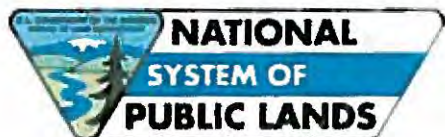


---

United States Department of the Interior

Bureau of Land Management

Safford Field Office Safford, AZ



---

**FINAL**

**Land Health Evaluation Report**

**Little Ortega Lake Allotment**

**(No. 06028)**

July 2018



## Contents

Contents .....	2
List of Acronyms .....	5
1. Introduction .....	6
1.1 Consultation, Cooperation and Coordination .....	6
1.2 Definition of Arizona Standards for Rangeland Health and Guidelines for Grazing Administration .....	6
2. Allotment Profile and General Description of Key Area .....	8
2.1 Location .....	8
2.2 Physical Description .....	10
2.2.1 Surface Land Ownership .....	10
2.2.2 Precipitation .....	10
2.2.3 Temperatures .....	11
2.2.4 Soils .....	12
2.2.5 Watershed .....	15
2.2.6 Range Improvements .....	16
2.3 Biological Resources .....	18
2.3.1 Major Land Resource Areas .....	18
2.3.2 Ecological Sites within the Little Ortega Lake Allotment .....	18
2.3.3 Wildlife Resources .....	21
2.4 Special Management Areas .....	23
2.5 Recreation Resources .....	23
2.6 Cultural Resources .....	23
3. Grazing Management .....	24
3.1 Grazing History .....	24
3.2 Terms and Conditions for Permitted Use .....	24
4. Objectives .....	26
4.1 Land Use Plan Management Objectives .....	26
4.2 Allotment-Specific Objectives .....	26
4.2.1 Land Health Standards .....	26
4.2.2 Key Area Objectives .....	27

5. Plant List ..... 32

6. Rangeland Inventory and Monitoring Methodology..... 34

    6.1 Monitoring Protocols..... 34

        6.1.1 Indicators of Rangeland Health ..... 34

7. Management Evaluation and Summary of Studies Data..... 37

    7.1 Actual Use ..... 37

    7.2 Rangeland Health Assessments..... 38

8. Determinations of Land Health Standards ..... 43

9. Recommended Management Actions..... 45

    9.1 Terms and Conditions ..... 45

10. List of Preparers ..... 47

11. Consultation ..... 47

12. Authorized Officer Concurrence..... 48

References..... 49

Appendix A. Special Status Species ..... 51

Appendix B. USFS TEAMS Monitoring Data 2016 ..... 54

Appendix C: Interested Public..... 56

**Figures**

Figure 1 Little Ortega Lake Vicinity ..... 9

Figure 2 Average Annual Precipitation from PRISM Time Series Data 2007-2016 ..... 11

Figure 3 Soil Complexes on Little Ortega Lake Allotment ..... 13

Figure 4 Enlarged View of Soil Complexes on Little Ortega Lake Allotment ..... 14

Figure 5 Little Ortega Lake Range Improvement..... 17

Figure 6 Little Ortega Lake Allotment Ecological Sites ..... 19

Figure 7 Little Ortega Lake Allotment Ecological Sites and Key Area ..... 28

Figure 8 LOL-1 looking South in May 2016 ..... 38

**Tables**

Table 1 Little Ortega Lake Allotment Landownership ..... 10

Table 2 Temperatures in Degrees Fahrenheit on Little Ortega Lake Allotment ..... 11

Table 3 Soil Composition within the Little Ortega Lake Allotment ..... 12

Table 4 Ecological Sites Located within Little Ortega Lake Allotment..... 18

Table 5 Mandatory Terms and Conditions of the Little Ortega Lake Allotment Lease ..... 24

Table 6 Location of the Little Ortega Lake Allotment Key Area..... 27

Table 7 Plant Species ..... 33

Table 8 Actual Use on Little Ortega Lake Allotment..... 37

Table 9 Summary of Range Health Assessment Ratings..... 38

## List of Acronyms

ADWR	Arizona Department of Water Resources
AGFD	Arizona Game and Fish Department
AUM	animal unit month
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
DPC	desired plant community
ESD	ecological site description
GPS	global positioning system
HCPC	historical climax plant communities
H.R.	House of Representatives
HUC	hydrologic unit code
ID	interdisciplinary
IPaC	Information for Planning and Conservation system
LHE	land health evaluation
LUP	land use plan
LPI	line point intercept
MLRA	Major Land Resource Area
NAD	North American Datum
NRCS	National Resources Conservation Service
P.L.	Public Law
p.z.	precipitation zone
RAS	Rangeland Administration System
RMP	Resource Management Plan
RHA	Rangeland Health Assessment
spp.	Multiple species of the same genus
Stat	Statute
TEAMS	[USFS] Talent, Expertise, Agility, Mobility, and Simplicity Enterprise Unit
U.S.C.	United States Code
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
UTM	Universal Transverse Mercator

# 1. Introduction

The purpose of this Land Health Evaluation (LHE) report is to determine whether the Arizona standards for rangeland health are being achieved on the Little Ortega Lake Allotment, or if the standards are not being achieved, to determine if livestock are the causal factor for not achieving or making significant progress towards achieving land health standards. This evaluation is not a decision document but a stand-alone report that clearly records the analysis and interpretation of the available inventory and monitoring data.

The Secretary of the Interior approved the Bureau of Land Management (BLM) Arizona Standards for Rangeland Health and Guidelines for Grazing Administration (Arizona Standards and Guidelines) in April 1997. Signed by the Arizona BLM State Director, the Arizona Standards and Guidelines provide for full implementation of the standards and guidelines in Arizona BLM-administered land use plans (LUP). Standards and guidelines are implemented by the BLM portions of activity plans (including Allotment Management Plans) and through range improvement-related activities.

Land health standards are measurable and attainable goals for the desired condition of the biological resources and physical components/characteristics of desert ecosystems found within the allotment.

The LHE report ascertains:

1. If standards are being achieved, not achieved, and if significant progress is being made towards achievement of the land health.
2. Whether livestock grazing is a significant causal factor where it is determined that land health standards are not being achieved.

This report covers an evaluation period of ten years (2007-2016). This is a standard evaluation period that provides the BLM the ability to collect an adequate amount of information related to grazing use and environmental factors pertaining to the lease renewal process.

## 1.1 Consultation, Cooperation and Coordination

A letter to interested publics informing that the Little Ortega Lake Allotment was being considered for lease renewal was distributed via certified mail January 31, 2017. A list of the recipients are provided in Appendix C. Data on special status species was obtained from the U.S. Fish and Wildlife Service (USFWS) and the Arizona Game and Fish Department (AGFD).

## 1.2 Definition of Arizona Standards for Rangeland Health and Guidelines for Grazing Administration

The Arizona standards for rangeland health are expressions of levels of physical and biological condition or degree of function required for healthy, sustainable rangelands and defines minimum resource conditions that must be achieved and maintained. Determination of rangeland health is based upon conformance with these standards.

Guidelines for grazing administration consider the type and level of grazing use. Guidelines for grazing management are types of methods and practices determined to be appropriate to ensure the standards can be met or that significant progress can be made toward meeting the standards. Guidelines are tools that help managers and lessees achieve standards.

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 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 (Arizona Standards and Guidelines, 1997).

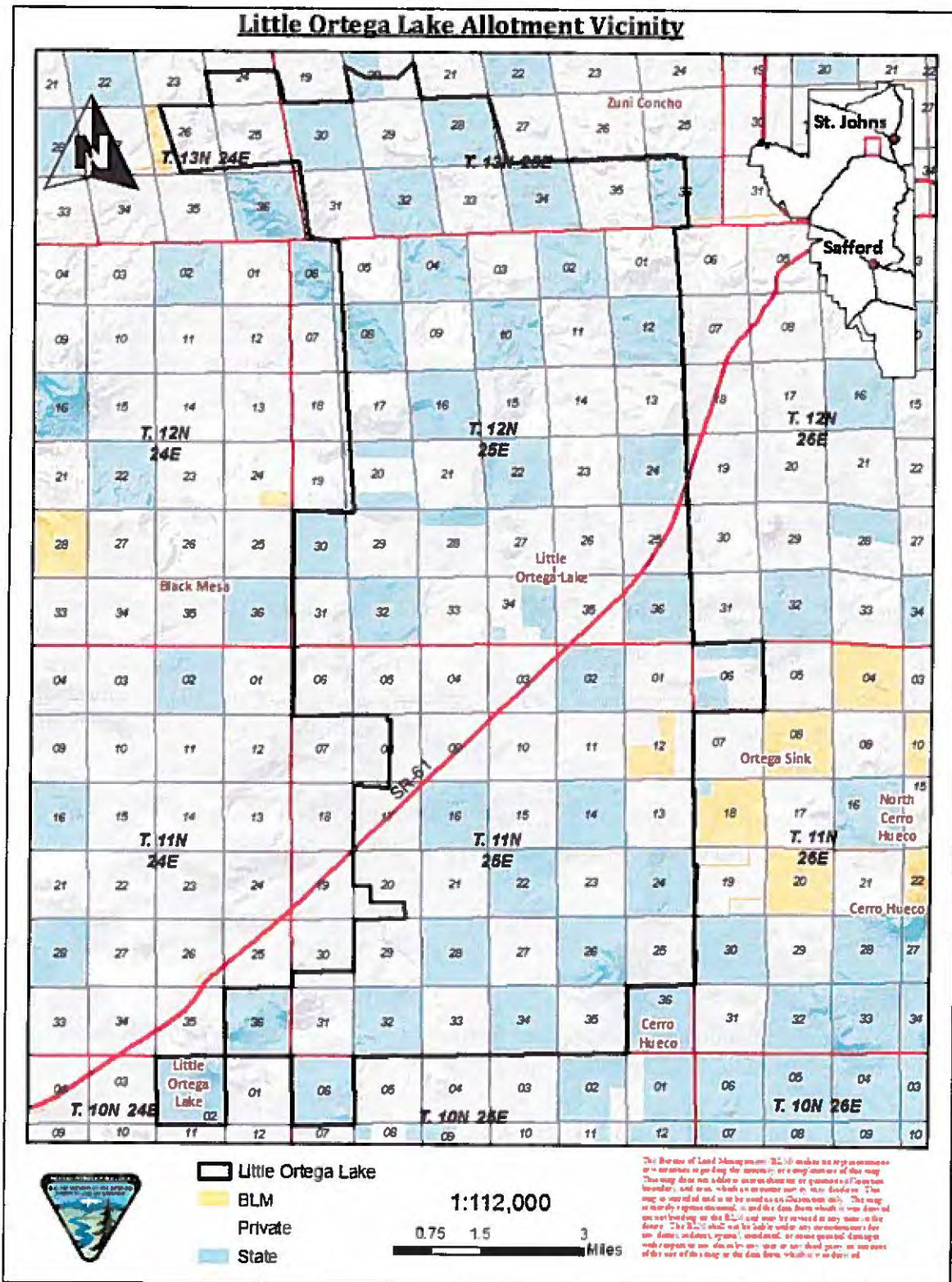
The Arizona Standards and Guidelines identify three standards regarding (1) upland sites, (2) riparian-wetland sites, and (3) desired resource conditions based on specific indicators, as discussed in *Section 6 Rangeland Inventory and Monitoring Methodology* of this document.

## **2. Allotment Profile and General Description of Key Area**

### **2.1 Location**

The Little Ortega Lake Allotment (No. 06028) is located in Apache County, Arizona, approximately one mile west of Concho, Arizona. State Route 61 dissects through the center of the allotment. The northern boundary borders the Zuni Concho Allotment. The western boundary borders the Black Mesa Allotment. The eastern boundary borders the Ortega Sink and Cerro Hueco Allotments. The southern boundary borders a mixture of private and State managed lands. (Figure 1).





Source: USDI-BLM 2017, ADOT 2016  
**Figure 1 Little Ortega Lake Vicinity**

## 2.2 Physical Description

A physical description of the Little Ortega Lake Allotment follows.

### 2.2.1 Surface Land Ownership

The Little Ortega Lake Allotment is comprised predominately of private property and Arizona State Trust lands. The BLM-administered portion of the allotment is 320 acres, or approximately 0.67 percent of the allotment area. Landownership apportionments are displayed in Table 1.

**Table 1 Little Ortega Lake Allotment Landownership**

Land Classification	Acres
BLM Acres	320
State Acres	23,000
Private Land Acres	24,466
<b>Total Acres</b>	<b>47,786</b>

Source: BLM Rangeland Administration System (RAS)

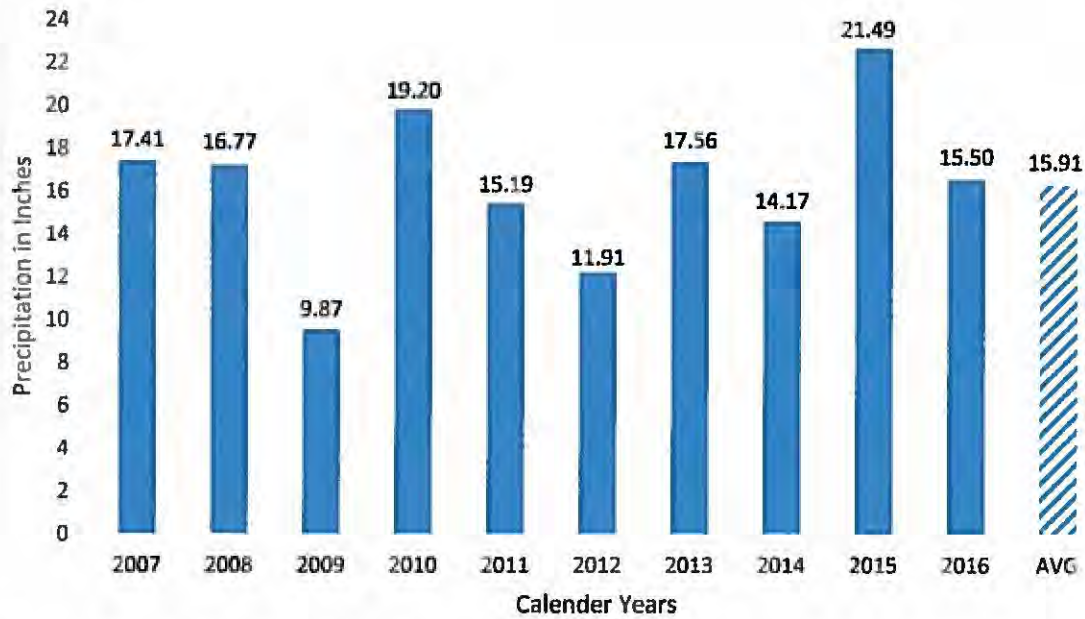
### 2.2.2 Precipitation

Average annual precipitation for the majority of the Little Ortega Lake Allotment ranges from 10-14 inches, with higher elevations receiving 14-18 inches. The average annual rainfall on the Little Ortega Lake Allotment is 15.91 inches (Figure 2). The data show that out of 10 years, half were below average and half were above average, with two years (2009 and 2012) being well below the average for this area. Approximately 50-60 percent of the precipitation occurs during July through September.

