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

ENVIRONMENTAL ASSESSMENT
DOI-BLM-AZ-C010-2014-0037-EA

Little Cane Allotment
Grazing Permit Renewal

Kingman Field Office
2755 Mission Boulevard.
Kingman, AZ 86401

July, 2014

BLM

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Contents

1 INTRODUCTION

This environmental assessment (EA) has been prepared to disclose and analyze the potential environmental consequences associated with a proposed grazing permit renewal for the Little Cane Allotment (00087) administered by the Bureau of Land Management (BLM) Kingman Field Office (KFO). The following table summarizes the current situation for the grazing allotment (Table 1). The Little Cane Allotment is located at the base of the Hualapai Mountains north of Wikieup, Arizona adjacent to U.S. Highway 93. The location of the allotment is shown in Figure 1.

Table 1. Summary of Current Situation for Little Cane Allotment

Allotment Names	Little Cane
Public land acres in allotment	5,542
Arizona State Land Department acres in allotment	N/A
Private controlled acres in allotment	320
Kind of livestock	Cattle
Ephemeral or perennial	Perennial/Ephemeral
Plan area	Kingman Field Office
Current active use in animal units (AUs)[1] and animal unit months (AUMs)[2]	33 AUs or 372 AUMs
Suspended use (AUMs)	0 AUMs
Category[3]	Custodial

[1] AU is an animal unit which is equivalent to one cow.
[2] AUM is the amount of forage necessary for the sustenance of one cow or its equivalent for a period of 1 month (43 CFR 4100.0-5).
[3] Category: All allotments are categorized as either improve, maintain, or custodial.

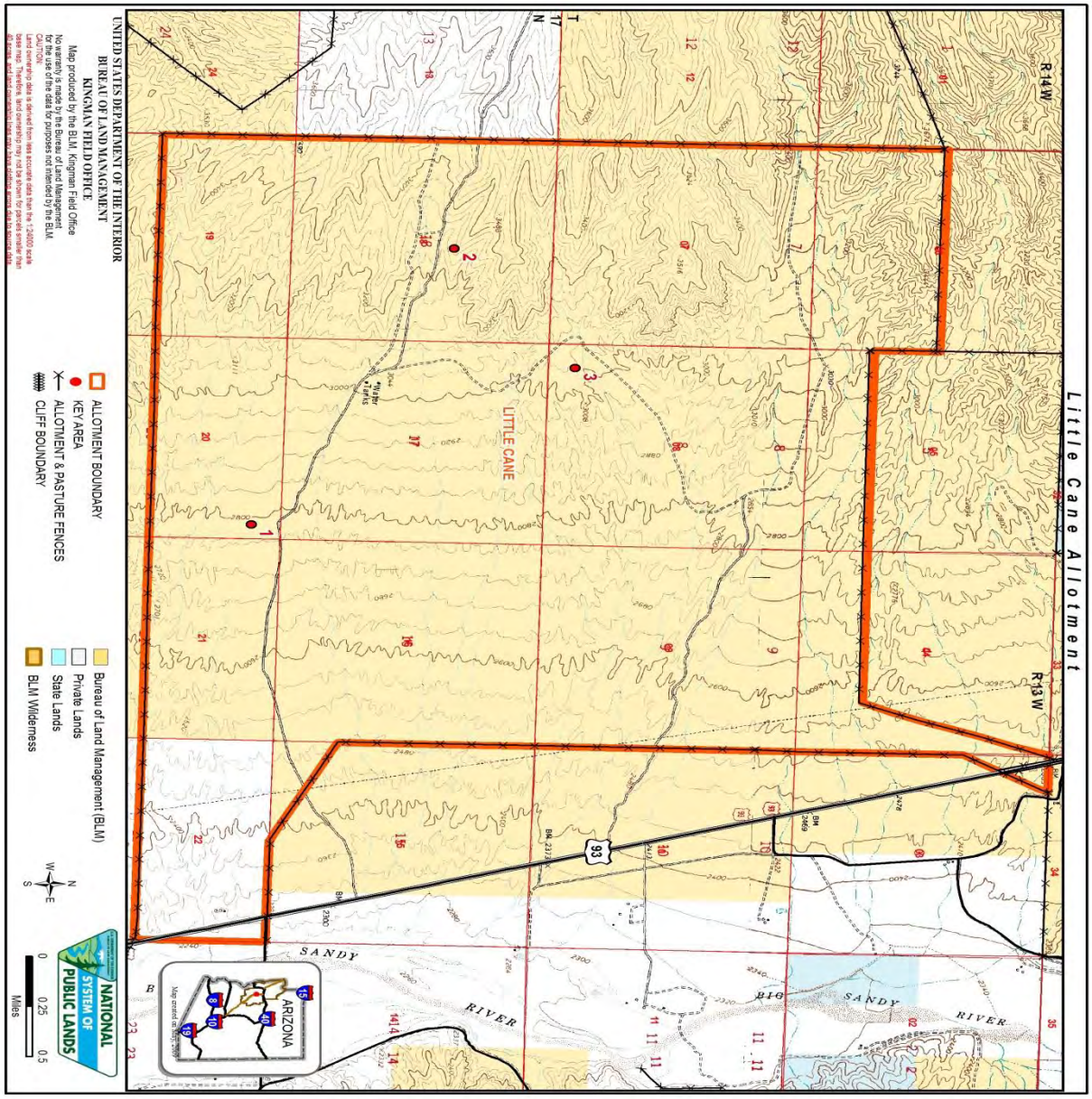

Figure 1: Little Cane Grazing Allotment in the Wikieup, Arizona vicinity of Kingman Field Office.

1.1 Purpose and Need

1.1.1 Background

The BLM is proposing to fully process the term grazing permit on the Little Cane Allotment (00087) in accordance with all applicable laws, regulations, and policies. BLM renewed the permit with the same terms and conditions pursuant to Section 150 of Public Law 110-329, pending compliance with applicable laws and regulations for a 10-year period beginning March 1, 2009. Compliance with all applicable laws and regulations includes consultation, coordination and cooperation with affected individuals, interested publics, States, and Indian Tribes; completion of the applicable level of National Environmental Policy Act (NEPA) review; and

ensuring that allotments are achieving or making significant progress toward achievement of land health standards.

1.2 Purpose and Need

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

The need for this action is established by the Taylor Grazing Act (TGA), the Federal Land Policy and Management Act (FLPMA), and the *Kingman Resource Area Proposed Management Plan (*RMP*)/Final Environmental Statement (*USDI 1995*)*, which require that the BLM respond to applications to fully process and renew permits to graze livestock on public land. In detail, the analysis of the actions identified in the application for grazing permit renewal and alternative actions is needed because:

- BLM Arizona adopted the *Arizona Standards for Rangeland Health (Land Health Standards) and Guidelines for Livestock Grazing Management in all Land Use Plans* (Arizona S&Gs) (USDI 1997). The land health should be achieving or making significant progress towards achieving the standards and to provide for proper nutrient cycling, hydrologic cycling, and energy flow. Guidelines direct the selection of grazing management practices and, where appropriate, livestock facilities to promote significant progress toward, or the attainment and maintenance of, the standards. *Little Cane Allotment Land Health Evaluation* dated May 2014 identified Standard 1 for upland health is being met at two key areas (Appendix A.). Standard 3 for plant communities is being met at one key area and is not being met but is making significant progress toward achieving land health at the other key area. Standard 2 evaluates riparian-wetland sites but is not applicable as there are no riparian-wetland sites found on the allotment.

- The Kingman 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 KFO. The Kingman RMP allocated public lands within the Little Cane Allotment as available for domestic livestock grazing. Where consistent with the goals and objectives of the RMP and Arizona S&Gs, allocation of forage for livestock use and the issuance of grazing permits to qualified applicants are provided for by the TGA and the FLPMA.

