Period	AUMs	% Public Land
JV Bar	201 Cattle	3/1-2/28	1713	71%
	8 Horse	3/1-2/28	68	71%

Alternative C – No Grazing

This alternative was developed to address unresolved conflicts concerning alternative uses of available resources, in this case, alternative uses of forage (40 CFR 1501.2(c)). Under the No Grazing alternative, the BLM would not authorize grazing on the JV Bar allotment for a ten-year term and all AUMs for active preference would not be available for livestock grazing on public lands(i.e., livestock grazing would be deferred for the ten-year lease period). No new range improvement projects would be constructed and no modifications would be made to existing projects.

Alternatives Considered but Dismissed from Detailed Analysis

Alternatives may be dismissed from detailed analysis under the following conditions (BLM 2008):

- The alternative is ineffective and would not respond to the Purpose and Need
- It's technically or economically infeasible
- It's inconsistent with the land use plan
- Implementation is remote or speculative
- It's substantially similar to another alternative that is analyzed
- It would have substantially similar effects as an alternative that is being analyzed.

Seasonal Grazing Alternative-

The IDT reviewed a seasonal grazing alternative wherein livestock would only be permitted on the allotment outside of the active growing season. This was based on scoping comments received from the public.

Due to the bimodal rainfall regime in this area, growing seasons can span the majority of the year. Implementation of this alternative is speculative, as the growing seasons will vary annually as will livestock turn out dates.

Riparian Pasture Closure Alternative-
The IDT reviewed a permanent closure of the riparian pasture on the allotment. This alternative was substantially similar to the No Grazing alternative for the pasture and was not assessed separately.

Chapter 3: Affected Environment and Environmental Consequences

For each resource analyzed in detail, this chapter first provides a succinct description of the conditions and trends of issue-related elements of the human environment, and then analyzes and describes the potential environmental consequences, or impacts, that would occur as a result of implementing the alternatives. Topics analyzed in this chapter are listed in Chapter 1 (see Issues for Analysis) and include upland vegetation, riparian vegetation, invasive plants, soil resources, riparian and groundwater resources, and wildlife resources. Resources that may exist within the project area, but would not be impacted by the Proposed Action, are described under the section titled "Resources Dismissed from Further Analysis" at the end of the chapter.

General Project Setting

The JV Bar allotment is a contiguous parcel of public rangeland administered by the Bureau of Land Management, Hassayampa Field Office. The allotment is located in Sonoran-Mojave shrub mix desert northeast of the town of Wickenburg, AZ. The allotment is roughly bisected by Constellation Road, which runs northeast out of Wickenburg approximately a mile east of the US60/US93 interchange. The BLM administered portion of the allotment is approximately 15,750 acres. The remaining acreage is Arizona State Trust Lands (3,522 acres), and privately owned lands (3,231 acres). The allotment is located in Yavapai County. The terrain is gently rolling to steep hills and mountains that are bisected by numerous drainage ways, including the Hassayampa River, King Solomon gulch, and Blue Tank wash. The legal description of the allotment is given in Table 4, below.

Table 4. Legal Descriptions of permitted and leased public lands

Allotment	Township	Range	Sections
JV Bar	8N	2W	30 and Portions of 19
	8N	3W	6, 19, 24, 25, 26, 27 and Portions of 4, 5, 7, 8, 9, 10, 17, 20, 21, 22, and 23
	8N	4W	10, 12 and Portions of 1, 2, 3, 11, 13, 14, 24
	9N	3W	30 and Portions of 31
	9N	4W	25 and Portions of 35

Upland Vegetation

Affected Environment

This section discloses the impacts of livestock grazing on upland vegetation within the allotment. This section also responds to the following issues identified in Chapter 1:

Issue 1 – Upland vegetation: How would continued livestock grazing affect the health of upland vegetation?

Issue 7- Grazing Management: What is the expected difference in use patterns between cattle and horse livestock classes?

The BLM develops RHEs to determine whether standards are being achieved on a grazing allotment and to determine if livestock grazing is a causal factor for not achieving, or failing to make significant progress toward achieving, land health standards.

In general, the BLM reported that the allotment exhibited a positive plant community structure in the Sonoran Desert environment. The most dominant plant species found across the allotment were whitethorn and catclaw acacia, big galleta grass, flattop buckwheat, paloverde, calliandra, and grama grasses, many of which are key forage species. In most instances, these species were in very good condition, with light to moderate utilization. Their abundance and vigor across the allotment attest to the good condition of the rangeland and the success of the current grazing management system. If overgrazing was occurring, these species would be much less abundant, and less desirable species, such as snakeweed and triangle bursage, would dominate instead.

Key areas were monitored and analyzed in 1982, 2010 and again in 2013 to determine whether indicators of ecological processes conform to the Rangeland Health Standards. A key area is an indicator area that represents a larger ecological site. Key areas reflect the current grazing management over similar areas in the unit and serve as representative samples of range condition, trend, use and production. A total of 4 key areas have been established on the JV Bar allotment. Three Key Areas were established in 1982, an additional Key Area was established in the east pasture in 2010.

All key areas on the allotment have attribute ratings of “None to Slight” or “Slight to Moderate” departure from the Ecological Site Description (ESD) Reference Sheets, with one “Moderate” departure on Key Area 4 due to red brome. These ratings do not appear to be caused by overgrazing by livestock based on the utilization levels (See Appendix C: JV Bar RHE). Departures from the applicable reference sheets are within the tolerances listed in the RHE.

Desired Plant Community (DPC) objectives are established by ecological site within the JV Bar allotment. DPC objectives are being achieved at Key Areas 2 and 3. Key Areas 1 and 4 do not meet the perennial grass objectives. (JV Bar RHE Section 7).

Utilization data do not indicate that current levels of livestock use are a causal factor for not achieving the DPC objectives. Utilization levels at all key areas did not exceed the “light” use category of 21-40% utilization. (JV Bar RHE Section 7)

Overall, the RHE reported that the JV Bar allotment is meeting all Rangeland Health Standards in the upland areas. All four key areas on the allotment allotment are consistent with ESDs in soil/site stability, hydrologic function, and biotic integrity and meet Standard 1. All key areas met Standard 3.

Environmental Consequences

Alternative A – Proposed Action

The Proposed Action was designed to address the areas of potential concern noted in the RHE, specifically the findings that the perennial grass component was not achieved at Key Areas 1 and 4. The Proposed Action "Other Terms and Conditions" stating that "Supplements would be restricted within 1/4 mile of watering facilities or 1/8 mile upslope from drainages and dry washes" will improve livestock distribution within the allotment, allowing for recruitment of native vegetation. Given adequate climatic conditions, grass cover and recruitment will be expected to increase. This is expected to increase vegetative foliar cover within the allotments.

The current stocking rate is being reduced under this alternative with the potential reactivation of the suspended AUMs once the facilities are in place to improve livestock distribution on the allotment. Because livestock distribution has been affected by lack of functional watering facilities on the east side of the allotment, livestock have congregated in the western pastures. At the current utilization levels and stocking rate, it is apparent that the areas of the allotment that are currently accessible to livestock cannot support the existing AUM allocation. Once the eastern waters are fully functional and a rotation system is put in place on the allotment, it is expected that the allotment will be capable of supporting the existing forage allocation.

Horse livestock class will continue to be authorized for 8 head (62 AUMS) annually. Horses generally forage further from water sources and will move more often than cattle to find fresh feed sources (Stoddart, 1975). At the proposed stocking rate for horse livestock class, horses are not expected to cause degradation to the rangeland conditions on the allotment.

In conclusion, under the Proposed Action, Rangeland Health Standards for upland vegetation would continue to be met. DPC objectives at most of the key areas would continue to be met, with improvements expected due to decreased livestock pressure at Key Areas that show higher utilization levels.

Alternative B – No Action

Currently, the JV Bar allotment meets applicable Arizona Standards for Rangeland Health for upland vegetation. All sites are consistent with ESDs in soil/site stability, hydrologic function, and biotic integrity, and meet Standard 3.

Under this alternative, no restrictions would be placed on locating mineral supplements. As a result it is expected that under the No Action scenario more trampling would occur near water developments and within drainages when compared to the Proposed Action. Overall, livestock distribution would not be expected to change. Without reducing the current forage allocation on the allotment, if the stocking rate was increased to the current forage allocation, grass cover would be reduced.

Recruitment of vegetation will be limited by current use patterns. Areas that currently show moderate or greater levels of utilization would continue to receive these levels of utilization without modification of current livestock distributions.

Alternative C – No Grazing

Upland vegetation would have the most rest and recovery under a no grazing scenario. Although the allotment is meeting all applicable standards for rangeland health in the uplands, plant communities would still benefit from rest. Because no livestock grazing would occur, plants would remain ungrazed by

livestock, with the only browse pressure coming from wildlife. Grasses would see greater benefits as compared to the other alternatives because grazing pressure would not impede their ability to fix a significant amount of carbon and produce and set seed.

The plants that would most benefit from no grazing are shrub species. Current year's growth – the leaves and young stems that are important for photosynthesis – is the most digestible part of the plant and is the portion generally removed by browsing animals. The buds are especially important to protect from grazing because they will be the source of new stems.

Under this alternative, upland vegetation would improve the most in productivity, vigor, species composition, and formation of new stems compared to the other alternatives.

Riparian Vegetation

The analysis of riparian systems responds to two issues identified during scoping that could have impacts from the various alternatives:

Issue 2 – Riparian Systems: How would continued livestock grazing impact riparian areas and riparian-dependent species?

Issue 3 – Riparian Systems: How would seasonal use by livestock affect riparian area vegetation?

Affected Environment

There are two riparian reaches on the JV Bar allotment, both located along the Hassayampa River. Riparian monitoring was carried out using BLM Technical Reference 1711-23 Multiple Indicator Monitoring (MIM) of Stream Channels and Streamside Vegetation and BLM Technical Reference 1737-9 Process for Assessing Proper Functioning Condition (PFC). The MIM protocol is designed for monitoring streambanks, stream channels, and streamside riparian vegetation. Indicators and procedures in this protocol were selected and developed primarily to monitor impacts of livestock and other large herbivores on wadable streams (usually less than 10 m wide). The MIM protocol integrates annual grazing use and long-term trend indicators allowing for evaluation of livestock grazing management. The PFC assessment refers to a consistent approach for considering hydrology, vegetation, and erosion/deposition (soils) attributes and processes to assess the condition of riparian-wetland areas. A checklist is used for the PFC assessment (Appendix D in BLM Technical reference 1737-9), which synthesizes information that is foundational to determining the overall health of a riparian-wetland system. The on-the-ground condition termed PFC refers to how well the physical processes are functioning. PFC is a state of resiliency that will allow a riparian-wetland area to hold together during high-flow events with a high degree of reliability. This resiliency allows an area to then produce desired values, such as fish habitat, neotropical bird habitat, or forage, over time. Riparian-wetland areas that are not functioning properly cannot sustain these values.

FIGURE 1

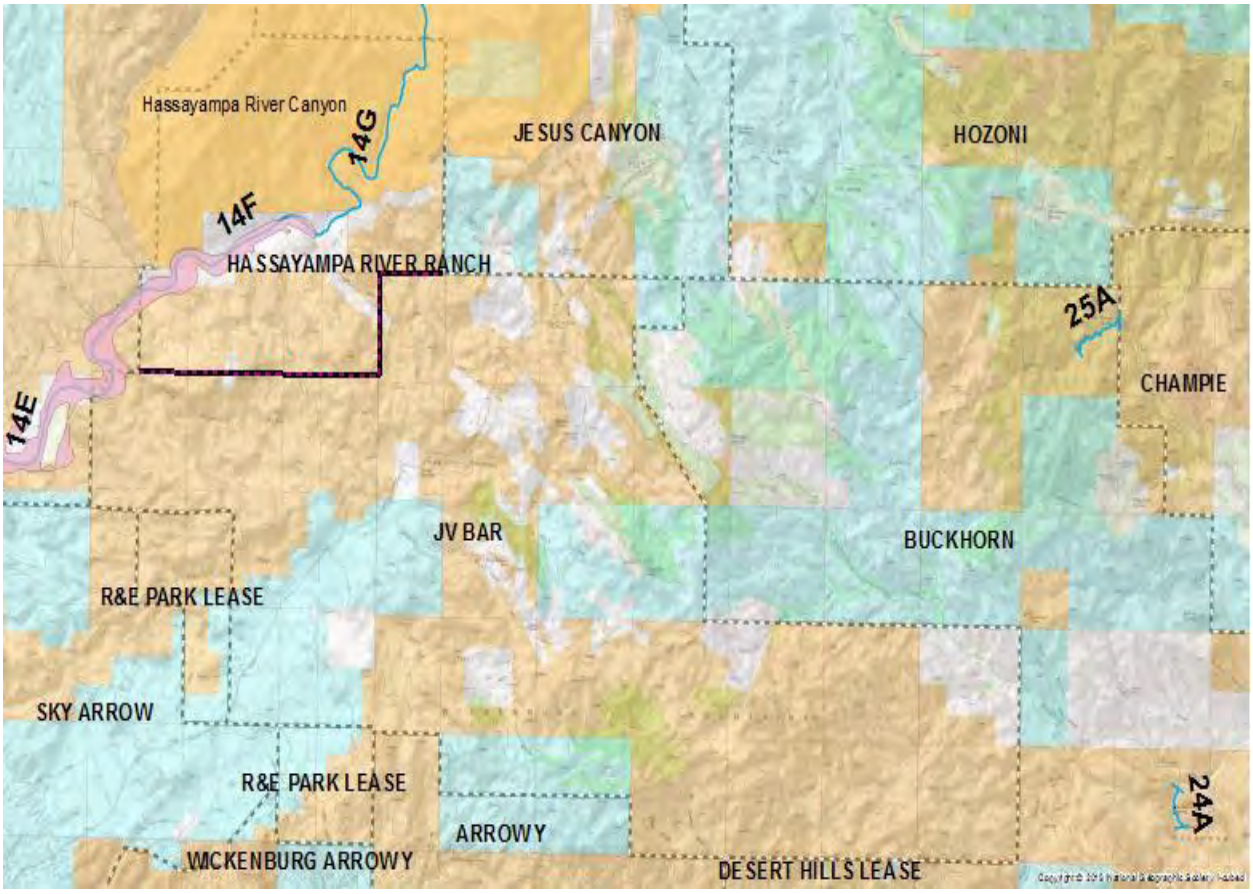

Figure 1: Map of the JV Bar allotment (delineated by the black and white line) showing proposed critical habitat (light pink layer), the existing pasture fence that will separate the winter season pasture (red black line), and the numbered riparian reaches along the Hassayampa River. Note: the small portion of riparian segment 14E and the associated critical habitat is shown on the map as being within the JV Bar allotment, but this portion is actually located on the neighboring allotment. Livestock on the JV Bar allotment do not have access to riparian segment 14E and associated critical habitat due to pasture fencing.

The riparian areas in the JV Bar Allotment were evaluated in 2010 using the Proper Functioning Condition assessment methodology, as defined in BLM Technical References 1737-9 and 1737-15. Riparian areas are evaluated, and categorized as Proper Functioning Condition (PFC), Functional At Risk (FAR), or Non-Functional. In the late 1980's BLM inventoried the riparian areas in the Phoenix District and divided the riparian areas into riparian segments. The JV Bar allotment contains two riparian segments: Hassayampa River segments 14F and 14G (Figure 1).

PFC Assessments

Hassayampa River Riparian Segment 14F

The PFC assessment in this reach focused on the upstream end of the reach because the lower approximately two-thirds of the reach had the landform and vegetative community of a sandy desert wash. PFC was assessed at this segment of the Hassayampa River on 10-8-2010. The upstream portion of this segment is located in the Hassayampa River Canyon Wilderness. The upstream portion had

surface flow at the time of the assessment, while the downstream portion was dry. Woody riparian obligate species were present in the upstream end of the segment, but they were mostly seedlings with few young and fewer mature age classes present. Goodding's willow and seep willow were the dominant native riparian plants in the upper portion of this segment. The vegetative composition in the upstream portion of the segment was predominantly woody species seedlings with some scattered bulrush. The lower portion of the segment had no surface flow and the vegetation was more xeric, dominated by velvet mesquite, desert broom, burrobrush, and some seep willow with little herbaceous vegetation present. The upstream portion of this riparian segment was heavily invaded by saltcedar seedlings. This may cause problems with recruitment and retention of native riparian obligates species as the seedlings mature. Evidence of livestock use was present, but utilization of riparian vegetation was light. This segment was rated as Functional-At-Risk. Rationale for this rating includes the lack of mature overstory, the invasion of salt cedar, and sparse vegetative cover in portions of the segment. Reference Section 6.2 of Appendix C.

Hassayampa River Riparian Segment 14G

PFC was assessed at this segment of the Hassayampa River on 10-8-2010. Surface flow existed throughout this segment at the time of the assessment. The dominant overstory vegetation was Goodding's willow. Some young and mature seep willow was also present. Mature velvet ash trees (*Fraxinus velutina*) and cottonwood trees were present in smaller numbers. The majority of woody riparian plants in this segment were seedlings of seep willow, Goodding's willow, saltcedar, and Fremont cottonwood. Multiple age classes of riparian trees were present though the age class distribution was highly skewed toward seedlings. Dominant herbaceous riparian plants include horsetail (*Equisetum sp.)*, rushes (*Juncus* species), bulrush, and spikerush (*Eleocharis palustris).* Riparian vegetation exhibited high vigor and appeared to have adequate vegetative cover of deep-rooted riparian obligate species to help stabilize banks. Evidence of livestock use was present, but utilization of riparian vegetation was light. Longfin dace and lowland leopard frogs were present in this reach. This segment was rated as Proper Functioning Condition. Reference Section 6.2 of Appendix C.

