

**United States Department of the Interior  
Bureau of Land Management**

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**Environmental Assessment  
DOI-BLM-AZ-A030-2019-0010-EA**

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**Construction of Three Water Catchments for the  
Mt. Trumbull, Whiterock-Soapstone, Belnap and  
Big Springs Pipeline Allotments**

*Location* (respective order to title):

Gila and Salt River Meridian, Mohave County, Arizona

T. 36 N., R. 9 W.,  
Sections 33 and 34;

T. 38 N., R.13 W.,  
Sections 13 and 24;

T. 34 N., R. 10 W.,  
Sections 28.

*Applicant/Address:* S.O. Bundy Ranch LC, Leon Brinkerhoff, and Superior Cattle LLC.

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**May 2020**

Arizona Strip Field Office and  
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## List of Acronyms and Abbreviations

ACEC	Area of Critical Environmental Concern
AGFD	Arizona Game and Fish Department
AMP	Allotment Management Plan
AUM	Animal Unit Month
BLM	Bureau of Land Management
BMP	Best Management Practices
CFR	Code of Federal Regulations
CBW	Composition by Weight
DFC	Desired Future Condition
DPC	Desired Plant Community
DR	Decision Record
EA	Environmental Assessment
EIS	Environmental Impact Statement
ESD	Ecological Site Description
ESA	Endangered Species Act
FLPMA	Federal Land Policy and Management Act
FONSI	Finding of No Significant Impact
GMU	Game Management Unit
GCPNM	Grand Canyon-Parashant National Monument
IAT	Interdisciplinary Assessment Team
LHE	Land Health Evaluation
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act
NPS	National Park Service
OHV	Off-Highway Vehicle
PRIA	Public Rangelands Improvement Act
p.z.	Precipitation Zone
RMP	Resource Management Plan
ROW	Right-of-Way
ASFO	Arizona Strip Field Office
TGA	Taylor Grazing Act
USFWS	U.S. Fish and Wildlife Service
VRM	Visual Resource Management

**Construction of Three Water Catchments for the Mt. Trumbull, Whiterock-Soapstone,  
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**1.0 PURPOSE AND NEED**

**1.1 Introduction and Background**

The Bureau of Land Management (BLM), Arizona Strip Field Office (ASFO) and Grand Canyon-Parashant National Monument (GCPNM), has prepared this Environmental Assessment (EA) to disclose and analyze the environmental consequences of the proposed construction of three water catchments and the associated infrastructure including water storage tanks, water troughs and pipeline segments for the Mt. Trumbull, and Whiterock-Soapstone, Belnap and Big Springs Pipeline allotments. This analysis provides information as required by the BLM implementing regulations for the National Environmental Policy Act (NEPA), the Taylor Grazing Act (TGA), and the Federal Land Policy Management Act (FLPMA) to determine whether to authorize these range improvements. This EA also serves as a tool to help the authorized officers make an informed decision that is in conformance with the ASFO Resource Management Plan (RMP) (BLM 2008a) and GCPNM RMP (BLM 2008b).

Lake Mead National Recreation Area (LMNRA), which formerly included portions of Grand Canyon-Parashant National Monument, lies on the south side of the Grand Canyon, far removed from the project area (see Figure 1). These lands formerly managed by LMNRA remain as NPS lands, now managed by the GCPNM under the authority of the Presidential Proclamation 7265.

The Mt. Trumbull and Belnap allotments are meeting the Arizona Standards for Rangeland Health; Big Springs Pipeline and Whiterock Soapstone allotments are making significant progress towards meeting these standards. A detailed discussion on rangeland health for these allotments can be found in Section 3.3 of this EA, as well as in the final land health evaluation (LHE) reports at the Arizona Strip District Office.

**1.2 Purpose and Need**

In 2018 and 2019, proposals for the construction of three water catchments and associated water tanks, troughs, and pipelines were received from three livestock grazing permittees. The first permittee has the grazing permit for the Mt. Trumbull Allotment, located on public lands managed by the ASFO. The second permittee has the grazing permit for the Whiterock-Soapstone Allotment, also managed by the ASFO. The third permittee has the grazing permit for the Belnap and Big Springs Pipeline allotments, managed by GCPNM. One catchment would service the Mt. Trumbull Allotment, the second catchment would service the Whiterock-Soapstone Allotment, and the third catchment would service both the Belnap and Big Springs Pipeline allotments (Appendix A, Figure 1).

The addition of these proposed water sources would distribute livestock more evenly throughout the allotments and result in more uniform use across the pastures (while not exceeding the maximum utilization level of 50%). Often the most effective way to improve the uniformity of

grazing in an allotment and pasture is to increase the availability and proximity of water (Horn 2005).

### **Mt. Trumbull Allotment**

The Mt. Trumbull Allotment contains 13,210 acres of public land and an additional 15,817 acres of GCPNM-National Park Service (NPS) managed lands. The Mt. Trumbull Allotment is located approximately 45 miles south of St. George, Utah. The allotment includes two separate grazing areas located 9.5 miles apart. The southern area is the Frog-Cane winter pasture located below Whitmore Point. The Frog-Cane pasture is on NPS-managed lands. The northern portion of the allotment includes all the summer and fall pastures. These pastures are located around the Mt. Trumbull town site and on top of the Hurricane Cliffs.

The current grazing is operated under a deferred-rotation system. There are ten pastures within the allotment boundaries. The pastures are split into summer-fall pastures (Rim, No. Stockade, So. Stockade and Boys), spring-winter pastures (Side of Mountain, 160, and Whitmore Point) and the winter pasture (Frog and Cane). Each set of pastures is operated under a deferred-rotation schedule. When forage and water conditions permit, the summer-fall pastures are operated under a rest-rotation schedule, which allows total rest of one of the summer pastures. The Frog and Cane pasture is divided into two units (east and west) and is used to defer a portion of the allotment during the spring growing season. In addition to these pastures, there is a private and state section pasture which are used in the rotation. These pastures are generally used in the spring and fall during transition.

There are several earthen reservoirs on the allotment, but they are unreliable as they depend on rainfall events in order to fill, lack in water storage capabilities, and leak due to the soils inability to retain water. Currently there are three reliable water sources in the Rim pasture, provided by catchments. One is located in the northwestern part of the pasture, over three miles away from the proposed catchment, the other is in the southwestern part of the pasture, approximately 2.4 miles from the proposed catchment, this catchment serves the Rim and North Stockade Pastures, and the third is located in the central portion of the pasture approximately one and a half miles away from the proposed catchment. Two of these catchments are located on Arizona State lands. This pasture is relatively large with over 4200 acres. Cattle typically travel no more than one mile in hilly or steep terrain (such as occurs in this allotment) for water on a daily basis. Current reliable water sources in this pasture are greater than one mile apart, and in many cases numerous miles. This proposed catchment would facilitate better livestock distribution, as well as provide reliable water for wildlife.

The BLM, along with the authorized grazing permittees S.O. Bundy Ranch LC, have proposed to build a water catchment with storage tank and trough on the northeast end of the allotment. This would create a new, reliable water source in the eastern portion of the Rim Pasture of the Mt. Trumbull Allotment.

The LHE for this allotment was completed in 2001 (BLM 2001); it was determined by the interdisciplinary assessment team that the allotment was meeting the applicable standards for rangeland health. While this proposed water catchment was not specifically identified in the LHE, additional water sources would result in more uniform distribution of livestock and thus

more even use within the pasture, which would benefit rangeland health. Without adequate, reliable water in the allotment and pasture, cattle distribution is not optimum.

### **Whiterock-Soapstone Allotment**

The Whiterock-Soapstone Allotment contains 18,614 acres of public land. A three-pasture deferred rotation grazing system was established for this allotment. The Whiterock-Soapstone Allotment is located approximately 25 miles south of St. George, Utah. The portion of the Whiterock-Soapstone Allotment permitted to be grazed by the applicant is a two-pasture deferred rotation grazing system. Grazing occurs in either the Hole or Corral pastures from October 16 through February 28. Livestock are then moved to the other pasture to graze from March 1 through May 31 then the cattle are removed from the Allotment. The next year the Hole and Corral pasture are grazed in reverse order. This system allows each pasture to be rested during the spring growing season every other year. Grazing occurs on the third pasture Whiterock Reservoir June 1 through October 15, by a different permittee.

To resolve the unavailability of water on this allotment the Mustang Pipeline was installed, placing reliable waters in each of the pastures at several locations. The Mustang well has since gone dry leaving unreliable water for much of the allotment. There is one livestock water catchment, the Imlay water catchment within the allotment. This catchment serves the Corral Pasture. The proposed catchment would service the Hole Pasture. The established water catchment and the proposed water catchment would be located nearly three miles from one another.

The BLM along with Leon Brinkerhoff, the grazing permittee, have proposed to build a water catchment with trough, on the south end of the Hole Pasture. This would create a new, reliable water source in this pasture. The pasture and allotment currently have unreliable earthen ponds. The addition of this water source would distribute livestock more evenly throughout the allotment and result in more uniform use across the pasture (while not exceeding the maximum utilization level of 50%).

On October 5, 2009, the BLM completed a LHE on the Whiterock-Soapstone Allotment. It was determined by the interdisciplinary assessment team that the allotment was making significant progress toward meeting the applicable standards for rangeland health – the causal factor for not meeting was the high sagebrush composition in the allotment, resulting in a lack of species diversity. While this proposed water catchment was not specifically identified in the LHE, additional water sources in general were identified as being needed – an additional water source would result in more uniform distribution of livestock and thus more even use within the pasture, which should benefit rangeland health.

### **Belnap Allotment**

The Belnap Allotment contains 7,279 acres of public land, and is located approximately 50 miles south of St. George, Utah. The allotment operates under a two-pasture deferred rotation system. The two pastures are the North and South pastures. Cattle graze the allotment from June 1 through November 15. One pasture is grazed from June 1 through August 31 and the other is grazed September 1 through November 15. The time of use for each pasture is alternated each year. There are currently dirt tanks throughout the allotment, including in the South Pasture, but these have not provided reliable water sources, particularly during extended droughts.



The BLM along with Superior Cattle LCC, the grazing permittee, have proposed to build a water catchment with tank, and trough, on the south end of the Belnap South Pasture. This would create a new, reliable water source in this pasture. The South Pasture currently has unreliable earthen ponds. The Belnap and Big Springs Pipeline allotments (below discussion) have steep-hilly terrain. Without adequate water development, livestock distribution is not optimized.

On September 30, 2002, the GCPNM completed LHE on the Belnap Allotment. The Interdisciplinary Assessment Team (IAT) determined that the Mt. Trumbull and Belnap allotments met all applicable standards for rangeland health (BLM 2002).

### **Big Springs Pipeline Allotment**

The Big Springs Pipeline Allotment contains 42,222 acres on GCPNM land, with another 13,680 acres of NPS-managed lands within this allotment. The Big Springs Pipeline Allotment is located approximately 55 miles south of St. George, Utah. A grazing system was established on the Big Spring Pipeline Allotment in 1994. This grazing system was split into two units; a winter unit that is grazed from October 16 to April 15 and a summer unit that is grazed from April 16 to October 15. Within the winter unit there are four pastures operating under a four pasture, deferred-rotation schedule. Included in the winter unit are the Cold Spring, Airstrip, Lava, and Chaparral pastures. Each pasture is grazed approximately 45 days during the use period. Each pasture receives spring use (March 1 – April 15) once every four years. Utilization levels in the winter pastures are set at 45% to minimize grazing impacts in the bottom of Whitmore Canyon. The summer unit is operated as a two pastures deferred-rotation system. Whitmore Point and Cole Spring pastures are grazed in the summer rotation. One of the pastures receives grazing from April 16 to July 15, the other July 16 to October 15. Scheduled use periods for each pasture are switched each year. This is done to negate a pasture being used at the same time each year and to allow rest and recovery during a portion of the growing season. Beginning in the summer of 1997, the grazing system was modified to be grazed from October through May. The deferred-rotation schedule has continued relative to all the pastures plus an additional allotment (Pa's Pocket Allotment). Livestock are moved off the allotment and taken to private pasture in Panguitch, Utah from June through September. This has allowed all pastures recovery time during the summer growing season.

The BLM along with Superior Cattle LCC, the grazing permittee, have proposed to build a water catchment with tank, on the south end of the Belnap South pasture of the Belnap Allotment. This catchment would be near the allotment boundary of the Big Springs Pipeline Allotment. Water from this catchment and tank would be piped to the Whitmore Point Pasture of the Big Springs Pipeline Allotment. This would create a new, reliable water source in this pasture. The Whitmore Pasture currently has one other catchment approximately two- and one-half miles from the proposed catchment. The remaining water developments are unreliable earthen ponds.

On May 22, 2006, the GCPNM completed LHE on the Big Springs Pipeline Allotment. The IAT determined that this allotment is making significant progress toward meeting standards for rangeland health (BLM 2006).

## Summary

The purpose of the proposed projects is not to increase permitted use, or animal unit months (AUMs), but to encourage and achieve better livestock distribution within the above mentioned BLM grazing allotments. The proposed projects would also provide additional water sources for wildlife (including mule deer). The *Arizona Strip Interdisciplinary Mule deer Management Plan 2010-2014*, which was developed jointly by the BLM and Arizona Game and Fish Department (AGFD) states that “water distribution should be improved in [Units 13A and 13B] by utilizing both cooperative projects and wildlife catchments” (AGFD and BLM 2015). It should be noted that habitat management for non-listed, non-game species are typically provided in the form of supplemental benefits from actions designed to address other, targeted (i.e., threatened, endangered, candidate, or game species). These most often take the form of water developments or vegetative treatment projects. Thus, other wildlife species (along with mule deer) would benefit from the proposed water projects by improving water distribution and improving habitat use by these species as well, which are also objectives contained within the ASFO and GCPNM RMPs (BLM 2008a; BLM 2008b).

### 1.3 Grand Canyon-Parashant National Monument

Proposed actions within the GCPNM portion of the project area are designed to ensure the long-term protection of a wide variety of biological objects and a long rich human history, as guided by Presidential Proclamation 7265. This presidential proclamation explains that GCPNM was created because of its “outstanding objects of scientific and historic interest.” The analysis of impacts to specific resources constitutes the analysis of impacts to monument objects in this EA.

### 1.4 Conformance with BLM Land Use Plan(s)

The alternatives described in Chapter 2 of this EA are in conformance with the ASFO RMP (BLM 2008a) and the GCPNM RMP (BLM 2008b), both approved January 29 2008.

The following decisions are from Table 2.11 in the ASFO RMP and Table 2.12 in the GCPNM RMP regarding management of livestock grazing:

**DFC-GM-01:** Healthy, sustainable rangeland ecosystems will be maintained or improved to meet Arizona’s Standards for Rangeland Health and produce a wide range of public values such as wildlife habitat, livestock forage, recreation opportunities, clean water, and functional watersheds.

**DFC-GM-02:** Livestock use and associated management practices will be conducted in a manner consistent with other resource needs and objectives to ensure that the health of rangeland resources is preserved or improved so that they are productive for all rangeland values. Where needed, public rangeland ecosystems will be improved to meet objectives.

The alternatives described in Chapter 2 of this EA are in conformance and consistent with the GCPNM RMP.

The following decisions are from Table 2.4 in the RMPs regarding Wildlife and Fish

Management.

**DFC-WF-03:** Forage, water, cover, and space will be available to wildlife of sufficient quality and quantity to support productive and diverse wildlife populations.

**DFC-WF-04:** All waters will be safely available to wildlife.

**DFC-WF-12:** Mule deer habitat will provide the necessary forage, water, cover, and shelter components for healthy, self-sustaining populations within the range of natural variability.

**DFC-WF-17:** Water sources within mule deer habitat will be safely accessible to deer and other wildlife.

**DFC-WF-20:** Pronghorn habitat will provide the necessary forage, water, cover, and shelter components for healthy, self-sustaining populations within the range of natural variability.

**DFC-WF-24:** Water sources within pronghorn antelope habitat will be safely accessible to pronghorn and other wildlife.

It has also been determined that the proposed action would not conflict with other decisions throughout these plans.

## **1.5 Relationship to Statutes, Regulations, or Other Plans**

This EA has been prepared in accordance with the requirements of NEPA and any additional Federal, State, and local statutes or laws that may be relevant to the proposed action, such as those cited below.

The statutes that govern public land rangeland management (including range improvements) are the TGA of June 28, 1934, as amended (43 U.S.C. 315), and section 102 of the FLPMA of 1976 (43 U.S.C. 1740) as amended by the PRIA of 1978 (43 U.S.C. 1901 *et seq.*).

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

The proposed action is consistent with the *Arizona Strip Interdisciplinary Mule Deer Management Plan* (AGFD and BLM 2015), which states (on pages 10-11 of the plan) that "Perennial [water] sources are generally lacking, and man-made sources such as livestock tanks, water catchment facilities and spring developments provide the bulk of water sources available for mule deer. It has been demonstrated on the Arizona Strip that improving water distribution improves distribution and habitat use by mule deer and has positive impacts on populations."

The project areas are located in Mohave County, Arizona. The proposed action is consistent with *Mohave County General Plan* adopted September 1994 and revised December 5, 2005. While the type of actions proposed in this EA is not specifically addressed in the County Plan, management of public lands is addressed. Mohave County's plan in Goal 12, Policy 12.1 (page 85) states in part: "Mohave County shall cooperate with those public agencies charged with managing properties in the public ownership, in order to achieve the goals of the County and these other agencies" (Mohave County 2005). The proposed action does not conflict with decisions contained Mohave County General Plan.

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

- Endangered Species Act (ESA) of 1973, as amended
- Arizona Water Quality Standards, Revised Statute Title 49, Chapter II
- Section 106 of the National Historic Preservation Act of 1966, as amended
- Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. 3001-3013; 104 Stat. 3048-3058)
- National Environmental Policy Act (NEPA) of 1969

## **1.6 Identification of Issues**

Identification of issues for this assessment was accomplished by considering the resources that could be affected by implementation of one of the alternatives. A summary of the issues and the rationale for analysis are given below.

- *Livestock Grazing*: The proposed water catchments with water troughs and storage tanks, and pipeline extensions would provide reliable sources of water being available at appropriate times for the grazing of livestock. This would help to improve the distribution of livestock by having the waters scattered throughout the subject pastures, while enabling use of different portions of the pastures at different times, thus enhancing grazing systems identified in existing allotment management plans.
- *Vegetation*: Disturbance to vegetation would occur during construction, including the potential loss of shrubs, grasses, and forbs along the footprint of the water catchment apron, fences, and pipelines. Maintenance could also result in trampling along the catchment apron fences and pipelines. However, providing new (and more reliable) waters would result in more uniform utilization of forage, which should aid in maintaining or achieving the desired plant composition objectives identified for each allotment.
- *Wildlife, Including Big Game Species, Migratory Birds, and Sensitive Species*: Disturbance to wildlife, including migratory birds and sensitive species, caused by noise and human presence would occur during construction. Long-term effects to wildlife could result from additional fence lines around aprons, loss of vegetation for food and

cover, changes in livestock grazing patterns, and the addition of new reliable water sources.

## **2.0 DESCRIPTION OF ALTERNATIVES**

### **2.1 Introduction**

Three grazing permittees submitted proposals to construct three water catchments, pipelines, tanks, and troughs to service four allotments as described in the proposed action. This EA focuses on the proposed action and no action alternatives. The no action alternative is considered and analyzed to provide a baseline for comparing the impacts of the proposed action. One additional alternative was considered but eliminated from further analysis. It is described in Section 2.3 along with rationale for not being further considered.

### **2.2 Description of Alternatives**

#### **2.2.1 Alternative A – Proposed Action**

The proposed action is to construct three water catchment aprons, three water ponds or install tanks, install associated troughs and pipelines, and fence off approximately two acres around each water catchment. Maintenance and construction of road access to each of the sites is also proposed (see Table 2.1). The project components (catchment, tanks, pipelines, and troughs) of each separate water catchment project are shown in Table 2.1 to illustrate the potential ground disturbance associated with each component of each water development. To clarify, these are components and together establish a functional water development. The water development is also referred to as the project, and for this analysis, there are three total water development projects. The Mt. Trumbull Allotment and Whiterock-Soapstone Allotment project areas are within the ASFO, while the Belnap and Big Springs Pipeline allotments project area is within GCPNM.

Two of the catchments would provide water for one allotment each (Mt. Trumbull and Whiterock-Soapstone allotments) (Appendix A, Figures 2-3); the third catchment would be located on the allotment boundary of Belnap and Big Springs Pipeline allotments with troughs placed in each allotment to provide water (Appendix A, Figure 4). The proposed water developments in each allotment would be available for livestock as well as wildlife including deer, small mammals, reptiles, and birds.