1.3 Decision to Be Made

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

1.4 Conformance with Land Use Plan

1.4.1 Kingman Resource Area RMP

The Proposed Action is in conformance with the Kingman RMP (1995) and the *Statewide Land Use Plan Amendment for Implementation of Arizona Standards for Rangeland Health and Guidelines for Grazing Administration 1997*. Arizona's S&Gs were developed through a collaborative process involving the Arizona Resource Advisory Council and the Bureau of Land Management State Standards and Guidelines team. The Secretary of the Interior approved the Standards and Guidelines in April 1997. The Decision Record, signed by the BLM Arizona State Director (April 1997) provided for full implementation of the Standards and Guides in all Arizona BLM Land Use Plans.

Implementation level decisions from the Hualapai/Aquarius Grazing Environmental Impact Statement (USDI 1981) were carried forward into the RMP. Management direction pertaining to this allotment can be found in the Hualapai-Aquarius Planning Unit section, Kingman RMP, Appendix 1, p. 461.

1.5 Scoping and Issues

KFO resource specialists wrote the *Little Cane Allotment Land Health Evaluation* (Appendix A) to determine whether Arizona S&Gs are being met. The evaluation began by sending a letter to the interested publics on March 31, 2014. Recipients of the letter were asked to identify issues associated with the continuation of grazing within the allotment.

1.5.1 Consultation, Cooperation, and Coordination

The timeline below represents activities that occurred throughout the evaluation and permitting process.

- March 25, 2014: While conducting monitoring on the Little Cane allotment, we met with the permittee to discuss the land health evaluation for the renewal of the grazing permit for this allotment.
- March 31, 2014: Scoping letter sent to stakeholders, permittee and interested publics asking for comment on the allotment. No comments were received in response to this letter.
- March 31, 2014: Mr. Blanton a member of the Range staff for the BLM in Kingman left a message on Mr. Stephen's phone to inform him that the Kingman BLM as going to complete a land health evaluation on the Little Cane allotment in order to renew the grazing permit.
- May 19, 2014: Mr. Blanton called Mr. Stephens in order get information about how the allotment was managed for livestock grazing. Mr. Stephens stated that he kept water at all three livestock watering facilities all year long every year. Mr. Blanton asked Mr. Stephens if he had ever considered turning off water in order to rest a portion of the allotment. Mr. Stephens said he had never thought about turning waters off but he did not think it would work because the allotment is too small and therefore cattle would have access to all areas even with waters turned off.

- May 6, 2014 – Scoping was conducted at KFO project coordination meeting, and the following resources were identified by program leads for analysis in this EA: general botany/noxious weeds, migratory birds, range, soils, threatened and endangered plants and animals, vegetation, wild horses and burros, and wildlife.

1.5.2 Native American Consultation and Coordination

Kingman BLM and the Colorado River District have entered into a Memorandum of Understanding (MOU) with the Hualapai Tribe (USDI 2012). The MOU clarifies that consultation is not necessary for grazing permit renewals and existing range improvements. Proposed range improvements do not require consultation unless located on an archaeological site or area of cultural significance.

1.5.3 Issues Identification

The Little Cane Area Land Health Evaluation (Appendix A) identifies Key Areas for the allotment. Rangeland Health is being met for Standards 1 and 3 at Key Area 1. At Key Area 2, the evaluation identified that Standard 3 is not being met but is making significant progress. Two perennial grass species, bush muhly and black grama, are below expected numbers for the site based on the Ecological Site Description for Clay Loam Upland 10 – 13" Precipitation Zone Ecological Site Guide (NRCS). Bare ground has increased since it was measured in the 1980s and soil movement is of concern at Key Area 2.

1.6 Relationships to Statutes, Regulations, or Other Plans

Table 2 lists statutes, regulations, policy and local area planning documents germane to the analysis area, proposed action and alternatives.

Table 2. Statutes, Regulations and Other Plans Relevant to Proposed Action

Proposed Action Element	Authority
Livestock Grazing	Taylor Grazing Act of 1934 as amended
Livestock Grazing	National Environmental Policy and Management Act of 1969
Livestock Grazing	Federal Land Policy and Management Act of 1976 as amended
Livestock Grazing	Public Rangelands Improvement Act of 1978
Livestock Grazing	Grazing regulations under 43 CFR 4100 and associated BLM Manual policy
Wildlife	Endangered Species Act of 1973
Wildlife	Migratory Bird Treaty Act of 1918
Wildlife	Executive Order 13186 – Responsibilities of Federal Agencies to Protect Migratory Birds
Wildlife	Sonoran Desert Tortoise Interagency Management Plan 1996

2 PROPOSED ACTION AND ALTERNATIVES

Development of alternatives for this EA was based on the results of an interdisciplinary rangeland health assessment conducted by the BLM. As a result, the action alternatives were developed to address the need for changes in authorized use. Current grazing practices are described under Alternative 2, No Action and are used as a baseline for comparison to the action alternative (Table 3).

Table 3. Comparison of Proposed Action to Alternatives

Alternative	Number of Livestock	Proposed Range Improvements	Proposed Grazing System
Alternative 1 Proposed Action	33 AU	None	Simple rotation grazing system using watering points.
Alternative 2 No Action	33 AU	None	Follow previously permitted terms and conditions, yearlong grazing
Alternative 3 No Grazing	0	N/A	None

2.1 Actions Common To All Alternatives

2.1.1 Arizona Standards for Rangeland Health

The allotment would be managed to achieve the following objectives, as described in the Arizona Standards for Rangeland Health:

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.

2.2 Actions Common to Alternatives 1 and 2

2.2.1 Special Ephemeral Rule

In years of abundant ephemeral bloom, ephemeral grazing may be authorized. Livestock use of ephemeral vegetation is not allowed to exceed 50% utilization. In desert tortoise habitat (which includes the entire allotment) ephemeral grazing permits would not be authorized unless the pasture reaches at least 280 lbs/acre of ephemeral forage.

2.3 Alternative 1 Proposed Action

The proposed action is to reissue a 10-year permit for the Little Cane Allotment in conformance with the Kingman RMP. The goal of the proposed action is to provide for physiological needs of key plant species and native vegetation within the allotment with the primary objective of meeting Land Health Standard 3 within ten years and a secondary objective of reducing bare ground. The perennial/ephemeral grazing permit for the Little Cane Allotment would be renewed as a Custodial allotment for a period of 10 years as shown in Table 4 with Mandatory Terms and Conditions and the Other Terms and Conditions:

Mandatory Terms and Conditions

The following mandatory conditions would apply to Alternative 1.

Table 4. Mandatory Terms and Conditions.

Allotment	Kind	Number	Grazing Year Begin	Grazing Year End	AUMS
00087	Cattle	33	03/01	02/28	376

Other Terms and Conditions

1. You will provide the BLM within 15 days after March 1 of each year a certified actual report detailing the number of livestock and the period(s) of use, for the previous grazing year in accordance with 43 CFR 4130.3-2(D). The permittee will provide actual use by watering point at the end of each grazing year.

2. Implement a simple grazing schedule which would annually provide growing season rest from grazing in a portion of the allotment by turning off one of the three watering points. This would provide rest in one of three use area during the spring and summer months. Turning off water in use areas would be coordinated with the BLM Range Management Specialist based upon previous areas rested, expected plant growth and rainfall.

3. Lease may be canceled, suspended, or modified, in whole or in part to meet requirements of applicable laws and regulations.

2.3.1 Grazing Management

This allotment would be managed using a simple grazing schedule which would provide rest in one of the three use areas by tuning off water. The BLM and grazing permittee would meet in the field twice a year and using monitoring data to determine which use areas would be rested during each growing season.