Multiple Indicator Monitoring

A representative Designated Monitoring Area (DMA) was established along the perennial portion of the Hassayampa River and a Multiple Indicator Monitoring (MIM) plot was installed in the lower end of segment 14G. This DMA was chosen due to the presence of sensitive resources that are important to maintaining bank stability and wildlife habitat - and because the area has open access to cattle. Sensitive resources include native riparian obligate plant species and stream banks with well-developed soils. The DMA was randomly selected from a group of sites that met these criteria. The greenline plant composition is listed in Appendix D by Natural Resources Conservation Service (NRCS) plant species code. The greenline is defined as the lineal assemblage of perennial vegetation on or near the water's edge. The dominant herbaceous greenline plant species was jointleaf rush (*Juncus articulatus*) which comprised 11.5% of the greenline. Other herbaceous species included common spikerush, horsetail, bulrush, and irisleaf rush (*Juncus xiphioides*). The dominant overstory species was Goodding's willow. There were a very large number of riparian woody seedlings in the DMA. 7218 seedlings were counted in the woody species plots. The largest number of seedlings were seep willow (4551), followed by Goodding's willow (2368), then by saltcedar (297), and then by Freemont cottonwood (2). Stubble height was measured for key riparian herbaceous species and woody species use was measured for the key woody species Goodding's willow. Herbaceous species had an average stubble height across all key species of 19.1 cm. Goodding's willow was chosen as the key woody species due to its palatability to cattle and its prevalence in the DMA. Utilization of Goodding's willow was 15%. Bank alteration was

18%. Reference Section 6.2 of Appendix C and 3.0 of Appendix D.

Environmental Consequences

Alternative A – Proposed Action

Under the Proposed Action riparian vegetation on the JV Bar allotment would only be grazed in the winter months, from November 1 to March 1, when riparian species become dormant. This proposed change in the grazing season would remove livestock during the primary growing season for riparian plant species.

Winter-only grazing of riparian systems would help with recruitment and survival of native riparian trees such as Fremont cottonwood (*Populus fremontii*) and Goodding's willow (*Salix gooddingii*). It would also reduce livestock loafing along creek bottoms, which degrades streambanks and alters channel morphology. Over time, the removal of livestock from creek bottoms during the vegetation growing season should help increase the channel width-to-depth ratio and create a deeper channel with more pools. In addition, the change in grazing seasons should allow the accumulation of vegetation in the herbaceous layer that protects the natural function of streams. These effects would be expected to increase the diversity and abundance of riparian-dependent species and increase riparian habitat complexity.

Proposed restrictions on supplement placement (outside 1/8 mile from drainages) would help move livestock away from washes and would reduce grazing pressure in and near riparian areas.

Both riparian reaches would be expected to reach, or make significant progress toward reaching, PFC and DPC objectives.

Alternative B – No Action

Under this alternative, the riparian systems on the JV Bar allotment would continue to be grazed during the spring and summer months when riparian dependent species would be actively growing. Without riparian pasture season of use, livestock would continue impacting the riparian area year round. With grazing occurring during the spring and summer vegetative cover along streambanks and recruitment of riparian obligate trees would not be expected to increase. The channel width-to-depth ratio would not be expected to increase and create a deeper channel with more pools. The diversity and abundance of riparian-dependent species and riparian habitat complexity would not be expected to increase.

Under the No Action alternative, riparian segment 14F would not be expected to reach PFC and riparian DPC objectives, and riparian segment 14G would not be expected to reach riparian DPC objectives.

Alternative C – No Grazing

With the total exclusion of livestock, this alternative would provide the greatest improvement of the riparian conditions on the JV Bar allotment when compared to the other alternatives. Except for some browsing by wildlife, the riparian systems would be rested, and would improve in vigor. Recruitment of riparian dependent species would increase, and establishment of seedling and young age class trees would take place. Plant diversity and habitat complexity should increase over time, and streambanks should become more stable. Both riparian reaches would be expected to reach PFC and meet DPC objectives more rapidly than in the proposed action.

Invasive Plants

Affected Environment

Red brome (Bromus rubens) is present on the allotment and was noted at all key areas, and along the riparian areas in the Hassayampa River. The species is likely present across most of the allotment. A non-native, invasive plant, red brome is an annual bunchgrass that is frequent to abundant across Arizona and is naturalized across the Western U.S. Red brome is not highly competitive with established perennials, especially native grasses (Halvorson and Guertin 2003, USDA 2012). The plant has a short growing season and low palatability.

Red brome can alter the fire regime in native desert plant communities by increasing fuel loads and shortening the fire return interval (Simonin 2001). This increased fire activity can adversely affect native species. The presence of red brome is variable depending upon the amount and seasonal distribution of rainfall, becoming more widespread after winters with moderate to high rainfalls. However, the abundance of red brome in the project area is limited due to low precipitation. During dry seasons, red brome is typically only found in shaded areas, and not in the interspace areas between vegetation. This patchiness does not support continuous fuel loading to carry wildfire.

Red brome cannot be eradicated from desert ecosystems. However, proper grazing management to maintain the desired plant communities for the ecological site will aid in suppression of red brome and other undesirable plant species (USFS 2012). Studies have demonstrated that an intermediate level of cattle grazing may maintain greater levels of native plant diversity, while cattle removal resulted in little increase in native plant cover and reduced plant species richness relative to the moderate grazing control (Loeser et al. 2007). Establishing and maintaining competitive grasses can minimize the invasion and spread of rangeland weeds (Sheley 1995).

Monitoring results at the key areas on the allotment do not indicate a problem with the presence of invasive plant species. Bare ground, canopy cover, and litter – factors that can affect the presence of invasive species – were within expected ranges for all key areas. Red brome was most extensive at key area 4.

The Hassayampa FO is not managing for red brome. No noxious weeds have been identified on the allotment.

Environmental Consequences

Alternative A – Proposed Action

The Proposed Action is designed to maintain or improve conditions favorable to meeting DPC objectives and Rangeland Health Standards. The RHE reported that key areas were as expected for their ecological site descriptions for plant species composition, cover, and frequency, and that ground litter was within expected surface cover range for the ecological sites. Species composition data showed a relatively high percentage of perennial grasses and palatable shrubs: the presence of herbaceous and perennial plants is recommended to help control invasive plants like red brome (USDA 2012).

DPC objectives were only partially met at some of the key areas. Specifically, the desired perennial grass component was not met at Key Areas 1 and 4. All other DPC objectives were met at all sites. Under the Proposed Action, vegetative cover and perennial grass composition should improve, which would help prevent the introduction and spread of additional invasive plant species by livestock.

As stated above, red brome in abundance can alter the fire regime in desert plant communities. However, the spread and distribution of red brome would remain dependent on annual precipitation.

Maintaining DPC objectives would provide conditions under which native plant species would continue to outcompete red brome, and therefore maintain the existing fire regime.

The allotment is currently meeting standards for upland conditions. As the BLM continues to monitor utilization of upland key forage species over time to ensure average utilization of key herbaceous forage species does not exceed 40 percent, which is light moderate use, it is expected that renewing the grazing lease would not contribute to spread of non-native, invasive plants.

Alternative B – No Action

Under the No Action alternative, the season of use and livestock distribution, and mineral placement restrictions would remain unchanged from the present. As such, present conditions in terms of soil litter and vegetation composition and cover would remain unchanged. Because the current management of livestock does not indicate a declining trend in expected ecological site conditions based on the monitoring data, a change in the presence or distribution of invasive, non-native plant species is not expected.

Alternative C – No Grazing

Removal of grazing by domestic livestock would not automatically lead to disappearance of invasive plant species (Young and Clements 2007), and would not be expected to affect the presence or distribution of red brome within the allotment.

Although livestock grazing is observed to be one of the disturbance types that influence the invasive potential of the species (USGS 2003), red brome can be found across both disturbed and undisturbed landscapes (USDA 2012). While the No Grazing alternative may provide benefits by removing cattle and, therefore, one form of disturbance to soils and vegetative cover within the allotment, this alone would not be expected to affect the presence of red brome in the allotment. Further, there is no indication that the spread and distribution of the invasive can be controlled or eradicated outside of active management.

Competition by crowding has been shown to reduce the reproductive success of red brome (Halvorson 2003). Under the No Grazing alternative, upland vegetation would improve the most in productivity, vigor, species composition, and formation of new stems compared to the other alternatives. The expected effect would be a reduction in the presence of red brome across the allotment.

Soil Resources

This section responds to Issue 4: *Does livestock grazing affect cryptogamic crust presence?*

Affected Environment

The erosional context across the allotment is stable. Historical erosion from land use practices over the past century has produced high erosion rates with shifts in vegetation along with soil redistribution and loss by wind and water. The result of these practices left a dominant shrubland and soils with gravel and rock surfaces armored against erosion.

Soil mapping shows a low to moderate risk for erosion by wind. The wind erodibility index scores soils from 38 tons to 56 tons per acre per year assuming no groundcover (see NRCS 2008).

Water erosion within the allotment occurs during intense summer thunderstorms. Soils have well drained conditions but intense rainfall can overwhelm soil infiltration capacity and create overland flow. The intense monsoon rainfall can produce overland flow in part due to dry soils forming crusts that resist

percolation. Overland flow transports soil particles along erosion pathways from runoff surfaces to run-on areas, typically formed by vegetation patches or topographic breaks. Compaction and trailing from cattle can exacerbate erosion when trails align with water flow pathways when soils are wet. This effect is mostly localized around livestock water sources on the allotment.

RHE findings did not note substantial departure from expected abiotic and biotic conditions outlined in the ESDs. The very rocky soils resist active erosion. All four key areas showed only slight sign of active surface erosion, suggesting stable soils. These areas showed either none to slight or slight to moderate departures from the reference state for rilling. Key areas 2, 3, and 4 showed a slight to moderate departure from reference state for pedestalling that indicates some minimal loss or movement of topsoil. The RHE findings did not suggest impaired conditions given the expected shrub abundance at the site.

The biotic conditions that can indicate soil productive capacity did not show signs of substantial deviation from expected plant community composition, abundance, and annual crop.

Desert soils have known contributions from biological soil crusts, also called cryptogamic crusts, for soil biologic function. The particular ecological province of the project area with a thermic climate is expected to favor cyanobacteria that have a flat appearance. A byproduct of crust presence is aggregation that binds soil particles. Using the RHE measures, the soil aggregate stability tests did not find aggregation substantially departed.

The ESDs for the key areas do not indicate a large presence of soil crusts. The absence of crusts in the sampling may be attributed to the period of sampling and crust species composition. The organisms shrink and swell according to available water, being able to quickly take advantage of short precipitation episodes (Cable and Huxman 2004). Sampling during dry periods will produce less frequency scores. In addition, gravel and rock conditions do not promote the formation of macroscopic crusts, favoring smaller organisms. A third factor for the low recorded crust presence is the inverse relationship with vascular plant cover. Vegetation across the allotment was shrub-dominated on most sites with the exception of Key Area 3 which had a grass composition of 34%. A foliar cover between 41-44% was present across all sites.

Livestock grazing does affect soil productivity by removing a portion of the standing crop. Annually produced biomass serves both a physical and biological role. Litter physically works to insulate soils from evaporation and contributes as protective groundcover. Decomposition of litter provides substrate for soil microbes that increases available nutrients.

The litter on the allotment is primarily produced from shrubs. The rocky soils favor shrubs and cacti that compose 54 percent to 80 percent of the total vegetation. Litter from grasses and forbs is sparse since the soils and climatic setting do not favor their production. Grasses and some forbs rely on fine soil textures since rooting concentrates in the top 10 centimeters. Since grazing targets primarily herbaceous species, the impact of the grazing on annual crop will be difficult to detect. The litter from the allotment plant communities consists of shrub and herbaceous leaves, twigs and roots. Grasses and herbs which livestock target consist of a minor part of the plant community on most of these ecological sites. Monitoring measured litter to be 28 percent to 36 percent total groundcover at the key areas. The litter fraction of groundcover was not found departed from expected conditions.

Environmental Consequences

Alternative A – Proposed Action

The Proposed Action would improve soil conditions by improving livestock distribution. The greatest change would result from increased dispersal by use of mineral blocks, which would lower the pressure on forage vegetation in livestock concentrating areas. Although noticeable improvements in soil conditions would be slight to none, the added dispersal would curtail concentrated grazing pressure that affects soil and vegetation communities. Implementing seasonal use and the installation of the two additional water sources would further enhance livestock dispersal and alleviate concentrated grazing pressure around riparian areas.

The proposed stocking rates would likely have a low effect on erosion since the grazed vegetation makes up a small fraction of the overall canopy cover. Canopy cover intercepts and disperses rainfall and disrupts overland flow generation. Measured vegetation cover ranged from 41 percent to 44 percent with less than 10 percent expected grass cover on the Granitic Hills ecosites. The monitoring showed bare soils ranged from 1 percent to 6 percent, largely because of canopy cover and surface litter. Gravel and stone cover ranged from 15 percent to 28 percent. Given the low numbers, moderately armored soils and current canopy cover, and considering the stable conditions suggested by the monitoring, continuation of the grazing lease at the proposed stocking rate would not result in further degradation from erosion.

The impacts of grazing on soil biotic crusts are difficult to discern because within this environment, cyanobacteria type crusts may exist below the gravel surface and would be difficult to detect.

Alternative B – No Action

The No Action alternative would result in increased effects to soil resources on the allotment. Although present impacts to soils are minor at the current stocking rate, grazing pressure and therefore soil impacts would continue, with a potential increase if the allotment were to be fully stocked, in areas of concentrated use. Given the findings of the RHE, maintaining the current stocking rate without increasing livestock distribution through salt placement and additional water sources will have localized negative effects on soil conditions within the allotment.

Alternative C – No Grazing

The removal of livestock from the allotment would increase the litter for soil processes and reduce compaction and bare soil exposure from livestock trampling. Impacts would be highest where groundcover slowly re-establishes at grazing congregation areas.

The impacts to vegetation and soils across the range would be slow and depend on the level of forage that livestock grazing previously impacted. Potentially, an increase in annual crop would boost substrate available for soil functional processes. However, the response from livestock removal would be low since rangeland forage makes up a small percentage of the annual crop. Changes would be highest where grasses and forbs thrive.

Using Michunas's (2006) review of plant community response to livestock grazing, we would expect a very slow vegetation response to livestock removal in arid and semi-arid environments. In reviews of long-term studies on Chihuahua desert scrub with similar precipitation patterns to the allotment, findings indicate very little change in perennial grass cover after 16 to 25 years. In addition, because grass and forb communities are reaching late seral composition, it's likely that eliminating grazing pressure would result in a slow response.

Finally, the response from no grazing may be small since less change is associated with reductions from moderate compared to heavy grazing levels. A seven year study near Flagstaff found significant reductions in vegetation cover and plant community composition only in the heavily grazed treatment when compared to the moderate and no grazing treatments (Loesser et al. 2006).

Water Resources

This section provides site-specific analysis of potential impacts to water resources and addressed the following issue:

Issue 9- Water Availability: How will the use of well water affect riparian surface waters within the allotment?

Affected Environment

The majority of the JV Bar allotment lies within the Hassayampa watershed, with the exception of the east pasture which is within the Agua Fria watershed. Riparian areas on the allotment are contained within the Slim Jim and King Solomon Gulch sub-watersheds (HUC 12) within the Hassayampa watershed. Precipitation on the allotment ranges from 10-16" and average annual air temperatures are approximately 73°F. Reference Section 2.2.1 of the JV Bar Rangeland Health Evaluation.

Ten water improvements are located on the public lands within the allotment. Several improvements are also located on state and private lands within the allotment. These serve to facilitate livestock distribution across the allotment, allowing for uniform use of the public lands. Livestock watering facilities on the public lands were inventoried in 2011 and are given in the table below:

Table 5 Existing Water Improvements within the JV Bar Allotment

Facility	Township	Range	Section	Condition
King Solomon Gulch well	8N	4W	11	Good
Unnamed well	8N	3W	9	Good
Golden Eagle Well	8N	2W	30	Failure (windmill)
JV Bar Well #1	8N	3W	23	Good
Boonie Reservoir	8N	4W	12	Good (seasonal)
Qarastra Reservoir	8N	3W	21	Good (seasonal)
Sayer Spring	8N	3W	7	Good
Dry Well	8N	3W	19	Fair
Hutchins Well	8N	3W	27	Failure (windmill)
Slim Jim drinker	8N	3W	4	Fair

In addition to these range developments, several springs provide seasonal water sources in the higher elevation areas of the allotment. Several wells on private lands along the Hassayampa River are within the allotment. These wells are listed as domestic, irrigation, and livestock use.

Environmental Consequences

Alternative A- Proposed Action

Under the proposed action, two additional water sources would be made available on the allotment.

The range improvement called the “Monte Cristo corral and trough” will pump water from the flooded Monte Cristo mine site, located on a hillslope above Mahoney Wash. This wash lies within the Slim Jim subwatershed of the Hassayampa watershed. The flooded mine shaft is fed from a direct rainwater catchment and subsurface water seep from the surrounding bedrock. Pumping of water from this mining feature is not expected to reduce available surface water in riparian areas due to its distance from the riparian area and its location on a drainage that feeds into the Hassayampa River downstream of the riparian areas within the wilderness.

The range improvement called the “Miller Trough”, which is to be located in King Solomon Gulch, will gravity feed a livestock trough from a mine adit. Water in this adit seeps from surrounding bedrock. Gravity feeding of this pooled water is not expected to reduce available surface water in riparian areas due to its low volume use and distance from riparian areas in the Hassayampa River.

Under the proposed action, livestock stocking rates will be reduced for a minimum of 5 years on the allotment. The reduced stocking rates will require less groundwater pumping on the allotment to support the livestock herd. After 5 years, under the proposed action the stocking rate may be increased following livestock distribution improvement and repairs to livestock watering facilities on the east end of the allotment. It is expected that with improved livestock distribution groundwater pumping in the Hassayampa watershed areas of the allotment will be maintained at approximately the same level due to the reduced need for these waters on a year-round basis.

Surface water availability in riparian areas is expected to remain constant or slightly increase during the growing season due to the removal of livestock from the riparian pasture in the summer months. Surface water availability during the winter months is expected to remain consistent with current levels.

Surface water quality is expected to remain constant or slightly improve in riparian areas with the removal of livestock during the active growing season.

Alternative B- No Action

Under the No Action alternative, well pumping on public lands would continue at the current rate. Existing wells on the public lands within the allotment are unlikely to affect riparian area surface water availability due to their distance from riparian areas, topography, and volume of use.

Livestock use of the riparian area would not be limited to winter months, and water availability would remain consistent with current levels or reduced as drought intensifies. Surface water quality is expected to remain the same as current conditions.