Within a fence enclosure a water catchment apron would be constructed, up to 1½ acres in size; an 80 to 200 thousand gallon lined pond or storage tank would be constructed, and water would be piped from the apron to a tank or pond (Appendix B, Figure B.1). An option included within this proposed action is either the construction of excavated ponds with flexible liners or large storage tanks (Appendix B, Figure B.2). The location in which either the pond or storage tank would be constructed has been inventoried for both cultural and special status plant species. The excavated ponds are typically 8 to 10 feet deep, 40 to 50 feet in diameter. Excavation of the pond would be accomplished by using heavy equipment. The slope ratio around the entire pond would be 1:1 (one-foot vertical depth for every one-foot horizontal distance). The ponds would then be lined with EPDM 45 mil (ethylene propylene diene monomer), an extremely durable synthetic rubber membrane. This product comes in approximately 50-foot widths and is bonded together using an adhesive. A fence would be constructed around the perimeter of the pond impeding animals from entering the storage pond so they do not get trapped. If storage tanks are

chosen, they would consist of a tank which would sit above ground approximately 15 feet tall, 30 to 40 feet in diameter or multiple smaller tanks may be used to provide the same volume (Appendix B, Figure B.3). Either lids or wildlife escape ramps and floating bird ladders would be installed.

Water from the pond or tank would then be piped to troughs. Each pipeline would be installed into the ground across the route using heavy equipment. This would loosen the soil and allow for the pipe to be more easily installed. The pipeline would be installed along a 10-foot wide path.

The troughs would be constructed using a heavy equipment sized tire and secured to the ground, outside the fence enclosure, using concrete (Appendix B, Figure B.44). Wildlife escape ramps would be secured in the trough before it is filled. No other new structures are proposed.

It is anticipated that up to three acres of disturbance would be associated with each catchment. This includes the apron, tanks, troughs, pipelines, and construction of two new (short) routes off existing roads, as described below.

Access to the proposed catchments would be via BLM roads 1063, 1063A, and 1727 (in addition to use of Mohave County Road 5, see Figures 2, 3, and 4). These roads were all identified in the respective RMPs for varying levels of maintenance. Road 1063 receives regular maintenance. The other two roads (1063A and 1727) are also designated routes but have not been regularly maintained (they receive Maintenance Level I, or low intensity maintenance). In order to facilitate project access for hauling materials and equipment, as well as water catchment maintenance, these two routes would require varying degrees of road maintenance. At the Belnap site, approximately 528 feet of new road would be constructed for catchment and tank construction and access (Appendix A, Figure 9). At the Belnap site, approximately 1.5 miles of existing Road 1063A would require maintenance including cutting and removal of existing juniper trees to allow trailer access over this road. No blading would be allowed or necessary along this stretch for access. (Appendix A, Figure 5). Also, at the Belnap site, existing Road 1727 would require approximately 1.9 miles of maintenance including blading within the existing right-of-way (ROW) (Appendix A, Figure 5). Any additional maintenance beyond that described would require coordination and additional cultural inventories. At the Mt. Trumbull site, approximately 1,205 feet of new road would be constructed for catchment and tank construction and access (see Appendix A, Figure 6). Both newly constructed roads would be designated public routes for ASFO and GCPNM travel management purposes.

The proposed action would include future maintenance activities for the life of each project, which is expected to be 20-50 years. The exact maintenance requirements are not known, but are expected to include annual inspections of the catchment apron material and replacing or patching material when repairs are needed, and annual inspections of the pipeline to the trough, which may include digging to find and repair leaks or clogs in the pipe.

Materials for construction of the proposed projects would primarily be provided by the Natural Resources Conservation Service. Additional funding may be provided by the permittees,

Arizona Strip Grazing Board, AGFD, and the BLM. Labor is typically provided by the grazing permittees as part of the cost sharing agreement.

**Table 2.1. Proposed Range Improvements.**

Allotment	Improvement Type	Proposed Number	Proposed Length (ft.)	Acres of Potential Ground/Vegetation Disturbance	% of Allotment Disturbed**
Mt. Trumbull	Catchment	1	N/A	2	
	Trough	1	N/A	0.10	
	Storage tank or pond	1	N/A	0.25	
	Pipeline	N/A*	443	0.10	
	Access road	N/A*	1,205	0.25	
<b>Total</b>				<b>2.7</b>	<b>0.00009%</b>
Whiterock-Soapstone	Catchment	1	N/A	2	
	Trough	1	N/A	0.10	
	Storage tank or pond	1	N/A	0.25	
	Pipeline	N/A*	500	0.10	
<b>Total</b>				<b>2.45</b>	<b>0.00013%</b>
Belnap	Catchment	1	N/A	2	
	Trough	1	N/A	0.10	
	Storage tank or pond	1	N/A	1	
	Pipeline	N/A*	1,027	0.20	
	Access road	N/A*	528	0.10	
<b>Total</b>				<b>3.4</b>	<b>0.00047%</b>
Big Springs Pipeline	Trough	1		0.10	
	Pipeline	N/A*	200	0.05	
<b>Total</b>				<b>0.15</b>	<b>0.0000027%</b>
<b>Total for the 4 allotments</b>		<b>10</b>	<b>3,903</b>	<b>9</b>	<b>0.000078%</b>

\* Information on pipelines and roads are addressed in the “length” column since they are linear features.

\*\* Applies to federal acres (BLM and NPS-managed lands) in allotment.

### **Best Management Practices/Design Features**

The following best management practices (BMPs)/design features are included in the proposed action to minimize the impacts of the proposed action to social and natural environmental resources.

#### ***Cultural Resources***

- Any cultural (historic/prehistoric site or object) or paleontological resource (fossil remains of plants or animals) discovered within the project areas would immediately be



reported to the ASFO and/or GCPNM Manager(s) or their designee. All operations in the immediate area of the discovery shall be suspended until written authorization to proceed is issued. An evaluation of the discovery shall be made by a qualified archaeologist or paleontologist to determine appropriate actions to prevent the loss of significant cultural or scientifically important paleontological values.

- An additional archaeological survey (intensive level, Class III cultural resources inventory) shall be required in the event the proposed project location is changed or additional surface disturbing activities are added to the project after the initial survey. Any such survey would have to be completed prior to commencement or continuation of the project.
- If in connection with this work any human remains, funerary objects, sacred objects, or objects of cultural patrimony as defined in the Native American Graves Protection and Repatriation Act (Public Law 101-601; 104 Stat. 3048; 25 U.S.C. 3001) are discovered, operations in the immediate area of the discovery would stop, the remains and objects would be protected, and the ASFO and/or GCPNM Manager(s) (or their designee) would be immediately notified. The immediate area of the discovery would be protected until notified by the ASFO and/or GCPNM Manager(s) (or their designee) that operations may resume.

### ***Wildlife Resources***

- The work crew chief must notify the BLM wildlife team lead at 435-688-3373 if California condors visit the worksite while construction is underway. Project activities would be modified or delayed where adverse effects to condors may result.
- If an active bird nest is found during construction in a location that would be adversely affected by operations at the site, the BLM wildlife team lead would be contacted to determine an alternative action.
- Any hollow metal and/or plastic (PVC) pipes and posts used or stored temporarily during construction or left permanently in place would be capped to prevent birds, small mammals, or reptiles from becoming entrapped.
- No hazing or harassment of wildlife is permitted.
- No smooth or barbed wire t-posts structures would be used to strengthen the integrity of the troughs to keep them from moving. Instead, heavy equipment sized tires would be secured using concrete. This would facilitate ingress and egress of wildlife, particularly bat species.
- Wildlife escape ramps would be secured in each trough before it is filled. Either lids or wildlife escape ramps and floating bird ladders would be installed to the storage tanks or ponds.
- Construction would be limited to daylight hours to minimize impacts to wildlife.
- Open trenches have the potential to trap and injure wildlife. During pipeline construction these risks would be mitigated by minimizing the length of time trenches are left open, providing escape avenues (lateral trenches) for wildlife when left overnight, and inspecting the trenches prior to backfill activities.

- The project sites would be cleaned up at the end of each day the work is being conducted (e.g., trash removed, scrap materials picked up); waste materials would be disposed of promptly at an appropriate waste disposal site. “Waste” means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes, and equipment. “Waste” also includes the creation of micro-trash such as bottle caps, pull tabs, broken glass, cigarette butts, small plastic, food materials, bullets, bullet casings, etc. No micro-trash would be left at project sites to minimize the likelihood of condors visiting the site. BLM staff may conduct site visits to the area to ensure adequate clean-up measures are taken.

### *Soil Resources*

- Soil disturbance associated with construction activities would be limited to the proposed project footprint.
- Construction activities would be limited to periods when the ground surface is not excessively wet in order to avoid soil compaction and displacement. Excessively wet is defined by ruts four inches or deeper forming in the soil from the weight of equipment tires or tracks.

### *Vegetation Resources*

- Vehicles and equipment would be power washed off-site before construction activities begin to minimize the risk of spreading noxious weeds. This would include cleaning all equipment before entering the Arizona Strip. The project areas would be monitored by BLM staff and permittees for noxious weeds for two years following completion of the projects.
- Topsoil and vegetation removed from the Belnap catchment apron area would be scattered or piled near the apron. The resulting biomass should not be buried by any soils or rock excavated for the apron or tank that originated more than 4 inches below initial grade.
- If seeding is deemed necessary to reduce erosion or accentuate restoration of bare ground at any of the sites, site specific seed would be applied at quantities and season to ensure successful restoration.

### *Hazmat*

- At no time would vehicle or equipment fluids (including motor oil and lubricants) be dumped on public lands. All accidental spills would be reported to the authorized officer and be cleaned up immediately, using best available practices and requirements of the law, and disposed of in an authorized disposal site. All spills of federally or state listed hazardous materials which exceed the reportable quantities would be promptly reported to the appropriate agency and the authorized officer.

## **Monitoring**

Monitoring would consist of BLM staff inspecting the project site during the construction phase of each water catchment to ensure compliance with the BMPs/design features listed above. Monitoring for invasive noxious weeds would occur for a minimum of two years following completion of the project. The water catchments would be monitored on a yearly basis by the grazing permittees to ensure the water catchments, pipelines, troughs and storage tanks are functioning properly. Monitoring would include inspections of the pipeline routes to determine if public use is occurring such that the routes are becoming new “roads” and therefore if additional mitigation (beyond concealment of the routes using natural materials as barriers) is necessary.

### **2.2.2 Alternative B – No Action**

Under the no action alternative, the proposed water catchments, pipelines, and troughs would not be installed on BLM administered lands. Grazing would continue in the above-mentioned allotments without the addition of any new rangeland improvements.

## **2.3 Alternatives Considered but Eliminated from Detailed Analysis**

### **2.3.1 Construct Earthen Reservoirs**

Under this alternative, earthen reservoirs would be constructed instead of installing water catchments, pipeline extensions and new water troughs. This would likely not result in reliable water sources due to the scattered, unreliable rainfall events that tend to occur on the Arizona Strip. Construction of reservoirs would also create a larger area of disturbance on vegetation and soil. The success of these reservoirs would be a risk regarding holding capabilities based upon the soil type in which they would be built and the soil’s inability to retain water. This alternative would therefore not address the purpose and need for action and was thus not carried forward for detailed analysis.

## **3.0 AFFECTED ENVIRONMENT**

### **3.1 Introduction**

The purpose of this chapter is to describe the existing environment potentially affected by the alternatives in order to assist the reader in understanding the existing situation. The affected environment of this EA was considered and analyzed by an interdisciplinary team of resource specialists. Table 3.1 (below) addresses the elements and resources of concern considered in the development of this EA; this table indicates whether the element/resource is not present in the project area, present but not impacted to a degree that requires detailed analysis or present and potentially impacted. The resources identified and discussed in Section 3.2 of this EA include the relevant physical, social and biological conditions that may be impacted with implementation of one of the alternatives and provides the baseline for comparison of impacts described in Chapter 4.

### **3.2 General Setting**

The proposed project areas are represented by the following ecological sites as described by the Natural Resource Conservation Service. The Mt. Trumbull Allotment site is located in Limestone Upland 13-17" precipitation zone (p.z.) The Whiterock-Soapstone site is Limestone Hills 13-17" p.z. The Belnap Allotment Site is located in Loamy Upland 10-14" (p.z.). The portion of the neighboring Big Springs Pipeline Allotment where the proposed trough and pipeline would be constructed is the same soil and vegetation type as the Belnap Allotment catchment site (see Appendix A, Figure 5-7). The vegetation species common to these ecological sites are detailed in 3.5.2 Vegetation.

### **3.3 Elements of Resources of the Human Environment**

The BLM is required to consider many authorities when evaluating a Federal action. Those elements of the human environment that are subject to the requirements specified in statute, regulation, or executive order, and must be considered in all EAs (BLM 2008c) have been considered by BLM resource specialists to determine whether they would be potentially affected by the proposed action or other alternative(s). These elements are identified in Table 3.1, along with the rationale for determination on potential effects. If any element was determined to potentially be impacted it was carried forward for detailed analysis in this EA. If an element is not present or would not be affected, it was not carried forward for analysis. Table 3.1 also contains other resources and elements 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 3.1 Elements/Resources of the Human Environment**

NP = Not present in the area impacted by any of the alternative

NI = Present, but not affected to a degree that detailed analysis is required

PI = Present with potential for impact – analyzed in detail in the EA

Resource	Determination	Rationale for Determination
Air Quality	NI	The project areas are located in an area that is unclassified for all pollutants and has been designated as Prevention of Significant Deterioration Class II. Although livestock congregating at water developments can create fugitive dust, this dust creation is very localized and temporary. None of the alternatives are likely cause Class II standards to be exceeded.
Areas of Critical Environmental Concern (ACEC)	NP	None of the proposed project areas are located within an ACEC.
Environmental Justice	NI	Minority, low-income populations, and disadvantaged groups may be present within the county and may use public lands that surround the project area. The proposed action would not cause any disproportionately high and adverse effects on minority or low-income populations, individually or collectively because there are no exposure pathways by which any population would come into contact with environmental or health hazards with chemical, biological, physical, or radiological effects.
Farmlands (Prime or Unique)	NP	Prime farmland is described as farmland with resources available to sustain high levels of production. In the southwest, it normally requires irrigation to make prime farmland. In general, prime farmland has a dependable water supply, a favorable temperature and growing season, acceptable levels of acidity or alkalinity, an acceptable content of salt and sodium, and few or no rocks. Based on these definitions, no prime or unique farmlands exist within the project area or anywhere within the ASFO.
Floodplains	NP	No actions are proposed that would result in permanent fills or diversions, or placement of permanent facilities, in floodplains or special flood hazard areas.
Native American Religious Concerns	NI	The proposed action is not expected to limit access to or ceremonial use of Native American sacred sites. As such, no effects to Native American religious concerns are anticipated.
Threatened, Endangered or Candidate Plant Species	NI	There are no threatened, endangered or candidate plant species known to occur in or near the project areas.
Threatened, Endangered or Candidate Animal Species	NI	The proposed project areas do not lie within any critical habitat that has been designated or proposed under the ESA for animal species. The California condor may occasionally fly over or feed in these allotments at any time of year. California condors are federally listed as endangered and a population of these condors was reintroduced on the Arizona Strip in 1996. This population

		<p>is designated as experimental non-essential under Section 10(j) of the ESA.</p> <p>Condors are strictly scavengers and prefer to eat large, dead animals such as mule deer, elk, pronghorn, bighorn sheep, cattle, and horses. Condors range widely, easily covering over 100 miles in a day, and their current range includes the entire Arizona Strip. Although condors may either fly over or feed within the allotments, they have not been observed doing so. In addition, best management practices are incorporated into the proposed action (concerning site clean-up and no harassment of wildlife) that would minimize the likelihood of impacts to condors. Thus, no effect to this species is expected from the proposed action.</p> <p>No other federally listed animal species are known or suspected to occur in or near any of the project areas.</p>
Cultural Resources	NI	<p>Class III inventories have been completed for the proposed catchment locations. No cultural resources were discovered during these inventories or project relocated to avoid resources. In addition, it should be noted that the proposed new range infrastructure is located in areas that have been grazed previously. Likely areas where livestock could congregate and potentially impact surface resources (i.e. around new water troughs) were also inventoried for cultural resources and none were found. No potential cultural areas, such as rock shelters, rock art or standing architecture were found near these project areas. The proposed projects would not open up “new areas” to livestock use, but rather would distribute cattle more evenly across the various pastures for more uniform utilization.</p> <p>In the event that significant cultural resources are found to be adversely impacted due to construction and use of the proposed range facilities, preventative and mitigation measures would be determined on a site-specific basis, and then implemented.</p>
Invasive, Non-native Species	NI	<p>Scotch thistle (<i>Onopordum acanthium</i>), a noxious weed, is known to occur within these allotments, but not in the vicinity of the project areas (see below). Scotch thistle is treated on a regular basis utilizing integrated weed management.</p> <p>Cheatgrass, an invasive species, is present in the four allotments. Cheatgrass is not on the Arizona Noxious Weed list; however, it is a very invasive non-native annual grass species. Cheatgrass is a ubiquitous weed and is only treated on a site specific limited basis. Proper range practices can help prevent the spread of undesirable plant species (Sheley 1995). Sprinkle et al (2007) found that grazing exclusion does not make vegetation more resistant to invasion by exotic annuals. Reasons for this may include: 1) grazing may result in a more diverse age classification of plants due to seed dispersal and seed implementation by grazing herbivores, and 2) grazing removes senescent plant</p>

		<p>material, and if not extreme, helps open up the plant basal area to increase photosynthesis and rainfall harvesting (Holechek 1981). Loeser et al. (2007) reported that moderate grazing was superior to both grazing exclusion and high impact grazing in maintaining plant diversity and in reducing exotic plant recruitment in a semiarid Arizona grassland. It is also important to note that removal of grazing by domestic livestock does not automatically lead to disappearance of cheatgrass (Young and Clements 2007). Proper grazing use which maintains stable plant communities (as is the case in the allotments – see discussion on rangeland health in Section 3.2.1.1 of this EA) should minimize or have no effect on the spread of cheatgrass and other invasive non-native species.</p> <p><b><u>Mt. Trumbull Allotment</u></b>  One invasive, non-native species, prickly lettuce (<i>Lactuca serriola</i>) was detected within the project area during a survey on July 17, 2019. The plant was found as a single plant near the southern-most area of the proposed catchment apron and as a group of 5 plants within 10 feet of each other on the northern-most area of the proposed catchment apron. Bromes (likely <i>Bromus rubens</i>) and non-native mustards (<i>Brassica</i> or <i>Sisymbrium</i> spp.) were noted along access roads. Populations of Scotch thistle found less than a mile from the project area along the access route appear to have been chemically treated. These populations will continue to be monitored and treated as necessary.</p> <p><b><u>Whiterock-Soapstone Allotment</u></b>  A variety of invasive non-native plant species occur on access roads and near the project area. Bromes, primarily <i>Bromus rubens</i> and <i>Bromus tectorum</i>, are found throughout the project area and form the primary understory component of the area along the edge of the access road that would need to be maintained to access the proposed catchment site. Russian thistle (<i>Salsola kali</i>) has been noted around the project area and along the access road. Field bindweed (<i>Convolvulus arvensis</i>) grows along the existing access roads as well.</p> <p><b><u>Belnap and Big Spring Pipeline Allotments</u></b>  No invasive or non-native plant species were observed in the project area. In the surrounding area, along access roads, invasive Scotch thistle occurs in patches ranging from single plants to patches several yards across. These populations will continue to be monitored and treated as necessary.</p> <p><b><u>Summary</u></b>  We recognize that many things including livestock can be a vector to spreading noxious weeds. However, through</p>
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		compliance inspections, utilization monitoring, long-term trend monitoring, site visits, cooperative weed management days, and discussions with permittees, new infestations are detected and treated while treating existing infestations. It is important to note that cattle already can access the areas where improved livestock distribution is sought – the purpose for the proposed projects is to distribute cattle more evenly across each subject pasture for more uniform utilization, rather than to allow livestock grazing to occur in “new areas” which have never before been available to livestock use. No discernible impacts from the proposed action are therefore anticipated. The project areas would be closely monitored before and after disturbance for any weed establishment, and weeds would be treated as appropriate.
Wastes (hazardous or solid)	NI	<p>No known hazardous or solid waste issues occur in the allotments, and the alternatives would not produce hazardous or solid waste. While motorized vehicles (used by the permittees for grazing management activities) involve use of petroleum products, which are classified as hazardous materials, there is nothing unique about the actions associated with the alternatives which could affect their use or risks associated with their use.</p> <p>No chemicals subject to reporting under Superfund Amendments and Reauthorization Act, Title III in an amount equal to or greater than 10,000 pounds would be used, produced, stored, transported, or disposed of annually in association with any of the alternatives. Furthermore, no extremely hazardous substances, as defined in 40 CFR 355, in threshold planning quantities, would be used, produced, stored, transported, or disposed of in association with any of the alternatives.</p>
Water Quality (drinking / ground)	NI	Water used for this project is not a source of culinary water for human populations. A full analysis of groundwater effects is beyond the scope and scale of this analysis, although effects are anticipated to be negligible due to the small footprint of the proposed water developments.
Wetlands / Riparian Zones	NP	There are no classified wetland or riparian zones on public land within the four allotments with proposed catchments. There is a small mineralized spring in the Whiterock-Soapstone Allotment that does have a discernable riparian zone. Federal policy defines wetlands as areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and which, under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. BLM Technical Reference 1737, <i>Riparian-Wetland Area Management</i> , includes marshes, shallow swamps, lakeshores, bogs, muskegs, wet meadows, estuaries, and riparian areas as wetlands. Thus, this area is not by definition a wetland/riparian area.
Wild and Scenic Rivers	NP	There are no wild and scenic rivers within the proposed project area.