2.3.1.1 Existing Range Improvements

The proposed action would not require a change to the existing range improvements which consist of boundary fences and three watering areas where water is hauled from off-site to permanently placed troughs.

2.4 Alternative 2 No Action –No Change to Current Terms and Conditions

1. You will provide the BLM within 15 days after March 1 of each year a certified actual report detailing the number of livestock and the period(s) of use, for the previous grazing year in accordance with 43 CFR 4130.3-2(D).

2. Lease may be canceled, suspended, or modified, in whole or in part to meet requirements of applicable laws and regulations.

2.4.1 Grazing Management

The current grazing management consists year-round grazing through keeping the three watering areas active and water made available year around.

2.5 Alternative 3 (No Grazing Alternative)

Under this alternative, livestock grazing would not be authorized for the Little Cane Allotment in accordance with the 43 CFR 4110.3 (changes in grazing preference).

2.6 Alternatives Considered but Eliminated From Detailed Analysis

No other grazing scenarios were identified during scoping with the permittee, interested publics or the ID Team.

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the general project setting and addresses standard critical elements of the human environment (H-1790-1, Appendix 5 of the BLM NEPA Handbook, as amended) and several other resources elements commonly affected by livestock grazing. A detailed discussion of the resources present in the action area can be found in the *Little Cane Allotment Land Health Evaluation* (Appendix A).

3.1 General Project Setting

3.1.1 Landscape Setting

The Little Cane Allotment comprises low alluvial slopes and hills above the Big Sandy River on the east slope of the Hualapai Mountains. The landscape is a transitional area between the Sonoran and Mohave Deserts within the basin and range province of northwest Arizona. The landscape and terrain varies from low rolling hills and fan terraces. Elevation varies from 2,400 feet along the Big Sandy Valley up to 3,600 feet at the western boundary of the allotment.

3.1.2 Climate

Climatological data is available a National Oceanic and Atmospheric Administration weather station in Wikieup, Arizona and from rain gauges in the nearby Big Sandy allotment. Over a seventeen year period, precipitation has varied from a low of 2.30 inches per year to a high of 24.11 inches per year at individual rain-gauges located on the Big Sandy allotment. The average over the last seventeen years is 9.7 inches. Over a twenty-four year period, precipitation has varied from a low of 1.82 inches per year to a high of 18.36 inches per year at the Wikieup, Arizona weather station. The average over the last twenty-four years is 8.9 inches at Wikieup (BLM 2011).

This allotment is influenced by both winter, Pacific frontal storms as well as by summer, Orographic, convective storms. Approximately 65% of the annual precipitation falls during the cooler months of October through April with approximately 35% of the annual precipitation falling during the months of May through September. The winter storms are usually widespread gently soaking rains while large quantities of precipitation can be dropped in very short periods of time during the summer monsoonal storms.

3.2 Elements/Resources of the Human Environment

The BLM is required to consider many authorities when evaluating a Federal action. Those elements of the human environment that are subject to the requirements specified in statute, regulation, or executive order, and must be considered in all EAs (USDI 2008), have been considered by BLM resource specialists to determine whether they would be potentially affected by the proposed action. These elements are identified in Table 5, along with the rationale for determination on potential effects. If any element was determined to be potentially affected, it was carried forward for detailed analysis in this EA; if an element is not present or would not be affected, it was not carried forward for analysis. Table 5 also contains other resources/concerns that have been considered in this EA. As with the elements of the human environment, if these resources were determined to be potentially affected, they were carried forward for detailed analysis in this document.

Table 5. Elements/Resources of the Human Environment

NP = Not present in the area impacted by the proposed action
NI = Present, but not affected to a degree that detailed analysis is required
PI = Present with potential for impact – analyzed in detail in the EA
* = Supplemental Authorities To Be Considered as defined in H-1790-1 (page 139).

Resource/Critical Element	Presence	Rationale for Effect Determination
Air Quality*	NI	The allotment lies within the Mohave County PM-10 attainment area as classified by the Environmental Protection Agency. Effects from livestock operations were taken into consideration when the classification was made. Therefore all alternatives would be in conformance with PM 10 attainment area air quality standards.
Areas of Critical Environmental Concern	NP	There are no areas of Critical Environmental Concern within this grazing allotment.
BLM Sensitive Plant Species	NP	There are no BLM Sensitive Plant Species within the allotment.
Cultural Resources*	NI	There would be no new ground disturbance as a result of the proposed action; therefore no impact is anticipated to cultural resources. Cultural sites are scattered at low to moderate density across the allotment. They consist of: prehistoric artifact scatters of ceramic and stone tool debitage, one unrecorded rock art site; and remnants of historic Hualapai Indian home sites. The home sites no longer have standing architecture and no perennial water. According to Arizona BLM Handbook H-8110, Guidelines for Identifying Cultural Resources (USDI 1999), livestock grazing actions, such as permit renewals are generally exempt from cultural resources surveys, and range improvements are land disturbing activities that require site-specific survey. Since the 1970s, Kingman archaeologists conducted a minimum of Class II surveys in existing grazing allotments focused on areas where cattle congregate, loafing areas and on cattle trails. It was determined that no adverse effect would occur to known cultural resources within the allotment. A Judgmental Class II cultural resources survey was conducted on November 9 and 10, 1999 and Cultural Resources Project Record BLM-030-00-25 is on file documenting the survey results.
Environmental Justice*	NI	The proposed action would have no disproportionately high or adverse human health or other environmental effects on minority or low income segments of the population. Also, continued livestock grazing would have no effect on low income and minority populations
Farmlands (Prime or Unique)	NP	There are no prime or unique farmlands within the allotment.
Fish Habitat*	NP	No fish habitat is present on the allotment.
Floodplains*	NP	There are no floodplains within the allotment.
Forests and Rangelands*	NI	No impact to forests and rangelands as defined by the supplemental authority referring to the Healthy Forests Restoration Act of 2003.
Fuels / Fire Management	NI	The vegetation within the allotment is not fire adapted and is not actively managed by the fire and fuel program for vegetation treatments such as hazardous fuels treatments.
Geology / Mineral Resources / Energy	NI	Geology / mineral resources / energy production would not be impacted as a result of the proposed action or alternatives.

Resource/Critical Element	Presence	Rationale for Effect Determination
Production		
Invasive, Non-native Species	PI	Carried forward for detailed analysis.
Lands / Access	NI	There are no lands/access issues within the allotment.
Livestock Grazing	PI	Carried forward for detailed analysis.
Native American Religious Concerns*	NI	No Native American Religious Concerns were identified during scoping .
Paleontology	NP	There are no paleontological resources identified within the alluvial deposits present within the allotment.
Recreation	NI	Recreation within the allotment or surrounding area consists of hunting, hiking and OHV driving. Recreational activities which currently take place consist of driving through the allotment on the way to hunting or camping areas further within the back country. Recreation would not be affected as a result of the proposed action.
Socio-economic Values	NI	No socio-economic values would be impacted as a result of the proposed action or alternatives.
Soil Resources	PI	Carried forward for detailed analysis.
Threatened, Endangered or Candidate Plant and Animal Species*	PI	There would be no affect to Threatened or Endangered Species as none are found within the project area. Habitat for the southwestern willow flycatcher is over five miles from the project area. Habitat for the Sonoran desert tortoise, a candidate species, is found on the allotment. Analysis of potential impacts to this species will be carried forward for detailed analysis.
Vegetation	PI	Carried forward for detailed analysis.
Visual Resources	NI	There would be no change to existing visual resources in the KFO planning area.
Wastes (Hazardous or Solid)*	NP	No known hazardous or solid waste issues occur in the allotment.
Water Quality (Drinking-Ground)*	NP	No surface water is present within the allotment. Water for cattle is obtained from a well located on private land and is hauled to two permanently-placed cattle troughs.
Wetlands-Riparian Zones*	NP	There are no wetlands/riparian zones within the allotment.
Wild and Scenic Rivers*	NP	There are no wild and scenic rivers within the allotment.
Wild Horses and Burros	NI	The allotment is not within a wild horse and burro Herd Management Area.
Wilderness*	NP	There is no designated wilderness within the allotment.
Wilderness characteristics	NP	There are no wilderness characteristics within the allotment.