Alternative C- No Grazing

The No Grazing alternative would discontinue groundwater pumping on the allotment for livestock use on the public lands. Subsurface water tables would be expected to maintain their current levels or gradually increase over time. Livestock water facilities would not be maintained, leading to a reduction in available surface waters for use outside of riparian areas. Riparian areas would be expected to maintain or slightly increase surface water availability due to reduced use of the water supply by livestock. Surface water quality is expected to remain constant or slightly improve with the removal of livestock on the allotment.

Wildlife Resources

This section provides site-specific analysis of potential impacts to wildlife resources and addresses the following issues:

Issue 5 – Wildlife: How would riparian area fencing affect wildlife use of the riparian area?

Issue 6- Wildlife: How is desert tortoise habitat affected by livestock grazing?

Affected Environment

General Wildlife Species

Wildlife species that occur within the JV Bar 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, Gambel's quail, great horned owls, and various reptiles, small mammals, and migratory birds.

The JV Bar allotment is located within the Arizona Game and Fish Department management unit 20B and 20C. Javelina (*Pecari tajacu*) and desert mule deer (*Odocoileus hemionus*) are two big game species that utilize habitat on the JV Bar allotment. Mule deer rely heavily on browse and forbs, which make up the majority of their diet (greater than 90%). Grasses and succulents were generally less than 5 percent of mule deer diet (Krausman et al.1997, Heffelfinger et al. 2006). Desired key forage species for mule deer and javelina that exist on the allotment include the ephedra species, slender janusia, range and white ratany, jojoba, the eriogonum species, calliandra, desert globemallow, and succulents including prickly pear, barrel, and hedgehog cacti.

Both cattle and wildlife utilize herbaceous vegetation. Various wildlife species (e.g., mule deer, some migratory birds) depend on forbs and shrubs for forage and concealment. Insectivore species such as bats or some migratory birds are indirectly dependent on herbaceous vegetation to support their insect population diet or to provide a substrate for nesting, roosting, or concealment. Larger predator species are indirectly dependent on herbaceous vegetation to provide forage and cover for prey species such as small mammals and birds. The presence and movement of livestock between areas can result in the direct disturbance or displacement of individual wildlife species from areas providing cover and forage.

Across all ecological sites, current vegetative species composition and structure provides cover and forage to support a diverse wildlife community. Abundant trees, shrubs and cacti are available to provide forage, cover, and nesting opportunity for many bird species as well as cover and palatable browse for mule deer and javelina. The mix of trees/shrubs/cactus and grasses/forbs present on the allotment provides a diversity of habitats suitable for a variety of wildlife species from reptiles and small mammals to various birds, and game species as well as predators that depend on these species groups.

Migratory Birds

All migratory birds are protected under the 1918 Migratory Bird Treaty Act (16 USC 703), which prohibits the taking of any migratory birds, their parts, nests, or eggs unless specifically permitted by regulation. Additional protection is provided by the Neotropical Migratory Bird Conservation Act of 2000 (16 USC Chapter 80). Executive Order 13186 requires the BLM and other federal agencies to work with the USFWS to provide protection for migratory birds, primarily in the form of habitat protection to avoid migratory pattern disruption. Migratory birds found within the allotment are typical of Sonoran desert habitat such as ash-throated flycatcher, brown-crested flycatchers, Scott's oriole, white-winged dove and western kingbirds. Within riparian areas along the Hassayampa River species such as summer tanager, Lucy's warbler, yellow warbler, yellow-breasted chat, and black phoebe also occur.

Special Status Species

Special status species include federally listed, candidate and proposed species as well as BLM sensitive species. Critical habitat for the yellow-billed cuckoo (*Coccyzus americanus occidentalis*), a federally listed threatened species, was proposed along a portion of the Hassayampa River on the JV Bar allotment, but there are no records of yellow-billed cuckoos occurring on the JV Bar allotment. Yellow-billed cuckoos have been detected in the Box Canyon area along the Hassayampa River approximately 3 miles downstream from the JV Bar allotment and along the Hassayampa River near Wagoner approximately 10 miles upstream from the JV Bar allotment. One Endangered Species Act candidate species, Sonoran desert tortoise (*Gopherus morafkai*) is known to occur on the JV Bar allotment. BLM sensitive species that are known to occur on the allotment include longfin dace (*Agosia chrysogaster*) and lowland leopard frog (*Rana yavapaiensis*).

The yellow-billed cuckoo is a neotropical migratory bird species that nests and forages in riparian habitat. Cuckoos typically arrive in Arizona in mid to late May. Nesting activities continue into August or September, and cuckoos typically depart Arizona by mid-September (Corman, 2005). The proposed critical habitat on the JV Bar allotment is located along an intermittent reach of the Hassayampa River. Within the critical habitat reach the river bed is wide and sandy and there is little riparian vegetation. Vegetation along this reach consists mostly of drier site species such as mesquite (*Prosopis velutina*), desert broom (*Baccharis sarothroides*), burrobrush (*Hymenoclea salsola*) and arrowweed (*Pluchea sericea*) along with scattered seep willow (*Baccharis salicifolia*) and salt cedar (*Tamarix ramosissima*). The proposed critical habitat does not appear to be suitable for yellow-billed cuckoos. Upstream of the critical habitat reach, where the river enters the Hassayampa River Canyon Wilderness (Reach 14G and the upstream portion of Reach 14F), surface flow becomes perennial and the vegetative community is dominated by riparian obligate species such as Goodding's willow (*Salix gooddingii*), Fremont cottonwood (*Populus fremontii*), Velvet ash (*Fraxinus velutina*), bulrush (*Schoenoplectus pungens*), spikerush (*Eleocharis palustris*), joint-leaf rush (*Juncus articulates*) as well as seep willow, salt cedar and Bermuda grass (*Cynodon dactylon*). Portions of the riparian area along the Hassayampa River within the Wilderness may contain suitable habitat for yellow-billed cuckoos.

Sonoran desert tortoises occupy much of the upland areas in the JV Bar allotment. The desert tortoise distribution within the allotment is not uniform. Tortoises tend to occupy hillsides and ridges with outcrops of large boulders as well as areas with incised washes and caliche caves, but may be found in lower densities throughout the area. Tortoises generally use natural and excavated cover sites between or under boulders and in caliche caves along washes wherever they occur. 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). These forage species are available for Sonoran desert tortoise throughout the allotment (Reference Section 2, Appendix D). The JV Bar allotment contains 9,441 acres of category II desert tortoise habitat and 4,377 acres of category III desert tortoise habitat. Category II habitat is defined as: 1) Habitat that may be essential to the maintenance of viable populations; 2) Habitat where most conflicts are resolvable; and 3) Habitat that contains medium to high densities of tortoises or low densities contiguous with medium or high densities. Category III habitat is defined as: 1) Habitat that is not considered essential to the maintenance of viable populations; 2) Habitat where most conflicts are not resolvable; and 3) Habitat that contains low to medium densities of tortoises not contiguous with medium or high densities.

Other special status species that are known to occur on the JV Bar allotment are Longfin dace and lowland leopard frog. Both of these species are BLM Sensitive species. They are both aquatic obligate species and, on the JV Bar allotment, they are only known to occur in the Hassayampa River.

Environmental Consequences

Alternative A – Proposed Action

Wildlife and Migratory Birds

Presently, Rangeland Health Standards for upland habitat are being met in the allotment. The Proposed Action is designed to improve conditions for upland vegetation near livestock water sources, major drainages and washes through restrictions on supplement placement. This would maintain or improve upland vegetation productivity over current conditions in the vicinity of drainages and washes across the allotment, providing increased forage opportunities and cover for wildlife species in important desert wash habitat. This would be expected to benefit mule deer, desert tortoise and a variety of migratory birds. This would also be expected to increase seed production in these areas for seed-eating species and residual forage for insects, providing important prey for bats, insectivorous migratory birds, and raptors.

Limiting livestock season of use in riparian habitat to winter-only is expected to increase the recruitment of riparian trees and increase riparian herbaceous species cover, trending the area toward meeting Standards two and three of the Arizona Rangeland Health Standards. This would improve cover and forage availability for wildlife, particularly riparian-obligate migratory birds such as the yellow-billed cuckoo. Increased vegetation density and streambank stability would be expected to improve aquatic habitat by improving flood water retention and ground-water recharge and promoting complex pooling and diverse channel characteristics (Prichard, 1998).

The construction of the two new stock waters and the routine maintenance of water sources (springs, tanks and troughs) on the allotment would benefit wildlife in this arid environment. Individual wildlife species could be displaced during construction and maintenance operations, and may avoid a water source when livestock are present, but they would be expected to utilize the water source once the disturbance has ceased.

No new riparian fencing construction is associated with this proposed action. The entire riparian pasture will be closed to grazing from March 1 through November 1 annually. This closure will have no effect on wildlife access to riparian areas.

Special Status Species

The BLM consulted with the US Fish and Wildlife Service (FWS) on the effects of the proposed action on yellow-billed cuckoo and proposed critical habitat. Through this consultation the conservation measures that are included in the "Riparian Management" section of Chapter 2 were established. The FWS concurred with the BLM that the proposed action may affect, but is not likely to adversely affect the yellow-billed cuckoo. This concurrence was based on the following:

1) Livestock will not be admitted into the riparian area along the Hassayampa River on the allotment during the yellow-billed cuckoo breeding and nesting season (March 1 to November 1 of each year). This will reduce disturbance to birds that may be present during the migration/breeding season and will aid in the recruitment and cover of riparian vegetation.

2) The BLM has outlined conservation measures with the goal that such measures will aid in the improvement of riparian habitat conditions and potentially contribute to the recovery of the yellow-billed cuckoo.

3) The BLM will use adaptive management techniques, described above the "Riparian Management" section in Chapter 2, to monitor the function of the riparian vegetative community. Monitoring will occur at regular intervals and if standards are not met adjustments will be made to grazing practices, which may result in additional restrictions to livestock presence in riparian areas.

Alternative B – No Action

For upland areas, the No Action alternative would not provide the additional benefits to key wildlife forage species expected under the Proposed Action. Rangeland Health Standards and DPC objectives would continue to be met at most key areas, but the improvements in upland vegetation condition expected in the Proposed Action would not be expected to occur in this alternative. Overall, livestock distribution would not be expected to change.

Continued yearlong livestock use of the riparian habitat along the Hassayampa River would not allow rest to recover overstory and herbaceous vegetation. There would be no trend toward meeting Standards two and three and habitat conditions for aquatic and riparian obligate species would not be expected to improve. Under this alternative, no restrictions would be placed on locating mineral supplements. As a result, it is expected that more trampling would occur near water sources and desert wash habitat compared to the Proposed Action. Habitat conditions for yellow-billed cuckoo would not be expected to improve.

General livestock grazing disturbance and displacement effects to wildlife in upland habitat would be similar to the Proposed Action, but there would be no disturbance related to the construction of the two new livestock waters included in the proposed action.

Alternative C – No Grazing

In the absence of livestock grazing, competition for wildlife forage vegetation would be reduced, providing more forage for wildlife and insect populations. The absence of livestock grazing could result in cover canopy increasing over time, benefiting cover-dependent species. Water developments would not be maintained or could be turned off, reducing water availability for wildlife in the allotment over time. Livestock disturbance/displacement effects would not occur, benefiting nesting migratory birds and other wildlife individuals. The improvements in riparian and aquatic habitat mentioned in the proposed action would also be expected to occur. With the absence of grazing year round, these improvements in riparian habitat conditions would be expected to occur more rapidly. The recruitment of riparian trees and increase in riparian herbaceous species cover would be expected to be greater under this alternative, further benefiting riparian and aquatic obligate species such as the yellow-billed cuckoo and longfin dace.

Cumulative Actions

The CEQ defines cumulative effects (also known as cumulative impacts) as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what (federal or non-federal) agency or person undertakes such actions” (40 CFR 1508.7).

The intensity, or severity, of the cumulative effects considers the magnitude, geographic extent, duration, and frequency of the effects. The magnitude of the effect reflects the relative size or amount of the effect; the geographic extent considers how widespread the effect may be; and the duration and frequency refer to whether the effect is a one-time, intermittent, or chronic event.

If there is no net effect to a particular resource from an action, then there is no potential for cumulative effects. In addition, if effects that do not overlap in time and/or space, they do not contribute to cumulative effects. The temporal frame for analysis of cumulative effects is 10 years, which is the time period for the grazing lease. The spatial scale is the 32,504 acre JV Bar allotment
.
The past, present, and reasonably foreseeable future actions considered in the cumulative effects analysis are summarized below.

A wide variety of land uses and activities are possible on the JV Bar allotment, including travel, recreation, mineral development, grazing (both authorized and trespass livestock), and others. Specific actions and impacts that are occurring, or are likely to occur in the reasonably foreseeable future include:

Livestock Grazing
The JV Bar allotment has been an active grazing allotment for decades, and livestock grazing has occurred in some form in the allotment area for over a century. The environmental effects of past grazing practices are reflected in the current description of the affected environment for the allotment. If left unchanged (No Action), current grazing practices are expected to contribute toward downward trends in upland vegetation resource conditions on the central and western pastures within the allotment. A downward trend may occur in riparian areas if current grazing practices continue. The action alternatives analyzed in this EA are designed to address riparian conditions in the Hassayampa River. Under the No Grazing scenario, improvement in resource conditions are expected to be mild to moderate over the long-term as soil, vegetative conditions, and riparian areas slowly recover from long-term livestock grazing on the allotment. Continued livestock grazing is not anticipated to result in cumulative effects to non-native, invasive vegetation. Continued livestock grazing is not anticipated to result in any cumulative effects to wildlife species or habitat in the project area. Trespass livestock issues due to fence cutting are expected to continue. Areas with continued fence cutting will experience greater forage utilization levels and may experience greater soil impacts through trampling and soil compaction. These impacts are expected to be localized along boundary fences.

Soils
No substantial cumulative effects to soils were identified. Proposed range improvements are located on disturbed sites or in sandy washes (non-compactable soils). There may be increased trailing to new salt and supplement locations, but effects are expected to be negligible and highly localized. Compaction is

expected to continue on established routes with increased recreational use in the area due to the expansion of Wickenburg and surrounding communities.

Developments
No new or proposed developments or projects were identified within the project area. A number of existing rights-of-way (ROWs), including roads, pipelines, and public utilities, intersect portions of the JV Bar allotment. Owners/operators are authorized to access ROWs for routine maintenance and repair. Minor disturbances or impacts to resources may occur due to vehicle access and maintenance activities, such as brush clearing, within the ROWs. These past and continuing actions associated with ROWs are not expected to contribute additional incremental impacts beyond those described in Chapter 3 of this EA.

Hydrology
The allotment encompasses the entirety or most of the watersheds from upper headwaters to major confluences. In particular this includes the Hassayampa River, which contains the riparian areas for this EA. The Proposed Action continues the practice of grazing at roughly half the livestock numbers as the previous few decades and no changes are proposed to the existing water developments. There are no other recent, concurrent or foreseeable management decisions with distinct yet similar direct or indirect effects that would accumulate spatially or temporally with the Proposed Action.

Resources Dismissed from Detailed Analysis

This section lists and describes the issues, resources, and concerns dismissed from analysis in this EA. These potential issues were identified during project scoping, and include elements of the environment that by statute, regulation, or EO must be considered in all EAs (BLM 2008, Appendix 1).

The purpose for dismissing issues in an EA is to focus the environmental analysis on issues that are truly significant to the proposed action, and to avoid amassing needless detail in accordance with CEQ regulations (40 CFR 1500.1(b)). CEQ requires that impacts shall be discussed in proportion to their significance, and for non-significant issues, there should be only enough discussion to show why more study is not warranted (40 CFR 1502.2). The following issues are dismissed from further analysis with explanation because (1) they do not exist in the project area, or (2) they would not be impacted by the proposed action(s), or (3) the potential impacts are not measurable or are negligible.

Air Quality – Present, Not Impacted
The Clean Air Act of 1970 and subsequent amendments required the Environmental Protection Agency to establish National Ambient Air Quality Standards (NAAQS), which specify maximum levels for six criteria pollutants: carbon monoxide, nitrogen dioxide, ozone, particulate matter (PM), sulfur dioxide, and lead. Livestock operations have the potential to release fugitive dust and carbon monoxide associated with cattle trailing, range improvements, and vehicle use. Yavapai County is classified by EPA as “attainment” for the purposes of NAAQS.

Range improvements would be authorized under the proposed action (Alternative A), but they would not result in the use of mechanized equipment. Further, the RHE for the JV Bar allotment found that conditions on the allotment are meeting rangeland health standards for vegetation cover (Standard 3) and for soil conditions (Standard 1) (BLM 2014). Because none of the actions considered in this EA would increase grazing activities, there is no expectation that the actions would have a measurable impact to air quality or lead to non-attainment of NAAQS.

Accommodation of Sacred Sites – Not Present

EO 13007, *Indian Sacred Sites* (1996), requires Federal agencies to (1) accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners, and (2) avoid adversely affecting the physical integrity of such sacred sites. No known sacred sites are present in the project area, and during consultations with the American Indian Tribes that claim cultural affiliation to the area, no Native American religious concerns were identified in relation to livestock grazing within this allotment.

Areas of Critical Environmental Concern – Not Present

No Areas of Critical Environmental Concern are present within the project area.

Cultural Resources

Cultural and heritage resources within the Hassayampa Field Office 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.

According to Arizona BLM Handbook H-8110, Guidelines for Identifying Cultural Resources (BLM 1999), livestock grazing lease renewals are generally exempt from cultural resources surveys. Range improvements, however, are land disturbing activities that require site-specific survey. Based on the proposed installation of a small holding corral and two livestock waters, which would involve ground disturbing activities, the BLM conducted a Class I Literature Search and a Class III intensive archaeological survey in 2015.

The Class I cultural resources literature search of the JV Bar Allotment, focused along the location of the proposed installation of a small holding corral and two livestock waters, revealed no previously identified cultural resource sites within the Area of Potential Effect (APE) of the proposal or within 10 meter (32 feet) of either side. The class I search also indicated that few cultural resources surveys have been conducted within the allotment and that none had been done in the area proposed for the holding corral or the two livestock waters.

The class III survey was conducted at the locations selected for the small holding corral and the two livestock waters. The pedestrian survey was conducted surveying a larger area than shall be needed for the corral or the livestock waters. As a result of the Class III cultural resource survey, no cultural resource sites were identified in survey within the Area of Potential Effect. No cultural resources will be affected by the installation of the proposed holding corral or two livestock waters.