Precipitation data from PRISM climate datasets (PRISM, 2017) were utilized by selecting a point within a mile of the BLM-administered land within the Little Ortega Lake Allotment as follows:

- Latitude: 34.3708
- Longitude: -109.6230
- Elevation: 6,457 feet

Climatic data from this source is not collected from a single station, but is modeled using data collected from many stations and physiographic factors in the area.



**Figure 2 Average Annual Precipitation from PRISM Time Series Data 2007-2016**

**2.2.3 Temperatures**

The following Table 2 presents the minimum, maximum, and average temperature within the Little Ortega Lake Allotment between 2007 and 2016.

**Table 2 Temperatures in Degrees Fahrenheit on Little Ortega Lake Allotment**

Month	Minimum	Maximum	Average
January	19°F	46°F	32°F
February	23°F	51°F	37°F
March	28°F	60°F	44°F
April	33°F	66°F	49°F
May	40°F	73°F	56°F
June	50°F	86°F	68°F
July	57°F	85°F	71°F
August	56°F	83°F	69°F
September	49°F	79°F	64°F
October	37°F	69°F	53°F
November	28°F	58°F	43°F
December	21°F	46°F	34°F

Source: PRISM

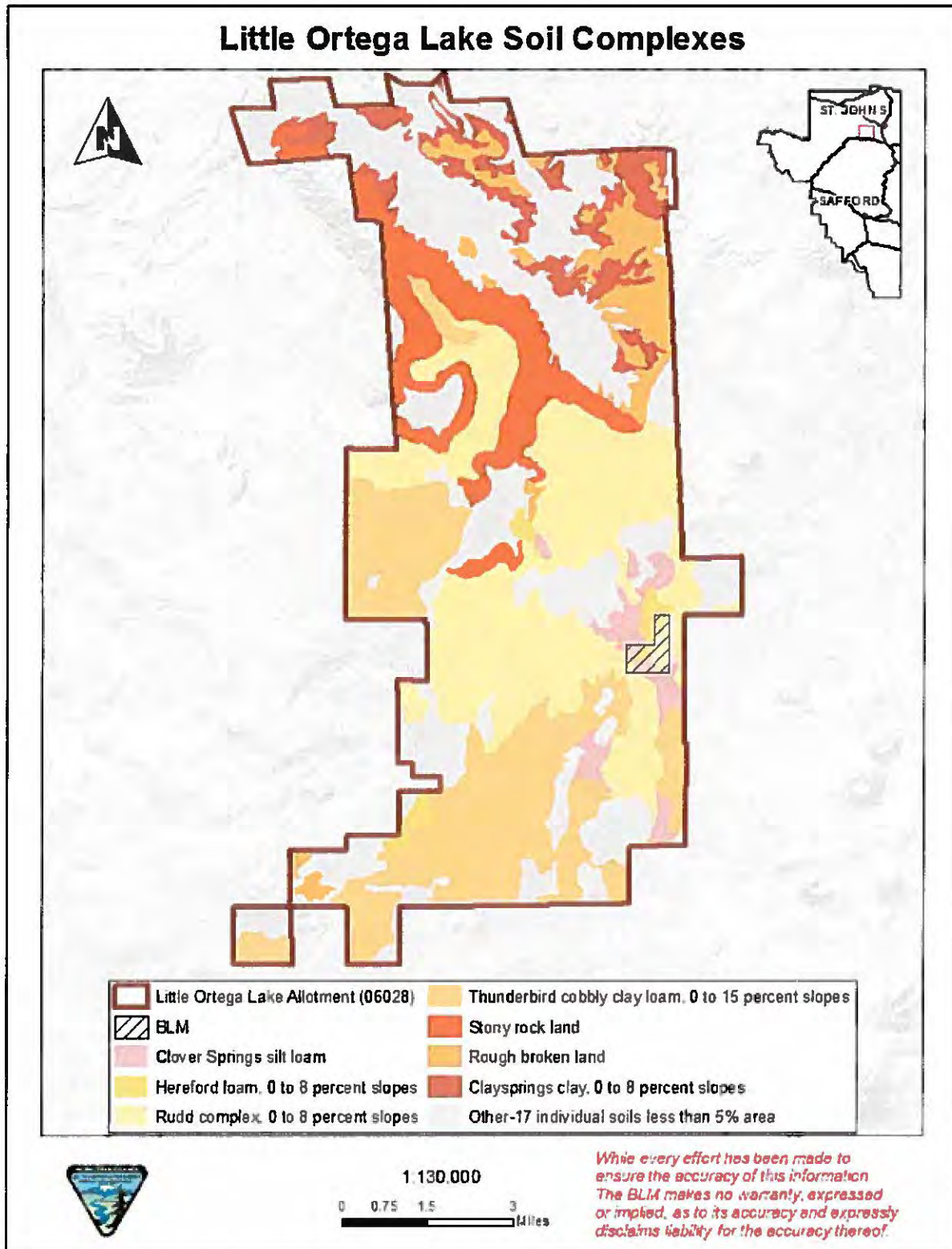
**2.2.4 Soils**

The soil composition on the Little Ortega Lake Allotment is varied as presented in Table 3 and Figures 3 and 4.

**Table 3 Soil Composition within the Little Ortega Lake Allotment**

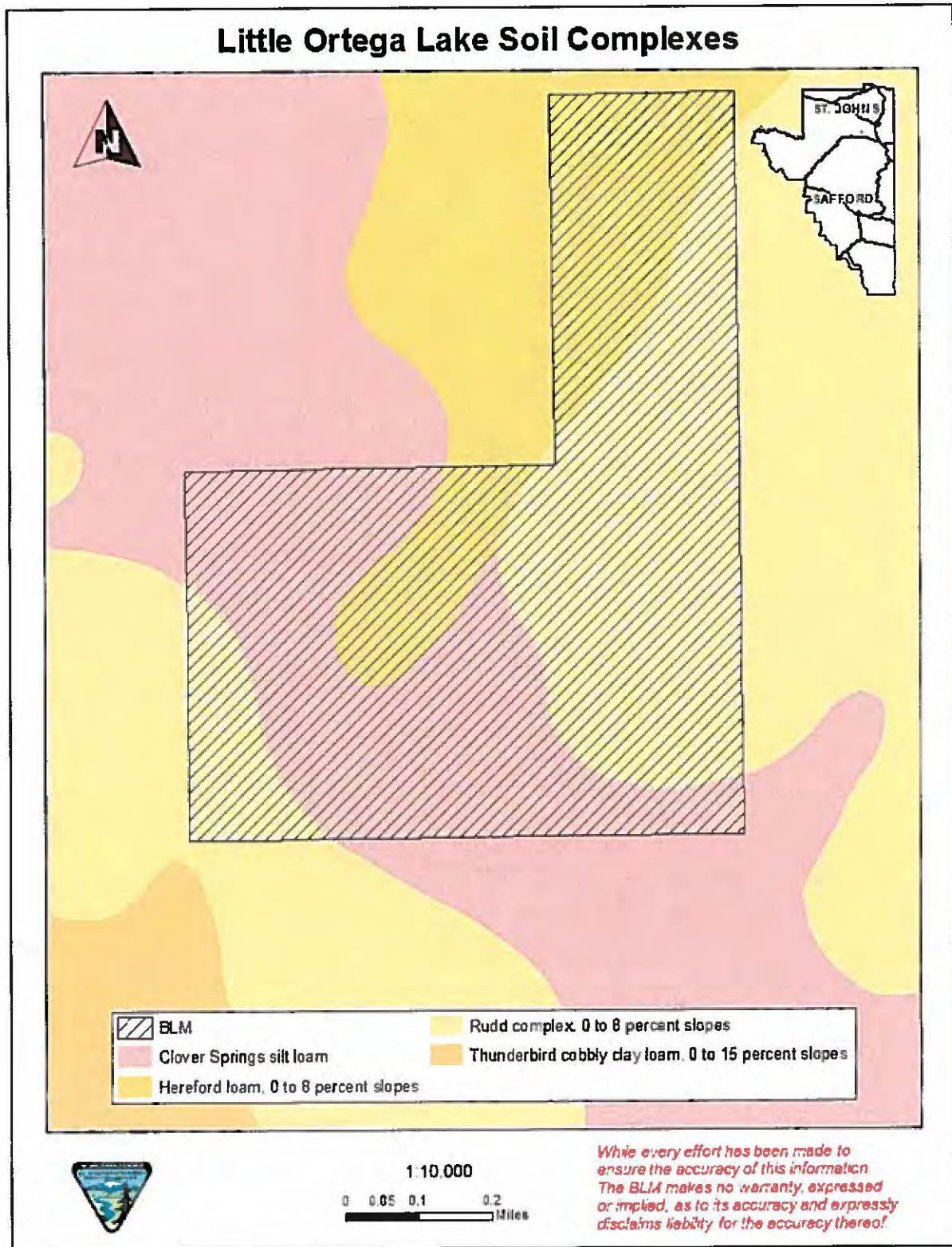
Soil Map Unit Name	Percent Area Total Allotment	Percent Area BLM Portions
Claysprings clay, 0 to 8 percent slopes	6%	0%
Clover Springs silt loam	3%	10%
Hereford loam, 0 to 8 percent slopes	1%	4%
Rough broken land	6%	0%
Rudd complex, 0 to 8 percent slopes	24%	86%
Stony rock land	10%	0%
Thunderbird cobbly clay loam, 0 to 15 percent slopes	21%	0%
Other – 17 individual soil types/complexes with less than 5 percent area each: - Bandera gravelly loam, 8 to 60 percent slopes - Clovis loamy sand, 0 to 8 percent slopes - Hubert gravelly loam, 0 to 8 percent slopes - Hubert gravelly loam, 2 to 15 percent slopes - Jocity sandy clay loam - Millett gravelly sandy loam, 8 to 30 percent slopes - Moenkopie loamy sand, 0 to 8 percent slopes - Moenkopie very rocky loamy sand, 0 to 30 percent slopes - Navajo clay - Sandstone rock land - Sheppard loamy sand, 0 to 8 percent slope - Springerville clay - Springerville cobbly clay, 0 to 8 percent slopes - Tours clay loam - Tours loam - Ziegler gravelly clay loam, 0 to 8 percent slopes - Ziegler gravelly clay loam, 8 to 60 percent slopes	29%	0%

Source: United States Department of Agriculture (USDA)-National Resources Conservation Service (NRCS) Web Soil Survey



Source: USDI-BLM 2017, USDA-NRCS 2015

**Figure 3 Soil Complexes on Little Ortega Lake Allotment**



Source: USDI-BLM 2017, USDA-NRCS 2015

**Figure 4 Enlarged View of Soil Complexes on Little Ortega Lake Allotment**

The following soil descriptions occur on BLM-administered lands within the Little Ortega Lake Allotment and will be carried forward in this LHE:

- Clover Springs silt loam
- Hereford loam, 0 to 8 percent slope
- Rudd complex, 0 to 8 percent slope

*Clover Springs silt loam, 0 to 8 percent slope* soil exist on flood plains and depressions. Elevations range from 6,800 to 8,000 feet. Soil depth ranges is more than 80 inches and is formed in alluvium derived from basalt, tuff and pyroclastic rock. Slopes are 0 to 5 percent. The mean annual precipitation is 16 to 24 inches and the mean annual air temperature is 43 to 46 degrees F. The frost free period is 80 to 90 days. This soil type is moderately well drained and has low run off with moderately rapid permeability.

*Hereford loam, 0 to 8 percent slope* soil are on alluvial fans and terraces. These soils formed in alluvium derived from basalt and tuff. Elevations range from 6,700 to 7,500 feet. The mean annual precipitation is 10 to 13 inches. The mean annual air temperature is 46 to 48 degrees F. The frost-free period is 100 to 120 days. This soil is well drained, has medium run off, and moderate slow to very slow permeability.

*Rudd complex, 0 to 8 percent slope* soil exist on plains. These soils formed in colluvium from weathered basalt. Elevations range from 6,000 to 7,500 feet. The mean annual precipitation is 11 to 13 inches. The mean annual air temperature is 48 to 52 degrees F. The frost-free period is 130 to 140 days. This soil is well drained, has low run off, and moderate permeability.