Resource/Critical Element	Presence	Rationale for Effect Determination
Wildlife (including BLM Sensitive Species and Migratory Birds*)	PI	Carried forward for detailed analysis.

3.3 Resources Present and Brought Forward for Analysis

The following resources were identified as potentially affected by the proposed action during scoping: invasive, non-native species, livestock grazing, soil resources, candidate animal species, vegetation, wildlife (including sensitive species and migratory birds).

3.3.1 Invasive, Non-native Species

Red brome, an invasive species, was uncommon on the allotment during field monitoring spring 2014. During years which receive high amounts of winter precipitation, red brome will typically increases in production. Of the various plants found on the allotment that have toxic properties, or are potentially poisonous to livestock and wildlife, only locoweeds and broom snakeweed cause management concern. Locoweed can be a problem in spring and early summer before other perennial forage breaks dormancy. Snakeweed, which is present on the allotment, can result in various forms of livestock losses. Those losses include increased abortions, death, and weak or light-weight young when snakeweed is consumed by livestock in sufficient quantities.

3.3.1.1 Environmental Consequences to Invasive, Non-native Species

From Alternative 1 Proposed Action

Maintaining the desired plant community as prescribed in the proposed action may help to reduce the spread of undesirable plant species. Composition and cover of desired forage species is expected to maintain or improve under the proposed action and would potentially reduce open space between perennial plants where invasive annual grasses and forbs can grow. USDA 2008 found that cheatgrass increases with the removal of native perennial herbaceous grasses and forbs which can occur as a result of overgrazing. This is due in part because cheatgrass can out-compete remaining native plants in accessing soil water and nutrients. It has been found that proper range practices can help prevent the spread of these plant species (Sheley 1995). Red brome and cheatgrass are Mediterranean exotics with similar ecological niches and occupy similar habitats.

Ephemeral grazing may be applied for and authorized in years when annual forage is abundant enough to meet the criteria of the Special Ephemeral Rule (Section 2.2.1). Future ephemeral grazing authorization on the Little Cane Allotment is expected to be very infrequent as the current permittee has not applied for this type of use in over 20 years. Because of this and the guidelines in the Special Ephemeral Rule, effects from invasive, non-native plants species would be expected to be minor.

From Alternative 2 No Action

Key Area 2 will continue to make progress toward achieving Standard 3 but could be at a slower rate than under the Proposed Action.

Effects from ephemeral grazing would be the same as described in the Proposed Action.

From Alternative 3 No Grazing

Removal of livestock would not eliminate the presence of invasive-non-native species on the allotments as some (red brome) are already common throughout the area. Removal of grazing by domestic livestock does not automatically lead to the disappearance of cheatgrass (Young and Evans 1978). Wild burros, bighorn, and mule deer would continue to be vectors for the spread of invasive plants. The removal of grazing is expected to result in an increase in the frequency of key plant species and movement towards the meeting Standard 3. If key forage plant species are present in sufficient amounts at these locations it is highly likely that this would serve to limit the open space between perennial plants where invasive annual grasses and forbs can grow.

3.3.2 Livestock Grazing Management

The Little Cane allotment is classified as Perennial/Ephemeral Range. The Hualapai-Aquarius grazing EIS (USDI 1981) identified this allotment as a (C) Custodial allotment. Currently, cattle are allowed to graze year round on the allotment. There is no interior pasture fencing and therefore cattle have access to all areas of the allotment.

3.3.2.1 Environmental Consequences to Livestock Grazing Management

From Alternative 1 Proposed Action

Under this alternative, the Little Cane allotment would be managed using a simple grazing schedule which would provide rest by tuning off water in one of the three use areas during the spring and/or summer months. The allotment is small and therefore cattle would continue to have access to all areas. Grazing pressure would be reduced in those areas where waters are turned off helping to provide for the physiological needs of key plant species and native vegetation within the allotment. This small change in grazing management would help the plant community reach DPC objectives more quickly than the current management. More plants would have the ability to successfully reproduce. The land health should be achieving or making significant progress towards achieving the standards and provide for proper nutrient cycling, hydrologic cycling, and energy flow. Over time this should improve the quality and quantity of forage in the allotment and should in turn improve the condition of the livestock using this allotment. Operational cost should be reduced under this alternative as there would be less fuel cost from hauling water to fewer locations.

Ephemeral grazing may have a slight economic benefit to the permittee by allowing approximately1-3 months of additional grazing in years when ephemeral growth is abundant but would be expected to have a negligible effect on the local economy.

From Alternative 2 No Action

Under this alternative, the Little Cane allotment would be grazed yearlong and current trend and conditions would continue. Currently, Standard 3 is being met at one key area and is not being met but is making significant progress towards achieving land health at the other key area. Operational cost would remain the same under this alternative as livestock management would not change.

Effects to the economy from ephemeral grazing would be the same as described in the Proposed Action.

From Alternative 3 No Grazing

Under this alternative, the grazing permit would not be renewed on the Little Cane allotment and livestock would be removed. Without the addition grazing pressure from domestic livestock, over time all land health standards would be achieved. The grazing permittee would lose his livestock operation.

3.3.3 Soil Resources

The hills and hill slopes east of the Hualapai Mountains are shallow to moderately deep, with very gravelly profiles. These soils are well drained with a very low available water holding capacity. Runoff is rapid due to slope, with a slight hazard of water erosion and a slight hazard of wind erosion.

The Big Sandy Valley soils at the far eastern edge of the allotment are comprised of fan terraces, with a few stream terraces. The soils in these areas have deep or very deep gravelly to loamy profiles that are well drained. Available water holding capacity is moderate to low. Runoff is slow due to slope. Hazard of water erosion is slight and hazard of wind erosion is slight to moderate.

3.3.3.1 Environmental Consequences to Soil Resources

From Alternative 1 Proposed Action

Under the proposed action the cover of desired plant and grass species is expected to improve and the increase in ground cover should reduce open space between perennial plants. The reduction of bare ground should reduce the potential for soil movement.

Effects to soils from ephemeral grazing would be expected to be minor. See Section 3.3.1.1, Proposed Action for more discussion.

From Alternative 2 No Action

Cover of desired plant and grass species is expected to maintain or improve under the proposed action and would potentially reduce open space between perennial plants. The reduction of bare ground should reduce the potential for soil movement. The improvement in vegetative cover could be at a slower rate than under the Proposed Action.

Effects from ephemeral grazing would be the same as discussed in 3.3.1.1, Proposed Action.

From Alternative 3 No Grazing

Cover of desired plant and grass species would improve under this alternative and this would reduce open space between perennial plants. The reduction of bare ground should reduce the potential for soil movement and would be at a faster rate than under the Proposed Action or No Action alternatives. All livestock concentration areas around waters or corrals would revegetate over time starting with annuals and eventually perennial vegetation would become established. The grazing permittee would lose his use of public land and any income from his livestock

operation.