Energy Conservation/Energy Requirements and Conservation Potential

The CEQ's NEPA Guidelines Section 1502.2(e) indicates that the discussion of environmental consequences must include analysis of the ". . . [e]nergy requirements and conservation potential of various alternatives and mitigation measures." Proposed range improvements include construction of corral fencing and installation of prefabricated livestock drinkers. While energy would be expended, the effects to energy conservation are negligible. Therefore, the topic is dismissed from further analysis.

Environmental Justice – Not Present

EO 12898, *General Actions to Address Environmental Justice in Minority Populations and Low Income Populations* (1994), requires all Federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low income populations. The proposed action would not result in disproportionate health or environmental effects on minorities or low income populations or communities. Nothing inherent in the alternatives considered would cause any statistically significant changes to ethnic composition of the resident populations and there is no

indication that there would be any adverse economic effects on any particular ethnic group or any particular income group under any alternative.

Hazardous and Solid Wastes – Not Present

No known hazardous or solid waste issues occur in the allotment (BLM 2007 p. 437).

Floodplains or Wetlands – Not Present

EO 11988, Floodplain Management (1977) and EO 11990, Protection of Wetlands (1977), require all Federal agencies to avoid construction within the 100-year floodplain unless no practicable alternative exists, and to minimize the destruction, degradation, or loss of wetlands. The proposed action does not result in any impacts to floodplains or wetlands.

Paleontological Resources – Not Present

Bedrock exposures within the allotments are composed of igneous intrusive and volcanic extrusive rocks of Proterozoic and Phanerozoic age. Paleontological resources never occur in igneous rocks and only very rarely in some types of volcanic rocks. Cenozoic age unconsolidated sediments of fluvial and colluvial origin comprise the non-bedrock areas within valleys and drainages and generally have a low potential for the occurrence of paleontological resources. There are no paleontological resources known to exist within the allotments. Management actions are designed to inventory and protect fossil sites if they are discovered in the course of normal management activities (BLM 2007 (FEIS)).

Prime and Unique Farmlands – Not Present

Under the *Farmland Protection Act* of 1981, Federal agencies seek to minimize the unnecessary or irreversible conversion of farmland to nonagricultural uses. No unique or prime farmlands exist within the project area; therefore, the proposed action would have no impact on this resource (BLM 2007, p. 437).

Recreation – Present, Not Impacted

Recreation opportunities within the project area are classified in the Bradshaw-Harquahala RMP. Most of the JV Bar Allotment is within the Hassayampa Management Unit (MU); inside the boundary of the Hassyamapa Special Recreation Management Area (SRMA); sharing acres with the Wickenburg Community Recreation Management Zone (RMZ) and the Box RMZ; while roughly 1300 acres reside in the Castle Hot Springs MU within the Castle Hot Springs SRMA. Continued livestock use would not affect the availability of recreational opportunities within the allotment. In many instances, recreationists use the same roads, primitive roads, and trails as grazing permittees where little or no conflict has occurred.

Visual Resources – Present, Not Impacted

Under the RMP, the JV Bar Allotment is allocated to Visual Resource Management (VRM) Class I through III. Class I is located within the Hassayampa River Canyon Wilderness, while the remainder of the allotment ranges from Class II to Class III areas.

Class I Objective: To preserve the existing character of the landscape. The level of change to the characteristic landscape should be very low and must not attract attention.

Class II Objective: To retain the existing character of the landscape. The level of change to the characteristic landscape should be low.

Class III Objective: To partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate.

None of the proposed actions would alter the landscape beyond the objectives of the VRM Class. Grazing practices would continue as they have in the past. The proposed action would authorize construction of pasture and riparian fence; however, this would not change the character of the existing landscape. VRM objectives for the allotment would be met under all alternatives.

Urban Quality, Historic and Cultural Resources, and the Design of the Built Environment – Not Present

CEQ requires that analysis of environmental consequences must discuss potential effects to urban quality, historic and cultural resources, and the design of the built environment, including the reuse and conservation potential of various alternatives and mitigation measures (40 CFR 1502.16(g)). The proposed action would have no impact on these resources.

Wild Horses and Burros – Not Present

Wild horses and burros are not present on the JV Bar Allotment. Therefore, this topic is dismissed form further analysis.

Wild and Scenic Rivers – Not Present

There are no river segments within the allotment that are designated, eligible, or suitable as wild, scenic, or recreational under the Wild and Scenic Rivers Act.

Wilderness – Present, Not Impacted

The northern portion of the JV Bar allotment contains 2,605 acres within the Hassayampa River Canyon Wilderness. Continued livestock use under the proposed alternatives would not affect the wilderness values. A provision of the Arizona Wilderness Act was not to exclude cattle ranching upon designation of the wilderness. Grazing management activities including the construction, use, and maintenance of livestock management developments, must comply with BLM Manual 6340, Management of Designated Wilderness Areas.

Chapter 4: Consultation

The BLM conducts scoping to solicit internal and external input on the potential issues, impacts, and alternatives that may be addressed in an EIS or EA. The BLM conducted scoping on this EA concurrently with taking comments on the 2014 JV Bar allotment RHE. External scoping was conducted via letter sent to the Consultation, Coordination, and Cooperation list. Recipients were asked to comment on the draft RHE as well as the Proposed Action presented in this EA. The scoping period ran from July 3rd through 21st, 2014. Two external scoping comments were received. Scoping comments are summarized in Appendix B.

List of Preparers

This list presents the individuals who contributed to the technical content of this EA. Some of the individuals below prepared or reviewed specific sections, or provided input to the content and production of this document.

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Appendix A: Arizona's Standards for Rangeland Health and Guidelines for Grazing Administration

INTRODUCTION

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

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

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

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

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

> "The guiding principles for standards and guidelines require that State or regional standards and guidelines address the basic components of healthy rangelands. The Department believes that by implementing grazing-related actions that are consistent with the fundamentals of §4180.1 and the guiding principles of §4180.2, the long-term health of public rangelands can be ensured.
>
> "Standards and guidelines will be implemented through terms and conditions of grazing permits, leases, and other authorizations, grazing-related portions of activity plans (including Allotment Management Plans), and through range improvement-related activities.
>
> "The Department anticipates that in most cases the standards and guidelines themselves will not be terms and conditions of various authorizations but that the terms and conditions will reflect the standards and guidelines.
>
> "The Department intends that assessments and corrective actions will be undertaken in priority order as determined by BLM.

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

FUNDAMENTALS AND DEFINITION OF RANGELAND HEALTH

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

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

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

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

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

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

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

". . . a kind of land with specific physical characteristics which differs from other kinds of land in its ability to produce distinctive kinds and amounts of vegetation and in its response to management" (Journal of Range Management, 48:279, 1995). Ecological sites result from the interaction of climate, soils, and landform (slope, topographic position). The importance of this concept is that the "health" of

different kinds of rangeland must be judged by standards specific to the potential of the ecological site. Acceptable erosion rates, water quality, productivity of plants and animals, and other features are different on each ecological site.

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

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

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

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

STANDARD AND GUIDELINE DEFINITIONS

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

(1) are measurable and attainable; and

(2) comply with various Federal and State statutes, policies, and directives applicable to BLM Rangelands.

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

(1) typically identify and prescribe methods of influencing or controlling specific public land uses;

(2) are developed and applied consistent with the desired condition and within site capability; and

(3) may be adjusted over time.

IMPLEMENTING STANDARDS AND GUIDELINES

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

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

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

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

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

ARIZONA STANDARDS AND GUIDELINES

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

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

Standard 1: Upland Sites

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

Criteria for meeting Standard 1:

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

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

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

As indicated by such factors as:

Ground Cover

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

Signs of erosion

- flow pattern
- gullies
- rills
- plant pedestaling

Exceptions and exemptions (where applicable):

None

Guidelines:

1-1. Management activities will maintain or promote ground cover that will provide for infiltration, permeability, soil moisture storage, and soil stability appropriate for the ecological sites within management units. The ground cover should maintain soil organisms and plants and animals to support the hydrologic and nutrient cycles, and energy flow. Ground cover and signs of erosion are surrogate measures for hydrologic and nutrient cycles and energy flow.

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

Standard 2: Riparian-Wetland Sites

Riparian-wetland areas are in properly functioning condition.

Criteria for meeting Standard 2:

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

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

The checklist for riparian areas is in Technical Reference 1737-9 "Process for Assessing Proper Functioning Condition." The checklist for wetlands is in Technical Reference 1737-11 "Process for Assessing Proper Functioning Condition for Lentic Riparian-Wetland Areas."

As indicated by such factors as:

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

Exceptions and exemptions (where applicable):

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

Guidelines:

2-1. Management practices maintain or promote sufficient vegetation to maintain, improve or restore riparian-wetland functions of energy dissipation, sediment capture, groundwater recharge and stream

bank stability, thus promoting stream channel morphology (e.g., gradient, width/depth ratio, channel roughness and sinuosity) and functions appropriate to climate and landform.

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

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

Standard 3: Desired Resource Conditions

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

Criteria for meeting Standard 3:

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

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

As indicated by such factors as:

- Composition
- Structure
- Distribution

Exceptions and exemptions (where applicable):

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

Guidelines:

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

ecological objectives as well as non-native species, and/or (d) cannot compete with already established non-native species.

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

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

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

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

- ephemeral vegetation is present in draws, washes, and under shrubs and has grown to useable levels at the time grazing begins;
- sufficient surface and subsurface soil moisture exists for continued plant growth;
- serviceable waters are capable of providing for proper grazing distribution;
- sufficient annual vegetation will remain on site to satisfy other resource concerns, (i.e., watershed wildlife, wild horses and burros); and
- monitoring is conducted during grazing to determine if objectives are being met.

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

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

Appendix B: JV Bar RHE and EA Scoping Comments

- The RHE was sent for comment and scoping on the proposed action was sent on July 3, 2014. Two responses were received. The BLM conducted internal scoping to determine what resource issues existed based on the proposed action. The issues and their disposition are discussed below.

Commenter	Comment	Disposition
Miller	Is it possible to get more time to respond to these types of documents? The envelope for this Evaluation shows post marked on July 3, 2014. I received this evaluation on July 14th. Mail from Phoenix to my home rarely takes less than 10 days to two weeks to reach me.	Not an issue for the NEPA analysis. Additional comment periods will be considered in the future.
Miller	One of the alternatives that I am proposing is for the BLM and The State and Counties of Arizona to control the excessive damage being done to BLM and State Lands on permits or leases such as the J V Bar Leases by uncontrolled off road vehicles of all types. These vehicles not only cause extreme erosion, introduction of non-native invasive species and noxious weeds that in some cases become uncontrollable when not stopped but also make the control of livestock grazing impossible due to damage to fences. The damages these vehicles cause should not be treated as a misdemeanor, but rather as a felony. Most times many of these vehicles leave home with wire cutters, bolt cutters, chains so as to be able to cut fences or pull gates down with the intent to cause damages to legal range improvements causing livestock to get into pastures they are not supposed to be in or into neighboring ranches.	Out of scope of grazing lease renewal. The BLM is willing to work with the lessee to determine an appropriate law enforcement response.
Miller	For years I have tried to maintain a minimal amount of cattle in the river pasture on the ranch. This has been 5 to 6 cows and a bull. About 2 years ago I had all of my livestock removed from the river because of the amount of trespass livestock that have come in due to gates left open, torn out or fences cut by off road vehicle people. We have removed these trespass cattle numerous time only to have them come right back in and at times beat us back to the river. Their owners come and get them all the time only to have them come right back through cut fences and gates left open.	Outside the scope of analysis for this lease renewal but has been considered in the cumulative impacts analysis. The BLM will deal with trespass situations under the grazing regulations as they are discovered or reported. Fence modifications were addressed in prior NEPA decisions for the wilderness. Adaptive management option in ALTERNATIVES
Miller	The rangelands in this area if handled with tender loving care are extremely productive and beautiful, especially for wildlife, livestock and people that want to see, explore or otherwise enjoy uninterrupted beauty.	Not an issue statement.
Miller	These rangelands are destined to destruction by the illegal abuse of people who do not care or refuse to care about the rangelands.	Outside the scope of this analysis. Illegal dumping is a law

	Non-native intrusive weeds such as Yellow Star Thistle can permanently destroy these areas for wildlife, livestock, hunting and many other recreational uses. We now find beer cans all over the range where illegal usage is occurring plus all other forms of garbage, plastic bottles, plastic bags and etc. This garbage is also deadly and otherwise damaging to the wildlife and livestock that populate the range.	enforcement issue.
Miller	This area is comprised of very sensitive vegetation and soils that are easily destroyed by careless or intentional abuse: 1. Erosion. 2. Introduction of non-native species. 3. Introduction of extreme noxious weeds possible is Yellow Star thistle 4. As an example in Montana the Missoula Valley and along the Clark Fork River to the Idaho border is now infested with leafy spurge. Now there is probably over 100,000 acres at a minimum infested with leafy spurge.	Not an issue. Statement of current conditions and will be addressed in the affected environment.
Miller	When I purchased the ranch in 1999 I used to get maybe a dozen motorcyclists, atvs and other off road vehicle users per week end. Now there are 100s of such users on some days during the week. Some Saturdays I have quit counting at 200.	Recreation use in the area will be considered as part of the cumulative effects analysis.
Miller	Decimation of rangeland resources due to Motorcycle, ATV and other illegal off road uses 1.Fences and Gates destroyed a.unable to control trespass cattle from adjoining leases and permits 1.Example: Unable to keep trespass cattle off of the riparian areas. I have been trying to maintain 7 head in the riparian areas. Due to fences being cut, destroyed or wrapped up so ATVs and Motorcycles can go under the fence also allows cattle to go unimpededly under the fence. b. Until the BLM and the State will control this off road and off trail abuse by motorcycles, ATVs and other off road vehicles even if I permanently remove all of my cattle from the riparian areas these areas will still be over grazed by my neighbor's cattle. And I will be penalized over a situation I have absolutely no control over. This riparian and upland area abuse by motorized vehicles has to be controlled by the BLM and State that have police powers to impose regulations and statutes to regulate the uses, fines and criminal prosecution. The damage these people and vehicles cause should not be treated as a misdemeanor, but as a felony. Many of these vehicles and people leave home with bolt cutters, wire cutters, chains to pull fences and gates over so as to cause permanent damage to legal range improvements. In other words they left home with the intent to commit a felony.	Outside of the scope of this analysis. Range improvement damage by the public is a law enforcement issue.
Miller	Decimation of rangeland resources due to Motorcycle, ATV and other illegal off road uses	Outside of the scope of this analysis. Range improvement

	2. Impossible to control livestock when we cannot keep fences up due to the malicious intent of others to destroy our legal range improvements. We as ranchers get our cattle back where they belong and the motorcyclists, ATVs and other off road vehicle people turn them right back where we removed them from. For the ranchers it costs us days of our time, hired man hours, horses often vehicle expenses to get men and horses out to the pastures where the cattle need to be re-gathered and moved out of again. This can cost the rancher at a minimum of 500 to 600 dollars per day for 4 to 5 riders. For a pasture the size of the river pasture it can take 4 to 5 riders at a minimum of 3 to 5 days to cover the pasture. For the motorcyclist, ATV operator or other off road vehicle operator it takes about 2 minutes to grab his wire cutters and cut the fence or just to open the gate and throw it aside and then get back into his vehicle and drive on without looking back. The cost to the rancher is at a minimum $1800 to $3000 for each time he has to re-gather the cattle. At a maximum the cost to motorcyclist, ATV or other off road vehicle operator to be generous say $1 for the prorated use of his wire or bolt cutter and an extra $1.50 for a beer if he decides to have a beer to cover his thirst for cutting the fence or throwing the gate aside. Then we get to start again the next week $1800 to $3000 for the rancher $1 to $2.50 for the motorcyclist, ATV or other off road operator. a. This conditions my neighbor's livestock to search out destroyed portions of the fence and to come back to the river parcels 14F and 14G. Most times in less than one day. b. The complete river pasture that also contains the portions 14F and 14 G is about 5000 acres. I have tried to keep 6 to 7 cows and a bull in the river pasture for the last few years. A couple of years ago I had all of my cattle removed from the river pasture which includes the riparian areas. There are only trespass cattle from neighboring ranches in the river pasture.	damage by the public is a law enforcement issue.
Miller	The problem we have moving salt away from the water sources is that motorcyclists, atv and other illegal off road vehicle people find the salt, create a road to the salt, use that new road or trail they have illegally created to extend their illegal off road usage and further increase the permanent damage to rangeland species and soil destruction. These vehicles can in one day create damage that will be there permanently causing weed invasion, permanent soil erosion resulting in uncontrolled runoff in the vehicle tracks that most often result in deep cuts that wildlife, livestock and the illegal vehicles cannot use. The people and vehicles then proceed to create another illegal trail that washes out beside the original illegal trail they created. The more out of view the salt is the more livestock and wildlife	Salt placement away from water sources is necessary for proper livestock distribution within the allotment and will be discussed in the EA. Creation of new roads to salt locations is a law enforcement issue outside the scope of this analysis.