Wilderness	NP	There are no wilderness areas within the proposed project.
Livestock Grazing	PI	The purpose of the proposed water developments is to provide more reliable waters in the affected pastures/allotments, which would result in more uniform distribution of livestock and utilization of forage throughout all the allotments involved in these projects. This issue is therefore analyzed in detail in this EA.
Woodland / Forestry	NI	Pinyon-juniper (PJ) woodlands exist throughout the three allotments. In the Belnap-Big Springs Pipeline site, where the water catchment project would occur there is a moderate density of PJs. The Whiterock-Soapstone and the Mt. Trumbull proposed catchment sites have approximately 25 percent pinyon-juniper (light cover). Individual PJs would be removed to allow access on both existing and proposed routes. The three proposed catchments would consist of construction of a storage tank and trough. However, the proposed catchment and infrastructure would avoid trees wherever possible. Alteration of the forest structure would not occur, other than potential removal of the stated few individual trees. The proposed action would therefore not affect the availability of, or access to, these resources.
Vegetation	PI	Impacts to vegetation at the sites of the proposed catchments and along access roads would occur during installation of each proposed project; vegetation would be removed at each site. This issue is therefore analyzed in detail in this EA.
Sensitive Plant Species	NI	Mount Trumbull beardtongue ( <i>Penstemon distans</i> ) is known to occur in the Big Springs Pipeline Allotment and one population occurs in the same pasture where a trough is proposed. However, GIS data indicates that it does not occur anywhere near the proposed project location. This has been verified by a field visit and clearance from the Special Status Plant Specialist. While the proposed trough in Big Springs Allotment would provide a more reliable water source for cattle in the northwest portion of the pasture than currently exists, three other water sources already draw cattle to this portion of the pasture. It is unlikely that the enhanced cattle movement would shift any existing use of the <i>Penstemon</i> by cattle within the pasture.
Wildlife (including sensitive species and migratory birds)	PI	Short-term impacts to wildlife could occur during construction and maintenance activities caused by noise, presence of humans, loss of vegetation for food and shelter, and destruction of burrows caused by the installation of the catchment and pipelines. In addition, these waters would be available for wildlife use, thereby increasing the water supplies in these areas. This issue is therefore analyzed in detail in this EA.
Soil Resources	NI	While there would be a permanent loss of soil resources of approximately 9 acres, overall impacts to soil resources are

		expected to be negligible since this amounts to only 0.01% of the allotments as a whole. The grazing management systems for each allotment would continue to be followed, and with more reliable waters in the subject pastures, more uniform distribution and utilization would occur across the pastures, thus reducing long-term effects close to each water. Thus, impacts to soils would be minimal due to improving livestock distribution and reducing the potential overuse of the vegetative resource that provides soil cover and reduces potential erosion throughout the allotments and pastures.
Recreation	NI	The proposed project locations are in remote areas away from primary travel routes used by visitors. Due to the remoteness of the proposed project areas and the low overall visitation to these areas, disturbance to the recreating public (including displacement of users) is unlikely.
Visual Resources	NI	All of the proposed project areas are within areas designated as VRM Class III. The objective of this class is to partially retain the existing character of the landscape. The project areas are in remote locations away from primary travel routes. The proposed projects may draw attention to the casual observer but would not dominate the landscape and would not be seen by the majority of visitors to the ASFO and GCPNM. The projects would therefore meet VRM Class III objectives.
Geology / Mineral Resources / Energy Production	NI	The proposed action would not affect geology or mineral resources. A records search of LR2000 on July 5, 2019, found there are no active mining claims or authorized mineral leases or mineral material sites in the project areas. There is no energy production in the Arizona Strip District.
Paleontology	NI	The Potential Fossil Yield Classification for the Moenkopi and Kaibab Formations (where the project areas are located) is 3, or Moderate. The potential for significant fossils is low. No paleontological resources are known to occur in the project areas.
Lands / Access	NI	Access to public lands would not be altered or impaired by implementation of the proposed action. No other lands issues have been identified in connection with the proposed action.
Fuels / Fire Management	NI	No hazardous fuel reduction or fuels management projects are proposed for the area. Installation of the catchments and pipelines would not affect fire management.
Socio-economic Values	NI	The economic base of the Arizona Strip is mainly ranching with a few gypsum/selenite and uranium mines. Nearby communities are supported by tourism (including outdoor recreation), construction, mining activities, and light industry. The social aspect involves remote, unpopulated settings with moderate to high opportunities for solitude. Construction of the proposed water developments would have little impact on the local economy or social aspect of the region since there would be no displacements or disruption to established businesses or uses of the area. Two or three people could receive short-term

		employment to install the catchments and pipelines. However, the proposed action would not affect the economy overall.
Wild Horses and Burros	NP	The proposed project areas are not within a wild horse or burro herd areas or herd management areas.
Wilderness characteristics	NP	The proposed project areas are not located within any area containing the three wilderness characteristics of naturalness, opportunities for solitude, or outstanding opportunities for primitive and unconfined recreation, or within any area managed to maintain these wilderness characteristics.

### 3.4 Resources Brought Forward for Analysis

#### 3.4.1 Livestock Grazing

The proposed catchments, tanks, pipelines, and troughs would be located in four active grazing allotments with permitted AUMs and season of use as shown in the following sections. Existing water developments for each of the allotments with proposed catchments and troughs are displayed in Appendix C, Tables C1-C4.

The existing water developments are discussed by allotment in the following section. Most of these existing waters are not reliable as they are dirt reservoirs that only hold water for a short time following precipitation or winter snowmelt. Without the proposed catchments, inadequate distribution of livestock will continue on the four allotments, and specifically in the four subject pastures where the water developments are proposed. The opportunity for better livestock distribution through water developments is a proven method of overall improvement in vegetation and soil conditions within an allotment and pasture.

#### Allotment Descriptions

##### *Mt. Trumbull Allotment*

The Mt. Trumbull Allotment is located approximately 58 miles south of St. George, Utah (Appendix A, Figure 1). The allotment's average elevation is 6010 feet. The allotment includes two separate areas located 9.5 miles apart. The southern area is the Frog-Cane winter pasture located below Whitmore Point. The Frog-Cane pasture is within GCPNM-NPS managed lands. The northern portion of the allotment includes all the summer and fall pastures. These pastures are located around the Mt. Trumbull town site and on top of the Hurricane Cliffs (Appendix A, Figure 2).

##### Mt. Trumbull Allotment Ownership:

Public Lands (BLM)	13,210 acres
NPS	15,817 acres
State	2,000 acres.
Private	<u>2,240 acres</u>
Total	33,267 acres.

Current grazing is operated under a deferred-rotation system. There are ten pastures within the allotment that are split into summer-fall pastures (Rim, North Stockade, South Stockade and Boys), spring-winter pastures (Side of Mountain, 160, and Whitmore Point), and a winter pasture (Frog and Cane). When forage and water conditions permit, the summer-fall pastures are operated under a rest-rotation schedule, which allows total rest of one of the summer pastures. The Frog and Cane pasture is divided into two units (east and west) and is used to defer a portion of the allotment during the spring growing season. In addition, to these pastures, there is a private and state section pasture which are used in the rotation. These pastures are generally used in the spring and fall during transition.

**Table 3.2. Mt. Trumbull Allotment Permitted Season and AUMs.**

ALLOTMENT NAME	LIVESTOCK NUMBER	KIND	GRAZING SEASON		% PUBLIC LAND	TYPE USE	AUMS
			BEGIN	END			
MT. TRUMBULL	144	Cow	12/01	11/30	87	ACTIVE	1,503
	5	Horse	12/01	11/30	87	ACTIVE	52
	1	Cow	03/01	06/30	87	ACTIVE	3

The Rim Pasture, where the proposed project area would be located has three other troughs or dirt reservoirs (Appendix A, Figures 2 and 6). These are arranged roughly north to south along the east-west midline of the pasture. In addition to these dirt reservoirs, there are three other catchments within the allotment. Two of the catchments are located on state land, the third is located on public land. There is no reliable water source on the east side of the Rim Pasture. The closest reliable water source in this pasture is approximately one and a half miles away from the proposed new catchment. Cows will typically not travel farther than one mile to water in the hilly-steep terrain representative of this allotment and pasture. Therefore, when water sources exceed one-mile distance, livestock distribution is poor.

The proposed catchment would provide reliable water from summer through fall in the Rim Pasture, which would facilitate a rotational use of this pasture with the other pastures in this allotment, allowing for better livestock distribution.

***Whiterock-Soapstone Allotment***

The Whiterock-Soapstone Allotment is located approximately 25 miles south of St. George, Utah (Appendix A, Figure 1). Approximately 77% of this allotment is within the ASFO, and the remaining portion is within GCPNM. The allotment is in the Colorado Plateau Sagebrush-Grassland. Elevations in the allotment average just over 5,100 feet, with Mustang Knoll in the northwest portion reaching 6,000 feet.

Whiterock-Soapstone Allotment Ownership:

Public Lands (BLM)	18,614 acres
State	0 acres
Private	<u>0 acres</u>
Total	18,614 acres

The portion of the Whiterock-Soapstone Allotment permitted to be grazed by the applicant is a two-pasture deferred rotation grazing system. Grazing occurs in either the Hole or Corral pastures from October 16 through February 28. Livestock then are moved to the other pasture to graze from March 1 through May 31 then the cattle are removed from the allotment. The next year the Hole and Corral pasture are grazed in reverse order. This system allowed each pasture to be rested during the spring growing season every other year (Appendix A, Figure 3).

**Table 3.3. Whiterock-Soapstone Allotment Permitted Season and AUMs.**

ALLOTMENT NAME	LIVESTOCK NUMBER	KIND	GRAZING SEASON		% PUBLIC LAND	TYPE USE	AUMS
			BEGIN	END			
WHITEROCK-SOAPSTONE	88	Cow	03/01	05/31	100	ACTIVE	266
			10/16	02/28	100	ACTIVE	393

The project area is in the southeastern portion of the Hole Pasture. The proposed catchment is near a historic spring (Soapstone Spring), which has “silted in” or has become full of silt and sediment to the point that the spring runs low flow only intermittently (Appendix A, Figure 7). The proposed catchment would provide reliable water to facilitate summer grazing in this allotment, as well as allow for a rotation between this allotment and the permittee’s other allotment. Other water on the allotment consists of one small-mineralized spring on the north end and reservoirs scattered throughout the pastures. A pipeline, which provides water at four additional locations, crosses the center of the allotment from a well west of the allotment. This well is now dry, and therefore reliable water is extremely limited in this allotment. In addition, the Hole Pasture has three other livestock reservoirs, ranging from slightly over one mile to nearly 2.5 miles from the proposed catchment location (see Appendix A, Figure 8). These water sources are near the western and southern fences. Cattle in the hilly-steep topography such as this allotment will typically travel one mile or less to water. As there is a lack of reliable water in this allotment, and particularly this pasture, cattle distribution is poor.

The permittee has a grazing permit for the Black Mountain Allotment with the BLM-Kanab Field Office. When the livestock are not on the Whiterock-Soapstone Allotment, they are either on the permittees private land or on the Black Mountain Allotment.

***Belnap Allotment***

The Belnap Allotment is located approximately 60 miles south of St. George, Utah on the Arizona Strip, southwest of Bundyville, Arizona (Appendix A, Figure1). Elevations range from 5,320 feet in the sagebrush draws to 5,520 feet on the pinyon-juniper ridges.

Belnap Allotment Ownership:

Public Lands (BLM)	7,279 acres
State	640 acres
Private	1,550 acres
<b>Total</b>	<b>9,469 acres</b>

Grazing on this allotment is operated under a two-pasture deferred rotation system. Cattle are turned out on the allotment December 1 and remain until May 15 (Appendix A, Figure 4). Belnap North Pasture is grazed from December 1 through February 28 and the South Pasture is used March 1 through May 15. The time of use for each pasture is alternated each year.

**Table 3.4. Belnap Allotment Permitted Season and AUMs.**

ALLOTMENT NAME	LIVESTOCK NUMBER	KIND	GRAZING SEASON		% PUBLIC LAND	TYPE USE	AUMS
			BEGIN	END			
BELNAP	110	Cattle	12/01	02/28	85	ACTIVE	277
	110	Cattle	03/01	05/15	85	ACTIVE	234
	4	Horse	12/01	02/28	85	ACTIVE	10
	4	Horse	03/01	05/15	85	ACTIVE	8
	1	Cattle	12/01	02/28	85	ACTIVE	3
	1	Cattle	03/01	05/15	85	ACTIVE	2

As with the other two allotments within this proposal, both the Belnap and Big Springs Pipeline allotments are represented by steep-hilly topography. Cattle in this type of topography typically will travel one mile or less to water. Having reliable water within cattle travel distances promotes better livestock distribution. The proposed water catchment is located within the Belnap South Pasture, the water catchment would provide reliable water for the Belnap South Pasture and with an additional proposed pipeline and trough, water would be provided to the Big Springs Pipeline Allotment-Whitmore Point Pasture (Appendix A, Figure 9). Currently, there is a dirt stock pond or reservoir (Fence Pond) within approximately two miles of the proposed catchment, this reservoir captures and holds water for short periods (see Appendix A, Figure 5). The neighboring Big Springs Allotment-Whitmore Pasture (discussed in further detail below) also has a couple of dirt reservoirs available within a mile or so of the proposed trough however, these dirt tanks do not provide reliable water. The proposed catchment would allow better livestock distribution and allow rest to other parts of both of these pastures. Current livestock use in the area of the proposed catchment is none to slight. Although use throughout the two pastures rarely exceeds moderate grazing, better distribution would allow for light use throughout both of these pastures.

***Big Spring Pipeline Allotment***

The Big Spring Pipeline Allotment is approximately 65 miles south of St. George, Utah within GCPNM (Appendix A, Figure 1). The north end of the allotment boundary begins three to four miles south of Bundyville, Arizona and runs approximately 15 miles south towards the Colorado River. Included in the allotment are Whitmore Point, Whitmore Canyon, Kinney Point, Cold Spring Point, and Cold Spring Canyon. Elevations range from 3,400 feet in Whitmore Canyon to 7,000 feet near Death Valley Lake. The topography of the allotment is rough. Flat ridge tops with steep slopes and canyon bottoms are characteristic of the allotment.

Big springs Pipeline Allotment Ownership:

Public Lands (BLM)	42,222 acres
NPS	13,680 acres
State	1,280 acres
Private	<u>403 acres</u>
Total	57,585 acres

A grazing system was established on the Big Spring Pipeline allotment in 1994. This system was split into two units; a winter unit that is grazed from October 16 to April 15 and a summer unit that is grazed from April 16 to October 15. Within the winter unit are four pastures operating under a four pasture, deferred-rotation schedule. Included in the winter unit are the Cold Spring, Airstrip, Lava, and Chaparral pastures. Each pasture is grazed approximately 45 days during the use period. Each pasture receives spring use (March 1 – April 15) once every four years.

The summer unit is operated as a two-pasture deferred-rotation system. Whitmore Point and Cole Spring pastures are grazed in the summer rotation. One of the pastures receives grazing from April 16 to July 15, the other July 16 to October 15; grazing use periods for each pasture are switched each year. This is done to negate a pasture being used at the same time each year and to allow rest and recovery during a portion of the growing season.

In 1997 the grazing system was modified so that the allotment is grazed from October through May. Livestock are moved off the allotment and taken to a private pasture from June through September. This has allowed all pastures recovery time during the summer growing season.

**Table 3.5. Big Springs Pipeline Allotment Permitted Season and AUMs.**

ALLOTMENT NAME	LIVESTOCK NUMBER	KIND	GRAZING SEASON		% PUBLIC LAND	TYPE USE	AUMS
			BEGIN	END			
BIG SPRING PIPELINE	211	Cow	03/01	02/28	92	ACTIVE	2,330
	20	Horse	03/01	02/28	92	ACTIVE	220
	1	Cow	03/01	10/31	92	ACTIVE	7

See the above Belnap Allotment for discussion of current water needs in the Big Springs Allotment-Whitmore Point Pasture, and benefits from the proposed catchment.

### 3.4.2 Vegetation

#### *Mt. Trumbull Allotment*

The proposed project area in the Mt. Trumbull Allotment is in an area identified by the Uinkaret Mountains Landscape Restoration Project Environmental Assessment (DOI-BLM-AZ-A030-2013-0001-EA) to be treated to promote a “mosaic of lower seral stages in order to provide a diversity of vegetation communities” (BLM 2017). Previously the area was dominated by a mixture of pinyon pine (*Pinus monophylla*), juniper (*Juniperus* spp.) and sagebrush (*Artemisia tridentata*). Mechanical treatment (lop and scatter) and chemical treatment (application of

herbicide) in 2018 have largely replaced the dominant vegetation type in and near the project area with forbs such as penstemon and sphaeralcea and grasses such as blue grama (Appendix A, Figure 10). Approximately half of the area where the proposed catchment apron would be situated is in an area where chemical treatment has occurred, but the mechanical treatment has not. Due to the recent nature of the vegetation treatments, the area is in a noticeable transition in dominance to a different vegetation type. At this time, the vegetation is very sparse within the project area. Near the project area (within a mile), grasses are becoming a large, noticeable part of the landscape. Bryophyte and lichen dominated biological soil crusts surround the project area on ridgelines and rocky outcrops. They are not found in any patches larger than three inches square within the project area and are largely confined to rocky outcrops.

### ***Whiterock-Soapstone Allotment***

The proposed project area in the Whiterock-Soapstone Allotment is in a mixed juniper and sagebrush upland. Juniper dominates the southern third of the project area while sagebrush dominates the northern two-thirds. The understory is a mix of grasses, including several species of wheatgrass (*Agropyron* spp.) and Indian ricegrass (*Achnatherum hymenoides*), shrubs (primarily antelope bitterbrush (*Purshia tridentata*) and broom snakeweed (*Gutierrezia sarothrae*). The project area and surrounding area have been treated at least three times – a chaining and seeding in 1948, two chemical treatments in 1967 and 1996, and a prescribed fire in 2010 have been applied to increase the percentage of forage species (Appendix A, Figure 12).

### ***Belnap and Big Spring Pipeline Allotments***

The proposed project area in the Belnap and Big Spring Pipeline allotments is in a mixed juniper tree (*Juniperus* spp.) and sagebrush (*Artemisia tridentata*) upland. Within both the project area and the surrounding area, pinyon pine trees (*Pinus edulis*) are scattered throughout the predominately juniper and sagebrush open woodland. An understory of grasses such as blue grama (*Bouteloua gracilis*) and Indian ricegrass and forbs such as paperflower (*Psilostrophe* spp.) and sphaeralcea (*Sphaeralcea* spp.) are much in evidence (Appendix A, Figure 14). Scattered bryophytes and lichens associated with biological soil crust occur in the portion of the project area where the apron is proposed. Cacti (primarily *Opuntia* spp. and *Echinocereus* spp.) and yucca (*Yucca baccata*) are common.

#### **3.4.2.1 Land Health Evaluations**

The BLM conducted field evaluations for rangeland health conditions for the four allotments addressed in this proposal. LHEs have been completed for each of these allotments. Table 3.6 summarizes the LHE determination recommended by the IAT for each allotment. Following the table, there is a short narrative that describes LHEs details specific to that allotment.

The IAT, during the LHE process, determined that the Mt. Trumbull and Belnap Allotments met all applicable standards for rangeland health; the Big Springs Pipeline Allotment and the Whiterock-Soapstone Allotment are making significant progress toward meeting the standards for rangeland health.



**Table 3.6. Land Health Evaluation Determination**

<b>Allotment Name</b>	<b>Allot. #</b>	<b>Recommended Determination</b>
Mt. Trumbull	4826	Met all applicable standards for rangeland health.
Whiterock-Soapstone	4804	Making significant progress toward meeting.
Belnap	4849	Met all applicable standards for rangeland health.
Big springs Pipeline	4870	Making significant progress toward meeting.

***Mt. Trumbull Allotment***

The field portion of the LHE for this allotment was completed in 2001; on October 12, 2001, the ASFO completed a LHE report on the Mt. Trumbull Allotment. The IAT that prepared this evaluation report recommended that the allotment met all applicable standards for rangeland health.

Standard 1 (Upland Sites) is being met; soil conditions including erosion rates are within the expected ranges for the sites. Adequate perennial vegetation ground cover are present to protect soils from excessive erosion rates. Standard 3 (Desired Resource Conditions) is being met. Plant communities match the ecological site descriptions (ESDs) of what is expected for the site. Recent vegetation treatments in this allotment have brought the few areas that had excessive pinyon-juniper, and sagebrush encroachment back into alignment with the ESDs and expected overstory and ground cover for the sites. The IAT considered all monitoring data and determined that all objectives are being met in the allotment.

***Whiterock-Soapstone Allotment***

The field portion of the LHE for this allotment was completed in 2004. This allotment is located on lands managed by both the ASFO and GCPNM. The LHE report was approved on October 5, 2009 (BLM 2009).

It was determined by the IAT that the allotment was making significant progress towards meeting the applicable standards for rangeland health. The factor for not meeting Standard 1 and 3 is attributed to woody species encroachment including pinyon, juniper, and sagebrush. This has limited or restricted adequate desirable perennial ground cover including grasses and forbs. This has resulted in a deviation from the ESD and Desired Plant Communities (DPC) on less than 500 acres of the allotment. Any future vegetation treatments to address these deviations from the ESDs would be analyzed in a separate NEPA document.