3.3.4 Threatened, Endangered or Candidate Animal Species

Sonoran Desert Tortoise: In December, 2010 the FWS determined that the Sonoran desert tortoise warranted protection under the Endangered Species Act. However, listing was precluded due to the need to list higher priority species. Therefore the tortoise has been designated by the FWS as a candidate species. The status of candidate species is reviewed annually by the FWS to determine if listing under the Endangered Species Act is warranted or to determine if listing is no longer needed. It is BLM policy to treat candidate species as BLM sensitive species.

The lower elevation of the allotment is designated as Category III desert tortoise habitat (KFO RMP 1995). Definitions for the categories of desert tortoise habitat can be found in USDI 1988.

3.3.4.1 Environmental Consequences to Candidate Animal Species

From Alternative 1 Proposed Action

Sonoran Desert Tortoise**:** During livestock grazing around the watering points, direct competition for forage could occur between tortoise and livestock, however it is expected that there would be adequate forage left for tortoise as utilization limits are designed to leave enough forage for tortoise.

Tortoise can be crushed by cattle however no data exist on the frequency at which cattle trample desert tortoise. Cattle likely pose a low degree of risk to adult desert tortoise and possibly sub-adults above ground, simply because cattle would likely try to avoid stepping on what essentially would appear to them to be a rock (Boarman 2002).

It is expected that the frequency, cover, and productivity of key species such as bush muhly, black grama, and big galleta, all of which are food plants for tortoise, would increase at a more rapid rate compared to the No Action alternative because seasonal rest would provide more opportunity for the plants to grow, set seed, and reproduce.

In years of abundant ephemeral bloom wildlife like livestock take advantage of the plentiful nutritious ephemeral forage. Livestock use of these plants is not allowed to exceed 50% and typically use is much less because of the great quantity of available ephemeral forage. In desert tortoise habitat ephemeral grazing permits would not be authorized unless the pasture reaches at least 280 lbs/acre of ephemeral forage. This reduces the chance of ephemeral forage competition between livestock and desert tortoise. Once the ephemeral plants dry up and become unpalatable livestock are removed. If cattle are not removed in time they would switch to perennial plants causing additional grazing pressure in desert tortoise habitat.

From Alternative 2 No Action

Impacts from the No Action alternative to desert tortoise are similar to the Proposed Action except recovery of black grama and bush muhly, important forage plants for tortoise, may occur more slowly under this alternative as no seasonal rest would be provided.

Effects to desert tortoise from ephemeral grazing would be the same as discussed in 3.3.4.1, Proposed Action.

From Alternative 3 No Grazing

Under the No Grazing alternative there would be no forage competition between desert tortoise and livestock. In the absence of livestock grazing recovery of black grama and bush muhly is expected to occur more rapidly than under either the Proposed Action or No Action alternatives.

3.3.5 Vegetation

The Big Sandy Valley area is unique mix of both Mohave – Sonoran Desert vegetative plant communities. The dominant Ecological Site is Clay Loam Upland 10 – 13" Precipitation Zone. The grazing lands within the allotment consist of a desert shrub plant community. Plants characteristic to this rangeland community include juniper, paloverde, ocotillo, Mohave thorn, snakeweed, flat-top buckwheat, false mesquite, catclaw acacia, black grama, big galleta, three-awn, banana yucca, and a number of cactus species.

3.3.5.1 Environmental Consequences to Vegetation

From Alternative 1 Proposed Action

It is expected that the frequency, cover, and productivity of key species such as bush muhly, black grama, and big galleta, all palatable plants to livestock, would increase at a more rapid rate compared to the No Action alternative. Seasonal rest under the Proposed Action would provide more opportunity for the plants to grow, set seed, and reproduce. Seasonal rest may increase perennial plant cover, key species vigor, and aid in seedling establishment. By allowing important forage plants to grow unhindered during the period most favorable for their growth, they are enabled to produce a greater quantity of seed and the same is true for plants that reproduce vegetatively (Stoddart, Smith and Box, 1975). It is expected that the Desired Plant Community (DPC) objectives (Appendix A) would be maintained or reached under this alternative at all key areas.

From Alternative 2 No Action

The frequency, cover, and productivity of key species such as bush muhly, black grama, and big galleta, all palatable plants to livestock, would continue to increase but at a slower rate compared to the No Action alternative. The rate may be slower under this alternative as the plants do not get a break from livestock grazing. Seasonal rest under the Proposed Action would provide more opportunity for the plants to grow, set seed, and reproduce. Periods of rest allow for the establishment of seedlings, if a seedling is grazed more than twice in the first year, it is lost for future production (Banister 1991). It is expected that the DPC objectives (Appendix A) would be maintained or reached (at a slower rate) under this alternative at all key areas.

From Alternative 3 No Grazing

Impacts under the No Grazing alternative would be similar to the Proposed Action. Depending upon the timing and amount of rainfall, recovery would be more rapid under the No Grazing alternative as the key species of black grama, bush muhly, big galleta and other key species would not be grazed by livestock and therefore be able to fully complete their life cycles of full growth, setting seed, and establishment most every year. The DPC objectives (Appendix A) would be maintained or reached under this alternative at all key areas under normal environmental conditions.

3.3.6 Wildlife (Including Sensitive Species and Migratory Birds)

The Little Cane allotment provides habitat for various wildlife species common to the Mohave-Sonoran Desert Scrub Mix plant communities. Big game species include desert mule deer, javelina and mountain lion. Small game and fur-bearing species include the desert cottontail, striped skunk, and bobcat. Upland game bird species include the Gambel's quail, white-winged dove and mourning dove. Typical non-game species that occur on the allotment are the western diamondback rattlesnake, collared lizard, coyote, black-tailed jackrabbit, cactus mouse, and the white-throated woodrat.

Migratory Birds - Numerous migratory birds nest and forage on the allotment. Migratory birds found on the allotment include the curved-billed thrasher, cactus wren, canyon towhee, great horned owl, red tailed hawk, golden eagle, screech owl, and black-throated sparrow. There is no nesting habitat for the golden eagle on the allotment.

BLM Sensitive Species

The allotment provides nesting and foraging habitat for the gilded flicker and western burrowing owl. The golden eagle and American peregrine falcon may forage on this allotment but there is no nesting substrate (trees or cliffs) for these two species present on the allotment. The upland areas provide foraging habitat for bats however there are no known bat roosts located on the allotment. Roosting and/or foraging habitat for the California leaf-nosed bat, cave myotis, spotted bat and the Townsend's big-eared bat may occur on the allotment.

3.3.6.1 Environmental Consequences to Wildlife (Including Sensitive Species and Migratory Birds)

From Alternative 1 Proposed Action

Under the Proposed Action perennial plant cover and the frequency of key species is expected to increase. This in turn may provide improved habitat conditions for many species of wildlife including sensitive species and migratory birds. Increased cover and plant productivity may indirectly affect the productivity of insects and increase seed production. Seeds and insects are food to many species of wildlife, migratory birds, and bats.

Golden Eagle and Peregrine Falcon - Livestock grazing would not affect the nesting locations of these two species as their nests are found on inaccessible cliff faces and livestock would not be present during the nesting season. These species forage over large areas and livestock grazing in unlikely to affect the amount of available prey (rabbits and birds) of these species.

From Alternative 2 No Action

Impacts of the No Action alternative to wildlife, sensitive species, and migratory birds are similar to those described under Proposed Action. Perennial plant cover in general, and the cover and frequency of key species are expected to be maintained or increased. It is expected that this would happen over a longer period of time as seasonal rest of palatable plant species would not take place; therefore recovery of wildlife habitat under the No Action alternative may-occur at a slower rate than recovery of wildlife habitat under the Proposed Action.