	is chased with motorcycles, atvs and other off road vehicles. These vehicle through chasing wildlife and livestock condition them to stay away from the salt and completely leave the area disrupting grazing patterns of wildlife and livestock. This results in the inability of the rancher to control grazing which leaves a pattern of over-grazing. Please do not misunderstand me. I believe in placing salt out away from water to create a better grazing pattern. It is the interference from people who disrupt the livestock grazing patterns we desire that destroy the benefits of placing the salt away from the water sources.	
Miller	On my neighbor Rupert Lemmon's permit the motorcycles, ATVs and other illegal off road people have destroyed 100's of acres of rangeland by going straight up and down hills until the hill are bare of vegetation and rotting away with erosion. It is incomprehensible to let a certain group of people who are very verbal destroy an area whether large or small for current and future generations.	Outside the scope of this analysis.
Miller	Riparian areas Portions of 14F have experienced the river eroding away of the river bank of over 200 feet in places in the last few years this has moved the main river channel to the East leaving the riparian areas where the River used to be very droughty and pretty much dying from lack of moisture. We have noticed extreme plant damage of riparian plants due to this river instability. Very little of sections 14F and 14G have a meandering pattern. Most of the river within these sections is very straight which does not allow silt deposits to build up to create the habitat we desire for the riparian habitat we want. This generally creates a river either with very rocky sides that deposits coarser gravel and rock material in the river bed next to the bank which has mostly sand in the gravel with very little other sediments that create very little usable habitat for the riparian plants we desire. Where there is very little rock to stabilize the river bank the river tends to erode the banks away and create a river bed that is continually seeking stability and thus is continually moving back and forth until the desired equilibrium of the river bed is reached. This is what is happening in large parts of 14F and parts of 14G.	Current conditions. Will be addressed in the Affected Environment section of EA.
Miller	By keeping a few cattle in the river pasture this helps to stop over grazing of the riparian areas when larger numbers of cattle are brought back into the pasture by helping to disperse the cattle because there are cattle for the new cattle to follow that	Season of use restrictions will not affect the ability of range familiar cattle to lead replacement stock out of the

	know the pasture.	river bottom.
Miller	These few cattle also help to stimulate the plants and to get better native grass seed germination through trampling of seeds into the soils at optimal times.	Season of use restrictions will allow for seed trampling into soils prior to germination and the growing season while removing effects due to grazing during critical growth times for riparian vegetation. This is addressed in the environmental effects section.
Miller	There are no comparisons with prior rangeland health evaluations to compare this one to.	RHEs evaluate current conditions. Multiple years of data were collected and incorporated into the RHE.
Miller	Request a telephone conference with James Holden in regards to the rangeland health evaluation before any further implementation so I can better voice my concerns.	Completed 8/5/14
Miller	Get permits to put a water facility and corral at the Monte Cristo Mine and develop the water from the mine shaft in King Salomon Wash.	This suggestion was added to the proposed action.
WWP	BLM's RHE for the JV Bar allotment has provided a compelling (though incomplete, see below) analysis of the conditions of the riparian area and the technical recommendations include limiting livestock use during the growing season in the riparian corridor. The forthcoming National Environmental Policy Act (NEPA) assessment should properly consider a range of reasonable alternatives that would, 1) remove livestock from the allotment entirely, 2) remove livestock grazing from the riparian areas yearlong, and 3) remove livestock grazing from the allotment entirely during the growing season. Each of the aforementioned alternatives is reasonable because the failure to meet standards on the riparian areas has implications for the uplands as well, and the proposal to limit riparian grazing is not without significant expense both in terms of infrastructure development and additional impacts in tortoise habitat. The real cost/benefit of each of the alternatives should be disclosed, as well as an indication of who will bear what costs. For example, excluding the riparian areas to cows part of the year entails additional fencing (impacts to wildlife) and an additional water development. RHE at 17. Who will pay for this and what is the benefit over simply removing livestock from the entire allotment seasonally or yearlong? Because the uplands are Category II and III habitat for Sonoran desert tortoise, removing livestock from the riparian areas and pushing them into tortoise habitat for most of the year is also not without impact. The forage being consumed in the riparian areas will be displaced to upland habitat, and without	The No Grazing alternative addresses permanent riparian closure and removal of livestock from entire allotment during growing seasons. Monies used to construct range improvements come from the range improvement fund taken from grazing fees and are not appropriated tax dollars. The proposed action includes a reduction in the allotment stocking rate. This will address any potential increased impacts on uplands due to seasonal closure of riparian areas.

	adjusting the numbers in the uplands, they are also likely to be overutilized and fail to achieve rangeland health standards in future assessments. Since none of the Desired Resource Conditions for the uplands identify annual composition or cover objectives, the BLM is missing a way to evaluate livestock impacts to the forage class that makes up the majority of tortoise forage. RHE at 6. BLM also doesn't measure utilization on annual plants meaning that livestock could eat all annuals (and harm tortoise) before exceeding any utilization thresholds. The forthcoming NEPA analysis should provide an explanation of how BLM is meeting this aspect of tortoise habitat under each of the alternatives.	
WWP	We commend the BLM for recognizing that the actual use on the JV Bar allotment was substantially lower than authorized use, and that livestock impacts in the riparian and upland areas of the allotment would be greater with more actual cows and horses on the ground in any given year. A hard look at the utilization data in context of actual use and precipitation is warranted, and any forthcoming NEPA analysis must consider what "reasonable" alternatives are within the context of allocation objectives. More information about the specific dates of utilization monitoring should also be disclosed so that the public can gage the period of use and regrowth that is reflected in the data.	The proposed action includes a reduction in allotment stocking rates based on a desired stocking rate analysis. Utilization dates will be added to final RHE. Because this allotment is grazed year-round, utilization studies are done on residual of prior-year's growth.
WWP	The BLM attributes some of the failure to meet Standard Two to drought conditions. RHE at 3. The forthcoming EA should look at the climate predictions for the US Southwest and consider that "drought" may in fact be "the new normal." Allocations and authorizations should be assessed in context of decreased precipitation and increased temperatures.	The data were collected under drought conditions and the affected environment section of this EA adequately captures the current context of decreased precipitation and increased temperatures.
WWP	The most recent data for Sonoran desert tortoise populations should be analyzed in the forthcoming EA and impacts of any livestock grazing should be disclosed. Specifically, horse use of the landscape differs from cattle both in terms of geospatial presence and forage consumption. Because the JV Bar permit is for both, the forthcoming EA should be transparent about the extent to which each class of livestock uses the resources of desert tortoise. The FWS 12-month finding described observations of overlap of areas of livestock use and tortoise habitat on 12 of 17 long-term monitoring plots in Arizona. 75 FR 78118. The FWS also cites to a study from the Florence Military Reservation finds that tortoises most strongly selected for canopy cover, followed by an absence of cattle activity. Id. BLM cannot operate on faith alone that tortoise are protected from livestock impacts through habitat partitioning, which may in fact be simply the end result competitive exclusion.	Desert Tortoise has been addressed in the Wildlife Resources section of Chapter 3Impacts from the horses will be analyzed separate from livestock in the impacts analysis. The 75 FR 78118 citation on the Florence reservation is a different habitat type from what occurs on the JV Bar allotment. Canopy cover objectives are given in the RHE.
WWP	WWP also respectfully directs BLM's attention to the Office of	Comment noted.

	Hearings and Appeals decision in the Duck Creek allotment appeal (Utah). The decision explains why BLM's reliance on limited rangeland health monitoring is insufficient for the purposes of renewing livestock grazing permits and authorizing infrastructure without an additional hard look under NEPA. See Western Watersheds Project v. Bureau of Land Management, UT-020-09-01, May 16, 2013. In that case, Appellants went to great lengths to demonstrate the insufficiencies of BLM's monitoring methodologies to cover the needs of site specific wildlife habitat (p.61), especially the habitats of sensitive species. Id. The ruling also discusses the need to discuss the impacts of more concentrated livestock use in the areas surrounding new water developments. Id. at 69. The ruling also discussed the need to reevaluate carrying capacity in light of degraded conditions and updated science. Additionally, Administrative Law Judge Heffernan acknowledged that without accurate actual use data, the analysis of impacts of any level of livestock grazing was mere speculation. Each of these aspects is relevant to the analysis of the JV Bar allotment's lease renewal.	
WWP	The forthcoming NEPA should provide an analysis of the source of the water for the new water development and a study of the hydrologic impacts of this new withdrawal. Will it be groundwater or surface water being diverted? At what expense and to whom? When could this be completed?	Proposed new water developments were analyzed in the Water Resources section of Chapter 3.
WWP	The BLM should also consider groundwater and surface water withdrawal that could be impacting the availability of water in the riparian areas. The maps included with the RHE do not show current range infrastructure or water developments, but forthcoming NEPA analysis should provide information about each well or diversion on the allotment in service of livestock use, as well as an estimate of the pumping capacity and annual use for this purpose. The variability of surface water availability is one factor affecting tamarisk infestations, and BLM's forthcoming EA should consider whether livestock use is contributing to this variability.	Potential groundwater and surface water impacts are analyzed in the Water Resources section of Chapter 3.
WWP	The BLM has not identified any concerns with water quality, but it would be valuable to consider water quality and livestock in the forthcoming EA. Even if surface water is available for aquatic wildlife, livestock wallowing and waste products affect its quality sufficient to make it unusable as habitat.	Water quality is analyzed in the Water Resources section of Chapter 3.
WWP	The BLM must also analyze and disclose the reason the absence of cryptogams on the key areas. Cryptogams are key components of desert soils and their absence is a consequence of livestock trampling and overuse. Their absence leads to accelerated erosion and increased presence on nonnative species. A full discussion of their absence on the JV Bar allotment is warranted, and a discussion for each of the livestock	Effects to cryptobiotic soil are analyzed in the Soils section of Chapter 3.

	grazing alternatives and the impacts to biological soils should be included in the forthcoming EA.	
WWP	Because the JV Bar allotment fails to meet the Rangeland Health Standards for Arizona, Standard Two, the BLM must also implement interim management provisions to keep livestock out of the riparian area this year. The monitoring revealing these failures was conducted in 2010; the BLM should act expeditiously to remove the livestock from the riparian areas until rangeland health standards are met or until a plan to meet rangeland health standards is approved. The BLM cannot maintain status quo livestock grazing in a sensitive riparian area while it undertakes planning; livestock need to be kept out of the Hassayampa River starting four years ago. Please keep us apprised of any movement in this direction.	Comment noted.

Appendix C

Rangeland Health Evaluation

JV Bar Allotment #06222

Contents

Abstract

This Rangeland Health Evaluation is a stand-alone report designed to ascertain compliance with the Arizona Standards for Rangeland Health on the JV Bar grazing allotment.

Standard One is achieved on this allotment for Upland Health.

Standard Two is not achieved on this allotment for Riparian/Wetland Health. The causal factor for this non-achievement is year-long livestock grazing access and drought conditions.

Standard Three is achieved on this allotment for Upland Health. However, for Riparian/Wetland health, Standard Three is not achieved on this allotment.

1.0 Introduction

The purpose of this draft rangeland health evaluation is to gauge whether the Arizona Standards of Rangeland Health (Standards) are being achieved on the J V Bar grazing allotment and to determine if livestock are the causal factor for not achieving, or making significant progress towards achieving, land health standards. An evaluation is not a decision document, but a standalone report that clearly records the analysis and interpretation of the available inventory and monitoring data. As part of the land health assessment process Desired Plant Community (DPC) objectives were established for the Biological Resources (biological objects within the boundaries of the allotment). The DPC objectives will assure that soil condition and ecosystem function described in Standards 1 and 2 are met.

The Secretary of the Interior approved Arizona's Standards for Rangeland Health and Guidelines for Grazing Administration (Guidelines) in April 1997. The Decision Record, signed by the BLM State Director (April 1997) provides for full implementation of the Standards and Guidelines in Arizona BLM Land Use Plans.

Land Health Standards are measurable and attainable goals for the desired condition of the biological resources and physical components/characteristics of the desert ecosystems found within the boundaries of this grazing allotment.

This evaluation seeks to ascertain: 1) if standards are being achieved, not achieved, and, in cases of not achieved, if significant progress is being made towards achievement of land health. 2) Where it is ascertained that land health standards are not being achieved, determine whether livestock grazing is a significant factor causing that non-achievement.

2.0 Allotment Profile

2.1 Allotment Description

The J V Bar Allotment lies northwest of Phoenix, AZ, and approximately 6 miles northeast of the town of Wickenburg, AZ. Public lands constitute the majority of the allotment, at 15,750 acres (70%). State and privately held lands constitute 3,523 acres (16%) and 3,231 acres (14%), respectively. Public lands within the allotment contain 2,605 acres of the Hassayampa River Canyon Wilderness along the northern boundary of the allotment. The allotment contains approximately 3 miles of designated riparian stream channel on public lands along the Hassayampa River, of which 2.6 miles is within the Hassayampa River Canyon Wilderness. See Appendix A, Map 1, "JV Bar Allotment".

2.2 Physical Description

2.2.1 Climate

Precipitation

Rainfall data for the JV Bar allotment is taken from the Flood Control District of Maricopa County (FCDMC) data sets. No rain gauges exist within the allotment boundaries. Seven rain gauges within 8 miles of the allotment boundaries were used to extrapolate rainfall data within the allotment based on a Universal Kriging calculation using the mean annual water year rainfall volume, to hundredths of an inch. This is not a definitive rainfall calculation, as it does not take topography into account, and is used only as a general guideline. The FCDMC rainfall stations used were:

Station	Number	Years of Record	Average Annual Rainfall
Hassayampa River @ Box Canyon	5305	30	9.28
O'Brien Gulch	5320	32	12.68
Upper Trilby Wash	5485	12	10.71
Garfias Mountain Ranch	5670	32	12.83
Stanton	7000	19	11.56
Martinez Creek	7010	19	8.51
Constellation Road	7100	19	8.21

These data are available from the Flood Control District of Maricopa County (www.fcd.maricopa.gov).

Based on the above interpolation of the data, the JV Bar allotment falls within the 10-12" precipitation zone of MLRA (Major Land Resource Area) 40-1 and the 12-16" precipitation zone of MLRA 38-1. See Appendix A, Map 2, "JV Bar Rainfall Regimes".

Temperature

There are no FCDMC weather stations within the grazing allotment boundaries. The nearest weatherstation is located approximately 9.5 miles southwest of the allotment at the Wickenburg airport. The next nearest weatherstation is located approximately 16 miles to the northeast of the allotment at Horsethief Basin in the Prescott National Forest. Both periods of records used are from 1996 through 2010.

The Wickenburg Airport weatherstation averages approximately 65 days a year with air temperatures above 100°F, with an average annual air temperature of 73°F. The weatherstation is at an elevation of 2385'.

The Horsethief Basin weatherstation averages approximately 19 days a year with air temperatures above 90°F, with an average annual air temperature of 56°F. The weatherstation is at an elevation of 6,705'.
Elevations within the allotment range from 2400' at the Hassayampa River to 4440' in the Wickenburg Mountains. Based on an adiabatic lapse rate of 5.38°F per 1000' of elevation change, temperatures within the allotment are expected to be equal to or up to 10°F lower than reported values at the Wickenburg Airport, and from 12 to 23°F higher than reported values at Horsethief Basin, generally speaking.

2.2.2 Soils

Three General Soil Units occur on the JV Bar Allotment. The majority of the allotment falls into the Cellar Association. Other areas of the allotment lie within the Luzena-Faraway-Rock land association, and areas with higher rainfall are associated with the Continental-Whitlock-Cave association. However, soil series mapping of the allotment indicates high percentages of other soils present within the General Soil map units.
Cellar soils represent 54% of the allotment soils. These soils are shallow to very shallow, and occur on hills and mountains with slopes from 2 to 70%. The soils are somewhat excessively drained with medium to very high runoff with moderately rapid permeability. Average annual precipitation of these soils is 7 to 12 inches. The ecological site associated with these soils is the Granitic Hills 10-13"pz (R040XA131AZ).
Moano very rocky loam soils represent 22% of the allotment soils. These soils are shallow to very shallow, and occur on gently rolling to steep schist hills with slopes from 0-60%. The soils are well drained with medium runoff, soil permeability is moderate. Average annual precipitation on these soils is from 10 to 14 inches. The Ecological Site associated with these soils is the Granitic Hills 12-16"pz (R038XA104AZ).
Barkerville cobbly sand loams represent 12% of the allotment soils. These soils are moderately deep, and occur on hillslopes and mountains. Slopes range from 5 to 60%. These soils are somewhat excessively drained with medium runoff, soil permeability is moderately rapid. The ecological site associated with these soils is the Granitic Hills 12-16"pz (R038XA104AZ).
The remaining mapped soils within the allotment, accounting for 12% of the soil units, includes Anthony loams, Lehmans clay loams, and Lonti gravelly sandy loams. The ecological sites associated with these soils are: Limy Upland 10-12"pz (deep), Volcanic Hills 10-12"pz, and Clayey Slopes 12-16"pz, respectively.

2.3 Biological Resources

2.3.1 Ecological Sites

The JV Bar allotment contains several ecological sites based on soil type. The dominant ecological site is Granitic Hills, with 54% of the allotment falling in the Granitic Hills 10-13"pz ecological site (R040XA131AZ), and 34% of the allotment falling in the Granitic Hills 12-16"pz ecological site (R038XA104AZ). This accounts for 88% of the allotment ecological sites. Minor ecological sites mapped within the allotment include Clayey Slopes 12-16"pz (R038XA108AZ) at 4% of the allotment, Volcanic Hills 10-13"pz (R040XA123AZ) at 4% of the allotment, and Limy Upland (deep) 10-13"pz (R040XA106AZ) at 1% of the allotment. The remainder of the allotment falls within the Basalt Hills 10-13"pz, Loamy Upland 10-13"pz, Sandy Wash 16-20"pz and Limy Upland 10-13"pz ecological sites, with less than 1% of acreage each.

2.3.2 Vegetation Communities

Riparian - Wetland Sites

Riparian areas are defined by the BLM manual as "a form of wetland transition between permanently saturated wetlands and upland areas. These areas exhibit vegetation or physical characteristics reflective of permanent surface or subsurface water influence. Lands along, adjacent to, or contiguous with perennially and intermittently flowing rivers and streams, glacial potholes, and the shores of lakes and reservoirs with stable water levels are typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not exhibit the presence of vegetation dependent upon free water in the soil."

There are two riparian segments located along the Hassayampa River within the JV Bar allotment (Segments 14 F, and 14 G) (Map 3 in Appendix A). Segment 14 G and the upstream portion of Segment 14 F have perennial flow and are located within the Hassayampa River Canyon wilderness. The vegetative community along this portion of the Hassayampa River consists of Goodding's willow (*Salix gooddingii*), seep willow (*Baccharis salicifolia*), velvet mesquite (*Prosopis velutina*), desert broom (*Baccharis sarothroides*), tree tobacco (*Nicotiana glauca*), salt cedar (*Tamarix ramosissima*), Bermuda grass (*Cynodon dactylon*) and spike rush (***Eleocharis palustris***). The downstream portion of Segment 14 F is intermittent to ephemeral, flowing seasonally during wet years and episodically during rain events in dry years. The downstream portion of Segment 14 F has a vegetative community more similar to a Sandy Wash ecological site.