***Belnap Allotment***

The field portion of the LHE for this allotment was completed in 2004. On October 5, 2009, GCPNM completed a LHE report on the portion of the Whiterock-Soapstone Allotment managed by GCPNM. On October 2, 2009, ASFO completed a LHE report on the portion of the Whiterock-Soapstone Allotment managed by the ASFO (BLM 2009).

It was determined by the IAT that the allotment was making significant progress towards meeting the applicable standards for rangeland health. The factor for not meeting Standard 1 and 3 is attributed to woody species encroachment including pinyon, juniper, and sagebrush. This has limited or restricted adequate desirable perennial ground cover including grasses and forbs. This has resulted in a deviation from the ESD and DPC on less than 500 acres of the allotment. Any future vegetation treatments to address these deviations from the ESDs would be analyzed in a separate NEPA document.

### ***Big Springs Pipeline Allotment***

The field portion of the LHE for this allotment was completed in 2004. On May 22, 2006 GCPNM completed LHE report on the Big Springs Pipeline Allotment.

It was determined by the interdisciplinary assessment team that the allotment was making significant progress towards meeting the applicable standards for rangeland health. The factor for not meeting Standard 1 and 3 is attributed to woody species encroachment including pinyon, juniper, and sagebrush. This has limited or restricted adequate desirable perennial ground cover including grasses and forbs. This has resulted in a deviation from the ESD and DPC on areas throughout the allotment. A specific acreage of areas that would benefit from vegetation treatment are unknown. Future inventories for potential vegetation treatments to address these deviations from the ESDs would be analyzed in a separate NEPA document.

## **3.4.3 Wildlife, Including Big Game Species, Migratory Birds, and Sensitive Species**

### **3.4.3.1 Big Game Species**

#### ***Mule Deer (Odocoileus hemionus)***

Mule deer can be found throughout most of the Arizona Strip, and they occur in a wide variety of habitat types. Although vegetative communities vary throughout the range of mule deer, habitat is nearly always characterized by areas of thick brush or trees interspersed with small openings. The thick brush and trees are used for escape cover whereas the small openings provide forage and feeding areas. Mule deer often bed in juniper thickets, Gambel oak stands, or other shrubby areas. Mule deer inhabit several habitat types on the Arizona Strip including ponderosa pine, pinyon-juniper, sagebrush, chaparral, riparian corridors, and steep canyons. They are rarely found in low-elevation desert scrub habitats.

Concentrations of mule deer on the Arizona Strip occur on Black Rock and Poverty Mountains, on Mt. Trumbull, in the Buckskin Mountains, and in the Kanab Creek area. All the project areas except Mt. Trumbull occur within AGFD Game Management Unit (GMU) 13B. The Mt. Trumbull project occurs within GMU 13A. The mule deer population in this unit exists at low densities: in some areas less than 1 per square mile. The population, while not at levels attained in the 1970s, has shown signs of growth in recent years. The Black Rock Mountain area and southern portions of GCPNM have historically contained the highest densities of mule deer (AGFD & BLM 2015). The mule deer population in 13B is estimated to be at 1,529 and 1,396 in 13A after the most recent surveys conducted in 2017.

This area contains few perennial water sources. Natural springs do exist and many have been developed for livestock use. Much of the water availability in the unit is from stock tanks, livestock developments, and water catchment facilities. Numerous water sources have been developed to make more habitats accessible to deer.

AGFD has categorized habitat characteristics for mule deer on the Arizona Strip. Habitat categories are based on several factors such as topography, forage and cover, availability of water, and limiting factors such as prohibitive fencing. The proposed catchment projects are all within the yearlong habitat category. AGFD considers the mule deer population across the Arizona Strip to be stable and increasing.

Mule deer in particular are dependent on free-standing water during very dry periods; according to Remington et al. (1984) and Hervert and Krausman (1986), water developments in Arizona experience the most use by mule deer during hot summer months. According to habitat guidelines for mule deer, “water sources should not be more than 3 miles apart so all mule deer habitat is within 1.5 miles of a permanent water source” (Heffelfinger et al. 2006).

Mule deer do not typically use only one water source within their home ranges. Mule deer in semi-arid desert environments will freely move 1.5 miles to find water, but farther away from the water source, the deer are found at decreasing densities (Heffelfinger et al. 2006; Wood et al. 1970). Therefore, it is beneficial to have more than one water source dedicated to mule deer within a 3-mile radius so that they can use different portions of available foraging habitat throughout the year. This can be important if one area has experienced a drought or palatable species are not at optimum levels. It also reduces the pressure on each individual catchment, reducing needs for water hauling, ensuring adequate water is available per individual, and reducing the risk of a water source going completely dry. Mule deer are particularly dependent on reliable water during fawning and lactation periods (Rosenstock et al. 2004). This period is typically in May through July and into August, which is also typically the warmest time of year. Having reliable water sources spaced no more than 3 miles apart reduces individual stress to these animals, encouraging survival of fawns.

### **3.4.3.2 Migratory Birds**

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

The USFWS is mandated to identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act. The USFWS *Birds of Conservation Concern 2008* (USFWS 2008) is the most recent effort to carry out this mandate. Bird species considered for

the Birds of Conservation Concern include nongame birds, gamebirds without hunting seasons, subsistence-hunted nongame birds in Alaska, ESA candidate, proposed, and recently delisted species. Birds of Conservation Concern found on the Arizona Strip within the habitat types of the project area are summarized in Table 3.7.

Nineteen bird species were observed using water catchments for drinking or bathing in southwestern Arizona (Rosenstock et al. 2004) and 29 species have been observed using wildlife drinkers on the Arizona Strip (Langston/BLM data).

**Table 3.7. Birds of Conservation Concern Associated with the project area**

Species	Habitat Type
Prairie Falcon	Typically occupy drier and more open country than peregrine falcons, but there is some overlap in habitat. Cliff faces are used for nesting. Found year-round on the Arizona Strip in low numbers.
Gray Vireo	Considered a pinyon-juniper obligate and found in pinyon-juniper forest during the breeding season. Often associated with a low woody shrub layer. Fairly common on the Arizona Strip.
Juniper Titmouse	Considered a pinyon-juniper obligate and a year-round resident of pinyon-juniper forests. Typically nests in cavities found in juniper trees. Common on the Arizona Strip.
Brewer's Sparrow	Breeds in sagebrush shrublands, but typically only nests on the Arizona Strip during years of high winter precipitation, otherwise breeding occurs further north. Fairly common in large migrating flocks in spring and fall, otherwise uncommon on the Arizona Strip.
Cassin's Finch	Small flocks sporadically occur in pinyon-juniper woodlands during the non-breeding season. Found in higher elevation habitat types such as ponderosa pine during the breeding season. Uncommon on the Arizona Strip.
Black-chinned Sparrow	Breeds in the chaparral habitat type within rocky canyons, especially where tall shrubs are present. Fairly common on the west side of the Arizona Strip within its habitat type.
Bendire's Thrasher	Favors open habitat with scattered yucca, cholla cactus, or cliffrose. An uncommon breeder on the Arizona Strip.
Ferruginous Hawk Golden Eagle Peregrine Falcon Burrowing Owl Pinyon Jay	These species are also considered sensitive species and are addressed in Section 3.4.3.3.

### 3.4.3.3 Sensitive Species

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

1. There is information that a species has recently undergone, is undergoing, or is predicted to undergo a downward trend such that the viability of the species or a

distinct population segment of the species is at risk across all or a significant portion of the species range; or

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

All federally designated candidate species, proposed species, and delisted species in the five years following delisting are included as sensitive species. Based on occurrence records and monitoring data, the sensitive species that may occur within the project area and that may be affected by the proposed action are addressed below.

Additional sensitive species may also occur within the project area. However, it has been determined that these species would not be affected by actions proposed in this EA. These species are therefore not addressed further in this document. The sensitive species that will not be discussed in detail, along with the rationale for their exclusion from further analysis is located in Appendix D. Additionally, impacts to sensitive species found outside the analysis area were not analyzed.

#### **Allen's Big-eared Bat (*Idionycteris phyllotis*)**

Allen's big-eared bat usually inhabits forested areas of the mountainous southwest and is relatively common in pine-oak forested canyons and coniferous forests; however, it also may occur in non-forested, arid habitats. At most sites where this species occurs, cliffs, outcroppings, boulder piles, or lava flows are found nearby. Day roosts may include rock shelters, caves, trees and mines. Their elevational distribution ranges from 1,320 to 9,800 feet, and their main food source is small moths gleaned from surfaces or in flight (AGFD 2001). These bats are known to use stock ponds as water and food sources but are theorized as too large-bodied to drink from water catchments troughs (Herder 1996).

The project area is within pinyon-juniper woodlands and are near lava flows, cliffs, or outcroppings. Allen's big-eared bats are found throughout the Arizona Strip and likely occupy the project area. The presence of livestock reservoirs in the allotments may attract Allen's big-eared bats for drinking and foraging opportunities.

#### **Townsend's Big-eared Bat (*Corynorhinus townsendii*)**

In Arizona, summer day roosts are found in caves and mines from desert scrub up to woodlands and coniferous forests. Night roosts may often be in abandoned buildings. In winter, they hibernate in cold caves, lava tubes and mines mostly in uplands and mountains from the vicinity of the Grand Canyon to the southeastern part of the state (AGFD 2003a). These bats prefer to hang from open ceilings in caves or mines and do not use crevices.

Townsend's big-eared bats are found throughout the Arizona Strip and likely occupy the projects area, especially those areas that are located in pinyon-juniper woodlands (Sherwin et al. 2000). The presence of livestock reservoirs may attract Townsend's big-eared bats for drinking and foraging opportunities.

### **Greater Western Mastiff Bat (*Eumops perotis californicus*)**

Found in desert scrub near cliffs, preferring rugged rocky canyons with abundant crevices. They prefer crowding into tight crevices a foot or more deep and two inches or more wide. Colonies prefer crevices even deeper, to ten or more feet. These bats prefer to wedge themselves in the backs of cracks or crevices where they narrow down considerably. Entrances to roosting crevices are usually horizontal but facing downward which facilitates entry and exit (AGFD 2002a). They are known to forage at least 15 miles from the nearest likely roosting sites.

Potential suitable roosting sites may be found within the allotments within cliff faces and rocky outcrops. The presence of livestock reservoirs may attract greater western mastiff bats for drinking and foraging opportunities, especially given the long distances they travel from roost sites.

### **Spotted Bat (*Euderma maculatum*)**

Spotted bats are found from low desert in southwestern Arizona to high desert and riparian habitats in northwestern Arizona and Utah to conifer forests in northern Arizona and other western states. They are found in desert scrub, riparian, pinyon-juniper, and montane coniferous forests at elevations up to 8,670 feet. They roost in small cracks found in cliffs and stony outcrops. They forage on large flying insects, primarily moths (AGFD 2003b).

The project area is within pinyon-juniper woodlands near high cliffs and rocky outcrops which may provide suitable roosting habitat. The presence of livestock reservoirs may attract spotted bats for drinking and foraging opportunities.

### **American Peregrine Falcon (*Falco peregrinus anatum*)**

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

Nesting sites, also called eyries, usually consist of a shallow depression scraped into a ledge on the side of a cliff. Peregrine falcons are aerial predators that usually kill their prey in the air. Birds comprise the most common prey item, but bats are also taken (AGFD 2002b). Potential nesting habitat is found along the steep cliff faces and canyons found near the project area.

### **Golden Eagle (*Aquila chrysaetos*)**

Golden eagles are typically found in open country, prairies, arctic and alpine tundra, open wooded country and barren areas, especially in hilly or mountainous regions. Black-tailed jackrabbits and rock squirrels are the main prey species taken (Eakle and Grubb 1986). Carrion also provides an important food source, especially during the winter months. Nesting occurs on rock ledges, cliffs, or in large trees. Several alternate nests may be used by one pair and the same nests may be used in consecutive years or the pair may shift to an alternate nest site in different years. In Arizona they occur in mountainous areas and vacate desert areas after

breeding. Nests were observed at elevations between 4,000 and 10,000 feet. Nests are commonly found on cliff ledges; however, ponderosa pine, junipers, and rock outcrops are also used as nest sites. Golden eagles forage over a large area and utilize the allotment for hunting and scavenging. Potential nesting sites are found along the steep cliff faces near the project area.

### **Ferruginous Hawk (*Buteo regalis*)**

Ferruginous hawks are large hawks that inhabit the grasslands, deserts, and open areas of western North America – they are the largest North American hawk and are often mistaken for eagles due to their size (Wikipedia 2019). Ferruginous means “rusty color” and refers to the bird’s colored wings and legs. During the breeding season, they prefer grasslands, sagebrush, and other arid shrub country. Nesting occurs in trees or utility poles surrounded by open areas. Mammals generally comprise 80 to 90 percent of the prey items or biomass in the diet with birds being the next most common mass component.

Ferruginous hawks are known to use open areas within the allotments, especially during the winter when they are fairly common. Nesting habitat is available but limited to areas near the project area where lone trees are located among wide areas of open country.

### **Western Burrowing Owl (*Athene cunicularia hypugea*)**

Burrowing owls occupy a wide variety of open habitats including grasslands, deserts, or open shrublands. Burrowing owls do not dig their own burrows and must rely on existing burrows dug by prairie dogs, ground squirrels, badgers, skunks, coyotes, and foxes but will also use manmade and other natural openings. Nest-site fidelity is high and burrows are often reused for several years if not destroyed (Haug et al. 1993). Moderate grazing can have a beneficial impact on burrowing owl habitat by keeping grasses and forbs low (MacCracken 1985) but the control of burrowing rodent colonies in grazed areas is believed to be an important factor in the burrowing owl’s decline (Desmond and Savidge 1996). Burrowing owls can be generally tolerant of some human presence, often nesting in close proximity to urban or suburban areas in agricultural fields, vacant lots, golf courses, or areas cleared for construction (AGFD 2009). Burrowing owls are infrequently encountered on the Arizona Strip, likely due to the lack of prairie dog or other large rodent colonies. Burrowing owl habitat is present in the allotments, but nesting attempts have not been documented.

### **Pinyon Jay (*Gymnorhinus cyanocephalus*)**

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

Pinyon jay habitat preferences include mosaics of large tracts of pinyon-juniper woodlands especially those areas that contain large, mature, seed-producing pinyon pines, and relatively open structure with mixed shrubs (especially sagebrush) and grasses (Latta et al. 1999). One nesting colony of pinyon jays typically requires an area of about 230 acres for nesting and about 5,120 acres for total home range (Balda & Bateman 1971). Pinyon jays place nests in roughly equal proportions in pinyon and juniper trees and usually select trees that are substantially taller and larger in diameter when compared to random plots (Johnson et al. 2015).

The project area is within pinyon-juniper woodlands and may support nesting colonies of pinyon jays. Although nests have not been documented, the presence of fledglings in large flocks seen in a nearby allotment indicate that successful breeding does occur in the area.

### **Monarch Butterfly (*Danaus plexippus*)**

Monarch butterflies breed throughout the United States, absent only from the forests of the Pacific Northwest. Breeding densities are highest from the east coast to the Great Plains, with typically low densities in the western states. Migration corridors are found east of the Rocky Mountains, in the Great Basin, and within California. Wintering areas are located along the California coast and in Mexico (Jepsen et al. 2015). Over the past 20 years a 90% decline in wintering monarchs has been detected in Mexico along with a 50% decline noted in California, leading to a petition for listing under the Endangered Species Act. The USFWS found that the petition presented substantial scientific or commercial information indicating that the petitioned actions may be warranted and is currently reviewing the status of the species (USFWS 2014).

Monarch larvae feed exclusively on 27 species of milkweed which can be found in a variety of habitats such as rangelands, agricultural areas, riparian zones, wetlands, deserts, and woodlands. In the western U.S. the two most important larval food sources are narrow-leaved milkweed (*Asclepias fascicularis*) and showy milkweed (*A. speciosa*). Adult monarchs forage on a wide variety of flowering plants for nectar during migration periods (Brower et al. 2006). Monarchs may breed in low numbers within the allotments, although documentation is lacking. Milkweed species are present, including showy milkweed. Migrating monarchs have been observed on the Arizona Strip in the fall.



## **4.0 ENVIRONMENTAL CONSEQUENCES**

### **4.1 Introduction**

The potential consequences or effects of each alternative are discussed in this chapter. Only impacts that may result from implementing the alternatives are described in this EA. If an ecological component is not discussed, it is because BLM resource specialists have considered effects to the component and found the proposed action would have minimal or no effects (see Table 3.1). The intent of this analysis is to provide the scientific and analytical basis for the environmental consequences.

Impacts are defined as modifications to the existing condition of the environment and/or probable future condition that would be brought about by implementation of one of the alternatives. Impacts can be direct or indirect; direct impacts are those effects that are caused by the action or alternative and occur at the same time and place, while indirect effects are those effects that are caused by or would result from an alternative and are later in time but that are still reasonably certain to occur. Cumulative effects are generally assessed using the environmental impacts of past, present, or reasonably foreseeable future actions within the project areas.

### **4.2 Livestock Grazing**

#### **4.2.1 Direct and Indirect Impacts of Alternative A - Proposed Action**

Implementation of the proposed action would result in a more uniform distribution of livestock within the four allotments addressed in this EA by providing perennial livestock waters in most years. The four allotments lack reliable water sources, specifically in the pastures with the proposed catchments (see this discussion in 3.4.1 Livestock Grazing). Cattle typically travel no more than one mile in hilly or steep terrain (such as occurs in these allotments) for water on a daily basis. Current reliable water sources in the pastures is greater than one mile, and in many cases numerous miles. The proposed catchments would service these allotments that have terrain that limits livestock travel distance to one mile or less. These additional water sources would aid in keeping livestock dispersed throughout the allotments and pastures during the grazing season. Reliable water within walking distances would result in more uniform utilization of key forage species throughout the subject allotments and pastures.

Having reliable water helps ensure that pasture rotations occur as planned, and provide more reliable deferment and rest of pastures for vegetation, which help maintain the desired plant composition objectives that were identified in the LHE and therefore rangeland health within the pasture (see Section 4.3.1).

#### **4.2.2 Direct and Indirect Impacts of Alternative B - No Action**

Under the no action alternative, livestock grazing would continue without adequate water, and less effective livestock distribution would continue. Livestock use in the Mt. Trumbull, Whiterock-Soapstone, Belnap and Big Springs Pipeline allotments would continue to be distributed unevenly across the subject pastures – cattle would continue to graze primarily near current water sources, which would in turn continue to receive a disproportionate share of the

grazing throughout the allotments and pastures. Overall utilization across each pasture would not exceed the established utilization limit (either 45% or 50%, depending on the allotment) although this utilization would be unevenly distributed as other areas of the allotments would receive little grazing. The permittees would continue to round up the cattle and move them to other areas of each pasture, but the cattle would drift back to the areas nearest current water sources. In addition, not having reliable water sources would continue to make it difficult for the permittees to adhere to the established grazing systems during times when water is scarce or unavailable.

### 4.3 Vegetation

#### 4.3.1 Direct and Indirect Impacts of Alternative A - Proposed Action

Under the proposed action, vegetation would be removed from each catchment location for the catchment apron, water storage device (tank or pond, referred below collectively as “tank”), pipeline, access road and trough – construction and maintenance of an approximately 0.5 acre catchment apron would remove all vegetation from each apron site; approximately 1,250 square feet of vegetation would be permanently removed adjacent to the catchment apron for the tank(s), and up to approximately 140 square feet would be permanently devegetated under each trough. In addition, vegetation along access roads and new pipeline routes would be lost, as described below:

- ***Mt Trumbull Allotment*** – A new road, approximately 0.2 miles long, would extend from the current road to the water catchment, and approximately 528 feet of new pipeline would connect the apron, tank(s) and trough.
- ***Whiterock-Soapstone Allotment*** – Up to 1,205 feet of new access road (connecting existing road to catchment apron), and up to 500 feet of new pipeline would be constructed/installed.
- ***Belnap/Big Springs Allotments*** – A short road connecting the existing road to the catchment apron (approximately 528 feet), tank(s), pipeline and trough would be placed to maintain the structures; approximately 1,000 linear feet of pipeline in the Belnap Allotment and approximately 250 linear feet of pipeline in the Big Springs Pipeline Allotment.

A crawler tractor with ripper tooth attached and lowered into the ground would be driven across the route of each pipeline in order to loosen the soil and allow for the pipe to be more easily installed as the tractor makes a second pass over the route to install the pipeline. Under the best management practices/design features listed in Section 2.2.1 of this EA, construction activities would be limited to periods when the soil and ground surface are not wet in order to avoid soil compaction. This would minimize the potential for any soil compaction to occur, which would affect vegetation recovery at the sites. In addition, actual disturbance would only occur in the path of the dozer tracks and a 12 to 16-inch point of impact from the ripper tooth. Due to the small impact area and the presence of existing perennial vegetation (forbs, grasses and shrubs), the need for rehabilitation (i.e., reseeding) was not deemed necessary. Crushed vegetation would respond and recover quickly, as would re-establishment of perennial vegetation in the disturbed areas, a result of existing seed sources nearby. For example, the Belnap/Big Springs pipeline

would be on the hillslope and would avoid the ephemeral wash area adjacent to the proposed pipeline route. This route is well vegetated with native grasses that would likely provide an abundant seedbank to naturally revegetate the pipeline disturbance. All of these factors would thus facilitate perennial vegetative recovery and response in disturbed areas away from those areas described above where vegetation loss would be permanent. Vegetation would be lost from about nine total acres, which is a minimal loss since it amounts to only 0.01% of the allotments as a whole.