From Alternative 3 No Grazing

Impacts of the No Action alternative to wildlife, sensitive species, and migratory birds are similar to those described under Proposed Action. Wildlife habitat would be maintained and recovery of wildlife habitat areas not meeting DPC objectives is expected to occur at a more rapid rate than under either the Proposed Action or No Action alternatives as in the absence of livestock grazing palatable plants will be more likely to fully grow, set seed, and establish new plants.

3.4 Cumulative Effects

Cumulative impacts are those impacts resulting from the incremental effect of an action when added to other past, present, or reasonably foreseeable actions regardless of what agency or person undertakes such other actions (40 CFR 1508.7). Cumulative impacts were analyzed in the Kingman RMP/Final EIS (USDI 1995) to which this analysis is tiered. All resource values addressed in Chapter 3 have been evaluated for cumulative effects. If there is no net effect to a particular resource from an action, then there is no potential for cumulative effects. The action alternatives encompass a 10 year time period; therefore, that timeframe was selected for analysis. For cumulative effects analysis, the geographic scope of the proposed grazing permit renewals encompasses the acres that comprise the Little Cane Allotments and surrounding allotments.

3.4.1 Past and Present Actions

Past or ongoing actions that affect the same components of the environment as the action alternatives include: recreation use, vegetative and wildlife habitat improvements projects, invasive, non-native species control efforts, wildland fire, and fire management activities to reduce the threat and impact of wildfire (e.g., fuels reduction projects).

Guidance issued by the Council on Environmental Quality on June 24, 2005, points out that review of past actions is required only to the extent that this review informs agency decision-making regarding the alternatives. The guidance states, "agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions." This is because a description of the current state of the environment inherently includes the effects of past actions.

3.4.2 Reasonably Foreseeable Action Scenario

It is reasonable to expect that most of the past, present, and ongoing actions discussed above would persist and remain steady throughout the time frame considered in this analysis with relatively little change in intensity. These actions include continued grazing, potential minerals development, population growth in the area, and increasing recreational uses on BLM lands. Continuation of these activities in the future would result in a continuation of effects similar to those that have resulted from past activities.

In approximately 10 years, these allotments will again be reviewed and analyzed for consideration of permit renewal. Successful implementation of the proposed action would assist in meeting a wide range of resource objectives and help assure that long-term productivity and health of watershed and rangeland values would be maintained.

3.4.3 Analysis of Cumulative Effects

The Proposed Action is designed to make progress toward meeting Standard 3 for rangeland health, resulting in an incremental positive cumulative effect for the area. Livestock grazing in the region has evolved and changed considerably since it began in the 1870s, and has influenced the present day condition of the resources in the allotments. Given the past experiences with livestock impacts on resources on public lands, management of livestock grazing is an important tool in ensuring the protection of public land resources. The proposed action would ensure the improvement of upland vegetative communities throughout the allotment and result in beneficial effects for all resources present within the allotment.

Under the proposed action KFO would continue to monitor the allotments for the presence of invasive weeds. Increased off-highway vehicle (OHV) use could affect soil and vegetative communities through ground disturbance and may have detrimental effects to natural plant communities, which may lead to soil erosion, particularly if off-trail use occurs.

Wildfires are common in northern Arizona and have the potential to convert native range to non-native species. Upland areas may be susceptible to erosion following wildfire in a watershed which could lead to proliferation of invasive weeds in these areas. Fire Emergency Stabilization and Rehabilitation efforts would be undertaken to help prevent the conversion of native range to non-native species. Emergency Stabilization and Rehabilitation efforts may vary in degrees of success, but when successful should help control the spread of invasive, annual species.

Rangeland and livestock ecosystems are complex, with numerous interactions among the system's living and non-living components. Consequently, the effects of a changing climate will have direct and indirect impacts at varying spatial and temporal scales. Climatic changes such as increased atmospheric concentration of CO2, changes in temperature, and changes in precipitation patterns have the potential to affect rangeland ecosystems in the following ways: 1) changes in decomposition rates; 2) changes in aboveground net primary production; 3) shifts in grassland species; 4) changes in evapotranspiration and runoff; and 5) changes in forage quality (Ojima et al. 1991; Breymeyer et al. 1996; IPCC 1996, IPCC 2007). The effects that these changes may have on livestock grazing in the allotment as well as the contribution that such grazing may have to climate change are currently unknown.

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Acronyms and Abbreviations

Arizona S & Gs	Arizona Standards and Guidelines
AU	Animal Unit
AUM	Animal Unit Month
BLM	Bureau of Land Management
DPC	Desired Plant Community
EA	Environmental Assessment
EIS	Environmental Impact Statement
FLPMA	Federal Land Policy and Management Act
KFO	Kingman Field Office
NEPA	National Environmental Policy Act
RMP	Resource Management Plan
TGA	Taylor Grazing Act

6. APPENDICES

Appendix A – An Evaluation of Standards for Rangeland Health for the Little Cane Evaluation Area May 2014

An Evaluation of

Standards for Rangeland

Health for the Little Cane Evaluation Area

May 2014

INTRODUCTION

The Kingman Field Office (KFO) has completed an evaluation for the Little Cane area according to the three Arizona Standards for Rangeland Health established by BLM-AZ IM-99-012. Let us look at the three Arizona Standards for Rangeland Health:

⇒ Standard 1, Upland Health - *Upland soils exhibit infiltration, permeability, and erosion rates that are appropriate to soil type, climate and landform (Ecological site).*

⇒ Standard 2, Riparian-Wetland Sites - *Riparian-wetland areas are in proper functioning condition*

⇒ Standard 3, Desired Resource Conditions - *Productive and diverse upland and riparian-wetland plant communities of native species exist and are maintained*.

These are the determinations that must be made when evaluating the health of Arizona BLM public land:

- Are plants as diverse and abundant as they should be?
- Is the soil protected from erosion?
- Are the riparian areas functioning as they should?

These are some of the questions that are answered when the BLM evaluates rangeland health. They are important questions to answer because the health of the rangelands is essential for the continued use and enjoyment of these public rangelands.

The purpose of this evaluation is to determine if Rangeland Health Standards are being met within the evaluation area. This evaluation is completed in accordance with the BLM Washington Office Instruction Memorandum 2009-007. The grazing allotment is mentioned throughout the evaluation only as a method of distinguishing the key areas.