2.3.3 General Wildlife Resources

Wildlife species that occur within the JV Bar allotment are typical and representative of the vegetative communities present in the area. Species present include, but are not limited to, mule deer (*Odocoileus hemionus*), coyote (*Canis latrans*), javelina (*Pecari tajacu*), mountain lion (*Puma concolor*), bobcat (*Lynx rufus*), gray fox (*Urocyon cinereoargenteus*), raccoon (*Procyon lotor*), desert cottontail (*Sylvilagus audubonii*), black-tailed jackrabbits (*Lepus californicus*), Gambel's quail (*Callipepla gambelii*), red-tailed hawks (*Buteo jamaicensis*), great horned owls (*Bubo virginianus*), and various reptiles, small mammals and migratory birds. Aquatic wildlife species on the allotment include longfin dace (*Agosia chrysogaster*), desert sucker (*Catostomus clarki*), lowland leopard frog (*Rana yavapaiensis*), and black-necked gartersnake (*Thamnophis cyrtopsis*).

2.3.4 Special Status Species, T&E

No threatened or endangered species are known to occur on the allotment. Yellow-billed cuckoo, a proposed threatened species, has been detected in the Hassayampa River downstream from the allotment and may use riparian habitat on the allotment during the migration and breeding season (May – September). Sonoran desert tortoise, a candidate for listing on the threatened and endangered species list, occupies much of the upland areas in this allotment. All BLM land within the allotment is in either category 2 or 3 tortoise habitat. On the JV Bar Allotment there are 5,496 acres of BLM land classified at category 3 desert tortoise habitat, and 10,250 acres classified at category 2. The desert tortoise distribution within the allotment is not uniform. Tortoises tend to occupy hillsides and ridges with outcrops of large boulders as well as areas with incised washes and caliche caves, but may be found in lower densities throughout the area. Tortoises generally use natural and excavated cover sites between or under boulders and in caliche caves along washes wherever they occur. 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).

2.4 Special Designation Areas

The JV Bar allotment contains within its northwestern boundary approximately 2605 acres of the Hassayampa River Canyon wilderness area.

3.0 Grazing Management

3.1 Grazing History

The current lease holder for the JV Bar allotment is Douglas Miller. Mr. Miller acquired the lease to this allotment in late 2002. The allotment operates under an informal pasture rotation system, with livestock moving between water sources based on water availability and forage conditions.

Billing history for this allotment is unavailable prior to 1985. Historical management prior to 1985 is also largely unknown, outside of range improvement projects dating from the 1950s and 1960s. It appears that many fencelines within the allotment were constructed prior to this, and permits were issued to continue or extend these existing projects. Several additional water facilities were installed during that time as well.

3.2 Terms and Conditions of Current Lease

The JV Bar allotment is classified as a perennial allotment. Grazing occurs year-long at varying levels of intensity. The Mandatory Terms and Conditions of the permit are listed below:

Allotment Name	Allotment Number	Livestock Number	Livestock Kind	%PL	Type Use	AUMs
JV Bar	06222	201	Cattle	71	Active	1713
		8	Horse	71	Active	68

4.0 Objectives

4.1 Relevant Planning and Environmental Documents

The Taylor Grazing Act of 1934 provides for two types of authorized use: (1) A *grazing permit*, which is a document authorizing use of the public lands within an established grazing district, and are administered in accordance with Section 3 of the Taylor Grazing Act; and (2) a *grazing lease*, which is a document authorizing use of the public lands outside an established grazing district, and are administered in accordance with Section 15 of the Taylor Grazing Act. The JV Bar grazing allotment is a Section 15 grazing lease.

The BLM is responsible for establishing the appropriate levels and management strategies for livestock grazing in this allotment. Grazing permits issued must be in compliance with the multiple use and sustained yield concepts of FLPMA and the Fundamentals of Rangeland Health (43 CFR 4180), and be in accordance with the Guidelines for Grazing Administration while continuing to achieve Arizona Standards for Rangeland Health.

Land Health Standards:
On April 28, 1997, the Secretary of Interior approved the implementation of the *Arizona Standards for Rangeland Health and Guidelines for Grazing Administration* for all Land Use Plans in Arizona. The purpose of the Standards and Guidelines is to maintain or improve the health of the public rangelands. Standards and guidelines are intended to help the Bureau, rangeland users and others focus on a common understanding of acceptable resource conditions and work together to achieve that vision. Standards and Guidelines were incorporated into Phoenix District land use plans in 1997 and into the *Bradshaw-Harquahala Resource Management Plan* in 2010.

As defined by the Arizona Resource Advisory Council, "Standards" are goals for the desired condition of the biological and physical components and characteristics of rangelands. "Guidelines" are management approaches, methods, and practices that are intended to achieve a standard. Guidelines are developed and applied consistent with the desired condition and within the site's capability and specific public land uses, and may be adjusted over time. Arizona Standards are defined as the following:

Standard 1 - Upland Sites

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

Standard 2 - Riparian - Wetland Site

Riparian-wetland areas are in proper functioning condition.

Standard 3 - Desired Resource Conditions

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

The Bradshaw-Harquahala RMP (2010) contains additional desired future condition objectives for wildlife special status species. For the Sky Arrow Complex, the desired future condition objectives for Sonoran desert tortoise are applicable. These objectives are given below:

"TE-3. In Category I and II areas, vegetation will consist of at least 5 percent native perennial grasses, at least 10 percent native perennial forbs or subshrubs, at least 30 percent native trees and cacti, by dry weight, as limited by the potential of the ecological site as described by the Natural Resource Conservation Service (NRCS) ecological site guides."

Portions of the JV Bar Allotment also lie within the Hassayampa River Canyon Wilderness. Those lands are subject to the management decisions made in the Hassayampa River Canyon Wilderness management plan (1996).

4.2 Land Health Objectives

Specific ecological site objectives step down from the Desired Future Condition objectives found in the Bradshaw-Harquahala RMP (2010). These ecological site specific objectives are designed to assess public land conformance to the Arizona Standards for Rangeland Health on the JV Bar Allotment.

Desired Plant Community (DPC) Objectives were developed for the major ecological sites within the allotment by an interdisciplinary team of BLM resource specialists and biologists. These objectives are designed to maintain or improve the biotic integrity of the Public Lands, provide for wildlife habitat, and provide for usable forage as limited by the potential of the ecological site. These objectives, and the rationale for each objective, are given below.

4.2.1 Standard 1- Upland Sites, applies to all ecological sites.

Objective: Upland soils exhibit infiltration, permeability, and erosion rates that are appropriate to soil type, climate, and landform (ecological site). (Bradshaw-Harquhala RMP decision LH-1)

Soil erosion on the key area is appropriate to the ecological site on which it is located. Factors indicating conformance to Standard 1 include ground cover, litter, vegetative foliar cover, flow patterns, rills, and plant pedestalling in accordance to developed NRCS Ecological Site Guides and/or Reference Sheets. Deviations that are “slight” or “slight to moderate” from the appropriate site guide or reference are considered meeting the Standard. Departures of Moderate or greater will not meet the Standard except in cases where the departure is documented as showing an improvement of land health over what is expected on a reference site.

4.2.2 Standard 2- Riparian-Wetland Sites, applies to riparian reaches.

Objective: Riparian-wetland areas are in properly functioning condition. (Bradshaw-Harquhala RMP decision LH-2)

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

4.2.3 Standard 3- Desired Resource Condition Objectives

Objective: Productive, diverse upland and riparian-wetland plant communities exist and are maintained.

DPC objectives detail a site-specific plant community, which, when achieved, will assure rangeland health, State water quality standards, and habitat for endangered, threatened and sensitive species. The recommended palatable shrub and grass compositions will provide for adequate wildlife forage on the site for species such as Sonoran desert tortoise, mule deer, quail, and other non-game wildlife species.

The foliar cover and bare ground cover class objectives will provide thermal and hiding cover for wildlife species and will prevent accelerated erosion on the sites.

Sonoran desert tortoise habitat requirements are listed in the Bradshaw-Harquahala RMP. The DPC objectives for each key area are consistent with the Sonoran desert tortoise habitat requirements based on the potential for the site.

Ecological Site specific DPC objectives for the JV Bar Allotment:

Granitic Hills 10-13"pz

- Maintain perennial grasses at a minimum of 20% composition.
- Maintain forbs and shrubs at a minimum of 25% composition.
- Maintain trees and cacti at a minimum of 5% composition.
- Maintain vegetative foliar cover at 30% or greater.

Rationale:
NRCS has not developed an ecological site reference key for the Granitic Hills 10-13"pz ecological site. The reference sheet used for this Key Area is the Granitic Hills 7-10"pz with higher expected vegetative cover values due to the increased rainfall. Maintaining a perennial grass composition of 20% on this site will provide important forage for Sonoran desert tortoise (Van Devender, et al. 2002) (Oftedal 2002) and is appropriate for the site based the ecological site description. Shrub composition of 25% or greater is appropriate for the site based on its aspect and elevation and complies with the expected ranges of shrub production in the Ecological Site Guide. Tree and cacti composition of 5% or greater will provide for wildlife habitat and forage and is within the expected range of values based on the ecological site description. Foliar cover is expected to be between 15% and 20% as per the reference sheet. The recommended palatable shrub and grass compositions will provide for adequate wildlife forage on the site for species such as Sonoran desert tortoise and mule deer. A vegetative foliar cover of 30% or greater will provide thermal and hiding cover for a variety of wildlife species and will prevent accelerated erosion beyond what is expected in the reference state. Foliar cover is expected to be greater on this site when compared to the reference state due to a higher expected rainfall value than the reference location.

Granitic Hills 12-16"pz

- Maintain perennial grasses at a minimum of 15% composition.
- Maintain forbs and half shrubs at a minimum of 20% composition.
- Maintain trees and cacti at a minimum of 10% composition.
- Maintain vegetative foliar cover at 35% or greater.

Rationale:
NRCS has not developed an ecological site reference key for the Granitic Hills 12-16"pz ecological site. The reference sheet used for this Key Area is the Granitic Hills 7-10"pz with higher expected vegetative cover values due to the increased rainfall. Maintaining a perennial grass composition of 15% on this site is consistent with Sonoran desert tortoise habitat requirements. Shrub composition of 20% or greater is appropriate for the site based the expected ranges of shrub production in the Ecological Site Guide. Tree and cacti composition of 10% or greater will provide for wildlife habitat and forage and is within the expected range of values based on the ecological site description. Foliar cover is expected to be

between 15% and 20% as per the reference sheet. A vegetative foliar cover of 35% or greater will prevent accelerated erosion beyond what is expected in the reference state. Foliar cover is expected to be greater on this site when compared to the reference state due to a higher expected rainfall value than the reference location.

Riparian DPC Objectives

Riparian areas will include a plant community that consists of stream banks dominated (> 50 percent) by native species from the genera Scirpus, Carex, Juncus, and Eleocharis. The size class distribution of native riparian obligate trees will be > 15 percent seedlings, > 15 percent mid-size, and > 15 percent large size (depending on existing conditions and the site potential).

5.0 Inventory and Monitoring Methodology

5.1 Key Areas

Three key areas were established on this allotment in 1982. An additional key area was established in 2011 to gather additional data on the east side of the allotment. A key area is a relatively small portion of an allotment selected for study because of its proximity to water sources, livestock and habitat values, ecological site, and as a long-term monitoring point. They are located in each major pasture and are selected in locations that represent where livestock grazing pressure is occurring across the management area. Each key area is selected to be representative of a single major ecological site that occurs in multiple areas across the grazing allotment.
Historical data from these three areas included key species utilization, range trend plot, line point intersect, and photoplot studies.

5.2 Upland Health Monitoring Protocols

Monitoring protocols used at the upland key areas on the allotment include a variety of study methods. Compliance with Standard One is completed using the Interpreting Indicators of Rangeland Health study method, as described in BLM Technical Reference 1734-6 Version 4 (2005). This study method is supplemented with quantitative data collected in the methods described below.

Compliance with Standard Three is completed using a variety of upland study methods. Primarily, Dry Weight Rank, Point Cover, and Pace Frequency are used for vegetative monitoring. These methods are described in detail in BLM Technical Reference 1734-4, “Sampling Vegetation Attributes”. For these methods, a 40X40 centimeter quadrat was used, with a single point located along the rear edge of the frame for point cover data.

Utilization data was collected at each Key Area using the Key Species method. This method is described in BLM Technical Reference 1734-3, “Utilization Studies and Residual Measurements”.

5.3 Riparian monitoring

Riparian monitoring was carried out using BLM Technical Reference 1711-23 Multiple Indicator Monitoring (MIM) of Stream Channels and Streamside Vegetation and BLM Technical Reference 1737-9

Process for Assessing Proper Functioning Condition (PFC). The MIM protocol is designed for monitoring streambanks, stream channels, and streamside riparian vegetation. Indicators and procedures in this protocol were selected and developed primarily to monitor impacts of livestock and other large herbivores on wadable streams (usually less than 10 m wide). The MIM protocol integrates annual grazing use and long-term trend indicators allowing for evaluation of livestock grazing management.
The PFC assessment refers to a consistent approach for considering hydrology, vegetation, and erosion/deposition (soils) attributes and processes to assess the condition of riparian-wetland areas. A checklist is used for the PFC assessment (Appendix D in BLM Technical reference 1737-9), which synthesizes information that is foundational to determining the overall health of a riparian-wetland system.
The on-the-ground condition termed PFC refers to how well the physical processes are functioning. PFC is a state of resiliency that will allow a riparian-wetland area to hold together during high-flow events with a high degree of reliability. This resiliency allows an area to then produce desired values, such as fish habitat, neotropical bird habitat, or forage, over time. Riparian-wetland areas that are not functioning properly cannot sustain such values.

6.0 Management Evaluation and Summary of Studies Data

6.1 Actual Use

Actual grazing use reports are not required to be submitted under the current lease. Prior use data is taken from the billed use records for the allotment.

Number of Active Livestock	Kind	Grazing Begin	Period End	%PL	AUMs
500	Cattle Horse	3/1/2013	2/28/2014	71	4260
1000	Cattle Horse	3/1/2012	2/28/2013	71	8520
1000	Cattle Horse	3/1/2011	2/29/2012	71	8520
428	Cattle Horse	3/1/2010	2/28/2011	71	3586
508	Cattle Horse	3/1/2009	2/28/2010	71	4268
928	Cattle Horse	3/1/2008	2/28/2009	71	7848
2018	Cattle Horse	3/1/2007	2/29/2008	71	17138
2018	Cattle Horse	3/1/2006	2/28/2007	71	17138
2018	Cattle Horse	3/1/2005	2/28/2006	71	17138
2018	Cattle Horse	3/1/2004	2/28/2005	71	17138
2018	Cattle Horse	3/1/2003	2/29/2004	71	17138
2018	Cattle Horse	3/1/2002	2/28/2003	71	17138

6.2 Critical Management Area Data

Riparian Assessments and Monitoring

PFC Assessments

Hassayampa River Riparian Segment 14 G

PFC was assessed at this segment of the Hassayampa River on 10-8-2010. Surface flow existed throughout this segment at the time of the assessment. The dominant overstory vegetation was Gooding's willow. Some young and mature seep willow was also present. Mature velvet ash trees (*Fraxinus velutina*) and cottonwood trees were present in smaller numbers. The majority of woody riparian plants in this segment were seedlings of seep willow, Gooding's willow, saltcedar, and Fremont cottonwood. Multiple age classes of riparian trees were present though the age class distribution was highly skewed toward seedlings. Dominant herbaceous riparian plants include horsetail (*Equisetum sp.)*, rushes (*Juncus* species), bulrush, and spikerush (*Eleocharis palustris).* Riparian vegetation exhibited high vigor and appeared to have adequate vegetative cover of deep-rooted riparian obligate species to help stabilize banks. Longfin dace and lowland leopard frogs were present in this reach, indicating that this segment is likely perennial. This segment was rated as Proper Functioning Condition.
Reference Section 3 of Appendix A.

Hassayampa River Riparian Segment 14 F

PFC was assessed at this segment of the Hassayampa River on 10-8-2010. The upstream end of this segment is located in the Hassayampa River Canyon Wilderness. This upstream end had surface flow at the time of the assessment, while the downstream end was dry. Woody riparian obligate species were present in the upstream end of the segment, but they were mostly seedlings with few young and fewer mature age classes present. Gooding's willow (*Salix gooddingii*) and seep willow (*Baccharis salicifolia*) were the dominant native riparian plants in the upper end. The vegetative composition in the upstream portion of the segment was predominantly woody species seedlings with some scattered bulrush (*Schoenoplectus pungens*). The lower portion of the segment had no surface flow and the vegetation was more xeric, dominated by velvet mesquite (*Prosopis velutina*), desert broom (*Baccharis sarothroides*), salt cedar (*Tamarix ramosissima*), and some seep willow with little herbaceous vegetation present. Overall, this riparian segment is heavily invaded by saltcedar. This may cause problems with recruitment and retention of native riparian obligates species. This segment was rated as Functional-At Risk. Rationale for this rating includes the lack of mature overstory, the invasion of salt cedar, and sparse vegetative cover in portions of the segment.
Reference Section 3 of Appendix A.

Multiple Indicator Monitoring

A representative Designated Monitoring Area (DMA) was established along the perennial portion of the Hassayampa River and a Multiple Indicator Monitoring (MIM) plot was installed in segment 14G. This DMA was chosen due to the presence of sensitive resources that are important to maintaining bank stability and wildlife habitat - and because the area has open access to cattle. Sensitive resources include native riparian obligate plant species and stream banks with well-developed soils. The DMA was randomly selected from a group of sites that met these criteria. The greenline plant composition is listed in Appendix A by NRCS plant species code. The greenline is defined as the lineal assemblage of perennial vegetation on or near the water's edge. The dominant herbaceous greenline plant species

was jointleaf rush (*Juncus articulatus*) which comprised 11.5% of the greenline. Other herbaceous species included common spikerush, horsetail, bulrush, and irisleaf rush. The dominant overstory species was Gooding's willow. There were a very large number of riparian woody seedlings in the DMA. 7218 seedlings were counted in the woody species plots. The largest number of seedlings were seep willow (4551), followed by Gooding's willow (2368), then by saltcedar (297), and then by Freemont cottonwood (2). Stubble height was measured for key riparian herbaceous species and woody species use was measured for the key woody species Gooding's willow. Herbaceous species had an average stubble height across all key species of 19.1 cm. Gooding's willow was chosen as the key woody species due to its palatability to cattle and its prevalence in the DMA. Utilization of Gooding's willow was 15%. Bank alteration was 18%. Reference Section 3 of Appendix A.