### **2.2.5 Watershed**

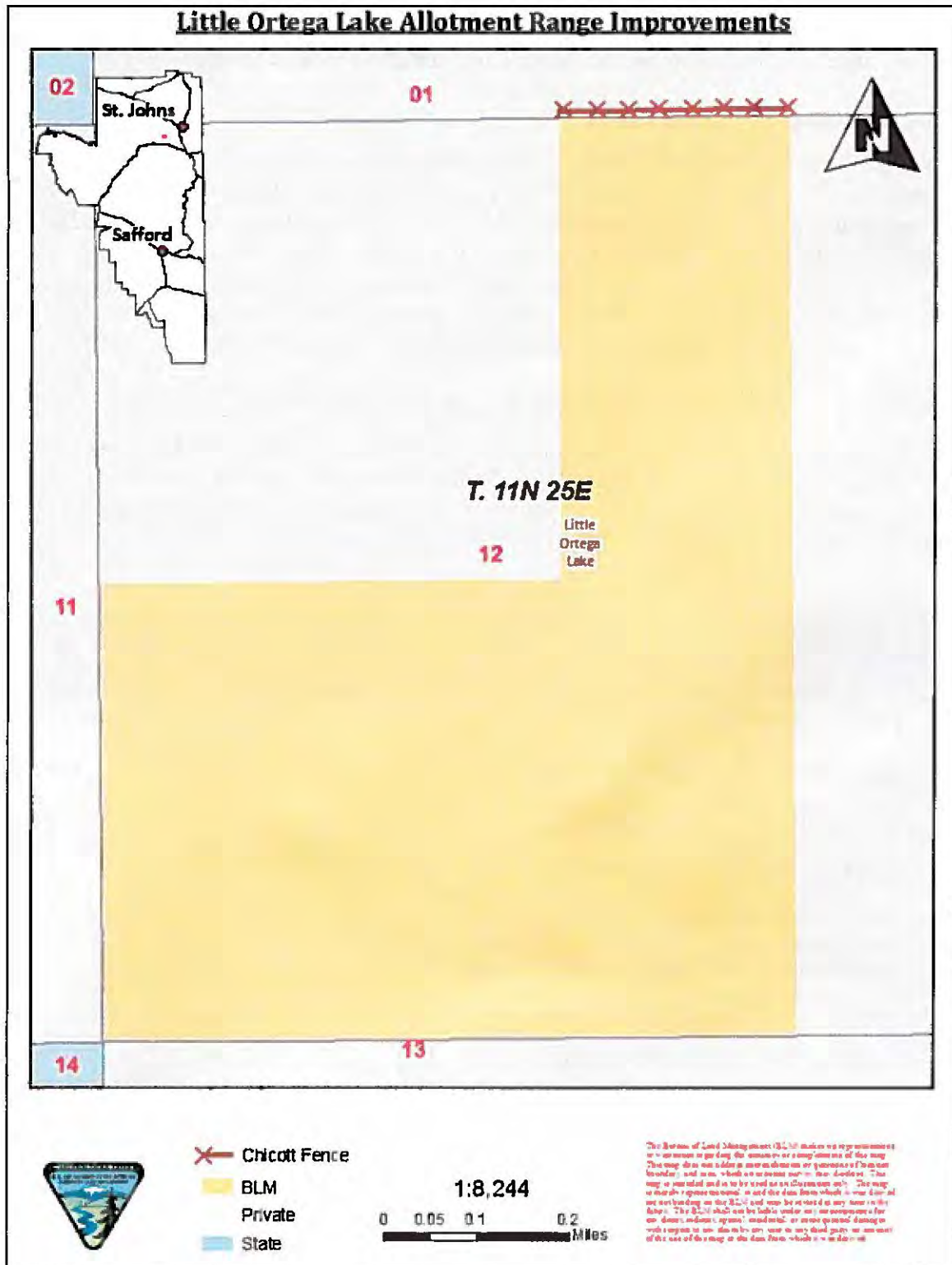
The BLM-administered portion of the Little Ortega Lake Allotment lies within the Oso Draw watershed (HUC-10 1502000204). This portion is drained by Mineral Creek, an intermittent stream that flows through the western part of the parcel, to Little Ortega Lake. Little Ortega Lake is approximately 250 acres in area and is located approximately one mile northwest of the BLM parcel and is within the Little Ortega Lake Allotment. The Oso Draw watershed drains into the Little Colorado River, an intermittent stream approximately 14 miles from the eastern most BLM section of the allotment. The Little Colorado River is one of two major tributaries in Arizona to the Colorado River and drains the Little Colorado Basin (HUC-6 150200). The Little Colorado Basin has a drainage area of 26,000 square miles extending into New Mexico.

The allotment lies entirely within the "Little Colorado River Plateau" Arizona Department of Water Resources (ADWR) Groundwater Basin, and is not within an ADWR Active Management Area. The groundwater basin consists of the following aquifers: unconsolidated alluvium from streams, volcanic bedrock (Lakeside-Pinetop Aquifer), and consolidated sedimentary aquifers (Bidahochi, C, D, N, Springerville, and White Mountain Aquifers). Approximately 55 acres of the BLM portion, along Mineral Creek, lie within a 100-year floodplain with a 1% chance of annual flooding, the remainder of the allotment lies within a FEMA Zone D: Undetermined but possible flood hazard floodplain. The BLM portion of the allotment has no water type range improvements or developed water sources. Water quality is monitored and listed by Arizona Department of Environmental Quality (ADEQ) for EPA 303(d) waterbody impairments under the federal Clean Water Act, and there are no impaired waters on this allotment.

### **2.2.6 Range Improvements**

The Little Ortega Lake Allotment consists primarily of private and State Trust lands. Only range improvements occurring on BLM were considered in this evaluation. Chilcott Fence is the only BLM range improvement within the Little Ortega Lake Allotment. Chilcott Fence is a quarter mile long and used to manage livestock in conjunction with fences located on private lands (not listed), see Figure 5 below. The fence runs east to west and is situated at the top of the northwest quarter of the northeast quarter of section 12. (Figure 5).





Source: USDI-BLM 2017, USDA-NRCS 2015  
**Figure 5 Little Ortega Lake Range Improvement**

### 2.3 Biological Resources

This section discusses the biological resources within the Little Ortega Lake Allotment.

#### 2.3.1 Major Land Resource Areas

A Major Land Resource Area (MLRA) is a broad geographic area that is characterized by a particular pattern of soils, climate, water resources, vegetation and land use. Each MLRA, in which rangeland and forestland occur can be further divided into sub-resources areas and into ecological sites. The Little Ortega Lake Allotment lies mostly within the MLRA 35-Colorado Plateau and one ESD from MLRA 39-Arizona and New Mexico Mountains. The MLRA 35-Colorado Plateau can be further divided into sub-resource area 35-1 Mixed Grass Plains which represents the BLM-administered lands of the Little Ortega Lake Allotment.

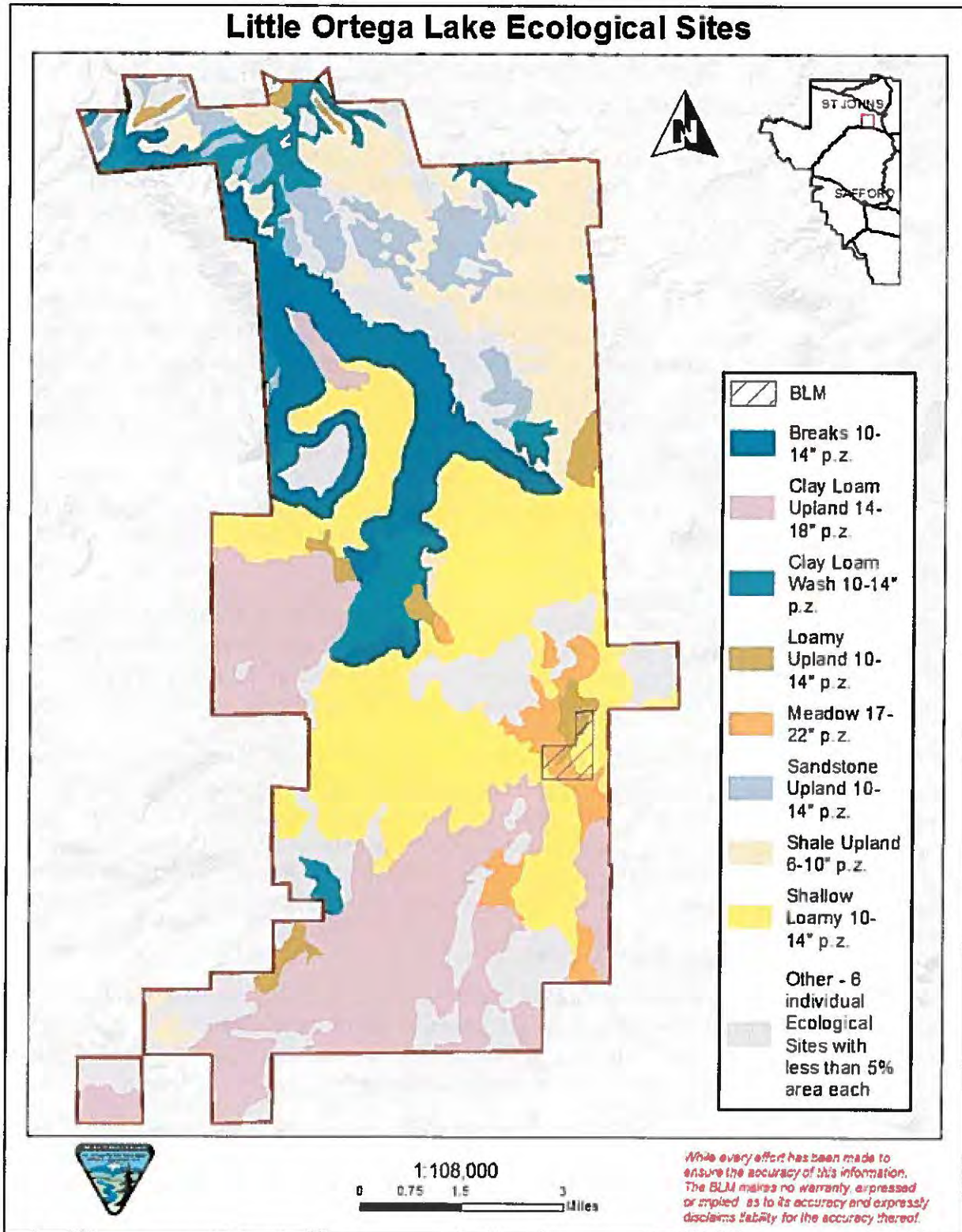
#### 2.3.2 Ecological Sites within the Little Ortega Lake Allotment

Ecological sites provide a consistent framework for classifying and describing rangeland soils and vegetation, thereby delineating land units that share similar capabilities to respond to management activities and disturbances. A summary of the ecological sites present within the Little Ortega Lake Allotment is provided in Table 4 and Figure 6 below.

**Table 4 Ecological Sites Located within Little Ortega Lake Allotment**

Ecological Site	Percentage of Allotment Area	Percentage of BLM Portions
Breaks 10-14" p.z. (R035XA101AZ)	10%	0%
Clay Loam Upland 14-18" p.z. (R035XG707AZ)	21%	0%
Clay Loam Wash 10-14" p.z. (R035XA104AZ)	6%	0%
Loamy Upland 10-14" p.z. (R035XA113AZ)	2%	8%
Meadow 17-22" p.z. (R039XA108AZ)	3%	9%
Sandstone Upland 10-14" p.z. (R035XA115AZ)	5%	0%
Shale Upland 6-10" p.z. (R035XB220AZ)	12%	0%
Shallow Loamy 10-14" p.z. (R035XA119AZ)	24%	83%
Other - 6 individual ecological sites with less than 5 percent area each: - Cinder Upland 14-18" p.z. (R035XG704AZ) - Clayey Fan 6-10" p.z. (R035XB239AZ) - Clayey Upland 14-18" p.z. (R035XG706AZ) - Loamy Wash 10-14" p.z. (R035XA112AZ) - Sandy Loam Upland 10-14" p.z. (R035XA117AZ) - Sandy Upland 10-14" p.z. (R035XA118AZ)	17%	0%

Source: National Resources Conservation Service (NRCS).



Source: USDI-BLM 2017, USDA-NRCS 2015

**Figure 6 Little Ortega Lake Allotment Ecological Sites**

The ecological site descriptions (ESD) are developed by the National Resources Conservation Service (NRCS). The ESDs summaries below are those that actually occur on BLM-administered lands within the Little Ortega Lake Allotment. Detailed NRCS ESD reports are stored and accessed within the Ecological Site Information System (ESIS) available online: <https://esis.sc.egov.usda.gov/Welcome/pgReportLocation.aspx?type=ESD>.

A key attribute of an ecological site is the historic climax plant community (HCPC), or reference state, is the characteristic plant community that has developed on the site according to the following factors: soils, topography, and climate. These collective factors form the basis of ecological sites which classify rangeland ecological sites.

### **2.3.2.1 Loamy Upland 10-14" p.z. (R035XA113AZ)**

This ecological site occurs within the Common Resource Area 35.1 - Colorado Plateau Mixed Grass Plains province of northeastern Arizona. Loamy Upland 10-14" p.z. occurs in an upland position as gently rolling plains, fans and terraces and is characterized by a sequence of flat to gently dipping sedimentary rocks eroded into plateaus, valleys and deep canyons. Precipitation ranges from 10-14 inches annually, with elevations ranging from 4,800 to 6,300 feet. Long periods with little or no effective moisture are relatively common. Soil moisture on this site is from rainfall between the months of July through September, and the remaining moisture comes as snow during winter. Soils have characteristics of being moderately deep or deeper to any plant root restricting layers.

The plant communities found on an ecological site are naturally variable. Composition and production will vary with yearly conditions, location, aspect, and the natural variability of the soils. The HCPC on this ecological site has a plant community made up primarily of perennial native grassland with warm season and cool season grasses and half shrubs.

Grass species found in the Loamy Upland 10-14" p.z. include, but are not limited to: Sideoats grama (*Bouteloua curtipendula*), Black grama (*Bouteloua eriopoda*), Blue grama (*Bouteloua gracilis*), and James' galleta (*Pleuraphis jamesii*). Forb species found include: Aster (*Aster spp.*) and Sphaeralcea (*Sphaeralcea spp.*) Shrubs species found include: Winterfat (*Krascheninnikovia lanтана*), and Fourwing saltbush (*Atriplex canescens*). Tree species found include: Oneseed juniper (*Juniperus monosperma*), Utah juniper (*Juniperus osteosperma*).