EVALUATION AREA

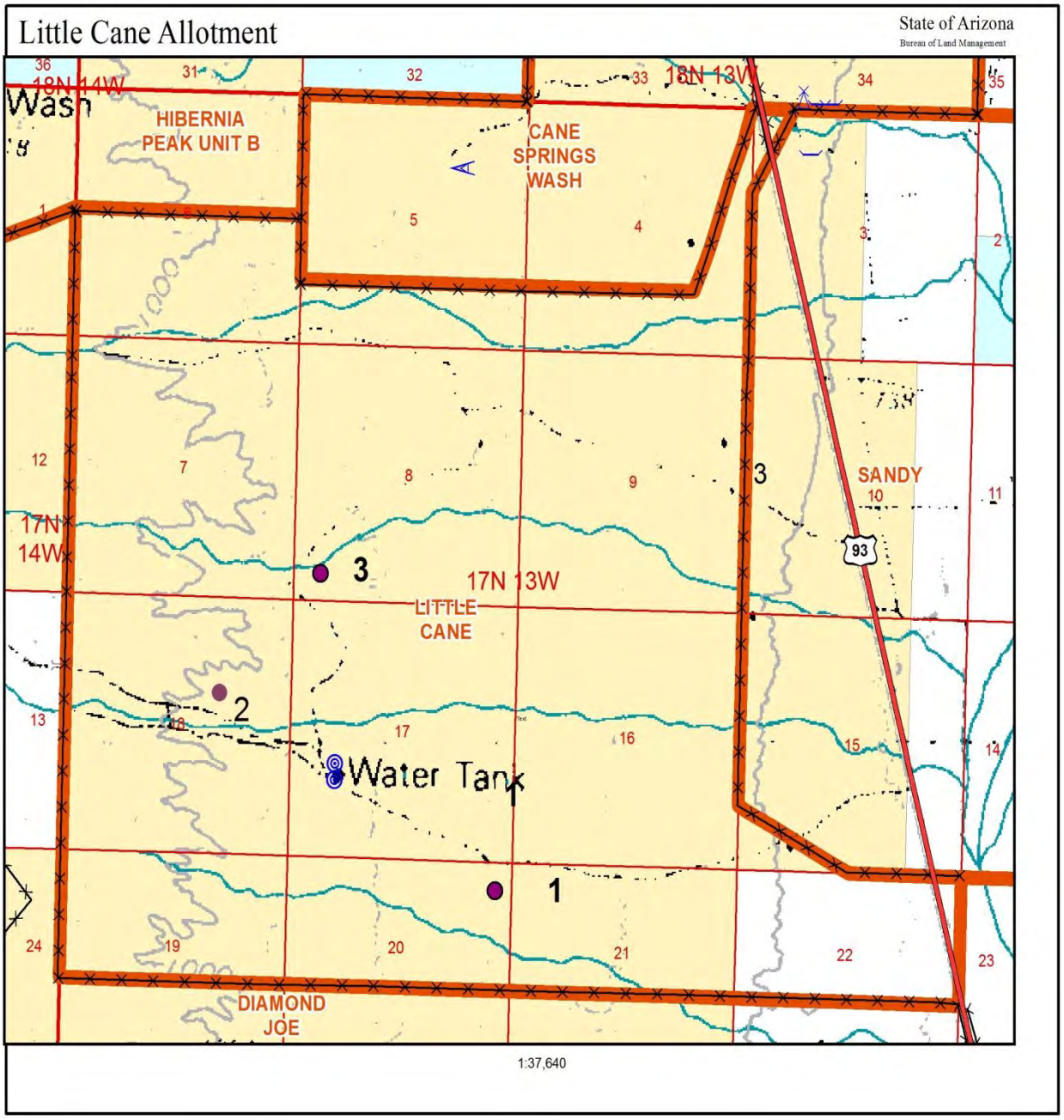
The Little Cane Evaluation Area consists of 5,862 acres in the northwest corner of Arizona, south of the Colorado River. This area includes approximately 5,542 acres of public land. It is located on the east slope of the Hualapai Mountains in the Big Sandy River valley in a transition zone between the Mohave and Sonoran Deserts. Vegetation is comprised of a mix of Mohave and Sonoran Desert Scrub with desert grassland influences. Typical species include Joshua tree, paloverde, creosotebush, white bursage, Mormon tea, prickly pear cactus, cholla, black grama and big galleta grass. Average yearly precipitation ranges from 6-9 inches in the lowest elevations (~2,300 ft.) to 10-13 inches in the highest (~3,600 ft.). Most precipitation is received in the winter and a lesser amount in erratic summer monsoons.

Key Areas

Several methods are used to collect land health information but first, “key areas” must be chosen. Key areas are chosen to reflect the effect of grazing on major ecological sites within the evaluation area. There are three key areas within the evaluation area. Key Areas 1 and two 2 were used in this evaluation to monitor changes in vegetation. Each key area is comprised of many different perennial plant species and although data is collected for each species, “key” species are chosen and given closer scrutiny. Key species are selected as they are important palatable species within ecological sites that serve as an indicator of change in the plant community.

By monitoring the long-term change in abundance of these key species, conclusions can usually be drawn about the health and maintenance of not only these plants, but also the other perennial plants and the overall health of the evaluation area. Therefore, the vegetative component of this evaluation (perennial plant frequency and composition), other than perennial plant cover, will be focused on key species at each key area. (Note: perennial cover data and perennial cover objectives include all perennial plants at the key area.)

Fig



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METHODS USED FOR DETERMINING STANDARDS FOR RANGELAND HEALTH

Standard 1 Upland Health: Upland soils exhibit infiltration, permeability, and erosion rates that are appropriate to soil type, climate and landform (Ecological site).

Upland health is assessed by an interdisciplinary (ID) team using the 17 indicators from

Technical Reference 1734-6 Interpreting indicators of Rangeland Health. This qualitative method uses 17 indicators to evaluate how well ecological processes are functioning based on the three attributes of soil/site stability, hydrologic function, and biotic integrity. Each indicator is evaluated by the ID team and compared to what is expected for the site. Expectations for the site are based on monitoring data (shown in Standard 3 below), NRCS Ecological Site Descriptions, NRCS Reference Sheets, weather data, and professional judgment. Indicators are rated according to their departure from the expected and when combined give the ID team an idea of how the three ecological processes are functioning and whether the site is meeting Standard 1.

If one or more of the attributes (soil/site stability, hydrologic function, and biotic integrity) exhibit a reduced functionality then it may be determined that Standard 1 is not being met. A "preponderance of evidence" approach was used to determine the appropriate departure category for each attribute and helped to determine if Standard 1 is met. However, if the departure from expected of one indicator is of particular concern this could justify a determination that the site is not meeting Standard 1. For example, if the structural/functional group indicator was rated at moderate to extreme because the grass component is greatly reduced or absent, this could justify a determination that the site is not meeting Standard 1.

Each indicator is evaluated by the ID team and compared to what is expected for the site. Expectations for the site are based on past monitoring data, NRCS Ecological Site Descriptions, weather data, and professional judgment. Indicators are rated according to their departure from the expected and when combined give the ID team an idea of how the three ecological processes are functioning and whether the site is meeting Standard 1.

Standard 2 Riparian-Wetland Sites: Riparian-wetland areas are in proper functioning condition.

Proper functioning condition was assessed by an interdisciplinary team following the guidance in Technical Reference 1737-15 and 1737-16 Riparian Area Management. This qualitative method uses a series of indicators to determine if a riparian habitat and its ecological functions are intact and are capable of being sustained through drought, flooding, and current land uses.

Standard 3 Desired Resource Conditions: Productive and diverse upland and riparian-wetland plant communities of native species exist and are maintained.

Objectives for Standard 3 were developed by an interdisciplinary team for each key area. The team used NRCS Ecological Site Descriptions, vegetation measures for composition, cover, and frequency, and professional judgment to describe site specific plant community objectives. Current monitoring data was compared to the objectives for each study to determine if an area was meeting Standard 3. Attainment of the site specific objectives would ensure that Standard 3 is met. In order to meet Standard 3 all of the following must be obtained:

a.) Objectives for site-specific plant composition, cover, and frequency are obtained.
b.) The frequency data indicates: Trend is static or upward.

At each key area, cover, frequency (pace frequency), and composition (dry weight rank) were measured following guidance in BLM Technical Reference 1734-4. This information is gathered

at 200 points along four transect lines using a 40 cm x 40 cm frame. The point cover data provides information about soil exposure, pace frequency provides information about how frequently a particular species occurs, and dry weight rank provides information about the composition of a particular species relative to other species at the key area.