Livestock can directly affect vegetation by reducing plant vigor, decreasing or eliminating desirable forage species, increasing soil instability and erosion, reducing water quantity and quality, and causing loss of, or injury to, individual plants from trampling, particularly near water developments

The current grazing systems on these allotments utilize various types of rotational systems, which allow for periodic rest of each pasture to increase plant vigor and thus minimize adverse effects to vegetation. However, the “success” of the grazing systems relies on the presence of reliable water sources – water must be present in and across each pasture in order for the rotation system to be fully implemented. The proposed action would result in more reliable water sources in each of the subject allotments, and therefore benefit vegetation in each allotment.

***Mt. Trumbull Allotment:*** The closest existing water source is approximately one mile away. Placing a trough in a new area, in this case an area used lightly by livestock, would shift cattle distribution in the pasture. This would increase localized grazing and trampling of vegetation near the new water structures and lessen the use and trampling of vegetation near the other watering locations.

***Whiterock-Soapstone Allotment:*** The pasture has three other livestock reservoirs, ranging from slightly over one mile to nearly 2.5 miles from the proposed catchment. The proposed action would change the livestock distribution to include more areas where past vegetation treatments, including chemical application and reseeding have promoted the growth of understory plants, including livestock forage. This would reduce the more intensive grazing occurring on the southwestern corner of the allotment, where most of the existing water sources are located.

***Belnap and Big Spring Pipeline Allotments:*** The proposed waters would shift patterns of livestock use in the allotments. In the Belnap Allotment, the distance to the closest livestock water source is approximately two linear miles away, while in the Big Springs Pipeline Allotment the nearest livestock water ranges from 0.3 to 1.7 miles away. This places the new watering location close enough to existing water that livestock would naturally move about the allotment toward the newly available water. Specific to the Belnap Allotment, cattle would be drawn from the north end of the pasture where they cluster almost exclusively toward the lightly used middle and southern sections of the pasture.

### ***Summary***

The proposed action would shift patterns of livestock use in the allotments. While the immediate area around the new troughs would be trampled, trampling of vegetation around the existing waters would decrease in frequency and intensity. Livestock would be more likely to graze in

the area near the new water source than currently happens, but the high use near waters would be offset by better distribution of livestock grazing in the allotments from the proposed projects. Overall utilization would be more uniform throughout the pastures and would not exceed the maximum allowable of 45% or 50%, depending on the allotment. This more uniform distribution and utilization would allow the vegetation in the pastures to maintain at or better progress toward its natural potential by increasing plant diversity and vigor. Thus, ecological status of these allotments would be maintained and/or improved.

#### **4.3.2 Direct and Indirect Impacts of Alternative B - No Action**

Under Alternative B, no new water catchments would be constructed. No vegetation would be removed or disturbed in the project areas for the purposes of catchment/pipeline installation and use. However, the overall condition of vegetation in these allotments may not improve, or may not improve as quickly, since the same livestock distribution and patterns would persist that currently exist. These impacts would not be offset by better distribution of livestock, and the associated more uniform utilization in each allotment from the water developments proposed in Alternative A. This would not allow the vegetation in each subject pasture to better progress toward its natural potential. Thus, ecological status for these pastures would remain the same, or would progress more slowly.

#### **4.4 Wildlife, Including Big Game Species, Migratory Birds, and Sensitive Species**

##### **4.4.1 Direct and Indirect Impacts of Alternative A - Proposed Action**

Water is essential for all animals. Wildlife populations in general, and mule deer and migratory birds in particular, depend on reliable water sources. When ambient temperatures are high, it is reasonable to assume that survival and productivity of wildlife could be adversely affected by a lack of water. In semi-arid regions, such as the areas where the water catchments addressed in this EA are located, water catchments can be beneficial in combination with adequate foraging areas (Rosenstock et al. 1999). Wildlife will traditionally use water catchments during the hottest, driest months of the year when ephemeral water sources dry up.

##### **4.4.1.1 Big Game Species**

###### **Mule Deer**

Construction activities and human presence would result in a localized and temporary increase in noise that would likely cause mule deer to avoid the project area for the duration of the construction. However, construction activities would be temporary and deer would be expected to return to the area. These disturbances would be expected to impact mule deer at all project sites. In addition, the proposed action would result in loss of habitat (i.e., vegetation removal) from up to nine acres total. However, this is a minimal loss of habitat since it amounts to only 0.01% of the allotments as a whole.

Although deer would be temporarily displaced, once construction of the catchments is completed, the availability of water would be improved. The proposed new water sources would meet the objectives stated in the *Arizona Strip Interdisciplinary Mule deer Management Plan*

2015-2019 (AGFD and BLM 2015) pertaining to water availability and distribution – yearlong water availability and distribution would be increased in Unit 13A and 13B. While there would be more impact to vegetation (i.e., habitat) close to water, these impacts would be offset by better distribution of livestock grazing in the allotments. (See Section 4.3.1 for more detailed discussion on impacts to vegetation from the proposed action.) The existing grazing management systems would continue to be followed, and with more reliable waters within each affected pasture, more uniform distribution and utilization would occur across the pasture, thus reducing long-term effects close to each water. This more uniform distribution and utilization would allow the vegetation (i.e., habitat) in the pastures to maintain at or better progress toward its natural potential by increasing plant diversity and vigor. Thus, the long-term benefits of consistent water sources for mule deer would outweigh any short-term adverse impacts that could result from catchment construction.

#### **4.4.1.2 Migratory Birds**

Construction activities would result in a long-term loss of habitat from vegetation removal at each site. Impacts would be mostly to shrubs, forbs, and grasses. Vegetation clearing may minimally reduce habitat for some shrub-dependent species (juniper titmouse, Brewer’s sparrow, Bendire’s thrasher). While there would be impacts to vegetation (i.e., habitat) close to water due to concentration of livestock, and long-term loss of habitat from construction of the water catchments, the scope of these impacts would be negligible compared with the relative amount of habitat available in the surrounding landscape.

Migratory birds would likely avoid the construction areas and be temporarily displaced during work periods. Construction activities and human presence would result in a localized and temporary increase in noise that would likely cause migratory birds to temporarily avoid the vicinity. If construction occurs in early spring, short-term impacts to migratory birds could impact individual birds that arrive early to breeding sites and could lead to abandonment of early breeding and/or nesting attempts. Equipment associated with construction may also generally affect migratory birds as a result of noise. The increased noise and construction activity would occur only in the short term. In the long term, occasional maintenance would have a negligible impact to migratory birds since these activities would only be occasional and intermittent.

Impacts to migratory birds would be minimized by implementing the best management practices listed in Section 2.1.1. (i.e., measures would be taken to protect active bird nests and activities would be limited to daylight hours, open pipes would be capped). Additionally, by minimizing disturbance to vegetation, migratory birds would have access to the vegetation for cover and as an area to forage once construction is complete.

Upon completion of catchment construction, some bird species (particularly residents) would benefit long-term by having reliable water sources for drinking and bathing (O’Brien et al. 2006, Lynn et al. 2006). Wildlife escape ramps would be secured in each trough before it is filled. Either lids or wildlife escape ramps and floating bird ladders would be installed to the storage tanks or ponds.

#### **4.4.1.3 Sensitive Species**

##### **Bats**

No roosting sites would be impacted by construction activities and no potential roosting sites would be altered by the proposed action. Impacts to bat prey species (insects) habitat would be minimal and limited to the small area of vegetation removal at each catchment site. Insect population that rely on water for part of their life cycle may increase due to the increase in available water. The presence of properly functioning water catchments should benefit bats by providing reliable water sources to both the bats and their prey species. The benefit of a drinking source for bats would likely only apply if the pond or uncovered storage tank design is used. Covered storage tanks and the proposed troughs would be of little benefit as a drinking source to bats.

##### **American Peregrine Falcon, Golden Eagle, Ferruginous Hawk, and Western Burrowing Owl**

No nesting sites would be impacted by construction activities and no potential nest sites would be altered by the proposed action. Habitat for peregrine falcon prey species would not be altered. Impacts to golden eagle, ferruginous hawk, and burrowing owl prey species habitat would be minimal and limited to the small area of vegetation removal at each catchment site. The presence of reliable water sources, especially during drought conditions, may benefit these species by providing reliable water sources to prey species. These benefits would likely only apply if the pond storage design is used. Storage tanks and the proposed troughs would be of little benefit to prey species. In addition, the more uniform distribution and utilization by livestock across the subject allotment pastures should help maintain at or better progress toward meeting the desired plant community objectives identified in the LHEs (see discussion on impacts to vegetation in Section 4.3.1), which would be beneficial to habitat for prey species.

##### **Pinyon Jay**

No habitat alteration in pinyon-juniper overstory is proposed at these catchments and pinyon pine seed crops would not be impacted. Pinyon jays may avoid each catchment site during short-term construction disturbance but would have ample undisturbed foraging habitat available. Lynn et al. (2006) observed that resident birds in southwest Arizona frequently utilize catchments for drinking and bathing and Johnson et al. (2011) captured pinyon jays for a telemetry study at a frequently used wildlife drinker. Reliable water sources located within or near pinyon jay territories during the summer months would benefit pinyon jays.

##### **Monarch Butterfly**

Construction activities would result in a long-term loss of habitat from vegetation removal at each site. Impacts would be mostly to shrubs, forbs, and grasses. While there would be impacts to vegetation (i.e., habitat) close to water due to concentration of livestock, and long-term loss of habitat from construction of the water facilities, the scope of these impacts would be negligible compared with the relative amount of habitat available in the surrounding landscape.

## **4.4.2 Direct and Indirect Impacts of Alternative B - No Action**

### **4.4.2.1 Big Game Species**

#### **Mule Deer**

Under this alternative, no construction activities would occur. Therefore, there would be no disturbances including noise or human presence to disrupt deer, and no disturbance to vegetation resulting from installation of catchments, pipelines, water troughs, and storage tanks.

Mule deer in the region rely on catchments as a supplemental water source. As stated in Section 1.2 of this EA, the *Arizona Strip Interdisciplinary Mule Deer Management Plan 2015-2019* states that “water distribution should be improved in [Units 13A and 13B] by utilizing both cooperative projects and wildlife catchments” (AGFD and BLM 2015). Under this alternative, no additional water sources for wildlife (including mule deer) would be constructed. Thus, mule deer would not benefit by improved water distribution within the subject allotments/pastures from the proposed water projects.

### **4.4.2.2 Migratory Birds**

Under the no action alternative, no construction activities and, therefore, no ground disturbances would occur. As a result, there would be no additional loss of habitat. Opportunities for migratory birds to forage migrate, or breed would not be adversely impacted because no construction activities, including noise or human presence, and associated ground disturbance would occur. However, no additional water sources for wildlife (including migratory birds) would be constructed. Thus, these species would not benefit by improved water distribution (particularly during periods of drought) from the proposed water projects.

### **4.4.2.3 Sensitive Species**

Since no catchment, pipeline or storage tank construction would occur, there would be no disturbance to foraging sensitive species or to their prey from implementation of this alternative. In addition, no vegetation removal would occur, so there would be no impacts to prey habitat beyond current conditions. However, no additional (reliable) water sources would be provided that could benefit these species, particularly during times of drought. Lack of available water (when livestock ponds go dry during periods of drought) could limit availability of prey in localized areas. No adverse impacts to the species (i.e., a trend toward Federal listing or loss of viability) would occur from this alternative, but the potential benefits from additional water sources would also not occur.

## **4.5 Cumulative Impacts**

“Cumulative impacts” are those impacts resulting from the incremental impact of an action when added to other past, present, or reasonably foreseeable actions regardless of what agency or person undertakes such other actions. This EA is intended to qualify and quantify the impacts to the environment that result from the incremental impact of the alternatives when added to other past, present, and reasonably foreseeable future actions. These impacts can result from individually minor but collectively important actions taking place over a period of time.

There are other uses and activities occurring on the lands within and adjacent to the project areas besides livestock grazing (including recreation and mining). Specific actions that have occurred, are occurring, or are likely to occur in the reasonably foreseeable future include:

- **Vegetation Treatments** – The current trend in managing and monitoring vegetative communities to meet rangeland health standards is expected to continue.

The Rim Pasture will continue to receive vegetation treatments as prescribed in the Uinkaret Mountains Landscape Restoration Project EA. The majority of these treatments have been implemented in the Rim Pasture. These treatments include lop and scatter of pinyon and juniper trees; mechanical mastication of pinyon and juniper; and sagebrush reduction treatments. The history of mechanical treatments in the Rim Pasture as well as the allotment include a chaining in 1964. Herbicide treatments for sagebrush reduction occurred 1993 and 1998 in the allotment. In 1983, there was very limited use of prescribed fire in a couple of the drainages in the Rim Pasture for fuels reduction as well as woody plant reduction and understory restoration.

The Whiterock-Soapstone Allotment, including the Hole Pasture (proposed catchment site) had prescribed burning in 2010 for fuels reduction and vegetation restoration; there was mechanical treatments (chaining) in 1964 and 1967 in the allotment. Seeding accompanied this chaining in 1967. There were also herbicide sagebrush reduction treatments throughout the allotment, including the Hole Pasture at this time. According to the Ecological Site Description (ESD) the pasture should be a mix of two vegetation communities, one dominated by pinyon pine and juniper with a canopy cover of 40-55% and a diverse understory and another composed of grasses with some shrubs.

In both the Belnap and Big Springs Pipeline allotments, the South and Whitmore Point pastures may be considered in the future for targeted vegetation treatments similar to the recent treatments described above in the Rim Pasture. According to the ESD, these pastures should predominately be grasses and some shrubs. Sagebrush and juniper would have been rare. The pasture appears to be more heavily vegetated with juniper and sagebrush than the ESD suggests. The objective of these treatments would be to bring the pasture closer to the ESD, decreasing the juniper and increasing the forbs, grasses and sagebrush. Both of these allotments, including the subject pastures, had herbicide sagebrush reduction treatments in 1999. There was mechanical treatments (chaining) to reduce the woody vegetation in the subject pastures in 1961.

- **Recreation** – Recreation activities occurring throughout the project areas involve a broad spectrum of pursuits ranging from dispersed and casual recreation to organized, BLM-permitted group uses. Typical recreation in the region includes off-highway vehicle (OHV) driving, scenic driving, hunting, hiking, wildlife viewing, horseback riding, camping, backpacking, mountain biking, geocaching, picnicking, night-sky viewing, and photography. The Arizona Strip is known for its large-scale undeveloped areas and remoteness, which provides an array of recreational opportunities for users who wish to experience primitive and undeveloped recreation, as well as those seeking more organized or packaged recreation experiences.
- **Mining and Mineral Resources** – Public lands on the ASFO are generally open to mineral development (GCPNM was withdrawn from all forms of mineral entry upon designation). The primary economic mineral resource in the area consists of locatable mineral deposits, including breccia pipe deposits (i.e., vertical collapse features formed from the collapse of karst solution caverns in the underlying Redwall limestone). A



variety of precious metals (including copper and silver) are found within breccia pipes. Other potential mineral resources in the area are leasable minerals (including oil and gas, and geothermal resources) and salable minerals (consisting primarily of sand and gravel, and stone). In the vicinity of the project areas, the potential for geothermal resources is low and the potential for oil and gas is moderate; the potential for sand, gravel and stone is high.

#### **4.5.1 Livestock Grazing**

The area of analysis for cumulative impacts to livestock grazing is the four allotments with the proposed catchments and infrastructure (Appendix A, Figure 1). Livestock grazing in the region has evolved and changed considerably since it began in the 1860s and is one factor that has created the current environment. At the turn of the century, large herds of livestock grazed on unreserved public domain in uncontrolled open range. Eventually, the range was stocked beyond its capacity, causing changes in plant, soil, and water relationships. In response to these problems, livestock grazing reform began in 1934 with the passage of the Taylor Grazing Act.

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

In the long-term, as the population of the surrounding area increases (which would increase the use of public lands), conflicts between livestock grazing and these other uses could arise. Resolving conflicts may require adjustments and/or restrictions placed on livestock grazing management. Other factors also influence livestock grazing operations, such as climatic and market fluctuations. A six-year drought in the region occurred between 1998 and 2004 and dramatically affected livestock grazing operations on the Arizona Strip, resulting in virtually all cattle being pulled from the public lands in 2004. Similar fluctuations in livestock numbers would likely occur in the future.

Another action not mentioned above that may affect livestock grazing is listing a species as threatened or endangered under the Endangered Species Act, including designating critical habitat. Making areas unavailable for livestock grazing, placing restrictions on season of use, reducing access, or applying other restrictions meant to protect special status species may impact livestock grazing operations through the loss of forage, increased difficulty of access, increased costs of operation, and reduced livestock numbers (BLM 2007). While several species have recently been added to the endangered and threatened species list and had critical habitat designated (including Fickeisen plains cactus, Gierisch mallow, and yellow-billed cuckoo), none of these species occur within any of the allotments addressed in this EA.

Since livestock grazing occurs throughout the area and on adjacent private lands, it is reasonable to assume that impacts similar to those identified earlier in this chapter would occur elsewhere in the area. However, since neither of the alternatives proposes to increase the level of grazing or otherwise alter established grazing systems in any of the allotments addressed in this EA, it is anticipated that neither of the alternatives would result in cumulative impacts to livestock grazing when added to other past, present, and reasonably foreseeable activities in the area.

#### **4.5.2 Vegetation**

The area of analysis is the Belnap, Big Spring Pipeline, Mt. Trumbull and Whiterock-Soapstone allotments, where the proposed project areas are located. These are, respectively, the South, Whitmore Point, Rim and Hole pastures.

Vegetation on the Arizona Strip has gone through dramatic changes since the 1870s due to historic land use practices and the introduction of non-native species. Livestock grazing would continue across the area on BLM-administered lands. The LHE process would help ensure grazing practices are conducted in a manner to maintain or improve the ecological health of the area. This would also ensure diverse and natural plant communities are maintained, wildlife habitat is maintained or improved, erosion is reduced, and water quality is maintained. The objectives developed to manage for healthy rangelands have a goal of keeping the entire ecosystem healthy and productive in order to ensure that it yields both usable products and intrinsic values, and rangeland management practices. In addition, practices currently being implemented (such as weed control efforts) would act to prevent and control the spread of invasive plant species.

Continuing gypsum and uranium exploration and mining in the region, as well as use of mineral material sites in the area, would cumulatively affect vegetation through the loss of vegetation, higher rates of erosion and sedimentation in drainages/waterways, increased deposition of dust on vegetation adjacent to roadways (i.e., haul routes), and introduction and spread of invasive plants. Reclamation activities would counter some of the reduction in vegetative cover, and preventative measures to inhibit the spread of invasive species could curtail infestation by species such as Scotch thistle.

Impacts to vegetation from commercial recreation or recreational events could result in minor impacts to vegetation, which include the introduction or spread of noxious weeds and trampling of individual plants. However, special recreation permits include stipulations to minimize the potential for spread of these species. Vehicular events have the greatest potential to impact vegetation. The increase in dust associated with many of these activities could lead to a reduction in vigor or mortality of vegetation. Recreational driving and camping could also result in these same impacts to vegetation – with the increase in local populations has come a dramatic increase in the level of OHV use. Transportation corridors exist throughout the allotments discussed in this EA. Impacts vary by location, level of use, and speed of travel over the road. However, these allotments are in relatively remote areas, so impacts are anticipated to remain minor.

The current trend in managing and monitoring vegetative communities to meet land health standards is expected to continue. The Rim pasture (Mt. Trumbull Allotment) will continue to receive vegetation treatments as prescribed in the Uinkaret Mountains Landscape Restoration Project EA. The South and Whitmore Point pastures may be considered in the future for targeted vegetation treatments to bring the pasture closer to the ESD, decreasing the juniper and increasing the forbs, grasses and sagebrush.

The effects of the proposed range facilities have been analyzed under the “Direct and Indirect Effects” section of this chapter. Since livestock grazing occurs throughout the area, and range facilities are routinely constructed/maintained to support this grazing, it is reasonable to assume that impacts similar to those identified earlier in this chapter would occur elsewhere in the area. However, given the fact that neither of the alternatives proposes to increase the level of grazing or otherwise alter established grazing systems in any of the allotments addressed in this EA, it is anticipated that neither of the alternatives would result in cumulative impacts to vegetation resources when added to other past, present, and reasonably foreseeable activities in the area.

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

The area of analysis for cumulative impacts to wildlife is the four allotments with the proposed catchments and infrastructure. Wildlife may be affected by other activities occurring within the analysis area, including vegetation treatments, various dispersed recreational activities, and livestock grazing.