7.0 Conclusions

7.1 Upland Health

Granitic Hills 10-13" ecological site:
Key areas JV1 and JV3 lie within the Granitic Hills 10-13"pz ecological site. These two key areas will be evaluated concurrently for adherence to Standards 1 and 3.

Standard 1: Upland Sites
Key areas JV1 and JV3 meet Standard 1.
Rationale:
The findings are based on the preponderance of the evidence of the 17 indicators used to determine attainment of standard 1. Soils on this ecological site are well armored at both key areas, with gravel and stone cover above 27% and vegetative foliar cover over 41% at both sites. Erosion rates on the two sites based on comparison between current and historical monitoring photos indicate soil loss rates consistent with expected rates for hillslope sites.

Standard 3: Desired Resource Conditions
Key areas JV1 and JV3 meet Standard 3.

- Maintain perennial grasses at a minimum of 20% composition.
- Maintain forbs and shrubs at a minimum of 25% composition.
- Maintain trees and cacti at a minimum of 5% composition.
- Maintain vegetative foliar cover at 30% or greater.

Rationale:
Both key areas exceed composition requirements for the forb/shrub and tree/cacti categories as well as the vegetative foliar cover requirements listed above. Key area JV3 meets the perennial grass requirement with 27% of composition by relative production on the site being perennial grasses. Thirty-five species of plants are present at Key Area JV3. Twenty-six of these are known to be palatable to desert tortoises (Van Devender et al. 2002). These species include flattop buckwheat, fairy duster, yerba de venado, prickly pear, hedgehog, catclaw acacia, brickellia, range ratany, deer vetch, goldeneye, beavertail prickly pear, mesquite, wolfberry, shrubby buckwheat, spiny cliffbrake, fluff grass, bush

muhly, three-awn grass, big gulleta, spurge, black grama, sideoats grama, spidergrass, desert trumpet, globemallow, and slim tridens. Twelve of these plant species are known to be important forage species for mule deer, a priority wildlife species in the BLM Hassayampa Field Office. These species include: flattop buckwheat, fairy duster, prickly pear, catclaw acacia, brickellia, range ratany, deer vetch, yucca, mesquite, shrubby buckwheat, spurge, and globe mallow. (Heffelfinger 2006). Key area JV1 does not meet the perennial grass requirement with a composition of 8% by relative production. While key area JV1 does not currently meet the perennial grass requirement, current photos compared to historic photos of the area show a significant decrease in native increaser species, such as broom snakeweed, with an increase in perennial grasses. Twenty-three species of plants are present at key area JV1. Fifteen of these are known to be palatable to desert tortoises (Van Devender et al. 2002). These species include big galleta grass, fluffgrass, desert vine, hedgehog, wolfberry, paperflower, velvet mesquite, flattop buckwheat, goldeneye, range ratany, palo verde, fairy duster, prickly pear cactus, catclaw acacia and jojoba. Nine of these are known to be important forage species for mule deer, a priority wildlife species in the BLM Hassayampa Field Office. These important mule deer forage species include: jojoba, catclaw acacia, prickly pear, fairy duster, palo verde, flattop buckwheat, mesquite, and desert vine (Heffelfinger 2006).

Granitic Hills 12-16" ecological site:
Key areas JV2 and JV4 lie within the Granitic Hills 12-16"PZ ecological site. These two key areas will be evaluated concurrently for adherence to Standards 1 and 3.

Standard 1: Upland Sites
Key areas JV2 and JV4 meet standard 1.
Rationale:
The findings are based on the preponderance of the evidence of the 17 indicators used to determine attainment of standard 1. Soils at both key areas are protected from erosion by moderate gravel cover and vegetative foliar. Gravel/stone cover at JV2 was calculated to be 23%, while gravel cover at JV4 was calculated to be 15%. Vegetative foliar cover at JV2 was calculated to be 42%, while vegetative cover at JV4 was calculated to be 43%. Site JV2 has a slight to moderate departure from expected in the soil and site stability indicator. This is due to a surface erosion rate slightly greater than expected on the site. Erosion was consistent, with no rilling or gully cutting within the study area. Bare ground percentage on this site is lower than expected due to high gravel and vegetation cover. Site JV4 has a slight to moderate departure in the Hydrologic function indicator. This is due to an increase in annual species, which provide for decreased water infiltration as compared to perennial species.

Standard 3: Desired Resource Conditions
Key areas JV2 and JV4 meet standard 3.

- Maintain perennial grasses at a minimum of 15% composition.
- Maintain forbs and half shrubs at a minimum of 20% composition.
- Maintain trees and cacti at a minimum of 10% composition.
- Maintain vegetative foliar cover at 35% or greater.

Rationale:
Both JV2 and JV4 exceed the foliar cover requirements, at 41% and 43%, respectively. The tree/cacti component is met at both sites, with 10% of composition by relative production at JV2 and 13% of composition by relative production at JV4. The forb/half-shrub component is met at both sites, with 29% of composition by relative production at JV2, and 31% of composition by relative production at JV4. JV2

exceeds the grass component at 27% composition by relative production. Twenty-one species of plants are present at Key Area JV2. Seventeen of these are known to be palatable to desert tortoises (Van Devender et al. 2002). These species include big galleta grass, fluff grass, slim tridens, sideoats grama, black grama, bush muhly, three-awn grass, spurge, desert vine, globe mallow, desert trumpet, hedgehog, velvet mesquite, brickellia, flattop buckwheat, prickly pear and fairy duster. Eight of these plant species are known to be important forage species for mule deer, a priority wildlife species in the BLM Hassayampa Field Office. These important mule deer forage species include: fairy duster, prickly pear, flattop buckwheat, brickellia, mesquite, desert vine, globe mallow, and spurge (Heffelfinger 2006). JV4 does not meet the grass requirement, with 13% composition by relative production. Highly palatable grass species, such as black grama and bush muhly, show significant recruitment on the site, with many young plants in the area. Based on USDA NRCS state-and-transition models, this site falls between historic climax plant community and a shrub-dominated state, with the causal factor for this being long periods without natural wildfire. Thirty-seven species of plants are present at key area JV4. Twenty-four of these are known to be palatable to desert tortoises (Van Devender et al. 2002). These species include fairy duster, goldeneye, prickly pear, hedgehog, catclaw acacia, mesquite, flattop buckwheat, shrubby buckwheat, ocotillo, mammalaria cactus, shrub oak, range ratany, brittlebush, spurge, globe mallow, yerba de venado, San Felipe dogweed, wishbone bush, black grama, bush muhly, three-awn, Arizona cottontop, sideoats grama, and fluff grass. Twelve of these plant species are known to be important forage species for mule deer, a priority wildlife species in the BLM Hassayampa Field Office. These species include: fairy duster, prickly pear, catclaw acacia, mesquite, flattop buckwheat, yucca, shrubby buckwheat, ocotillo, shrub oak, range ratany, spurge, and globe mallow (Heffelfinger 2006).

7.2 Riparian Functionality

Standard Two

One of the two Hassayampa River riparian segments (14G) on the JV Bar allotment is meeting standard two of the Land Health Standards described in *Arizona Standards for Rangeland Health and Guidelines for Grazing Administration*. The other riparian segment (14F) is rated as Functional-at Risk. Based on previous PFC assessments done at Segment 14F, much of this reach of the Hassayampa River has become more xeric. Vegetation present was indicative of drier soils. Vegetation at the downstream end of riparian segment 14F was sparse, reducing the ability to stabilize the soil and dissipate energy during high flow events.

Standard Three

Riparian Segment 14F is not meeting standard three of the Land Health Standards described in *Arizona Standards for Rangeland Health and Guidelines for Grazing Administration* (desired plant community), due to insufficient cover of riparian vegetation and the overall lack of riparian obligate species along much of this reach. Riparian Segment 14G does not meet standard three due to not meeting the riparian obligate herbaceous cover objectives and not meeting the age class distribution objectives for riparian tree species. Riparian Segment 14G had a plant community that consisted of herbaceous streambank vegetation dominated by native riparian plants including those from the genera *Juncus, Equisetum, Scirpus,* and *Eleocharis.* The riparian woody species component was dominated by the native riparian obligate species Gooding's willow (*Salix gooddingii)*, seep willow (*Baccharis salicifolia*). The

greenline composition consisted of over 97% native riparian obligate plant species. Of this 97% composition approximately 14% was herbaceous species with the remainder being woody species. The age class of riparian woody vegetation was heavily skewed toward seedlings. Over 7,000 seedlings were counted in the woody species age class sub-plots alone. This heavy recruitment may be due to recent flooding creating optimal conditions for regeneration. In order to provide for recruitment and maintenance/recovery of native riparian trees there should be a diverse age class distribution. The desired plant community objects for age class distribution of native riparian obligate tree species was set at >15 percent seedlings, > 15 percent young, and >15 percent mature. Although the age class distribution was highly skewed toward the seedling age class, mature Gooding's willows were also present. If the native riparian tree seedlings become established, streambank stability and wildlife habitat values will increase. Although 50% cover of herbaceous riparian species was not achieved, a diverse mix of native riparian obligate species was present on the banks.

8.0 Technical Recommendations

Upland Management Recommendations:

Based on the data presented in this document, the allotment is meeting both Standard One and Standard Three on upland sites.

To facilitate season of use restrictions within the Hassayampa River Canyon wilderness, and to comply with the wilderness management plan, approximately 2 miles of fence should be constructed along the southern boundary of the wilderness. This fence was initially proposed as a range improvement in the wilderness management plan.

An additional water development and holding corral located in the Monte Cristo mine area would serve to more evenly distribute livestock across the northern parts of the grazing allotment. This will reduce grazing pressure in the wilderness area and provide for water sources outside the Hassayampa River.

In order to reduce grazing pressure around livestock water sources within the allotment, any salt or supplement blocks placed on the public lands should be located at least one-quarter of a mile from available water sources, and should be located at least one-eighth of a mile above major drainages.

To facilitate orderly management of the range, Actual Use reporting should be added to the terms and conditions of the lease. Annual actual use numbers will allow for appropriate stocking rate determinations based on forage conditions on the allotment.

Due to reducing stocking rates during the monitoring period, a Desired Stocking Rate analysis should be completed. Based on the most current stocking rate data and utilization levels, a decrease in livestock numbers on the allotment should be considered when the lease is renewed.

Riparian Management Recommendations:

Standard Two was met on one riparian segment on the allotment (14 G) and was not met on the other riparian segment (14 F). Neither riparian segment met Standard Three. Due to this, and to comply with the Wilderness Management Plan, season of use restrictions should be added to the grazing lease to only allow grazing in riparian habitat during the dormant season (from December 1 through March 1) within the Hassayampa River Canyon Wilderness to allow for maintenance and recruitment of native riparian trees and native riparian herbaceous species.

The invasive non-native salt cedar has become the highest density riparian tree species in some areas of the JV Bar Allotment. To promote the establishment of native riparian trees, efforts to eradicate salt cedar should be undertaken.

9.0 List of Preparers

Name	Title
James Holden	Rangeland Management Specialist
Codey Carter	Wildlife Biologist
Steve Bird	Wild Horse and Burro Specialist
Mary Skordinsky	Recreation Specialist
Tom Bickauskas	Travel Management Specialist

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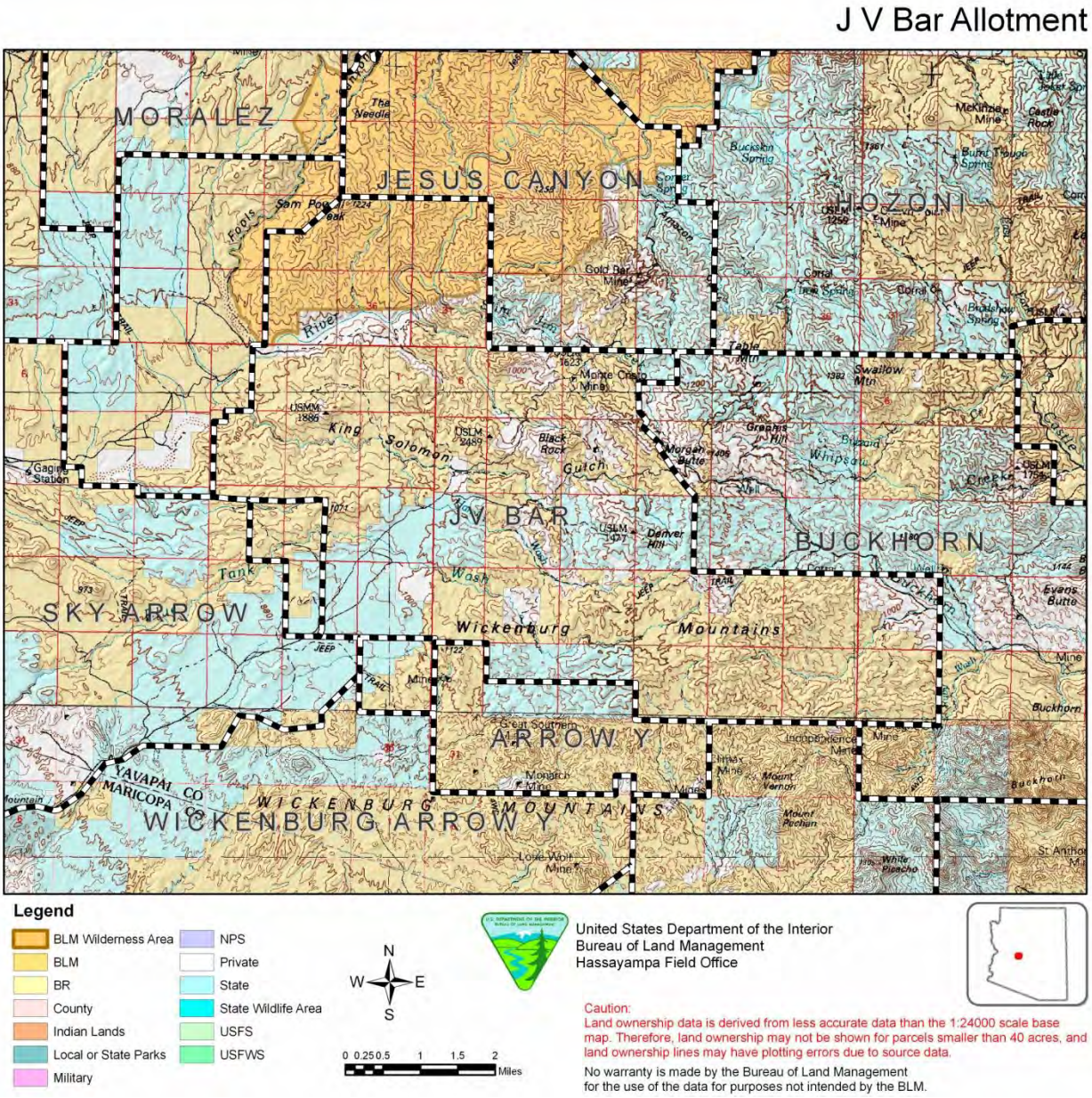
Appendix D

Data Appendix A for the JV Bar RHE

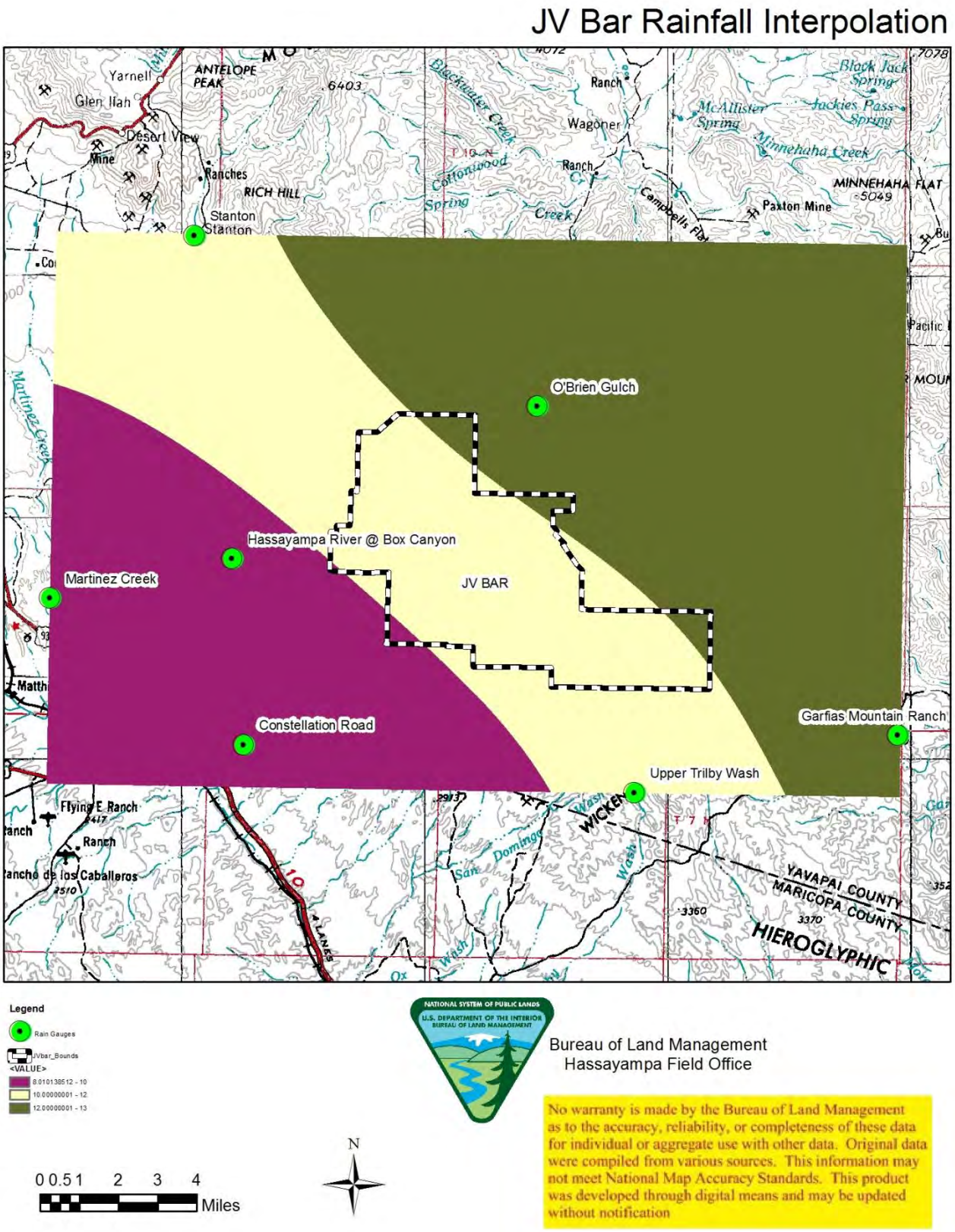
Contents

1.0 Maps

Map 1, J V Bar Allotment



Map 2, J V Bar Rainfall Regimes



2.0 Key Area Data

2.1 JV Bar Key Area 1

Ecological Site: Granitic Hills
Precipitation Zone: 10-13" annually
Location Legal Description: T8N R4W Section 12 SW1/4, SW1/4, NW1/4
GPS: 0349914E 3768960N NAD 83
Reference Sheet Used: R040XA131AZ