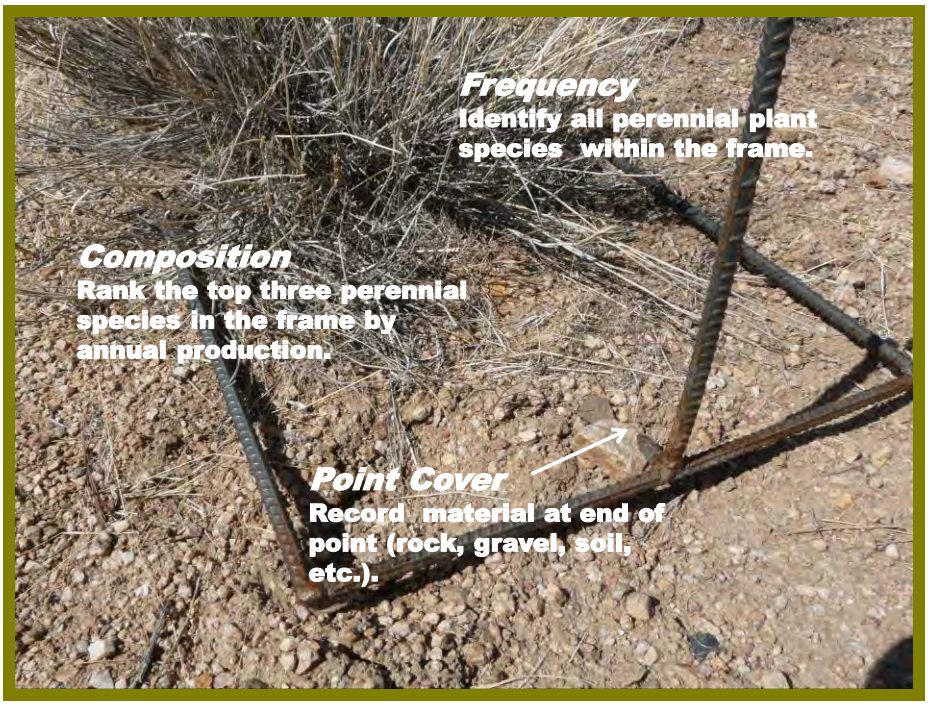

Figure 2. Frame for Frequency and Dry Weight Rank Methods.

Apparent Trend

Apparent trend is a qualitative single point in time evaluation of a site, based on plant composition, abundance of seedlings and young plants, amount of plant litter, plant vigor, and the condition of the soil surface. Apparent trend was evaluated on each site by an interdisciplinary team using the Natural Resource Conservation Service Apparent Trend worksheet NE-ECS-12 from Nebraska. Apparent trend can be rated as "towards" site potential, "away" from site potential or, trend is not apparent.

OBJECTIVES, DATA SUMMARY, AND ANALYSIS

The data analysis will look at each key area and how it rated for Standard 1 and Standard 3 of the Standards for Rangeland Health. There are no riparian areas on the allotment therefore Standard 2 was not applicable.

Key Area # 1 Little Cane
Ecological Site – Sandy Loam Upland Fine, 10-13" p.z., (precipitation zone), RO30XC321AZ.

Table 1. Little Cane Key Area 1 Objectives and Data Summary.

Species	Current Composition	Composition Objective	Current Frequency	Frequency Objective
Big galleta	47%	47%	45%	45%
Black grama	0%	3%	0%	3%
Short-leaf baccharis	6%	10%	9%	14%
Deer vetch	1%	3%	3%	7%
Three-awn	1%	3%	4%	4%
Perennial Plant Cover Objective: 22% Current Perennial Cover: 15%				

Apparent Trend

Rating: Moving toward site potential.

Rationale: Vigor of desirable species is high. Quite a few small galleta grass plants and rhizomes, black grama stolons, i.e. reproduction, are not very evident. Snakeweed is present in small amounts and has not increased over time. Red brome is present underneath shrubs.

Conclusion –Key Area # 1

Standard 1: Meeting

Rationale: Thirteen of 16 indicators were rated as a "none to slight departure" from expected. A rating of "slight to moderate departure" from expected was given to two of the soil and hydrological indicators as pedestalling was evident on some plants and water flow patterns were slightly to moderately higher than expected. Since 1985 bare ground has decreased from 73% to 47% in 2014. Between 1986 and 1988, bare ground ranged from 30-35%. In 2014 bare ground showed an increase to 47%, still less than the original 73%. Perennial vegetative cover was 4% in 1985 and has increased as high as 36% in 1986 and is currently at 15%. A decline in perennial plant cover from 36% in 1986 to 16% in 2014 may be contributing to the increase in bare ground since that time.

Standard 3: Meeting

Rationale: The trend of big galleta, black grama, and deer vetch is static. The frequency of big galleta, black grama, and deer vetch has not significantly changed since 1985. Short-leaf

baccharis trend is down. Short-leaf baccharis was at 17% in 1986 and declined to 9% in 2014. There has been an increase of frequency of three-awn from 1% in 1987 to 4 % in 2014. Perennial plant cover has increased from 4% in 1985 to16% in 2014. The composition of galleta grass is above the ecological site guide levels. Bush muhly, black grama and three-awn are below the site guide levels.

Key Area # 2 Little Cane

Ecological Site – Loamy Upland, 10-13" p.z., Limy (precipitation zone), RO40XA130AZ

Table 2. Little Cane Key Area 2 Objectives and Data Summary.

Species	Current Composition	Composition Objective	Current Frequency	Frequency Objective
Big galleta	4%	7%	8%	13%
Black grama	9%	12%	15%	21%
Three-awn	7%	7%	3%	3%
Bush muhly	T**	3%	2%	5%
Other/misc per.grs*	2%	5%	3%	6%
Calliandra	23%	23%	34%	34%
Current perennial plant cover: 23%				
Perennial plant cover objective: 23%				

*other/miscellaneous perennial grass refers to slim tridens, desert needlegrass, and other species listed on the site guide.
**T=trace amount found at the key area.

The current plant community was compared to the ecological site description. It was found that perennial grass composition in the description was 60% of the plant community and the current composition is at 29% which is significantly lower than the description. In the description, shrub composition is at 20% and the current composition is 56%. Therefore, an increase in perennial grass composition is a desired objective for this key area.

Apparent Trend

Rating: Trend not apparent.

Rationale: There is a slight presence of invasive species and desired key species were abundant.

There were quite a few young plants and plant vigor was high. Erosion was slightly higher than expected.

Conclusion –Key Area # 2

Standard 1: Meeting

Rationale: Nine of 16 indicators were rated as a "none to slight departure" from expected. A rating of "slight to moderate departure" from expected was given to six of the soil and hydrological indicators as pedestalling was evident on some plants and water flow patterns were higher than expected. There were some gullies forming on this site which was a moderate departure from expected. Bare ground was rated as a "none-to-slight departure" from expected. It has decreased from a high of 56% in 1985 to 24% in 2014. An increase in perennial plant cover from 1% in 1985 to 22% in 2014 may be contributing to the decrease in bare ground.

Standard 3: Not meeting but making significant progress

Rationale: The trend for big galleta, black grama, and bush muhly is static. There has been an increase of frequency of calliandra from 16% in 1985 to 35% in 2014. Perennial plant cover has increased from 1% in 1985 to 24% in 2014. The composition of big galleta is above the ecological site guide levels, while three-awn and slim tridens are within the levels, bush muhly and black grama are below the ESD levels. This site is making progress towards the standards, palatable plants have good vigor, however there is soil movement on the site greater than expected, and bush muhly and black grama are way below ESD ranges for these species.

Key Area # 3 Little Cane
This key area has been abandoned as it is not comprised of palatable plant species that can be used to determine if it is meeting standards.

NEXT STEPS

BLM will collaborate with stake holders, interested publics and other agencies to:

- ⇒ Determine the causal factors for areas not meeting Standards.
- ⇒ Identify and analyze possible corrective actions under the National Environmental Policy Act.
- ⇒ Take the appropriate corrective action to ensure that the Little Cane Evaluation Area makes significant progress towards meeting Arizona's Standards for Rangeland Health. In terms of evaluating the standards /objectives it is expected that they would be met or making progress towards meeting within ten years of implementing management changes.