Vegetation treatments completed over the past 60 years have occurred in the analysis area. These past treatments had a wide array of effects, with some projects having long-lasting impacts to mule deer, migratory birds, and sensitive species such as setting plant communities back to early seral stages, and some areas being dominated by non-native plant species. The Mt. Trumbull Allotment has recently received and will continue to receive vegetation treatments as prescribed in the Uinkaret Mountains Landscape Restoration Project EA. Belnap and Big Spring Pipeline allotments may be the target of future vegetation treatment.

Recreational pursuits, particularly OHV use, can cause disturbance to wildlife species and their habitats. Humans can disturb wildlife in a variety of ways such as, disturbance from vehicle noise, wildlife being chased, or the mere presence of humans. Different species, and individuals within species, react differently to disturbances. The type of reaction also differs with the time of year, location of disturbance in relation to breeding sites, type of disturbance, and duration of disturbance. With the increase in local populations has come a dramatic increase in the level of OHV use, resulting in increased disturbance, injury, and mortality to wildlife, particularly ground dwelling species with low mobility. Transportation corridors exist through the habitat of virtually all species found within the allotments discussed in this EA. Impacts vary by species and by the location, level of use, and speed of travel over the road.

The effects on wildlife in the analysis area have been analyzed under the “Direct and Indirect Effects” section of this chapter. Since livestock grazing occurs throughout the area, and range facilities are routinely constructed/maintained to support this grazing, it is reasonable to assume that impacts similar to those identified earlier in this chapter would occur elsewhere in the area. This additive impact may affect wildlife habitat or corridors by altering vegetation associations

at specific locales. The vegetation communities in the area, and the health of the region as a whole, are important for the survival of many native species. However, given the relatively limited surface impacts from these activities, it is anticipated that cumulative impacts from past, present, and reasonably foreseeable future actions will not result in cumulatively significant impacts. In addition, neither of the alternatives proposes to increase the level of grazing or otherwise alter established grazing systems in any of the allotments addressed in this EA. Utilization is limited to 50% on all allotments with a rotational grazing system (or 45% on allotments without a rotational grazing system), providing for enough forage resources for wildlife populations to persist throughout the analysis area. It is therefore anticipated that neither of the alternatives would result in cumulative impacts to wildlife when added to other past, present, and reasonably foreseeable activities in the area.

## 5.0 CONSULTATION AND COORDINATION

### 5.1 Introduction

This section summarizes the process used to involve individuals, organizations, and government agencies in the preparation of this EA.

### 5.2 List of Preparers and Reviewers

**Table 5.2 List of BLM/NPS Preparers/Reviewers**

<b>Name</b>	<b>Title</b>	<b>Responsible for the Following Section(s) of this Document</b>
Lorraine Christian	Arizona Strip Field Manager	Project Oversight
Mark Wimmer	Grand Canyon - Parashant National Monument Manager	Project Oversight
Amber Hughes	Planning & Environmental Coordinator	NEPA Compliance
Michael Cutler	Rangeland Management Specialist	Range/S&G
Jeff Young	Wildlife Biologist	Special Status Animals, Wildlife
Jennifer Fox	Ecologist	Vegetation/Invasive Species/Special Status Plants
Jace Lambeth	Rangeland Management Specialist	Special Status Plants
David Van Alfen	Archaeologist	Cultural Resources
Sarah Page	Archaeologist	Cultural Resources
Kendra Thomas	Realty Specialist	Lands/Realty/Minerals
Gloria Benson	Tribal Liaison	Native American Religious Concerns
Brian McMullen	Soil Scientist	Soils, Water, Air
Eathan McIntyre	Physical Scientist	Soil, Water, Air
Braden Yardley	Recreation Planner	Recreation/Wilderness/VRM
Jonathan Jasper	Recreation Planner	Recreation/Wilderness/VRM

**Table 5.3 Non-BLM Agency Reviewers**

<b>Name</b>	<b>Title</b>	<b>Agency/Organization</b>
Luke Thompson	Field Supervisor	Arizona Game and Fish Department
Rob Nelson	Arizona Game & Fish	Habitat Evaluation and Lands Program Manager
Peter Bungart	Hualapai Tribe	Senior Archaeologist
Daniel Bullets	Kaibab Paiute Tribe	Environmental Program Director

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## **7.0 APPENDICES**

### **APPENDIX A – Maps**

Figure 1. Mt. Trumbull, Whiterock-Soapstone, Belnap, and Big Springs Pipeline Allotments Vicinity Map.

Figure 2. Mt. Trumbull Allotment Proposed Catchment (small scale).

Figure 3. Mt. Trumbull Allotment Proposed Catchment (large scale).

Figure 4. Whiterock-Soapstone Allotment Proposed Catchment (small scale).

Figure 5. Whiterock-Soapstone Allotment Proposed Catchment (large scale).

Figure 6. Whiterock-Soapstone Catchment with existing RIPS

Figure 7. Belnap & Big Springs Pipeline Allotment Proposed Catchment (small scale).

Figure 8. Belnap & Big Springs Pipeline Allotment Proposed Catchment (large scale).

Figure 9. Belnap and Big Springs Proposed Catchment Access Road Maintenance.

Figure 10. Mt. Trumbull Catchment Ecological Site

Figure 11. Whiterock-Soapstone Catchment Ecological Site

Figure 12. Belnap and Big Springs Pipeline Catchment Ecological Site

Figure 13. Belnap and Big Springs Pipeline Catchment with Existing RIPS

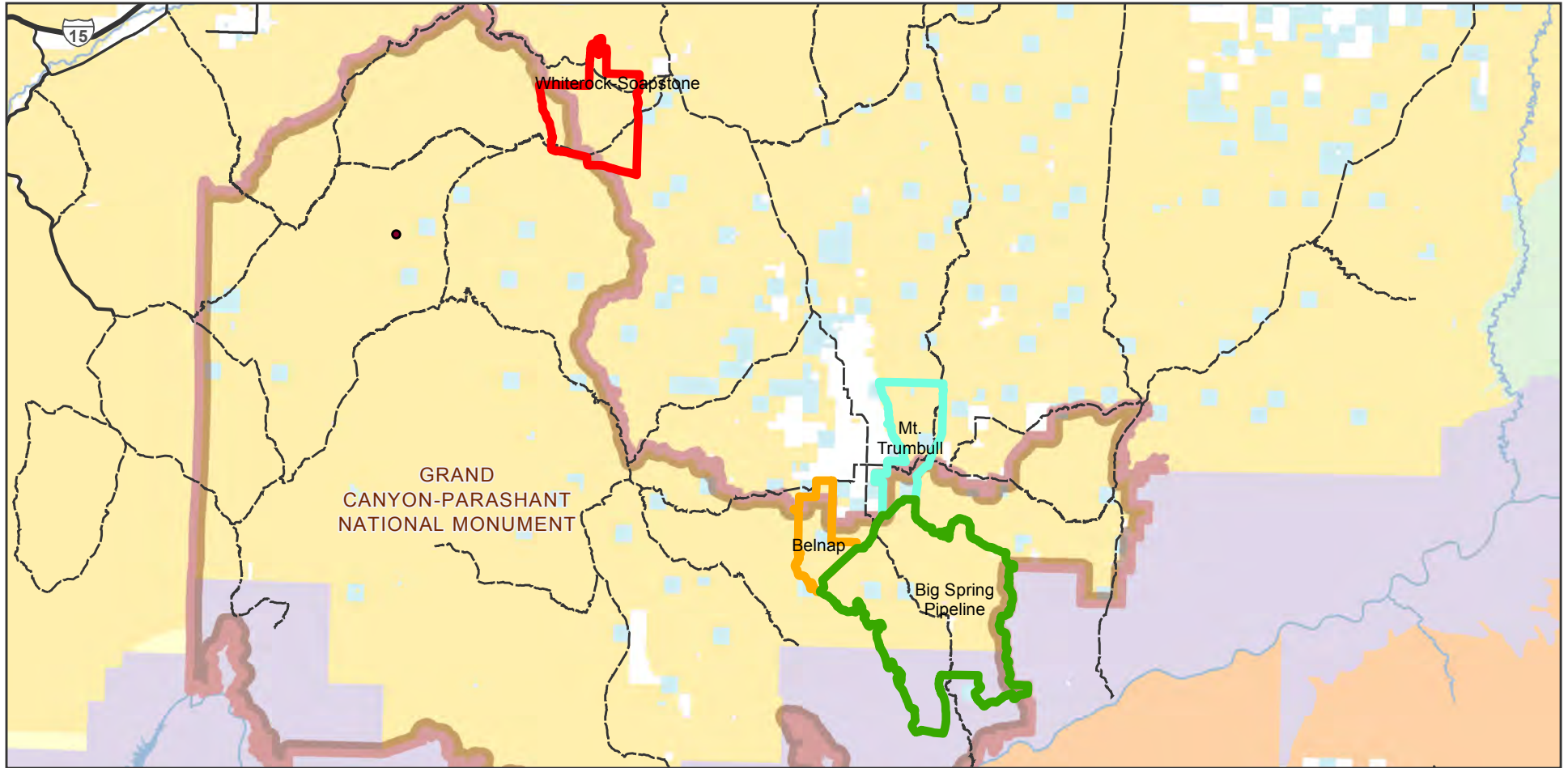
Figure 14. Mt. Trumbull Catchment Historic Vegetation Treatments

Figure 15. Whiterock-Soapstone Catchment Historic Vegetation Treatments

Figure 16. Belnap and Big Springs Pipeline Catchment Historic Vegetation Treatments



**Figure 1. Vicinity Map of Mt. Trumbull, Whiterock-Soapstone, Belnap, and Big Springs Pipeline Allotments.**  
 NEPA Number DOI-BLM-AZ-A030-2019-0010-EA  
 Bureau of Land Management - Arizona Strip District - Arizona Strip Field Office

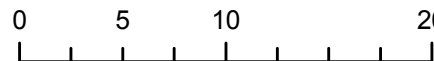


**ALLOT\_NAME**

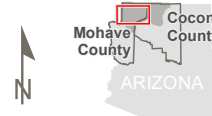
- Belnap
- Big Spring Pipeline
- Mt. Trumbull
- Whiterock-Soapstone
- BLM National Monument

**Surface Management Agency**

- Agency Name**
- Bureau of Land Management
  - National Park Service
  - Indian Reservation
  - US Forest Service
  - State
  - Private
  - Bureau of Reclamation
  - State, County, or City Park



Map Produced by BLM Arizona Strip District  
 File: Mt Trum\_White\_Soap\_Belnap\_BidSpr Catchment vicinity map.mxd  
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 Reference System: U.S. PLSS GSRB&M  
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 User: mcutler  
 Date: 7/25/2019

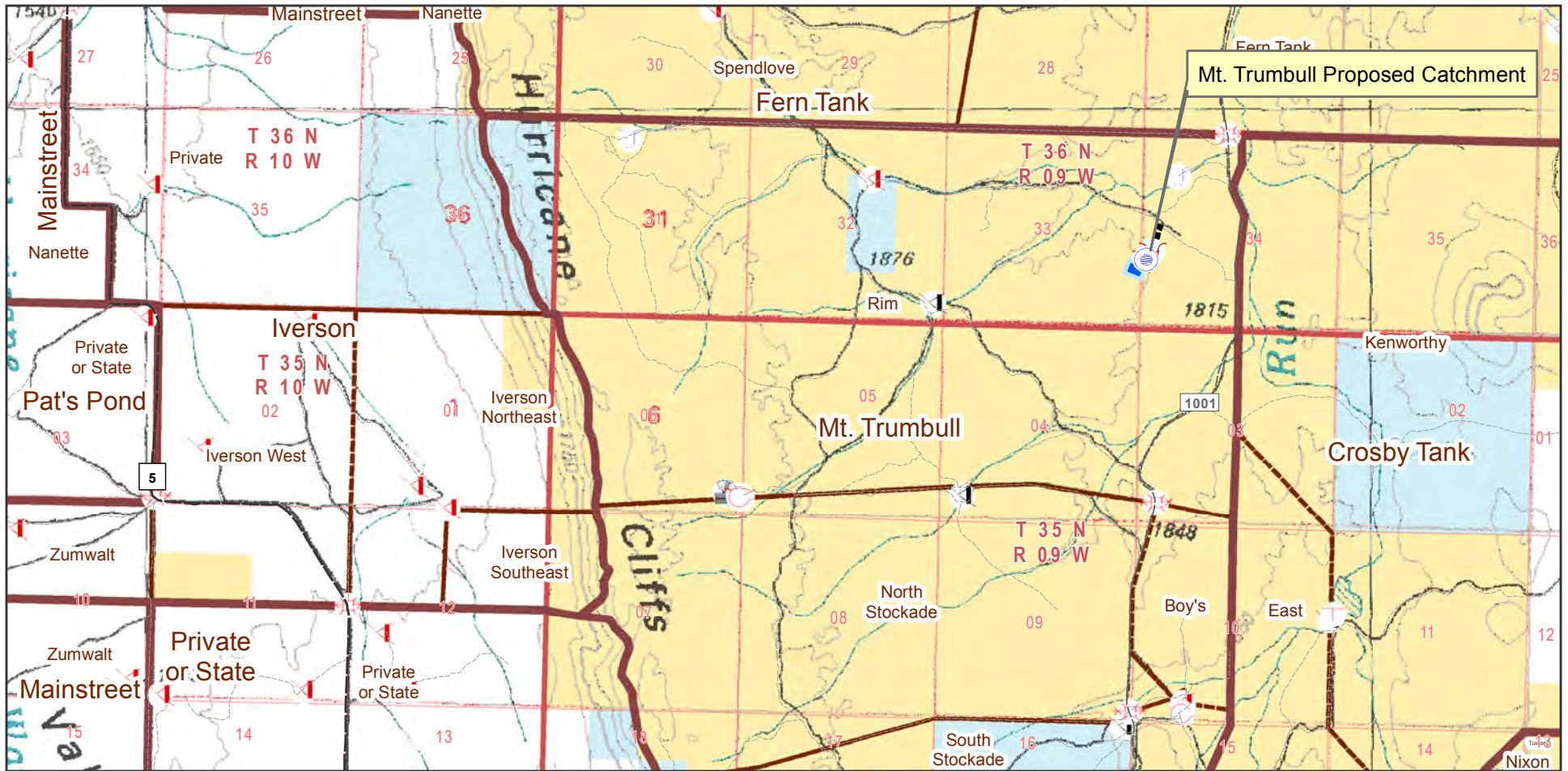


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**Figure 2. Mt. Trumbull Allotment Proposed Catchment.**  
 NEPA Number DOI-BLM-AZ-A030-2019-0010-EA  
 Bureau of Land Management - Arizona Strip District - Arizona Strip Field Office



- |                          |                     |                                  |
|--------------------------|---------------------|----------------------------------|
| Proposed Tank            | Detention Dam       | <b>Surface Management Agency</b> |
| Proposed Trough          | Fenced Reservoir    | <b>Agency Name</b>               |
| proposed_two_track       | Livestock Catchment | Bureau of Land Management        |
| Proposed catchment apron | Livestock Trough    | State                            |
| Primary Road Unpaved     | Unfenced Reservoir  | Private                          |
| Secondary Road Unpaved   | Water Storage Tank  | Grazing Pasture Polygons         |
| Tertiary Road Unpaved    | Wildlife Drinker    | Grazing Allotment Polygons       |



Map Produced by BLM Arizona Strip District  
 File: Mt. Trumbull Catchment 2019 small.mxd  
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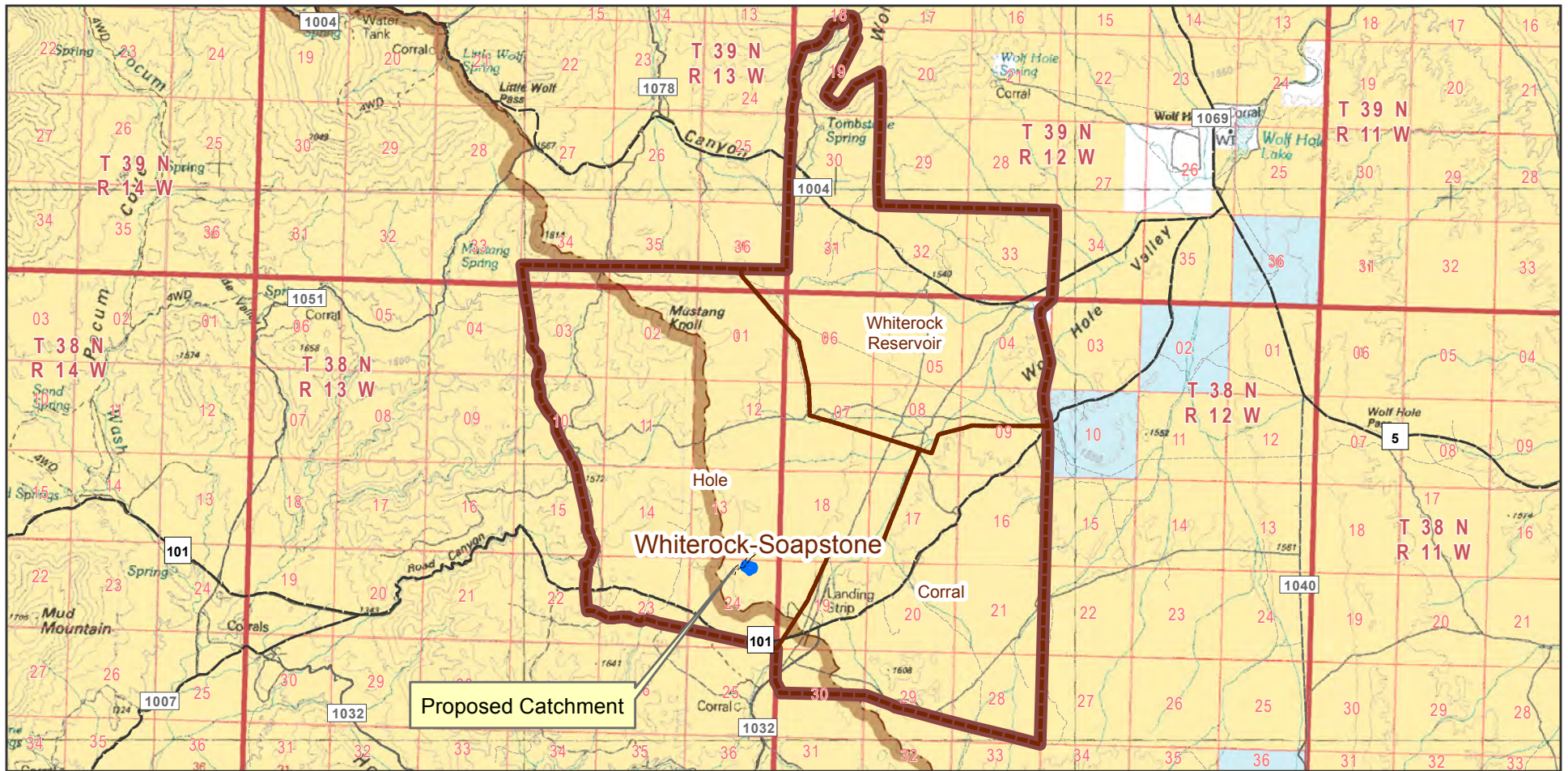
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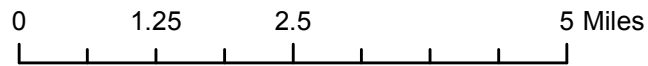
# Figure 3. Whiterock-Soapstone Allotment Proposed Catchment.