### **2.3.2.2 Meadow 17-22" p.z. (R039XA108AZ)**

This area of the allotment has been mapped as Meadow 17-22" p.z. (R039XA108AZ), however it has the characteristics of an ephemeral draw. Because this information belongs to the Natural Resource Conservation Service, and is mapped as such site, it will be carried forward as Meadow 17-22" p.z. (R039XA108AZ) in this Land Health Evaluation.

This ecological site occurs in Common Resource Area 39 – Arizona and New Mexico Mountains. Meadow 17-22" p.z. occurs as depressions on flood plains. It does benefit from run in moisture from adjacent areas. Soils have characteristics of being moderately deep or deep, and are poorly to moderately well drained. Precipitation ranges from 17-22 inches annually, with elevations ranging from 6,500 to 9,500 feet.

The HCPC on this ecological site is dominated by mid grasses and grass like plants with few

forbs and shrubs. Fluctuations in the water table may allow some normally upland grasses to become established on the site.

Grass or grass like species found in the Meadow 17-22" p.z. include: Water bentgrass (*Agrostis gigantea*), Carex (*Carex spp.*), Juncus (*Juncus spp.*), and Muttongrass (*Poa fendleriana*). Forb species found include but are not limited to: Achillea (*Achillea spp.*), Cirsium (*Cirsium spp.*). Shrub species found include: Salix (*Salix spp.*), Woods' rose (*Rosa woodsia var woodsii*), and Shrubby cinquefoil (*Dasiphora fruticose subsp. floribunda*). Tree species are not found within this ecological site.

### **2.3.2.3 Shallow Loamy 10-14" p.z. (R035XA119AZ)**

This ecological site occurs in Common Resource Area 35.1 - Colorado Plateau Mixed Grass Plains and accounts for approximately less than one percent of the BLM-administered land on the allotment. Shallow Loamy 10-14" p.z. occurs in an upland position on structural benches, mesas and ridges. Slopes generally range from 0-15 percent with occasional steeper slopes. It does not benefit significantly from run in moisture or suffer from excessive run off. Sedimentary rock classes dominate the plateau with volcanic fields occurring for the most part near its margin. Precipitation ranges from 10-14 inches annually, with elevations ranging from 4,800 to 6,300 feet.

The HCPC on this ecological site is dominated by cool season grasses with scattered shrubs, forbs and junipers. This plant community is made up primarily of mid and short grasses, shrubs, and a relatively small percentage of forbs and a scattered over story of junipers. There is a mixture of both cool and warm season grasses.

Grass species found in the Shallow Loamy 10-14" p.z. include: Needle and thread (*Hesperostipa comate subsp. comata*), New Mexico feather grass (*Hesperostipa neomexicana*), Sideoats grama (*Bouteloua curtipendula*), Black grama (*Bouteloua eriopoda*), and Blue grama (*Bouteloua gracilis*). Forb species found include but are not limited to: Sego lily (*Calochortus nuttallii*), Whitemargin spurge (*Chamaesyce albomarginata*), and Rose heath (*Chaetopappa ericoides*). Shrub species found include: Bigelow sagebrush (*Artemisia bigelovii*), Fourwing saltbush (*Atriplex canescens*), and Ephedra (*Ephedra sp.*). Tree species found include: Oneseed juniper (*Juniperus monosperma*), Utah juniper (*Juniperus osteosperma*), and Colorado pinyon (*Pinus edulis*).

### **2.3.3 Wildlife Resources**

This section discusses the wildlife resources in and around the Little Ortega Lake Allotment, including threatened and endangered species, other special status species, and game species. Refer to Appendix A for a list of species.

#### **2.3.3.1 Threatened and Endangered Species**

The grazing program for the BLM Gila District, including grazing activities within the Little Ortega Lake Allotment, was assessed pursuant to Section 7 of the Endangered Species Act to determine whether the program would jeopardize the continued existence of an endangered or threatened species and/or their designated or proposed critical habitat. The U.S. Fish and Wildlife Service rendered Biological Opinion (BO) on the Gila District Livestock Grazing

Program #22410-2006-F-0414 (2012). Additionally, a query conducted on June 19, 2018, of the USFWS Information for Planning and Conservation (IPaC; USDI 2016) website identified a total of six species listed as threatened, endangered, or proposed species for consideration within the allotment (Appendix A).

The IPaC query indicated the gray wolf as being potentially present within the allotment; however, "Mexican wolf" is the correct common name of *Canis lupus baileyi* and will be referred to as Mexican wolf in this document.

Due to a general lack of forested habitat, Mexican spotted owl and Mexican wolf are expected to be absent on the allotment. The allotment lacks suitable forested habitat to support Mexican wolves, but is located within a Mexican wolf experimental population area and may be used by wolves for movement between blocks of suitable habitat.

Due to a general lack of perennial water and riparian habitat, Chiricahua leopard frog, yellow-billed cuckoo, Zuni bluehead sucker, and northern Mexican gartersnake are expected to be absent from the allotment. Yellow-billed cuckoo are a riparian obligate species that utilize cottonwood gallery forests, and may use upland areas for foraging. The allotment does not contain the primary riparian habitat; however, yellow-billed cuckoos may utilize the upland areas temporarily, or may be found on this allotment during times of migration.

#### **2.3.3.2 Other Special Status Species**

The BLM sensitive species that have suitable habitat present and are known to exist or have the potential to exist within this allotment are the northern leopard frog (low potential), bald eagle (wintering only), ferruginous hawk, golden eagle, pinyon jay, Allen's lappet-browed bat, Arizona myotis, spotted bat, Townsend's big-eared bat, and succineid snails. A total of eight USFWS Birds of Conservation Concern (USDI, 2008) not already addressed as BLM sensitive species have the potential to occur within the allotment (Appendix A). The allotment offers an array of habitats for migratory birds, providing valuable food and cover. Migratory species of concern that have the highest potential to occur on the allotment include Grace's warbler, and Pinyon jay. No surveys have been conducted specifically within this allotment for this assessment to determine presence but these species have the potential of occurring if habitat is available.

Bird species utilize the grassland, open shrub, and rocky outcrop habitat for hunting prey. Bat species may occur on the allotment if roosting habitat is available. Generally, the composition, structure, and distribution of habitat for both classifications of sensitive species are intact and would be suitable for use if the species were present.

#### **2.3.3.3 Game Species**

Game species within the Little Ortega Lake Allotment include pronghorn, elk, Merriam's turkey, mule deer, mountain lion, black bear, and a variety of small game species. Mountain lion and black bear occur in limited numbers or only occasionally on the allotment as resources meet their needs. Grasslands with dispersed shrub thickets offer forage and cover habitat for mule deer and pronghorn. Elk and Merriam's turkey prefer forested habitat with open grassland meadows and dispersed water. Livestock water allows game species to occupy habitat which would only be available ephemerally as precipitation allowed.

## **2.4 Special Management Areas**

There are no special management areas within the Little Ortega Lake Allotment.

## **2.5 Recreation Resources**

Dispersed recreation activities that may occur on the Little Ortega Lake Allotment, include small and big game hunting, target shooting, hiking, and off-highway vehicle operation. The allotment is comprised of mostly private lands, on which there are various homes, home plots, and adjoining roads. These features present increased accessibility which may lead to increased recreation on all lands within the Little Ortega Lake Allotment.

## **2.6 Cultural Resources**

Guideline 3-7 of the Arizona Standards and Guidelines provides that, "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."

A Class I cultural resources library records check was conducted April 11, 2017, by Safford Field Office Archaeologist Daniel L. McGrew. This library records search noted that there are no known archaeological sites, properties of traditional religious or cultural importance (i.e., traditional cultural properties), or sacred sites.

### 3. Grazing Management

This section discusses the grazing history, authorized use, and terms and conditions of the current lease for the Little Ortega Lake Allotment.

#### 3.1 Grazing History

The BLM grazing lease allows for 5 cattle year-round for a total of 60 animal unit month (AUM) on the BLM-administered land within the allotment. No changes have been made to the use in AUMs during the evaluation period. Grazing management on the Little Ortega Lake Allotment consists of grazing on private land, State Trust land, and 320 acres of public land. For allotments such as Little Ortega Lake, livestock grazing is authorized by the BLM under section 15 of the Taylor Grazing Act. The carrying capacity for the whole allotment is not set by the BLM; instead, the lessee is billed for the available forage utilized on public lands only.

#### 3.2 Terms and Conditions for Permitted Use

Grazing use on the Little Ortega Lake Allotment is in accordance with the terms and conditions of the term lease. A summary of the current authorized use for the allotment is provided below.

**Table 5 Mandatory Terms and Conditions of the Little Ortega Lake Allotment Lease**

Allotment	Number and Kind of Livestock	Season of Use	Percent Public Land	Number of Animal Unit Months (AUM)
Little Ortega Lake No. 06028	5 Cattle	March 1- February 28	100	60

Source: BLM RAS

*Existing Other Terms and Conditions:*

- In order to improve livestock distribution on the public lands, all salt blocks and/or mineral supplements shall not be placed within a 1/4 mile of any riparian area, wet meadow or watering facility (either permanent or temporary) unless stipulated through a written agreement or decision in accordance with 43 CFR 4130.3-2 (C).
- 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; 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.
- In accordance with 43 CFR 4130.8-1 (F): Failure to pay grazing bills within 15 days of the due date specified in the bill shall result in a late fee assessment of \$25.00 or 10 percent of the grazing bill, whichever is greater, but not to exceed \$250.00. Payment



made later than 15 days after the due date, shall include the appropriate late fee assessment. Failure to make payment within 30 days may be a violation of 43 CFR Sec. 4140.1 (B) (1) and shall result in action by the authorized officer under 43 CFR Secs. 4150.1 and 4160.1-2.

- Allot No Az 06028 Conditions. See back of lease.
- In accordance with Sec. 325, Title III, H.R. 2691, Department of the Interior and related agencies Appropriations Act, 2004 (P.L. 108-108), which was enacted on November 10, 2003, this grazing permit or lease is renewed under section 402 of the Federal Land Policy and Management Act of 1976, as amended (43 U.S.C. 1752), Title III of the Bankhead-Jones Farm Tenant Act (7 U.S.C. 1010 ET SEQ.), or, if applicable, section 510 of the California Desert Protection Act (16 U.S.C. 410AAA-50). In accordance with Public Law 108-108 the terms and conditions contained in the expired or transferred permit or lease *shall continue in effect under the renewed permit or lease until* such time as the Secretary of the Interior completes processing of this permit or lease in compliance with all applicable laws and regulations, at which time this permit or lease may be canceled, suspended, or modified, in whole or in part, to meet the requirements of such applicable laws and regulations.

## 4. Objectives

This section provides an overview of the Safford Field Office management objectives that are associated with the Little Ortega Lake Allotment per the Phoenix Resource Management Plan (RMP) (BLM, 1989), as amended by the decision record for Arizona Standards and Guidelines. The Phoenix RMP incorporates by reference the decisions from the Eastern Arizona Grazing Final Environmental Impact Statement (FEIS) Record of Decision (1987).

### 4.1 Land Use Plan Management Objectives

- **Grazing Management (GM-02)** The grazing program in the area is managed under the provisions of the Taylor Grazing Act of 1934, [Federal Land Policy and Management Act of 1976] FLPMA, and the Public Rangelands Improvement Act of 1978. [Phoenix] RMP page 14-15.
- **GM-03** Management of rangeland resources is guided by the Range Program Summary Record of Decision (RPS/ROD) which selected the Preferred Alternative analyzed in the 1987 Arizona Grazing FEIS. [Phoenix] RMP page 15.
- **Wildlife/Fisheries (WF-03)** Wildlife and plants which are federally listed or proposed for listing as either threatened or endangered are protected under provisions of the Endangered Species Act of 1973, as amended. [Phoenix] RMP page 15.
- **WF-04** It is BLM policy to avoid jeopardizing the continued existence of any listed or proposed species and to actively promote species recovery. [Phoenix] RMP page 15.
- **WF-05** It is BLM policy to manage federal candidate species and their habitat to prevent the need for listing as threatened or endangered. [Phoenix] RMP page 15.

Further, the Phoenix RMP provides the following grazing management objectives: 1) to restore and improve rangeland condition and productivity, 2) to provide for use and development of rangeland, 3) to maintain and improve habitat and viable wildlife populations, 4) to control future management actions and 5) to promote sustained yield and multiple use.

### 4.2 Allotment-Specific Objectives

The Little Ortega Lake Allotment is subject to the following land health objectives as established in the Arizona Standards for Rangeland Health.

#### 4.2.1 Land Health Standards

##### 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.*

**4.2.2 Key Area Objectives**

In grazing administration, a key area is defined as a relatively small portion of a range selected because of its location, use, or grazing value as a monitoring point for grazing use. Key areas are indicator areas that reflect what is happening on a larger area as a result of on-the-ground management actions. A key area should be a representative sample of a large stratum, such as a pasture, grazing allotment, wildlife habitat area, herd management area, watershed area, etc. Objectives should be developed so that they are specific to the key area. Monitoring studies can then be designed to determine if these objectives are being met.