Frequency and Dry Weight Rank Data (2010)

Common Name	NRCS ID Symbol	Frequency (%)	Composition (%)
Trees/ Shrubs			
jojoba	SICH	9	9.2
buckhorn cholla	CYACA2	11	3.4
catclaw acacia	ACGR	5	2.0
prickly pear	OPUNT	12	2.4
fairyduster	CAER	30	23.2
palo verde	PAMI5	23	13.6
range ratany	KRER	2	2.0
white thorn acacia	ACCO2	4	4.4
goldeneye	VIDE3	1	0.2
flattop buckwheat	ERFA2	10	9.6
wirelettuce	STPA4	1	T
snakeweed	GUSA2	6	3.6
menodora	MESC	3	2.2
mesquite	PRVE	8	6.9

turpentinebroom	THMO	2	2.5
paperflower	PSTA	1	1.1
wolfberry	LYBE	1	1.2
teddybear cholla	CYBI9	3	2.9
graythorn	ZIOB	1	0.4
hedgehog	ECHIN3	1	0.1
Grasses/ Forbs			
big galleta	PLRI3	3	3.2
fluffgrass	DAPU7	5	5.4
janusia	JAGR	1	0.2

Cover Data:

Bare Ground	Gravel/Stone	Litter	Veg Canopy	Cryptogams
1%	26.9%	27.9%	44.2%	0%

Utilization Data:

Species	Code	June 1982	January 2009	March 2013
		% USE	% USE	% USE
jojoba	SICH	30	6.8	32
Fairy duster	CAER	34.2	8.5	-
Big galleta	PLRI3	-	14.9	23
Range ratany	KRER	-	-	22

Interpreting Indicators of Rangeland Health (17 Indicators) Data:

Attribute Rating:	Rationale:
Soil and Site Stability (S): N-S	None to Slight Departure. Most indicators are within the tolerances given in the reference state.
Hydrologic Function (H): N-S	None to Slight Departure. Most indicators are within the tolerances given in the reference state.
Biotic Integrity (B): N-S	None to Slight Departure. Most indicators are within the tolerances given in the reference state.

Codes:

N-S (None to Slight) M (Moderate) E-T (Extreme to Total)

S-M (Slight to Moderate) M-E (Moderate to Extreme)

2.2 JV Bar Key Area 2

Ecological Site: Granitic Hills
Precipitation zone: 12-16” annually
Location Legal Description: T8N R3W Section 22 SW1/4, NW1/4
GPS: 0354837E 3765470N NAD83
Reference Sheet Used: R038XA104AZ

Frequency and Dry Weight Rank Data (2010):

Common Name	NRCS ID Symbol	Frequency (%)	Composition (%)
Trees/ Shrubs			
fairyduster	CAER	21.8	12.8
prickly pear	OPUNT	25.0	11.3
whitethorn acacia	ACCO2	25.6	14.2
snakeweed	GUSA2	6.4	3.6
buckhorn cholla	CYACA2	1.3	0.8
hedgehog	ECHIN3	5.1	0.9
flattop buckwheat	ERFA2	10.9	8.9
brickellia	BRCO	2.6	0.9
mesquite	PRVE	1.9	0.2
threadleaf	GUMI	1.3	1.3
Grasses/ Forbs			
janusia	JAGR	5.1	3.1
globemallow	SPAM2	5.1	2.9
desert trumpet	ERIN4	4.5	2.4
3-awn	ARIST	16.7	12.1
spurge	EUSC6	5.1	2.7
bush muhly	MUPO2	8.3	6.4
big galleta	PLRI3	10.9	10.9

black grama	BOER4	1.3	1.8
sideoats grama	BOCU	0.6	0.2
slim tridens	TRMU	2.6	1.9
fluffgrass	DAPU7	0.6	0.7

Cover Data:

Bare Ground	Gravel/Stone	Litter	Veg Canopy	Cryptogams
4.5%	22.9%	31.8%	40.8%	0%

Utilization Data:

Species	Code	August 1982	November 2010	March 2013
		% USE	% USE	% USE
globemallow	SPAM2		20.5	-
Fairy duster	CAER	39.6	13.6	-
Bush muhly	MUPO2		25.0	-
Big galleta	PLRI3	67.6	30.2	2.5
Sideoats grama	BOCU	-	-	10
Black Grama	BOER	-	-	30

Interpreting Indicators of Rangeland Health (17 Indicators) Data:

Attribute Rating:	Rationale:
Soil and Site Stability (S): S-M	Slight to Moderate Departure. Departure is due to lower bare ground cover percentages than expected in the reference state, as well as increased soil movement near the top of the hill.
Hydrologic Function (H): N-S	None to Slight Departure. Most indicators are within the tolerances given in the reference state.
Biotic Integrity (B): N-S	None to Slight Departure. Most indicators are within the tolerances given in the reference state.

Codes:

N-S (None to Slight) M (Moderate) E-T (Extreme to Total)

S-M (Slight to Moderate) M-E (Moderate to Extreme)

2.3 JV Bar Key Area 3

Ecological Site: Granitic Hills

Precipitation zone: 10-13” annually

Location Legal Description: T8N R3W Section 20 NE1/4 NW1/4

GPS: 3527823E 3766237N NAD83

Reference Sheet Used: R040XA131AZ

Frequency and Dry Weight Rank data (2010):

Common Name	NRCS ID Symbol	Frequency (%)	Composition (%)
Trees/ Shrubs			
Flattop buckwheat	ERFA2	21.2	15.2
fairyduster	CAER	33.7	18.3
yerba de venado	POGR5	5.4	1.8
prickly pear	OPEN3	6.5	2.8
snakeweed	GUSA2	8.7	4.4
hedgehog	ECEN	3.3	0.5
whitethorn acacia	ACCO2	3.3	2.1
catclaw acacia	ACGR	7.1	1.2
brickellia	BRICK	2.7	1.2
range ratany	KRER	3.3	2.2
deervetch	LORI3	1.1	0.6
wirelettuce	STPA4	3.8	2.4
toothleaf goldeneye	VIDE3	2.2	1.5
yucca	YUBA	2.7	1.0
mistletoe	PHCA8	0.5	0.1
buckhorn cholla	CYACA2	1.1	0.2
beavertail pricklypear	OPBA2	0.5	0.4
mesquite	PRJU3	2.2	0.5
wolfberry	LYBE	0.5	0.2
greythorn	ZIOB	0.5	0.6

shrubby buckwheat	ERWR	0.5	0.1
Grasses/ Forbs			
fern	PETR3	0.5	0.4
fluffgrass	DAPU7	2.7	1.6
bush muhly	MUPO2	10.9	6.2
3-awn	ARIST	28.3	15.3
big galleta	PLRI3	2.2	1.7
bluedicks	DICA14	6.0	1.1
spurge	EUPHO	4.3	2.9
black grama	BOER4	4.3	1.9
sideoats grama	BOCU	10.3	5.0
spidergrass	ARTE3	3.3	2.5
desert needlegrass	ACSP12	2.2	1.0
desert trumpet	ERIN4	1.1	1.2
globemallow	SPAM2	0.5	0.1
slim tridens	TRMU	4.3	1.9

*T- trace species present at less than 1% composition by relative production.

Cover Data:

BARE GROUND	GRAVEL / STONE	LITTER	VEG CANOPY	CRYPTOGAMS
1.6%	28.3%	28.3%	41.8%	0

Utilization Data:

Species	Code	August 1982	March 2011
		% USE	% USE
Fairy duster	CAER	30.0	-
Flattop buckwheat	ERFA2	-	11.7
Black grama	BOER4	-	32.4
Big galleta	PLMU3	45.6	15.4

Interpreting Indicators of Rangeland Health (17 Indicators) Data:

Attribute Rating:	Rationale:
Soil and Site Stability (S): N-S	None to Slight Departure. Some erosion is expected on hillsite soils. Low bare ground percentage slows this rate.
Hydrologic Function (H): N-S	None to Slight Departure. Water movement through site appears to be consistent with slowing flow rates due to cover
Biotic Integrity (B): S-M	Slight to Moderate Departure. Some mesquite in upland from prior disturbance. Red brome is present at low percentages.

Codes:

N-S (None to Slight) M (Moderate) E-T (Extreme to Total)
S-M (Slight to Moderate) M-E (Moderate to Extreme)

2.4 JV Bar Key Area 4

Ecological Site: Granitic Hills
Precipitation zone: 12-16”” annually
Location Legal Description: T8N R2W Section 30 NW1/4 SW1/4
GPS: 360172E 3763496N NAD83
Reference Sheet Used: R038XA104AZ

Frequency and Dry Weight Rank data (2010):

Common Name	NRCS ID Symbol	Frequency (%)	Composition (%)
Trees/ Shrubs			
fairyduster	CAER	12	10
goldeneye	VIDE	2	2
buckhorn cholla	CYAC8	4	2
prickly pear	OPEN3	6	3
whitethorn acacia	ACCO2	9	10
hedgehog	ECEN	4	2
snakeweed	GUSA2	7	7
catclaw	ACGR	2	1
turpentine bush	ERLA12	2	2
mesquite	PRVE	2	3
yucca	YUBA	4	4
flattop buckwheat	ERFA2	2	2
beargrass	NOTE	1	1
shubby buckwheat	ERWR	1	0
ocotillo	FOSP2	1	1
sweetbush	BEJU	1	1

pincushion	MAMMI	T	0
scrub oak	QUTU2	2	2
crucifixion thorn	CAHO3	T	0
range ratany	KRER	1	1
brittlebush	ENFA	T	0
menodora	MESC	T	0
Grasses/ Forbs			
wirelettuce	STPA4	1	1
spurge	EUPHO	12	7
globemallow	SPAM2	1	1
weakleaf	AMCO3	1	1
yerba de venado	POGR5	T	0
San Felipe dogweed	ADPA	T	0
plains blackfoot	MELE2	1	0
tansyaster	MAPI	2	1
wishbone bush	MILAV	2	2
black grama	BOER4	6	4
bush muhly	MUPO2	2	2
3-awn	ARIST	6	5
Arizona cottontop	DICA8	1	0
sideoats grama	BOCU	2	1
fluffgrass	DAPU7	T	0

*T- species present at less than 1% of transect, but recorded as present.

Cover

BARE GROUND	GRAVEL / STONE	LITTER	VEG CANOPY	CRYPTOGAMS
6	15	36	43	0

Utilization

Species	Code	April 2011
		% USE
Black grama	BOER4	18.3
Sideoats grama	BOCU	10.1

Interpreting Indicators of Rangeland Health (17 Indicators) Data:

Attribute Rating:	Rationale:
Soil and Site Stability (S): N-S	None to Slight Departure. Small disturbance areas could see increased erosion, but majority of site is well armored and has sufficient vegetative cover to hold soils in place
Hydrologic Function	Slight to Moderate Departure. Annuals do not allow for infiltration as well as perennial

(H): S-M	species. The introduced annuals could eventually affect recruitment and influence hydrologic functionality.
Biotic Integrity (B): M	Moderate Departure. Reproduction and recruitment seem generally unimpaired across the site. Red brome is becoming established in the area, which could cause a state transition if fire increases.

3.0 Riparian Data

Map 3, JV Bar Riparian Reaches (2010)

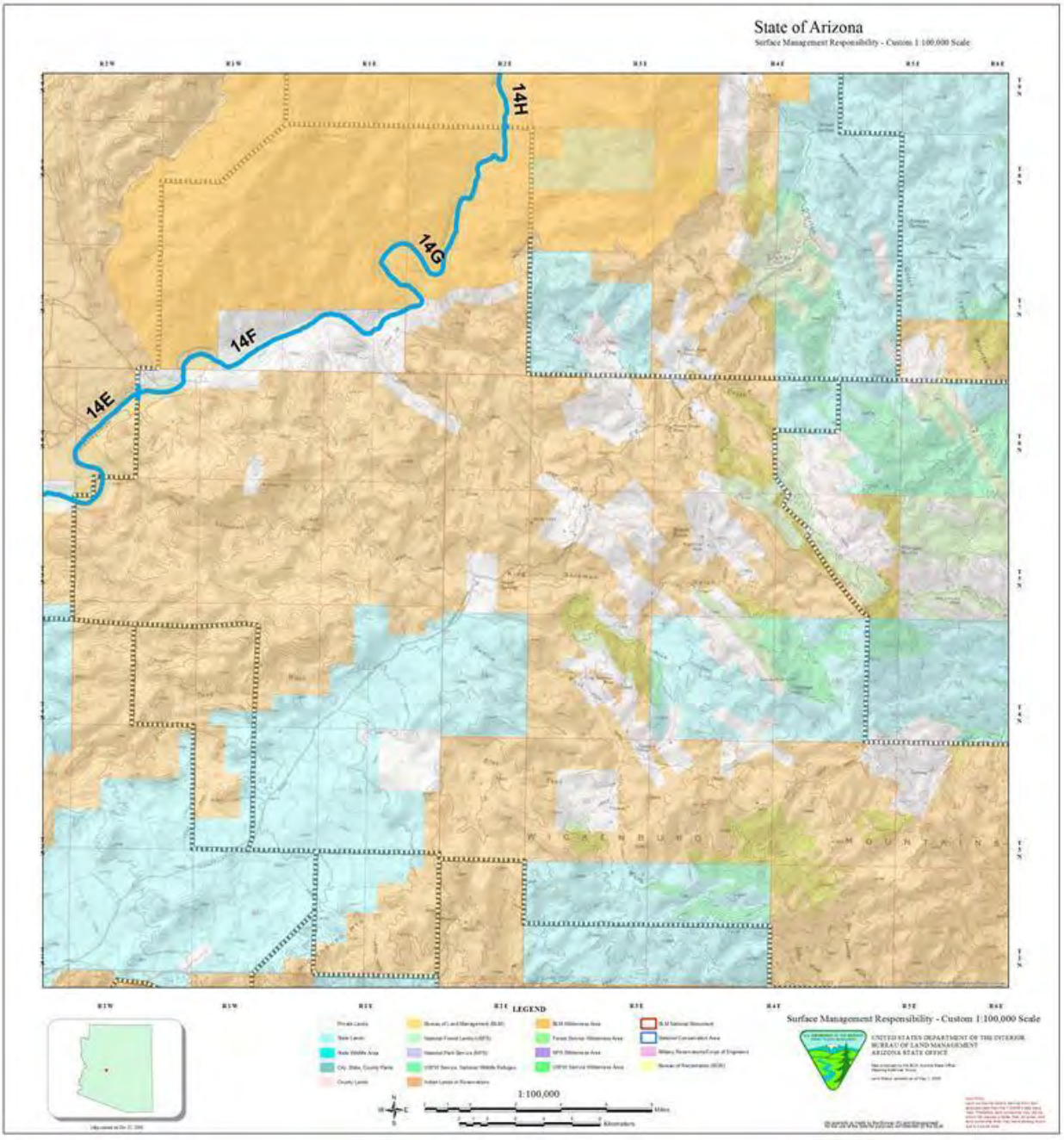


Table 1. Plant species list for the JV Bar MIM designated monitoring area.

PLANT LIST		
NRCS ID Symbol	Species Name	Common Name
BASA4	BACCHARIS SALICIFOLIA	Willow baccharis
ELPA3	ELEOCHARIS PALUSTRIS	Common spikerush
EQUIS	EQUISETUM SPECIES	Horsetail
JUAR4	JUNCUS ARTICULATUS	Jointleaf rush
MFE	MESIC FORB Early	Mesic forb early seral
MG	MESIC GRASS	Mesic grass
NG	No green line present	N/A
POFR2	POPULUS FREMONTII	Fremont cottonwood
RK	ROCK	Embedded Rock
SAGO	SALIX GOODDINGII	Gooding's willow
TARA	TAMARIX RAMOSISSIMA	Saltcedar
SCPU10	SCHOENOPLECTUS PUNGENS	bulrush
JUXI	JUNCUS XIPHIOIDES	Irisleaf rush

Table 2. Plant Species Composition along the greenline.

Species Plant Code	Greenline Composition
BASA4	55.2%
ELPA3	1.9%
EQUIS	0.3%
JUAR4	11.5%
MFE	0.0%
MG	0.1%
NG	0.1%
POFR2	0.0%
RK	1.7%
SAGO	28.6%
TARA	0.4%
SCPU10	0.1%
JUXI	0.1%

Table 3. Age class of woody species along the greenline.

WOODY AGE Class			
Key Species	Seedlings	Young	Mature
BASA4	4551	9	5
POFR2	2	0	0
SAGO	2368	0	0
TARA	297	0	0

Table 4. Stubble height of key riparian herbaceous species and woody species use along the greenline.

STUBBLE HEIGHT			**WOODY USE**		
Key Species	*N*	Avg Height (cm)	Key Species	*N*	Avg Use (%)
ELPA3	13	15.38	SAGO	46	15
EQUIS	7	11.43			
JUAR4	28	21.61			
SCPU10	4	30.00			
JUXI	2	12.50			

Table 5. Streambank alteration along the greenline.

	Streambank Alteration (%)
%=	18%
n=	79
95% CI=	**6%**