DOI-BLM-AZ-A030-2019-0010-EA

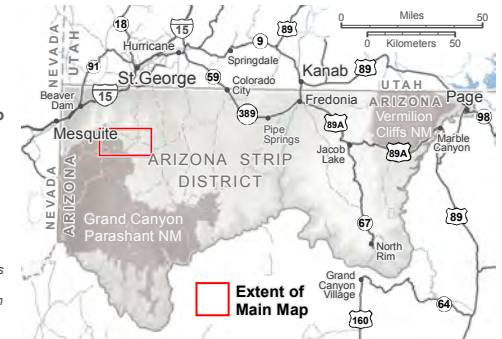
Bureau of Land Management - Arizona Strip District - Arizona Strip Field Office



- |                                    |                                  |
|------------------------------------|----------------------------------|
| Whiterock-Soapstone proposed apron | <b>Surface Management Agency</b> |
| Primary Road Unpaved               | <b>Agency Name</b>               |
| Secondary Road Unpaved             | Bureau of Land Management        |
| Tertiary Road Unpaved              | State                            |
| Single Track                       | Private                          |
|                                    | Whiterock-Soapstone Pastures     |
|                                    | Whiterock-Soapstone Allotment    |



Map Produced by BLM Arizona Strip District  
 File: Whiterock\_Soapstone Catchment 2019 small.mxd  
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 User: mcutler  
 Date: 1/9/2020



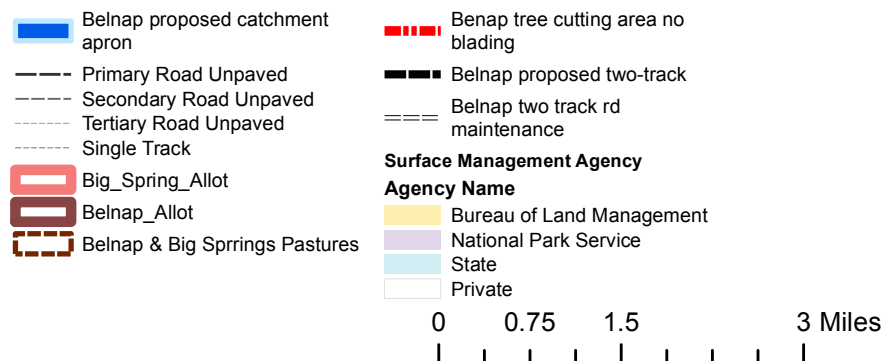
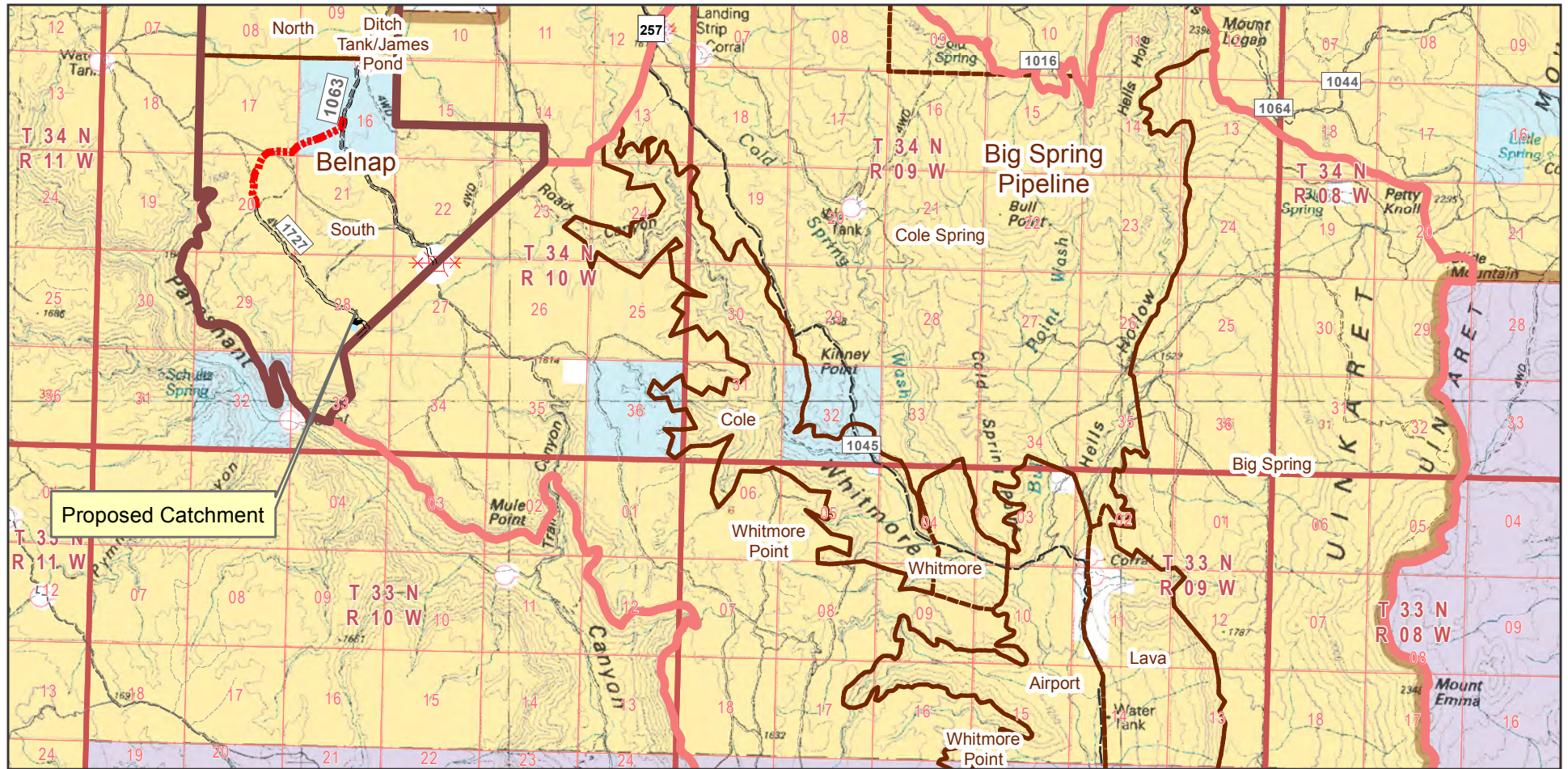
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# Figure 4. Belnap and Big Springs Pipeline Allotments Location.

DOI-BLM-AZ-A030-2019-0010-EA

Bureau of Land Management - Arizona Strip District - Grand Canyon-Parashant National Monument



Map Produced by BLM Arizona Strip District  
 File: Belnap and Big springs Pipeline Proposed Catchment 06272019 small.mxd  
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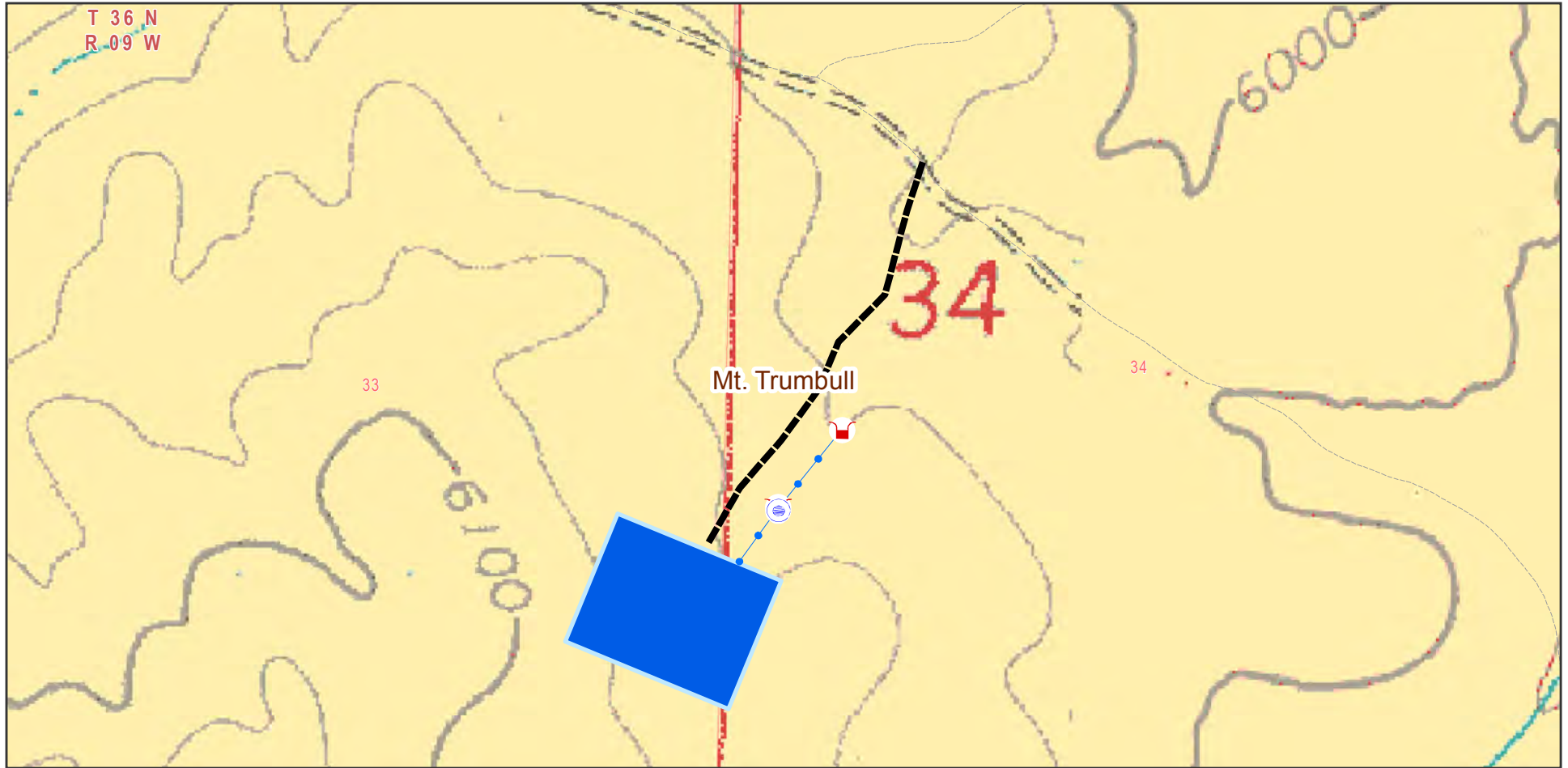




# Figure 6. Mt. Trumbull Allotment Proposed Catchment s with Road Maintenance

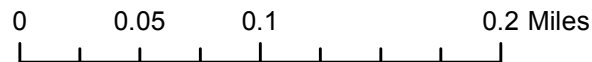
NEPA Number DOI-BLM-AZ-A030-2019-0010-EA

Bureau of Land Management - Arizona Strip District - Arizona Strip Field Office



- Proposed Tank
- Proposed Trough
- proposed\_two\_track
- Proposed catchment apron
- Tertiary Road Unpaved
- Grazing Pasture Polygons
- Grazing Allotment Polygons

**Surface Management Agency**  
**Agency Name**  
 Bureau of Land Management



Map Produced by BLM Arizona Strip District  
 File: Mt. Trumbull Catchment 2019 large scale.mxd  
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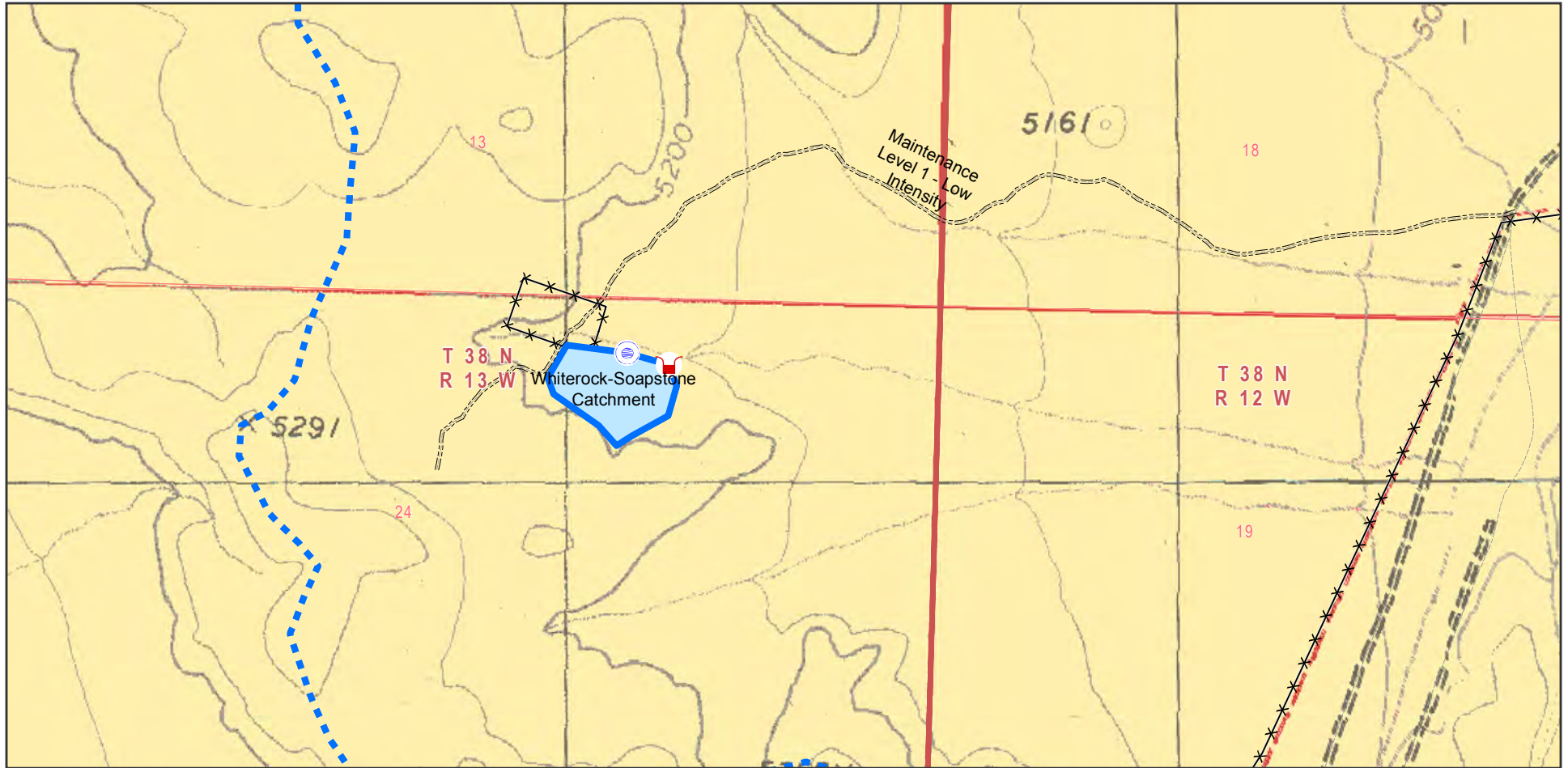




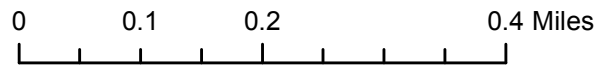
# Figure 7. Whiterock-Soapstone Allotment Proposed Catchment.

DOI-BLM-AZ-A030-2019-0010-EA

Bureau of Land Management - Arizona Strip District - Arizona Strip Field Office



- |  |                                     |                                  |
|--|-------------------------------------|----------------------------------|
|  | Whiterock-Soapstone proposed tank   | <b>Surface Management Agency</b> |
|  | Whiterock-Soapstone proposed trough | <b>Agency Name</b>               |
|  | Whiterock-Soapstone proposed apron  | Bureau of Land Management        |
|  | Tertiary Road Unpaved               | Grand Canyon-Parashant           |
|  |                                     | National Monument boundary       |



Map Produced by BLM Arizona Strip District  
 File: Whiterock\_Soapstone Catchment 2019.mxd  
 Coordinate System: NAD 1983 UTM Zone 12N  
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 Scale: 1:10,000 at 8.5x11 page output  
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 Date: 1/9/2020



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**Figure 8. Whiterock-Soapstone Allotment Proposed Catchment with Existing Range Improvements.**  
**DOI-BLM-AZ-A030-2019-0010-EA**  
 Bureau of Land Management - Arizona Strip District - Arizona Strip Field Office



- |                                     |                    |                           |
|-------------------------------------|--------------------|---------------------------|
| Whiterock-Soapstone proposed tank   | Detention Dam      | Primary Road Unpaved      |
| Whiterock-Soapstone proposed trough | Developed Spring   | Secondary Road Unpaved    |
| Whiterock-Soapstone proposed apron  | Livestock Trough   | Tertiary Road Unpaved     |
|                                     | Unfenced Reservoir | <b>Surface Management</b> |
|                                     | Wildlife Drinker   | <b>Agency Name</b>        |
|                                     |                    | Bureau of Land Management |



Map Produced by BLM Arizona Strip District  
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 Date: 11/7/2019



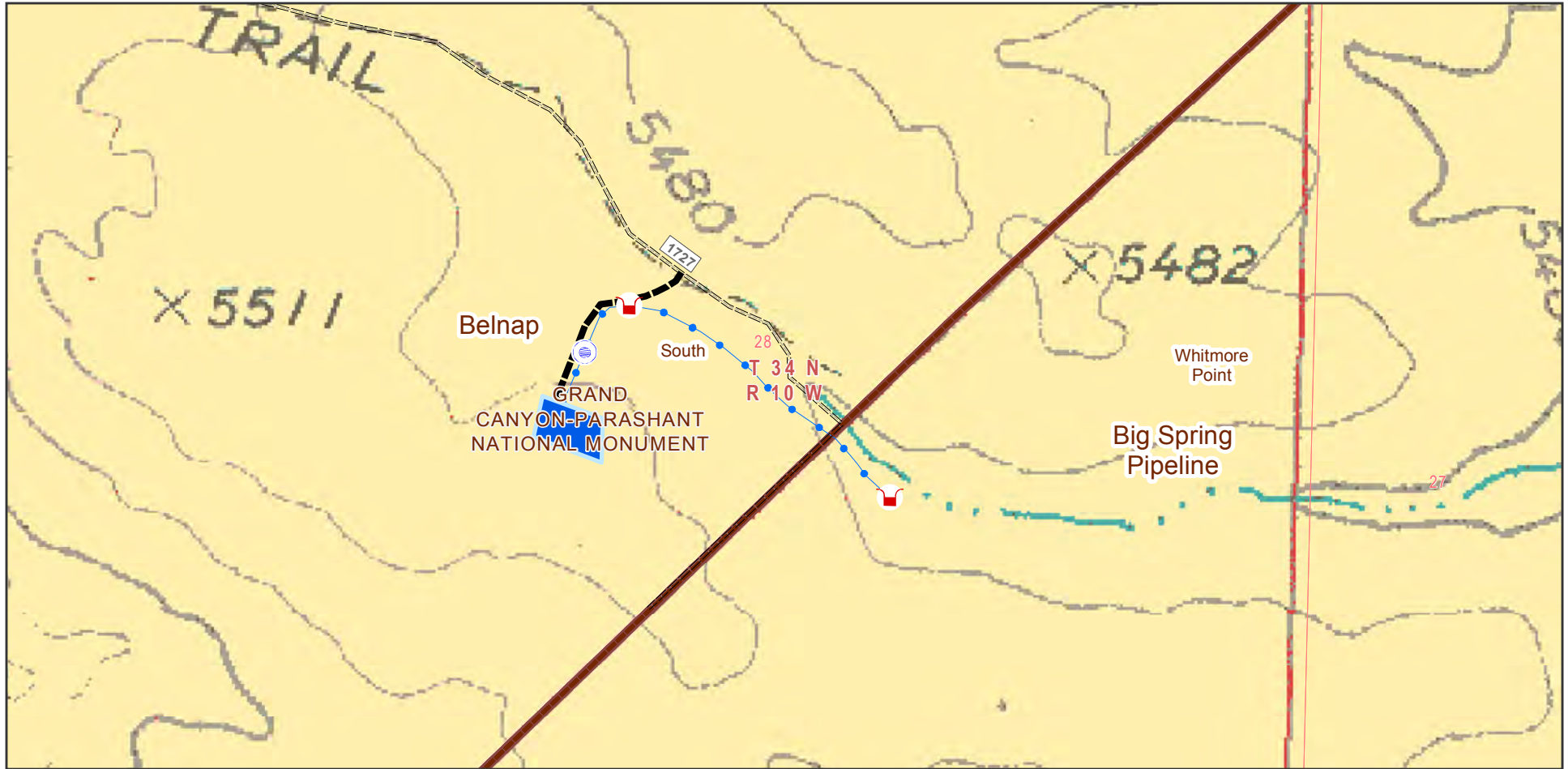
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# Figure 9. Belnap and Big Springs Pipeline Allotment Proposed Catchment (large scale).