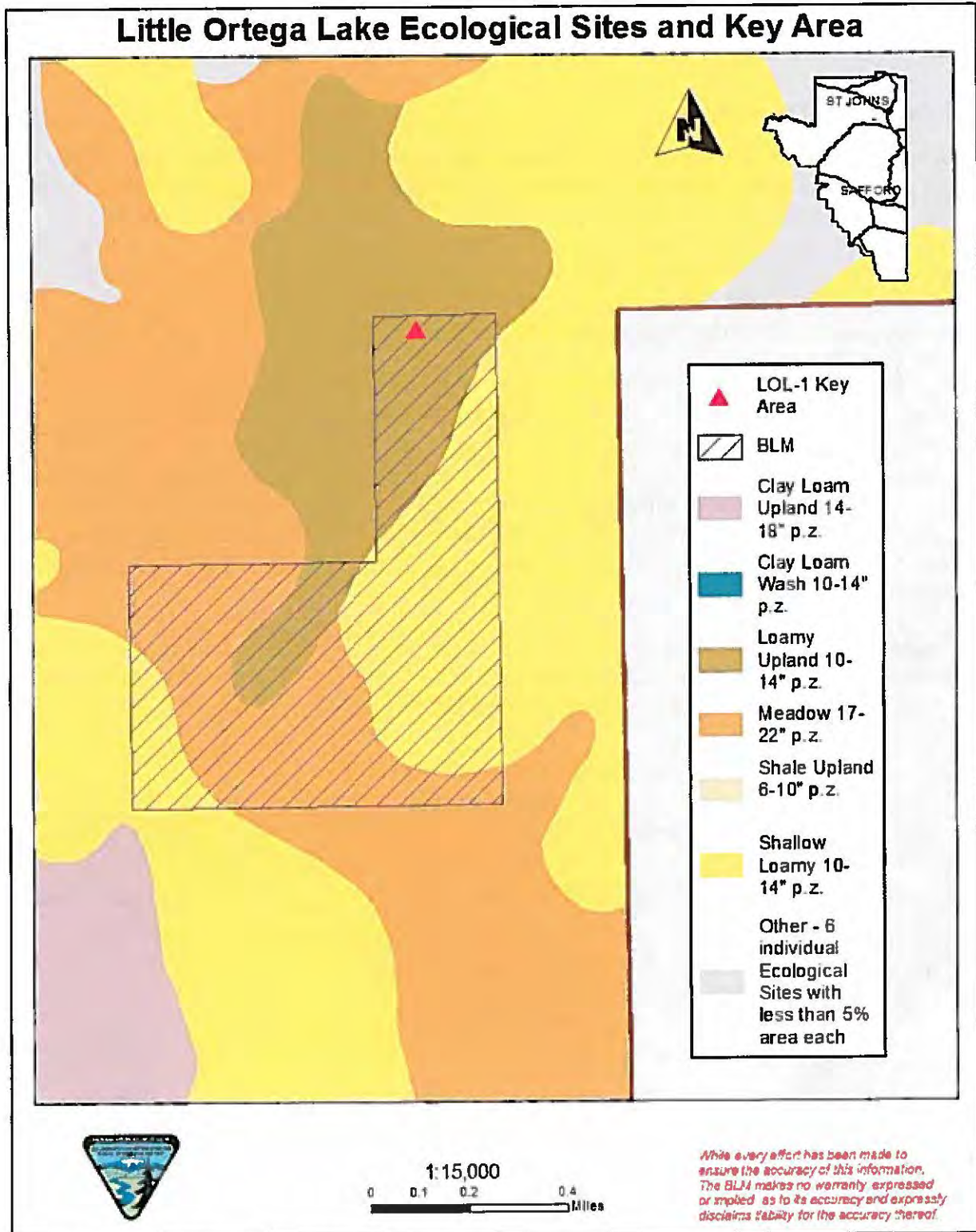
Key area LOL-1 for the Little Ortega Lake Allotment was established in the Loamy Upland 10-14" p.z. (R035XA113AZ) ecological site. This location was chosen because it is representative of the allotment's vegetation composition, soils, and vegetative production. The location is also approximately a mile from water located on private land and is expected to adequately represent livestock utilization for the allotment. Therefore, assessments of the other two ecological sites present on BLM-administered land within the Little Ortega Lake Allotment have not been undertaken, as they would not provide additional meaningful data to inform the land health evaluation.

Addressed in this LHE report are the results from the key area monitoring conducted by U.S. Forest Service (USFS) TEAMS in 2016. Information for key area LOL-1 on the Little Ortega Lake Allotment is presented in Table 6 and Figure 7 below.

**Table 6 Location of the Little Ortega Lake Allotment Key Area**

Key Area	Ecological Site	Ecological Site ID	GPS Coordinates (NAD 83 CONUS)
LOL-1	Loamy Upland 10-14" p.z.	R035XA113AZ	UTM 12S 624356 380438

Source: USDI-BLM 2017, USDA-NRCS 2015, USDA-USFS TEAMS



Source: USDI-BLM 2017, USDA-NRCS 2015

**Figure 7 Little Ortega Lake Allotment Ecological Sites and Key Area**

**Standard 1 - Upland Sites**

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

Signs of accelerated erosion that are None to Slight or Slight to Moderate are appropriate for this ecological site as indicated by ground cover, litter, rock, vegetative (canopy) cover, and signs of erosion. This objective applies to the key area and corresponding ecological site. A departure rating of Moderate or greater would indicate that the key area is not achieving this standard. A departure rating of None to Slight or Slight to Moderate would indicate that the key area is achieving this standard.

**Standard 2 - Riparian-Wetland Site**

*Objective: Riparian-wetland areas are in proper functioning condition.*

Standard 2 is **not applicable** because no riparian-wetland sites exist within the Little Ortega Lake Allotment.

**Standard 3 - Desired Resource Conditions**

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

Desired plant community (DPC) objectives are criteria established to evaluate a site's capability of achieving desired resource conditions. DPC objectives are typically specific to the ecological site within the allotment. This type of plant community is moderately effective at capturing and storing precipitation thus reducing runoff.

Desired resource conditions are based upon the following DPC objectives:

- Canopy cover
- Plant community composition
- Bare ground
- Litter

**Canopy/Basal Cover**

The ESD reference sheet for Loamy Upland 10-14" p.z. (R035XA113AZ) characterizes the site as exhibiting relatively uniform distribution of mostly grasses with some shrubs and a few forbs. Both canopy and basal cover values decrease during prolonged drought.

This sites' reference sheet indicates a desired range of canopy and basal cover. Canopy cover averages 30-40 percent with most cover being grasses at 25-30 percent. Shrubs average 5-10 percent, and forbs at 2-5 percent. Basal cover averages 10-20 percent with most cover being grasses at 15 percent. Shrubs average 2 percent, and forbs at 1 percent.

**Plant Community Composition**

The ESD reference sheet for Loamy Upland 10-14" p.z. (R035XA113AZ) characterizes the site as relatively even distribution of grasses with some shrubs followed by lesser amounts of forbs. This type of plant community is moderately effective at capturing and storing precipitation thus reducing runoff.

This sites' reference sheet indicates an objective for plant community composition is to maintain an average of 25-30 percent grasses, 5-10 percent shrubs, 2-5 percent forbs. The Rangeland Wildlife book (Yoakum, 1996) and Pronghorn Management Guide 2006 (Autenrieth, 2006) establish that grassland requirements for pronghorn include plant compositions of 50-80 percent grasses, 10-20 percent forbs, and less than five percent shrubs.

Therefore DPC objectives for plant community composition are to maintain grasses at 25-80 percent, shrubs at 0-10 percent, and forbs at 2-20 percent. This plant community composition objective is considered adequate for providing cover and forage for wildlife and livestock.

### **Bare Ground**

The ESD reference sheet for Loamy Upland 10-14" p.z. (R035XA113AZ) characterizes the site as having a varying composition and production, due to the yearly conditions, location, aspect, and the natural variability of the soils.

This sites' reference sheet indicates that bare ground has an acceptable average range of 30-50 percent. Bare ground may increase when drought conditions occur.

### **Litter Cover**

The ESD reference sheet for Loamy Upland 10-14" p.z. (R035XA113AZ) characterizes litter cover as mostly herbaceous and fine woody litter. This type of fine litter will be transported by wind and in short water flow pathways, while a small percentage stays in place and heavier, coarse woody litter and duff will accumulate under shrub and tree canopies. This sites' reference sheet indicates that the acceptable litter average is 20-40 percent.

### **Summary**

In summary, the Little Ortega Lake Allotment desired resource conditions, based on the Loamy Upland 10-14" p.z. (R035XA113AZ) ecological site, are presented as the following evaluation area DPC objectives:

- Maintain an average canopy cover between 30-40 percent and an average basal cover between 10-20 percent.
- Maintain a plant community composition of an average of 25-80 percent grasses, 0-10 percent shrubs, 2-20 percent forbs.
- Maintain bare ground between 30-50 percent.
- Maintain litter cover between 20-40 percent.

The recommended levels of canopy and basal will provide sufficient cover for wildlife species, such as antelope and small game, and will prevent accelerated erosion and provide site stabilization. In addition, maintaining the DPC objective for plant community composition for grasses shrubs, and forbs, will provide important nesting and escape cover for birds, as well as provide adequate forage for wildlife and livestock on the Little Ortega Lake Allotment while continuing to achieve land health standards.

BLM-administered land is only 0.67 percent of the overall Little Ortega Lake Allotment, which is generally intermingled in checkerboard fashion with state, private, and other land ownerships.

As a section 15 lease, there are limitations to the degree in which the BLM can control or influence plant community changes across the broader allotment. The DPC objectives established above are realistic in terms of what is possible to achieve within the BLM-administered portions of the allotment.

## 5. Plant List

Table 7 presents a list of plant species within the representative ecological site, Loamy Upland 10-14" p.z. (R035XA113AZ), located within the Little Ortega Lake Allotment. Specific plant species are generally an important component of a plant community as they serve as indicators of change and may or may not be forage species. This ecological site has the capability of producing a large array of species. However, this LHE focuses on plant species that provide forage and cover for wildlife species and livestock.



Table 7 Plant Species

Scientific Name	Common Name	Plant Symbol
<b>Grasses</b>		
<i>Achnatherum hymenoides</i>	Indian ricegrass	ACHY
<i>Aristida spp.</i>	Three awns	ARIST
<i>Bouteloua curtipendula</i>	Sideoats grama	BOCU
<i>Bouteloua eriopoda</i>	Black grama	BOER4
<i>Bouteloua gracilis</i>	Blue grama	BOGR2
<i>Elymus elymoides subsp.</i>	Squirreltail	ELELE
<i>Hesperostipa comata</i>	Needle and thread	HECOC8
<i>Lycurus phleoides</i>	Common wolfstail	LYPH
<i>Muhlenbergia torreyi</i>	Ring muhly	MUTO2
<i>Muhlenbergia richardsonis</i>	Mat muhly	MURI
<i>Pascopyrum smithii</i>	Western wheatgrass	PASM
<i>Pleuraphis jamesii</i>	James' galleta	PLJA
<i>Poa fendleriana</i>	Muttongrass	POFE
<i>Sporobolus contractus</i>	Spike dropseed	SPCO4
<i>Sporobolus cryptandrus</i>	Sand dropseed	SPCR
<i>Sporobolus flexuosus</i>	Mesa dropseed	SPFL2
<b>Forbs</b>		
<i>Annual spp.</i>	Annual forb	2FA
<i>Perennial spp.</i>	Perennial forb	2FP
<b>Shrubs</b>		
<i>Artemisia filifolia</i>	Sand sagebrush	ARFI2
<i>Artemisia frigida</i>	Prairie sagewort	ARFR4
<i>Atriplex canescens</i>	Fourwing saltbush	ATCA2
<i>Chrysothamnus Greenei</i>	Greene rabbitbrush	CHGR6
<i>Cylindropuntia acanthocarpa</i>	Buckhorn cholla	CYACA2
<i>Ephedra spp.</i>	Ephedra	EPHED
<i>Ericameria nauseosa var. nauseosa</i>	Rubber rabbitbrush	ERNAN5
<i>Gutierrezia spp.</i>	Gutierrezia	GUTIE
<i>Krascheninnikovia lanata</i>	Winterfat	KRLA2
<i>Menodora scabra</i>	Rough menodora	MESC
<i>Opuntia polyacantha</i>	Plains pricklypear	OPPA
<i>Packera neomexicana</i>	New Mexico groundsel	PANE7
<i>Purshia mexicana</i>	Mexican cliffrose	PUME
<i>Rhus trilobata</i>	Skunkbush sumac	RHTR
<i>Tetradymia canescens</i>	Gray horsebrush	TECA2
<i>Yucca spp.</i>	Yucca	YUCCA
<b>Trees</b>		
<i>Juniperus spp.</i>	Juniper	JUNIP
<i>Mahonia fremontii</i>	Fremont bayberry	MAFR3

Source: Ecological Site Description for Clay Loam Upland 10-14" p.z. (R035XA113AZ) (USDA, 2007), and monitoring data.

## 6. Rangeland Inventory and Monitoring Methodology

The Arizona standards for rangeland health were assessed for the Little Ortega Lake Allotment by a USFS ID team on May 11, 2016. The ID team consisted of a rangeland management specialist and a wildlife biologist. Documents and publications used in the assessment process include the Web Soil Survey (NRCS, 2017), ESDs located within MRLA 35 and 39 (NRCS, 2009), Interpreting Indicators of Rangeland Health Technical Reference 1734-6 (USDI-BLM et al., 2005, Sampling Vegetation Attributes (USDI-BLM et al., 1996), and the National Range and Allotment Handbook (USDA-NRCS, 2003). A complete list of references is included at the end of this document. All are available for public review in the BLM Safford Field Office. The ID team used rangeland monitoring data and professional observations to assess conformance with the Arizona standards for rangeland health.

### 6.1 Monitoring Protocols

Monitoring occurred on the Little Ortega Lake Allotment at key area LOL-1. Quantitative measurements for cover and species composition were collected along each transect and were analyzed in conjunction with qualitative indicators of soil quality, hydrologic function, and biological health. This was completed to assess the existing conditions within the ecological site Loamy Upland 10-14" p.z. (R035XA113AZ). The existing conditions were compared to site specific reference conditions established by the NRCS, which are considered to be representative of relatively undisturbed states within a given soil-plant community type. This comparison between existing and reference conditions determines the level of departure from the potential natural community.

The key area was recorded with a global positioning system (GPS) unit using a projection of North American Datum (NAD) 83. Inventory and monitoring data are provided in Appendix B.

#### Line Point Intercept

The method used to obtain transect data pertaining to species composition and soil cover is line point intercept (LPI). This method consists of a horizontal, linear measurement of plant intercepts along the course of a line (tape) 100 feet in length. LPI is a rapid and accurate method for measuring occurrence of grass or grass-like plants, forbs, shrubs, and trees in which vegetation composition is extrapolated. It also quantifies soil cover, including vegetation, litter, rocks, and biotic crusts. These measurements are indicators of wind and water erosion, water infiltration, and the ability of the site to resist and recover from degradation.

#### 6.1.1 Indicators of Rangeland Health

The five steps for a rangeland health assessment (RHA) are protocols for evaluating the three rangeland health attributes (soil and site stability, hydrologic function, and biotic integrity), as outlined in Technical Reference 1734-6. They are:

- Step 1. Identify the Key Area; Determine the Soil and Ecological Site
- Step 2. Obtain or Develop the Reference Sheet and the Corresponding Evaluation Matrix
- Step 3. Collect Supplementary Information

**Step 4. Rate the 17 Indicators on the Evaluation Sheet****Step 5. Determine the Functional Status of the Three Rangeland Health Attributes:**

1. **Soil and site stability (S)** – The capacity of an area to limit redistribution and loss of soil resources (including nutrients and organic matter) by wind and water.
2. **Hydrologic function (H)** – The capacity of an area to capture, store, and safely release water from rainfall, run-on and snowmelt (when relevant), to resist a reduction in this capacity, and to recover this capacity when a reduction does occur.
3. **Biotic integrity (B)** – The capacity of the biotic community to support ecological processes within the normal range of variability expected for the site, to resist a loss in the capacity to support these processes, and to recover this capacity when losses do occur. The biotic community include plants, animals, and microorganisms occurring both above and below ground.

The RHA provides information on the functioning of ecological processes (water cycle, energy flow, and nutrient cycle) relative to the reference state for the ecological site or other functionally similar unit for that land area. This assessment provides information that is not available with other methods of evaluation. It gives an indication of the status of the three rangeland attributes chosen to represent the health of the “key area” (i.e., the area where the evaluation of the rangeland health attributes occurs). The following are the 17 indicators that are evaluated during a RHA assessment and the attribute(s) they measure:

1. Rills: S, H
2. Water Flow Patterns: S, H
3. Pedestals and/or Terracettes: S, H
4. Bare Ground: S, H
5. Gullies: S, H
6. Wind-Scoured, Blowout, and/or Depositional Areas: S
7. Litter Movement: S
8. Soil Surface Resistance to Erosion: S, H, B
9. Soil Surface Loss or Degradation: S, H, B
10. Plant Community Composition and Distribution Relative to Infiltration and Run off: H
11. Compaction Layer: S, H, B
12. Functional/Structural Groups: B
13. Plant Mortality/Decadence: B
14. Litter Amount: H, B
15. Annual Production: B
16. Invasive Plants: B
17. Reproductive Capability of Perennial Plants: B

Attribute ratings reflect the degree of departure from expected levels for each indicator per the ecological site reference sheet. The degree of departure may be categorized (rated) as:

- Extreme to Total
- Moderate to Extreme
- Moderate
- Slight to Moderate
- None to Slight

## 7. Management Evaluation and Summary of Studies Data

The following information is the evaluation and summary of the 2016 RHA utilizing the inventory and monitoring protocols that have been conducted on the Little Ortega Lake Allotment.

### 7.1 Actual Use

As indicated, full permitted AUMs have been implemented on the Little Ortega Lake Allotment and is authorized as a section 15 grazing lease. Allowable AUMs are calculated for BLM-administered land only. Lease holders are billed for their maximum use available on public lands unless nonuse is requested and approved. Nonuse by the lessee was not requested during the evaluation period.

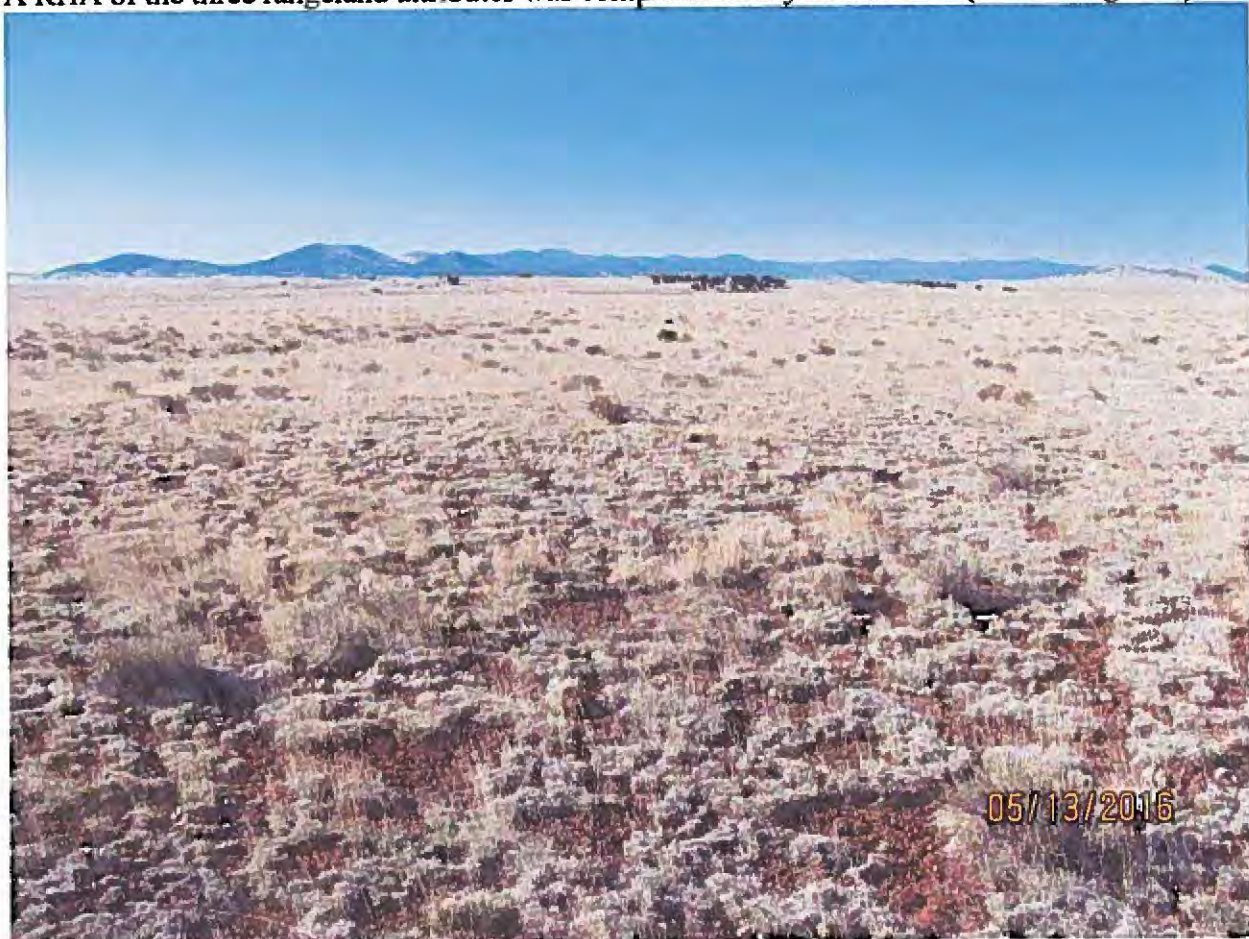
**Table 8 Actual Use on Little Ortega Lake Allotment**

Grazing Fee Year	Permitted AUMs	Actual AUMs <sup>1</sup>	% AUMs Used
2007	60	60	100%
2008	60	60	100%
2009	60	60	100%
2010	60	60	100%
2011	60	60	100%
2012	60	60	100%
2013	60	60	100%
2014	60	60	100%
2015	60	60	100%
2016	60	60	100%

<sup>1</sup> Based on Actual Grazing Use Report (4130-5), BLM RAS billing statements.

## 7.2 Rangeland Health Assessments

A RHA of the three rangeland attributes was completed at key area LOL-1 (refer to Figure 7).



**Figure 8 LOL-1 looking South in May 2016**

Ratings of Moderate or more are considered to indicate resource concerns for soil erosion, water quantity, and plant productivity. It is important to remember that these ratings are made relative to the potential for the site. For example, a site with highly erodible soils and low potential for stabilizing vegetation may be rated as having a Slight departure from reference conditions even though the actual amount of soil movement is significant, while a site with a high potential for stability rated "Moderate" may have relatively little soil movement. Monitoring data recorded for the RHA is provided in Appendix B. A summary of the assessment conducted at key area LOL-1 on the Little Ortega Lake Allotment is presented in Table 9 below.

**Table 9 Summary of Range Health Assessment Ratings**

Key Area	Ecological Site	Range Health Attributes – Degree of Departure		
		Soil and Site Stability	Hydrologic Function	Biotic Integrity
LOL-1	Loamy Upland 10-14" p.z.	None to Slight	None to Slight	None to Slight

**17 Indicators: Key Area LOL-1 (Loamy Upland 10-14" p.z. [R035XA113AZ])**

For the 17 indicators of rangeland health, the ecological site reference sheet condition indicates:

1. No rills expected. A few minor rills may form on slopes greater than 5 percent due to moderate permeability and moderate runoff.
2. Water flow patterns are infrequent, short (1-2 meters) and poorly developed with less than 10 percent coverage. They may become more common on steeper slopes due to slow to moderate permeability and medium runoff characteristics of the soils.
3. Pedestals less than 1" may be common and often associated with water flow patterns. Terracettes are infrequent, but they should be short. Both may be more developed and common during a drought, due to moderate wind erosion hazard of the soils. Moderate wind erosion hazard occurs on the soils with a coarse-loamy surface textures. Pedestals and terracettes may be more common, especially on steeper slopes, but they should be short.
4. The site has an average available water capacity of 7 inches, so it has a moderate to high potential for the production of plant cover. Drought may cause an increase in bare ground.
5. No gullies or erosion should be present.
6. No blowouts are present on this site. Some small mounding around long-lived perennial plant bases common, especially during droughts, due to low to moderate wind erosion hazard of the soil.
7. Most herbaceous and fine woody litter will be transported by wind and in short water flow pathways, while a small percentage stays in place. Coarse woody litter and duff will accumulate under shrub and tree canopies.
8. Soil aggregate stability ratings should average 4-5 (range 3 to 6) under plant canopies and 2-3 (range 1 to 3) within the interspaces. There is usually less than 5 percent cover of rock fragments on the surface. When well vegetated, soils have a moderate resistance to water erosion and moderate to high resistance to wind erosion.
9. Soil structure is mostly granular (weak to moderate, very fine and fine) with some platy (weak, thin and medium) and sub angular blocky (weak, fine to medium). Surface thickness typically ranges from 2-8 inches, but is mostly 2-4 inches. Color is typically reddish brown to brown, but can vary depending on parent material.
10. This site is characterized by a relatively even distribution of mostly grasses with some shrubs and a few forbs. This type of plant community is moderately effective at capturing and storing precipitation thus reducing runoff. Cover averages 30-40 percent (25 to 30 percent grasses, 5-10 percent shrubs, 2-5 percent forbs). Basal plant cover averages 10-20 percent (15 percent grasses, 2 percent shrubs, 1 percent forbs). Both cover values decrease during a prolonged drought.
11. The occurrence of compaction layers should be rare to none. Soils with sandy clay loam and clay loam textures, can be easily compacted when wet, if there are no rock fragments in surface horizons. Some surface horizons are naturally platy.

12. The ESD states there is not a dominant functional structural group at this site. Grasses measured 64 percent composition, clearly more than the ESD expected objective of 25-30 percent, and this indicates that grasses are a dominant group. Dominant: warm season bunchgrasses >warm season colonizing grasses>shrubs>cool season bunchgrasses, with a minor group: forbs =cacti= trees (trace).
13. All plant functional groups are adapted to survival in all years except during the most severe droughts. Severe winter drought affects trees and shrubs most. Severe summer drought affects grasses the most.
14. This site is comprised mostly of fine herbaceous litter with some woody litter. Litter amounts increase during the first few years of drought, then decrease in later years. Average percent litter cover ranges from 20-40 percent and depth 1/8 inch. Within plant interspaces litter ranges from 5 to 20 percent cover, while under shrub and tree canopies litter can range up to 50 percent cover with depths from 1/8 to 1/4 inch thick.
15. Expected annual production is 300-375 lbs/ac (dry weight) in drought years; 572-725 lbs/ac in average years; 725-800 lbs/ac in wet years.
16. Mormon tea (EPV1), Broom snakeweed (GUSA2), Greene's rabbitbrush (CHGR6), Prickly pear (OPPO), Whipple cholla cactus (CYWH) and false buffalo grass (MUSQ) are all native to the site, but have the ability to increase and dominate the area after unmanaged grazing. Oneseed juniper (JUMO) is native to the site, but has the ability to increase and dominate the site after unmanaged grazing and/or fire exclusion. Russian thistle (SATR12) is an exotic forb that has the ability to increase and dominate the site after heavy grazing and/or ground disturbance.
17. All plants native to the site are adapted to the climate and are capable of producing seeds, stolons, and rhizomes in most years except during the most severe droughts.

The HCPC plant community is a perennial native grassland with warm season and cool season grasses and shrubs. Natural climatic variation can result in changes in the amount of and ratio of both individual plants and warm season versus cool season plants, particularly grasses.

#### ***Rangeland Health Attribute 1: Soil and Site Stability***

There were no rills or gullies observed, these indicators were rated None to Slight. Water flow patterns, pedestals and/or terracettes were not observed and was rated None to Slight. Bare ground was measured at 5 percent, indicating the site has moderate to high plant cover and was rated None to Slight. There was no evidence of wind-scouring observed and was rated None to Slight. All litter size classes remained at the base of plants with little to no movement, no litter dams detected and rated None to Slight. Soil surface resistance to erosion was rated None to Slight. The soil surface is naturally armored by moderate gravel and canopy cover. Rock or rock fragments greater than one quarter and less than or equal to three inches covered 36 percent, while fragments greater than three inches covered 3 percent of the soil surface. Canopy cover was measured at 64 percent and 19 percent basal cover. Soil surface loss or degradation was None to Slight as soils are stable and in place. Compaction layers were not present and not restricting water infiltration or root penetration and was rated None to Slight.

The overall rating for the soil and site stability attribute was None to Slight. Ten indicators for soil and site stability were rated None to Slight. Pedestals and/or terracettes was rated Slight to Moderate due to minor pedestaling on the site.



***Rangeland Health Attribute 2: Hydrologic Function***

There were no rills or gullies observed, these indicators were rated None to Slight. Water flow patterns, pedestals and/or terracettes were not observed and was rated None to Slight. Bare ground was measured at 5 percent, indicating the site has moderate to high plant cover and was rated None to Slight. There was no evidence of wind-scouring observed and was rated None to Slight. All litter size classes remained at the base of plants with little to no movement, no litter dams detected and rated None to Slight. Soil surface resistance to erosion was rated None to Slight. Soil surface is naturally armored by moderate gravel and canopy cover. Rock or rock fragments greater than one quarter and less than or equal to three inches covered 36 percent, while fragments greater than three inches covered 3 percent of the soil surface. Canopy cover was measured at 64 percent and 19 percent basal cover. Soil surface loss or degradation was None to Slight as soils are stable and in place. Compaction layers were not present and not restricting water infiltration or root penetration and was rated None to Slight.

Litter was measured at 36 percent, therefore rated None to Slight. Plant community composition and distribution relative to infiltration was rated None to Slight. Vegetative cover is comprised of primarily perennial grasses, trees, shrubs, and forbs. This vegetation composition is effective at soil stability due to the basal area cover and root systems that are not restricted by a compaction layer. This type of plant community is moderately to highly effective at capturing and storing precipitation.

The overall rating for the hydrologic function attribute was None to Slight. Ten indicators for hydrologic function were rated None to Slight.

***Rangeland Health Attribute 3: Biotic Integrity***

Soil surface resistance to erosion was rated None to Slight. Soil surface is naturally armored by moderate gravel and canopy cover. Rock or rock fragments greater than one quarter and less than or equal to three inches covered 36 percent, while fragments greater than three inches covered 3 percent of the soil surface. Canopy cover was measured at 64 percent and 19 percent basal cover. Soil surface loss or degradation was None to Slight as soils are stable and in place. Compaction layers were not present and not restricting water infiltration or root penetration and was rated None to Slight.

Functional structural groups was rated None to Slight. Functional structural groups were as described in the ESD, with relatively even distribution of mostly grasses with some shrubs and a few forbs. With warm season bunchgrasses being sub-dominant, they are followed in dominance by warm season colonizing grasses, shrubs, cool season bunchgrasses. Minor group consists of equal amounts of forbs and cacti, with a trace of trees. Plant mortality/decadence was rated None to Slight, as all age classes were evenly represented. The ESD describes the current functional group as being adapted to survival in all years, except during the most severe droughts. Litter was measured at 36 percent, therefore rated None to Slight. Annual production was rated as None to Slight and is appropriate for the site. Invasive plants was rated None to Slight, Broom snakeweed and Plains prickly pear were present, but not in large amounts. These species are native and have the ability to increase after heavy grazing. Reproductive capability of perennial plants was rated None to Slight, as the native plants are adapted to the climate and are capable of producing seeds, stolons, and rhizomes except during the most severe droughts.

The overall rating for the biotic function attribute was None to Slight. Nine indicators for biotic function were rated as None to Slight.

## 8. Determinations of Land Health Standards

### **Standard 1: Upland Sites**

*Objective: Upland soils exhibit infiltration, permeability, and erosion rates that are appropriate to soil type, climate, and land form (ecological site).*

Determination:

- Meeting the Standard
- Not Meeting the Standard; Making Significant Progress Toward Standard
- Not Meeting the Standard; Not Making Significant Progress Toward Standard

Rationale:

Overall, the soils throughout the Little Ortega Lake Allotment are productive, stable, and in a sustainable condition. The key area monitoring data reflects the conditions described in the ESD. The data at the key area shows that canopy cover, litter, and rock cover are adequate to ensure soil stabilization and appropriate permeability rates within the ecological sites. Little to no sign of erosion was observed at the site. There were no rills or gullies present, and was rated None to Slight. Pedestals and/or terracettes was rated None to Slight and were not observed. Wind-scouring and litter movement were both rated None to Slight. Soil surface is naturally armored by rock and canopy cover.

### **Standard 2: Riparian-Wetland Sites**

*Objective: Riparian-wetland areas are in proper functioning condition.*

Determination:

- Meeting the Standard
- Not Meeting the Standard; Making Significant Progress Toward Standard
- Not Meeting the Standard; Not Making Significant Progress Toward Standard
- Standard Does Not Apply

Rationale:

There are no riparian-wetland sites located on the Little Ortega Lake Allotment; therefore, Standard 2 does not apply.

### **Standard 3: Desired Resource Conditions**

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

Determination:

- Meeting the Standard
- Not Meeting the Standard; Making Significant Progress Toward Standard
- Not Meeting the Standard; Not Making Significant Progress Toward Standard

Rationale:

Based on the monitoring data and this evaluation, current livestock grazing is allowing the Little Ortega Lake Allotment to maintain and achieve the DPC objectives identified in *Section 4.2.2*

**Key Area Objectives**, for continued land health and wildlife habitat. The RHA indicates that soil and site stability, hydrologic function, and biotic integrity attributes are meeting the standard (as outlined in Standard 1) for this site. Data from the allotment's key area and RHA indicate that the site is achieving the objectives for canopy cover, plant community composition, bare ground and litter. The grass, shrub and forb composition and density is sufficient to provide forage and shelter for livestock and wildlife species.

The DPC objectives for canopy cover are established as follows: maintain an average canopy cover between 30-40 percent, and an average basal cover between 10-20 percent.

LOL-1: Canopy cover was measured at 64 percent, and basal cover at 19 percent. Both of these measurements are within or exceed the range of acceptability for the objective. Exceeding the canopy cover objective better provides cover for wildlife species, will more efficiently prevent accelerated erosion, and provides site stabilization. The DPC objectives for canopy cover on the Little Ortega Lake Allotment are being achieved.

The DPC objectives for plant community compositions are established as follows: Maintain an average of 25-80 percent grasses, 0-10 percent shrubs, and 2-20 percent forbs. The data collected for the RHA are:

LOL-1: Due to relatively even distribution of vegetation types of mostly grasses with some shrubs and a few forbs, grasses are the dominant vegetation type at 66 percent composition. Shrubs at 4 percent, occurring within the acceptable average range of 0-10 percent. Forbs were not detected at the time of the monitoring due to dormancy.

Meeting the range of acceptability for the objective provides necessary forage types for wildlife species, efficiently prevents accelerated erosion and will be moderately to highly effective at capturing and storing precipitation. Overall, the DPC objective for plant community composition on the Little Ortega Lake Allotment are being achieved.

The DPC objective is to maintain bare ground between 30-50 percent and was deemed sufficient for preventing accelerated erosion. The data collected for the RHA:

LOL-1: Bare ground was measured at 5 percent. The DPC objective for bare ground on the Little Ortega Lake Allotment is being achieved and exceeded.

The DPC objective for litter is a range of 20-40 percent. Data collected for the RHA indicates:

LOL-1: Litter was measured at 36 percent. Overall, the DPC objective for litter on the Little Ortega Lake Allotment is being achieved.

## 9. Recommended Management Actions

### 9.1 Terms and Conditions

Based on the determinations in *Section 8 Determinations of Land Health Standards*, the following management actions are recommended:

1. Grazing management on the Little Ortega Lake Allotment will continue in accordance with the mandatory terms and conditions of the term lease, as follows:

Allotment Name/ Number	Livestock Number/Kind	Grazing Period Begin - End	% Public Land	Active Use (AUM)
Little Ortega Lake (No. 06028)	5 Cattle	3/1 - 2/28 Yearlong	100	60

2. Continue with the current Other Terms and Conditions:

- In order to improve livestock distribution on the public lands, all salt blocks and/or mineral supplements shall not be placed within a 1/4 mile of any riparian area, wet meadow or watering facility (either permanent or temporary) unless stipulated through a written agreement or decision in accordance with 43 [Code of Federal Regulations] CFR 4130.3-2(c).

3. Add to the current Other Terms and Conditions:

- The Lessee shall submit upon request a report of the actual grazing use made on this allotment for the previous grazing period, March 1 to February 28 upon request. Failure to submit such a report by March 15 of the current year may result in suspension or cancellation of the grazing lease.

4. The following Other Terms and Conditions should be deleted as it is a duplicate of the Standard Terms and Conditions associated with this BLM lease:

- In accordance with 43 CFR 4130.8-1 (F): Failure to pay grazing bills within 15 days of the due date specified in the bill shall result in a late fee assessment of \$25.00 or 10 percent of the grazing bill, whichever is greater, but not to exceed \$250.00. Payment made later than 15 days after the due date, shall include the appropriate late fee assessment. Failure to make payment within 30 days may be a violation of 43 CFR Sec. 4140.1 (B) (1) and shall result in action by the authorized officer under 43 CFR Secs. 4150.1 and 4160.1-2.
- 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; U.S.C. 3001) are discovered, the permittee/lessee shall stop operations in the immediate area of the discovery, protect the remains and objects, and immediately notify the authorized officer of the discovery. The permittee/lessee shall continue to protect the immediate area of the discovery until notified by the authorized officer that operations may resume.

- Allot No Az 06028 Conditions. See back of lease.
- In accordance with Sec. 325, Title III, H.R. 2691, Department of the Interior and related agencies Appropriations Act, 2004 (P.L. 108-108), which was enacted on November 10, 2003, this grazing permit or lease is renewed under section 402 of the Federal Land Policy and Management Act of 1976, as amended (43 U.S.C. 1752), Title III of the Bankhead-Jones Farm Tenant Act (7 U.S.C. 1010 ET SEQ.), or, if applicable, section 510 of the California Desert Protection Act (16 U.S.C. 410AAA-50). In accordance with Public Law 108-108 the terms and conditions contained in the expired or transferred permit or lease *shall continue in effect under the renewed permit or lease until* such time as the Secretary of the Interior completes processing of this permit or lease in compliance with all applicable laws and regulations, at which time this permit or lease may be canceled, suspended, or modified, in whole or in part, to meet the requirements of such applicable laws and regulations.

## **10. List of Preparers**

### **BLM Staff**

Amelia Taylor, Assistant Field Manager-Renewables  
Dan McGrew, Cultural Resource Specialist  
Derek Eysenbach, Planning & Environmental Specialist  
Evan Darrah, GIS Specialist  
Laura Opall, Hydrologist  
Mark McCabe, Wildlife Biologist  
Rebecca Dees, Rangeland Management Specialist  
Thomas Schnell, Assistant Field Manager-Non Renewables

### **Other Field Participants**

Troy Grooms and Doug Middlebrook, USFS TEAMS

## **11. Consultation**

Arizona Game and Fish Department  
USFWS, Arizona Ecological Services  
Andrus Ranch Holding, LLC, Little Ortega Lake Allotment Lessees


## 12. Authorized Officer Concurrence

I have reviewed the determinations presented in *Section 8 Determinations of Land Health Standards* and the grazing and other management actions identified in *Section 9 Recommended Management Actions*.

I concur with the conclusions and recommendations as written.

I do not concur.

I concur, but with the following modifications.

*for*   
\_\_\_\_\_  
Scott C. Cooke  
Field Manager

8/1/18  
Date



## References

- Arizona Department of Environmental Quality. Available online at <http://www.azdeq.gov/>.
- Arizona Game and Fish Department. HabiMap™ and Heritage Data Management System. Available online at <http://www.habimap.org/habimap>. Accessed 06/21/2018.
- Autenrieth, R.E., D.E. Brown, J. Cancino, R.M. Lee, R.A. Ockenfels, B.W. O’Gara, T.M. Pojar, and J.D. Yoakum, eds. 2006. Pronghorn management Guide. Fourth edition. Pronghorn Workshop and North Dakota Game and Fish Department, Bismarck, North Dakota.
- Hughes, Janice M. 2015. Yellow-billed Cuckoo (*Coccyzus americanus*), version 2.0. The Birds of North America (P.G. Rodewald, editor). Cornell Lab of Ornithology, Ithaca, New York, USA. Available online at <https://birdsna.org/Species-Account/bna/species/yebcuc/introduction>. Accessed 01/25/2018.
- PRISM. 2017. PRISM Climate Group, Oregon State University. Available online at <http://prism.oregonstate.edu>. Accessed 6/27/2017.
- Society for Range Management. 1989. A glossary of terms used in range management. 3rd ed. Society for Range Management, Denver, CO.
- U.S. Department of Agriculture, Forest Service, and U.S. Department of Interior, Bureau of Land Management. 1996. Sampling vegetation attributes. Technical Reference 1734-4 Denver, CO.
- U.S. Department of Agriculture, Natural Resources Conservation Service. (undated). <https://esis.sc.egov.usda.gov/Welcome/pgReportLocation.aspx?type=ESD>
- a. 2012. Ecological site description of R035XZ101AZ. Available online at <https://esis.sc.egov.usda.gov/ESDReport/fsReport.aspx?id=R035XA101AZ&rptLevel=all&approved=yes&repType=regular&scrns=&comm=> Accessed 06/20/2018.
- b. 2012. Ecological site description of R035XA104AZ. Available online at <https://esis.sc.egov.usda.gov/ESDReport/fsReport.aspx?id=R035XA104AZ&rptLevel=all&approved=yes&repType=regular&scrns=&comm=> Accessed 01/18/2018.
- c. 2012. Ecological site description of R039XA108AZ. Available online at <https://esis.sc.egov.usda.gov/ESDReport/fsReport.aspx?id=R039XA108AZ&rptLevel=all&approved=yes&repType=regular&scrns=&comm=> Accessed 01/18/2018.
- d. 2012. Ecological site description of R035XA113AZ. Available online at <https://esis.sc.egov.usda.gov/ESDReport/fsReport.aspx?id=R035XA113AZ&rptLevel=all&approved=yes&repType=regular&scrns=&comm=> Accessed 03/09/2017.
- e. 2012. Ecological site description of R035XA115AZ. Available online at <https://esis.sc.egov.usda.gov/ESDReport/fsReport.aspx?id=R035XA115AZ&rptLevel=all&approved=yes&repType=regular&scrns=&comm=> Accessed 03/09/2017.

f. 2012. Ecological site description of R035XA119AZ. Available online at <https://esis.sc.egov.usda.gov/ESDReport/fsReport.aspx?id=R035XA119AZ&rptLevel=all&approved=yes&repType=regular&scrns=&comm=> Accessed 03/09/2017.

g. 2012. Ecological site description of R035XB220AZ. Available online at <https://esis.sc.egov.usda.gov/ESDReport/fsReport.aspx?id=R035XB220AZ&rptLevel=all&approved=yes&repType=regular&scrns=&comm=> Accessed 03/09/2017.

h. 2007. Ecological site description of R035XG707AZ. Available online at <https://esis.sc.egov.usda.gov/ESDReport/fsReport.aspx?id=R035XG707AZ&rptLevel=all&approved=yes&repType=regular&scrns=&comm=> Accessed 01/18/2018.

\_\_\_\_\_. 2003. National range and pasture handbook. Washington, D.C.

a. 2017. Soil Series Descriptions. Available online at <https://soilseries.sc.egov.usda.gov/>. Accessed 06/18/2018.

b. 2017. Web Soil Survey. NRCS. Available online at <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>. Accessed 06/18/2018.

U.S. Department of Interior, Bureau of Land Management. 1997. Arizona standards for rangeland health and guidelines for grazing administration. Phoenix, AZ. 164 pp.

\_\_\_\_\_. 1987. Eastern Arizona grazing environmental impact statement final. Phoenix, AZ

\_\_\_\_\_. 2005. Interpreting indicators of rangeland health. Technical Reference 1734-6. Denver, CO. 122 pp.

\_\_\_\_\_. 1989. Phoenix resource management plan, environmental impact statement. Phoenix, AZ.

a. 2017. Rangeland Administration System. Available at <https://www.blm.gov/ras/>. Accessed 06/19/2018.

U.S. Department of Interior, Fish and Wildlife Service. 2016. Information for Planning and Conservation (IPaC). Available online at: <https://ecos.fws.gov/ipac/>. Accessed 06/20/2018.

U.S. Department of Interior, Fish and Wildlife Service, Arizona Ecological Services Office. 2012. Biological opinion on the BLM Gila District livestock grazing program [#22410-2006-F-0414]. Phoenix, AZ.

U.S. Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management. 2008. Birds of conservation concern. Arlington, VA. 85 pp. Available online at <http://www.fws.gov/migratorybirds/pdf/management/BCC2008.pdf>.

Yoakum J. D., O'Gara B. W., and V. W. Howard, Jr. 1996. Pronghorn on western rangelands, pages 211-226 in P. R. Krausman, ed. Rangeland wildlife. The Society of Range Management. Denver, Colo.

## Appendix A. Special Status Species

Federally Listed Species		
Species	Federal Status	Comments
Chiricahua leopard frog <i>Rana chiricahuensis</i>	Threatened	Chiricahua leopard frog occurs in wetlands of the sky island regions of central and southeast Arizona. There are no natural wetlands on the Little Ortega Lake Allotment and no known populations of the species at the man-made water source. No effect.
Mexican spotted owl <i>Strix occidentalis lucida</i>	Threatened	This species occurs in the oak woodland and mixed conifer forests of mountainous areas of Arizona. There is no suitable habitat on the Little Ortega Lake Allotment to support Mexican spotted owl and there is no critical habitat within the allotment. No effect.
Yellow-billed cuckoo (distinct population segment) <i>Coccyzus americanus</i>	Threatened	Yellow-billed cuckoos primarily occur in cottonwood-willow gallery forests of riparian zones of Arizona. The Little Ortega Lake Allotment does not have habitat considered suitable for this species, however cuckoos may utilize upland areas of the allotment, comprised of pinyon-juniper, for 2-3 weeks prior to migration to and from suitable breeding habitat. There is no suitable breeding habitat within 40 miles of the allotment. Due to the short duration of potential occurrence and the lack of nearby habitat, we expect no effect to the species. May affect, not likely to adversely affect.
Mexican wolf <i>Canis lupus baileyi</i>	Endangered, experimental	No wolves occur within the action area. If individual wolves disperse from the experimental population into the action area, humans working near individuals could disturb the wolves, but they would only move to other areas. Livestock grazing would be managed to improve or maintain the productivity of the area, and would not affect the native prey base of the wolf. May affect, not likely to adversely affect.
Northern Mexican gartersnake <i>Thamnophis eques megalops</i>	Threatened	The northern Mexican gartersnake is a riparian obligate species; there is no suitable habitat on the Little Ortega Lake Allotment. No effect.
Zuni bluehead sucker <i>Catostomus discobolus yarrowi</i>	Endangered	No perennial water or suitable aquatic habitat exist on the Little Ortega Lake Allotment. No effect.

<b>Migratory Birds, Birds of Conservation Concern <sup>1,2</sup></b>	
<b>Species</b>	<b>Comments</b>
Bald eagle <i>Haliaeetus leucocephalus</i>	Addressed as BLM Sensitive in table below.
Common Black Hawk <i>Buteogallus anthracinus</i>	Common black hawk are known to occur and nest along the riparian gallery forests which do not occur on the Little Ortega Lake Allotment.
Golden eagle <i>Aquila chrysaetos</i>	Addressed as BLM Sensitive in table below.
Grace's warbler <i>Setophaga graciae</i>	Grace's warbler is found in open pine forest, pine-oak association, and pine savanna. Little of this habitat exists on this allotment. The species will not be impacted.
Lewis's woodpecker <i>Melanerpes lewis</i>	Lewis's woodpecker occurs in mature and burned pine forest and cottonwood. Little of this habitat exists on this allotment. The species will not be impacted.
Phainopepla <i>Phainopepla nitens</i>	Phainopepla are strongly associated with mesquite. Mesquite species are not found on the Little Ortega Lake Allotment. There will be no impact to the species.
Pinyon jay <i>Gymnorhinus cyanocephalus</i>	Addressed as BLM Sensitive in table below.
Rufous hummingbird <i>Selasphorus rufus</i>	Rufous hummingbird habitat are found in Arizona only during times of migration. Due to the short duration of presence and lack of stop over habitat, no impacts are anticipated for this species.

<sup>1</sup>The migratory birds species listed are species of particular conservation concern (e.g. Birds of Conservation Concern) that may occur on or near the allotment. It is not a list of every bird species that may be found in this location, nor a guarantee that all of the bird species on this list will be found on or near this location.

<sup>2</sup>Habitat information and determinations compiled from species profiles found on USFWS website. <https://ccos.fws.gov>

<b>BLM Sensitive Species</b>	
<b>Species</b>	<b>Comments</b>
<b>Amphibians</b>	
Northern leopard frog <i>Lithobates pipiens</i>	No perennial water or suitable aquatic habitat exist on the Little Ortega Lake Allotment. Low potential of occurrence.
<b>Birds</b>	
Bald eagle (wintering) <i>Haliaeetus leucocephalus</i>	Wintering bald eagles occur along the Little Colorado river and may use the allotment as foraging habitat. There are no known impacts of livestock on bald eagles.
Ferruginous hawk <i>Buteo regalis</i>	Ferruginous hawk nest in grasslands, shrublands and forest lands. Suitable nesting habitat occurs on the Little Ortega Lake Allotment. There are no known impacts of livestock on ferruginous hawks.
Golden eagle <i>Aquila chrysaetos</i>	There is no suitable nesting habitat for golden eagles on the Little Ortega Lake Allotment. Golden eagles may fly and hunt over the areas of the allotment. There are no known impacts of livestock on golden eagles.
Pinyon jay <i>Gymnorhinus cyanocephalus</i>	Pinyon jay occurs in pinyon-juniper woodland. This habitat is available on the allotment in limited amounts; therefore this species may be impacted by livestock browsing seedling trees or low-hanging branches. This species is known to travel vast distances in response to localized abundance or shortages of forage. The objectives set in this document will not alter the production of forage for this species, resulting in impacts that are less than significant.
<b>Fish</b>	
No perennial water or suitable aquatic habitat exist on the Little Ortega Lake Allotment.	
<b>Invertebrates</b>	
Succineid snails, all species in the family	No perennial water or suitable aquatic habitat exist on the Little Ortega Lake Allotment.
<b>Mammals</b>	
Allen's lappet-browed bat <i>Idionycteris phyllotis</i>	This species inhabits ponderosa pine, pinyon juniper, Mexican woodland and riparian areas. Due to the lack of available water on the Little Ortega Lake Allotment, this species is not likely to occur. This species will not be impacted.
Arizona myotis <i>Myotis occultus</i>	Arizona myotis occurs in ponderosa pine and oak-pine woodlands near water. Little of this habitat exists on this allotment. The species will not be impacted.
Spotted bat <i>Euderma maculatum</i>	Spotted bats inhabits desert scrub and open forests, and are always associated with a water source such as a spring, river, creek or lake. Little of this habitat occurs on the allotment. This species will not be impacted.
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	This species occurs in pine forests and arid desert scrub, always near caves or other roosting sites. Little of this habitat occurs on the allotment. This species will not be impacted.
<b>Reptiles</b>	
There are no BLM sensitive reptiles known to occur in the Little Ortega Lake Allotment.	
<b>Plants</b>	
There are no BLM sensitive plants known to occur in the Little Ortega Lake Allotment.	

## Appendix B. USFS TEAMS Monitoring Data 2016

### Summary of LOL-1 Line Point Intercept monitoring data.

Key Area Information	Species	Line point intercept cover at LOL-1	
		Canopy	Basal
Little Ortega Lake Allotment	Mesa dropseed ( <i>Sporobolus flexuosus</i> )	2%	1%
Ecological Site ID: R035XA113AZ	Ring muhly ( <i>Muhlenbergia torreyi</i> )	1%	1%
UTM 12S 624356 – 380438	Blue grama ( <i>Bouteloua gracilis</i> )	63%	16%
	Rabbitbrush ( <i>Chrysothamnus Greenei</i> )	4%	0%
<b>Cover/Litter/Bare Ground</b>			
Bare Ground	5%		
Basal Cover	19%		
Canopy Cover	64%		
Litter	36%		
Surface Fragments > ¼" & ≤ 3"	36%		
Surface Fragments > 3"	3%		

### Desired Plant Community compared to species composition.

DPC Objectives for Plant Community Composition for Loamy Upland 10-14 p.z. (R035XA113AZ)	Species Composition LOL-1
Grasses 25-80% Composition	BOGR2 – 63% MUTO2 – 1% SPFL2 – 2%
	Total – 66%
Shrubs 0-10% Composition	CHGR6 – 4%
	Total – 4%
Forbs 2-5% Composition	None detected 0%
	Total – 0%

**Functional/structural plant group ranking at LOL-1.**

Ranking	Species List for Functional/Structural Groups at BM-1
Dominant	Blue grama – BOGR2
Subdominant	Mesa dropseed – SPFL2
Minor	Ring muhly – MUTO2
Minor	Chrysothamnus greenei – CHGR6
Minor	
Minor	
Minor	
Trace	

Dominant (D) roughly 40-100% composition, Sub-dominant (S) roughly 10-40% composition, Minor Composition (M) roughly 2-10% composition, or Trace (T) roughly <2% composition.

Ranking	Species List for Functional/Structural Groups at LOL-1
Dominant	Blue grama
Minor	Short galleta
Minor	Mesa dropseed
Minor	Cactus
Minor	Greenes rabbitbrush
Minor	Broom snakeweed
Minor	Ring muhly
Trace	One seed juniper

Dominant (D) roughly 40-100% composition, Sub-dominant (S) roughly 10-40% composition, Minor Composition (M) roughly 2-5% composition, or Trace (T) roughly <2% composition

## Appendix C: Interested Public

Andrus Ranch Holding, LLC  
HC-65 Box 34304  
619 County Road 5152  
Concho, AZ 85924

Arizona Cattle Growers  
1401 North 24th Street  
Phoenix, AZ 85008

Arizona Game and Fish Department  
WMHB – Project Evaluation Program  
5000 West Carefree Highway  
Phoenix, AZ 85086-5000

Arizona Game and Fish Department  
Region I – Pinetop  
c/o James Eddy  
2878 East White Mountain Boulevard.  
Pinetop, AZ 85935

Arizona State Land Department  
c/o Ronnie Tsosie  
1616 West Adams  
Phoenix, AZ 85007

Larry Humphrey  
P. O. Box 894  
Pima, AZ 85543

Natural Resource Conservation Service  
c/o Thomas Vanzant  
P.O. Box 329  
Springerville, AZ 85938-0329

Western Watersheds Project  
c/o Greta Anderson  
738 North 5th Avenue, Suite 200  
Tucson, AZ 85705

William K. Brandau  
P.O. Box 127  
Solomon, AZ 85551-0127