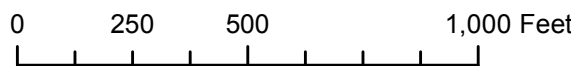
DOI-BLM-AZ-A030-2019-0010-EA

Bureau of Land Management - Arizona Strip District - Grand Canyon-Parashant National Monument



- Belnap proposed tank
- Belnap and Big Springs proposed troughs
- Belnap and Big Springs proposed pipeline
- Belnap proposed catchment apron
- Tertiary Road Unpaved
- Belnap proposed two-track
- Belnap two track rd maintenance

- Grazing Pasture Polygons
  - Grazing Allotment Polygons
- Surface Management Agency**
- Agency Name**
- Bureau of Land Management



Map Produced by BLM Arizona Strip District  
 File: Belnap and Big springs Pipeline Proposed Catchment large.mxd  
 Coordinate System: NAD 1983 UTM Zone 12N  
 Reference System: U.S. PLSS GSRB&M  
 Scale: 1:5,000 at 8.5x11 page output  
 User: mcutler  
 Date: 11/6/2019



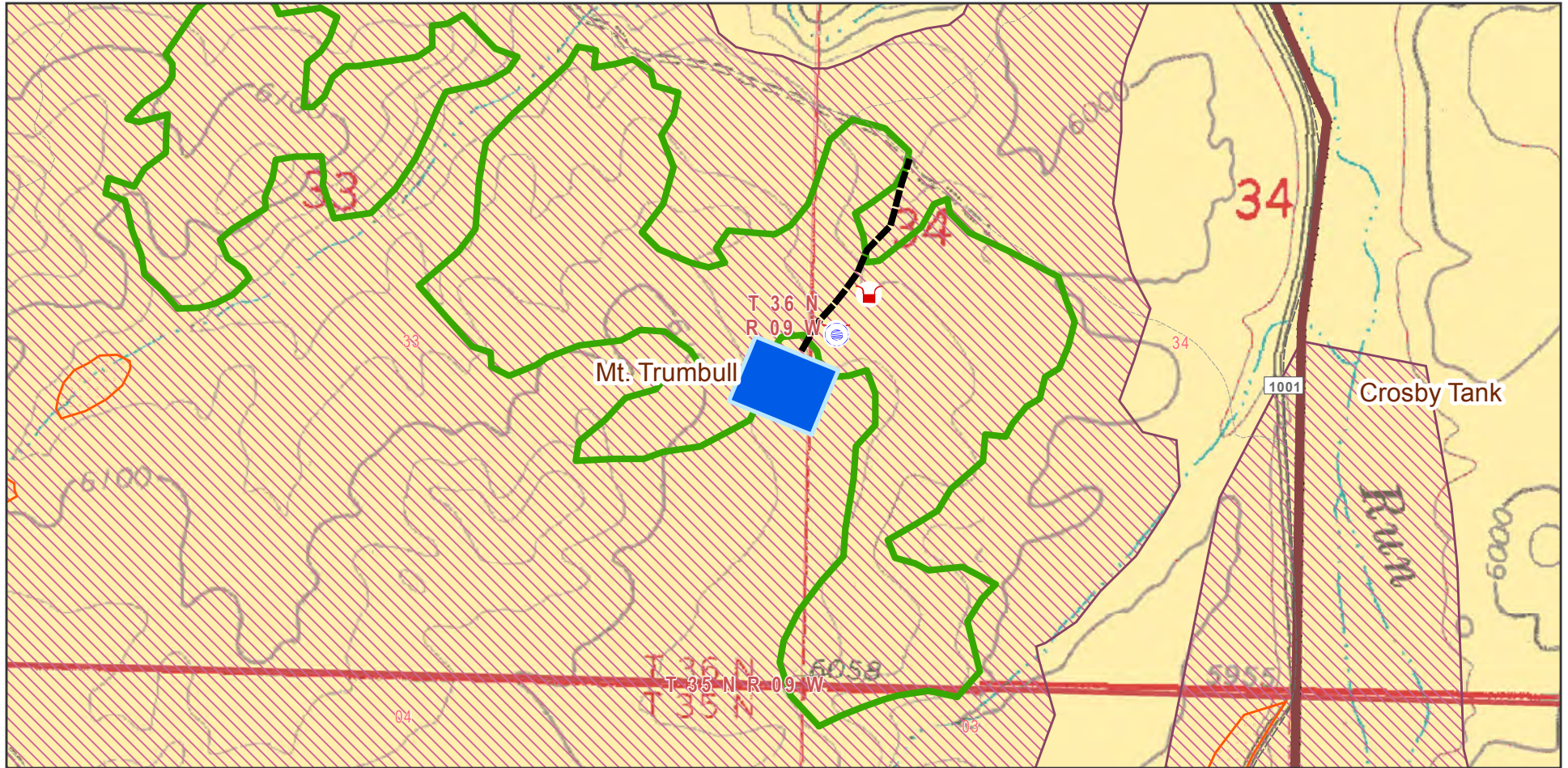
No warranty is made by the Bureau of Land Management (BLM) regarding the accuracy or completeness of this map. This map is representational and is to be used as intended by the BLM. Map data compiled from various sources. This map and the data from which it was derived are not binding on the BLM and may be revised at any time.



# Figure 10. Mt. Trumbull Allotment Proposed Catchment with Historic Vegetation Treatments.

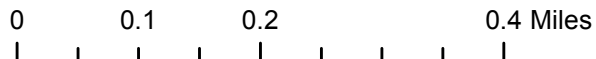
NEPA Number DOI-BLM-AZ-A030-2019-0010-EA

Bureau of Land Management - Arizona Strip District - Arizona Strip Field Office



- Proposed Tank
- Proposed Trough
- proposed\_route
- Proposed catchment apron
- Secondary Road Unpaved
- Tertiary Road Unpaved
- Grazing Pasture Polygons
- Grazing Allotment Polygons

- Surface Management Agency**  
**Agency Name**
- Bureau of Land Management
  - 2018 manual lop\_and\_scatter
  - 1964 Mechanical Vegetation Treatments



Map Produced by BLM Arizona Strip District  
 File: Mt. Trumbull Catchment 2019 historic veg tmts.mxd  
 Coordinate System: NAD 1983 UTM Zone 12N  
 Reference System: U.S. PLSS GSRB&M  
 Scale: 1:10,000 at 8.5x11 page output  
 User: mcutler  
 Date: 8/14/2019



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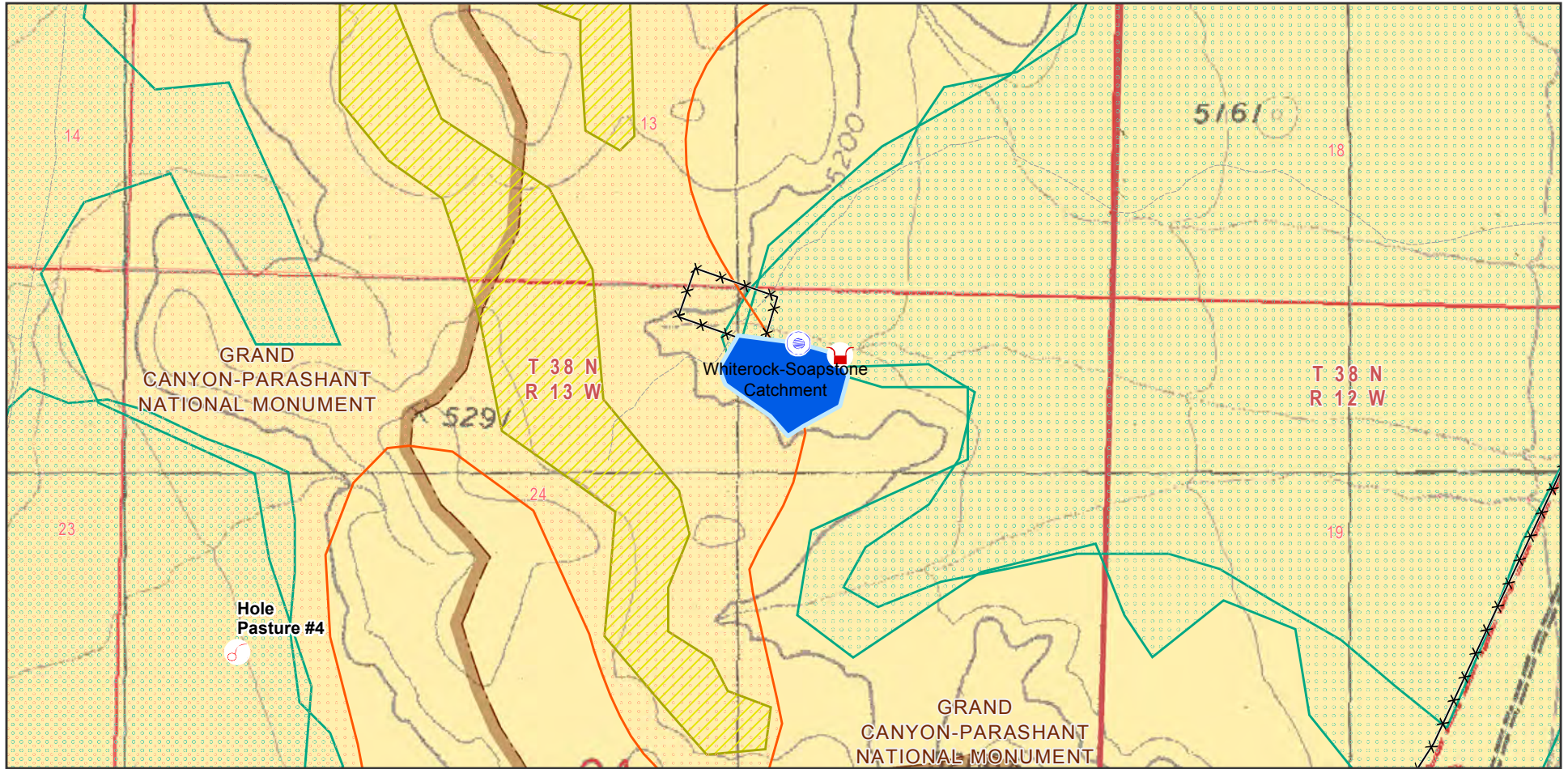




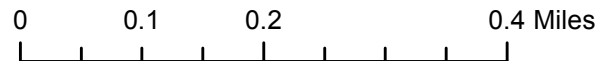
# Figure 12. Whiterock-Soapstone Allotment Proposed Catchment with Historic Vegetation Treatments.

NEPA Number DOI-BLM-AZ-A030-2019-0010-EA

Bureau of Land Management - Arizona Strip District - Arizona Strip Field Office-Grand Canyon Parashant National Monument



- |                                     |                                  |
|-------------------------------------|----------------------------------|
| Whiterock-Soapstone proposed tank   | <b>Surface Management Agency</b> |
| Whiterock-Soapstone proposed trough | <b>Agency Name</b>               |
| Whiterock-Soapstone proposed apron  | Bureau of Land Management        |
| Tertiary Road Unpaved               | 2010 Prescribed Burns            |
|                                     | 1996 Chemical Treatments         |
|                                     | 2010 Reseeds / Planting          |



Map Produced by BLM Arizona Strip District  
 File: Whiterock\_Soapstone Catchment 2019 historic veg tmts.mxd  
 Coordinate System: NAD 1983 UTM Zone 12N  
 Reference System: U.S. PLSS GSRB&M  
 Scale: 1:110,000 at 8.5x11 page output  
 User: mcutler  
 Date: 7/31/2019



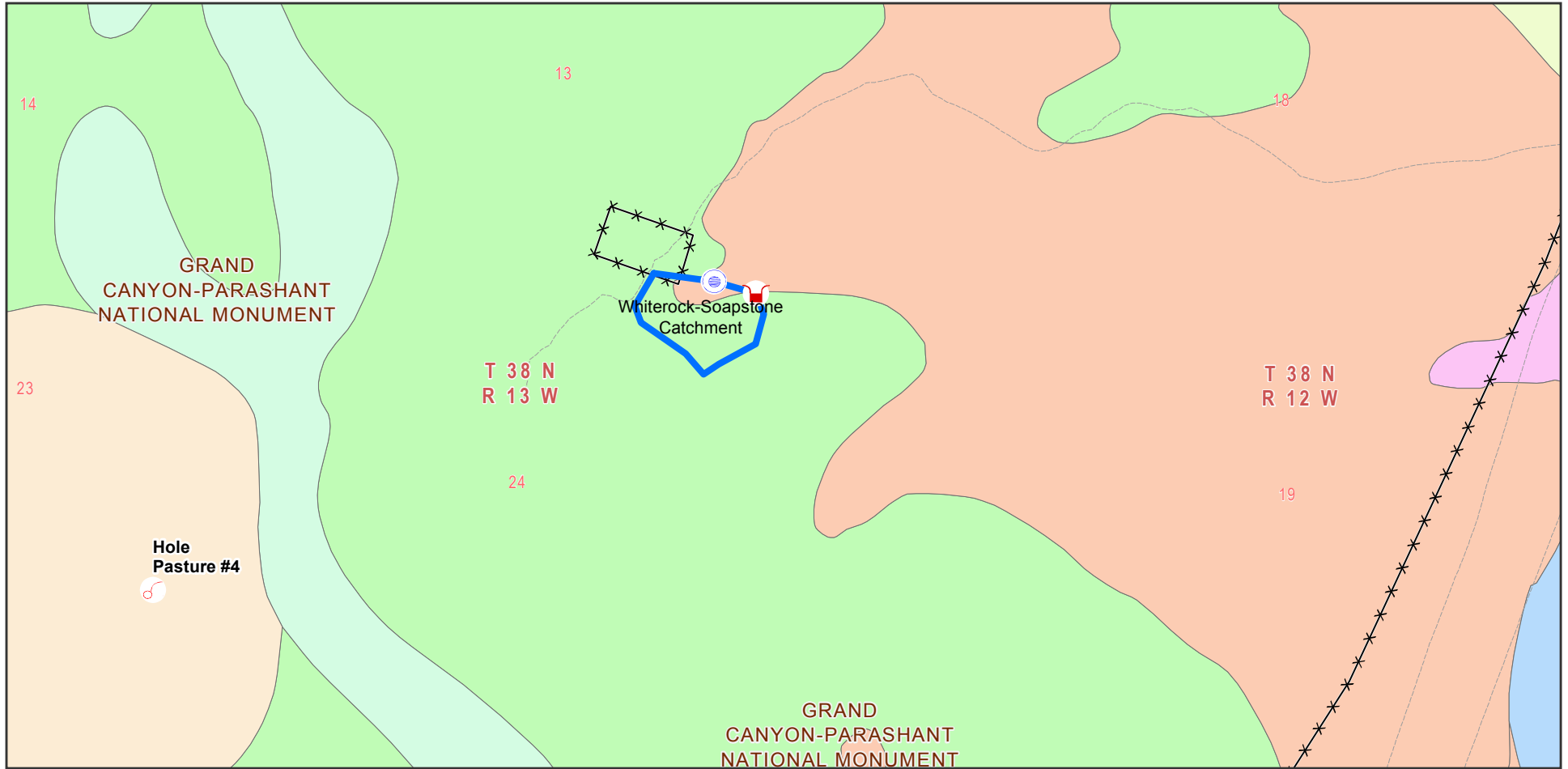
No warranty is made by the Bureau of Land Management (BLM) regarding the accuracy or completeness of this map. This map is representational and is to be used as intended by the BLM. Map data compiled from various sources. This map and the data from which it was derived are not binding on the BLM and may be revised at any time.



# Figure 13. Whiterock-Soapstone Allotment Proposed Catchment Ecological Sites

DOI-BLM-AZ-A030-2019-0010-EA

Bureau of Land Management - Arizona Strip District - Arizona Strip Field Office



Whiterock-Soapstone proposed tank



Whiterock-Soapstone proposed trough



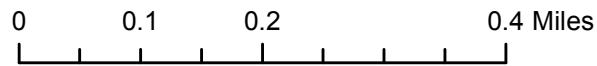
Whiterock-Soapstone proposed apron

--- Tertiary Road Unpaved

**Soils and Ecological Sites az623 ecoclassname**

- Rock outcrop (JUOS, PIED)
- Basalt Slopes 13-17" p.z. (JUOS, PIED)
- Clay Loam Upland 10-14" p.z.

- Limestone Hills 13-17" p.z. (PIED, JUOS)
- Loamy Upland 10-14" p.z.
- Loamy Upland 13-17" p.z.
- Gravelly (PIED, JUOS)
- Loamy Wash 10-14" p.z.



Map Produced by BLM Arizona Strip District  
 File: Whiterock\_Soapstone Catchment ESI 2019.mxd  
 Coordinate System: NAD 1983 UTM Zone 12N  
 Reference System: U.S. PLSS GSRB&M  
 Scale: 1:10,000 at 8.5x11 page output  
 User: mcutler  
 Date: 6/27/2019



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**APPENDIX B – Photos of Proposed Catchment and Infrastructure**



Figure B.1. Catchment Apron.



Figure B.2. Lined Storage Pond.



Figure B.3. Metal Storage Tanks.



Figure B.4. Tire Trough.

## APPENDIX C – Current Water Developments

**Table C1. Mt. Trumbull Allotment Water Developments**

Type	Name
Developed Spring	Cane Spring
Fenced Reservoir	Private Reservoir
Fenced Reservoir	Private Reservoir
Fenced Reservoir	B Reservoir Fence #2-Bundy
Fenced Reservoir	Reservoir-Rex Bundy
Livestock Catchment	Rim State Catchment #1
Livestock Catchment	Rim State Catchment #2
Livestock Catchment	Side of Mountain Catchment
Livestock Catchment	Divided Catchment
Livestock Trough	160 Tank Trough
Livestock Trough	Divided Catchment trough
Livestock Trough	Divided Catchment trough
Livestock Trough	Side of Mountain Catchment
Livestock Trough	Sand Rock Pockets Catchment
Slickrock Catchment	Cows Pocket Catchment
Slickrock Catchment	Sand Rock Pockets Catchment
Storage Tank	Frog Storage Tank
Storage Tank	Side of Mountain Catchment
Storage Tank	Divided Catchment Storage
Unfenced Reservoir	Frog Pockets
Unfenced Reservoir	Cinder Cone Pockets
Unfenced Reservoir	Cinder Cone Pockets
Unfenced Reservoir	Cinder Cone Pockets
Unfenced Reservoir	Pit-Whit Reservoir
Unfenced Reservoir	Roy's Pond
Unfenced Reservoir	One-Sixty Tank
Unfenced Reservoir	Reservoir Bundy's
Unfenced Reservoir	B Reservoir Fence #3-O Bundy
Wildlife Drinker	Rim Catchment #2
Wildlife Drinker	Rim Catchment #1
Wildlife Drinker	Lang's Run
Wildlife Drinker	Hurricane Cliffs (Uinkaret #3)
Wildlife Drinker	Side of Mountain Catchment

**Table C2. Whiterock-Soapstone Allotment Water Developments**

<b>Type</b>	<b>Name</b>
Developed Spring	Soapstone Spring
Developed Spring	Tombstone Spring
Detention Dam	Soapstone Checks (1)
Detention Dam	Soapstone Checks (3)
Detention Dam	Soapstone Checks (5)
Detention Dam	Soapstone Checks (4)
Detention Dam	Soapstone Checks (2)
Detention Dam	Soapstone Checks (6)
Fenced Reservoir	Boundary Reservoir
Fenced Reservoir	Larson Tanks
Livestock Catchment	Imlay Catchment
Livestock Trough	Imlay Catchment Trough
Livestock Trough	Tombstone Spring
Storage Tank	Imlay Catchment Storage Tank
Unfenced Reservoir	Res-Soap Stock Driveway
Unfenced Reservoir	Cedar Reservoir
Unfenced Reservoir	Larson Tanks
Unfenced Reservoir	Reservoir-Whiterock Soapstone
Unfenced Reservoir	Haul Pond
Wildlife Drinker	Whiterock Spring
Wildlife Drinker	Whiterock
Wildlife Drinker	Mustang Knoll
Wildlife Drinker	Tombstone Spring

**Table C3. Belnap Allotment Water Developments**

<b>Type</b>	<b>Name</b>
Fenced Reservoir	Ditch Pond
Unfenced Reservoir	Little Boulder Pond
Unfenced Reservoir	Belnap Reservoir - South
Unfenced Reservoir	James Pond
Unfenced Reservoir	Belnap Reservoir - North
Wildlife Drinker	Whitmore #1
Wildlife Drinker	Ivan Patch #2 Wildlife Catchment

**Table C4. Big Springs Allotment Water Developments**

<b>Type</b>	<b>Name</b>
Developed Spring	Big Spring
Developed Spring	Cold Spring Development
Fenced Reservoir	Mule Point Pond
Fenced Reservoir	Fence Pond
Livestock Catchment	Whitmore Point Catchment
Livestock Catchment	Big Springs State Catchment #1
Livestock Trough	Whitmore Point Trough
Livestock Trough	Big Spring Pipeline Addition 01
Livestock Trough	Big Spring Pipeline Addition Spur Trough
Livestock Trough	Big Spring Pipeline Addition Spur Trough
Livestock Trough	Big Spring Pipeline Addition 01
Livestock Trough	Big Spring Pipeline Addition 01 trough
Livestock Tank	Big Spring Pipeline Addition
Livestock Tank	Big Spring Pipeline Addition Trough
Storage Tank	Whitmore Point Storage
Storage Tank	Big Spring Pipeline Addition 01
Storage Tank	Big Spring Pipeline Addition
Unfenced Reservoir	Reservoir Wood & Lav
Unfenced Reservoir	Whitmore Point Pond
Unfenced Reservoir	Sinkhole Pond
Unfenced Reservoir	Cold Spring Wash Pond
Unfenced Reservoir	Reservoir-Wood
Unfenced Reservoir	Reservoir-Wood
Unfenced Reservoir	Reservoir-Wood
Unfenced Reservoir	Reservoir-Wood
Unfenced Reservoir	Reservoir-Wood
Unfenced Reservoir	Reservoir-Wood
Unfenced Reservoir	North Whitmore Point Reservoir
Unfenced Reservoir	Storage Tank & Pipeline-Wood
Unfenced Reservoir	Reservoir Cleo Wood
Unfenced Reservoir	Reservoir Cleo Wood
Unfenced Reservoir	Cold Tank
Undeveloped Spring	Randall Spring
Wildlife Drinker	Pa's Pocket (Mt. Emma #2)
Wildlife Drinker	Whitmore Point Wildlife Drinker
Wildlife Drinker	Whitmore #3
Wildlife Drinker	Mt. Emma #1
Wildlife Drinker	Slide Mountain
Wildlife Drinker	Whitmore #2

## APPENDIX D – Species not analyzed further in detail

Species	Habitat Type
House Rock Valley Chisel-toothed Kangaroo Rat ( <i>Dipodomys microps leucotis</i> )	This species is endemic to the House Rock Valley on the eastern side of the Arizona Strip and is not present within (or near) the project area.
Arizona Myotis ( <i>Myotis occultus</i> )	This species is usually found in ponderosa pine and oak-pine woodlands and is not present within or near the project area.
California Leaf-nosed Bat ( <i>Macrotus californicus</i> )	This species is usually found in desert scrub and is not present within or near the project area.
Northern Leopard Frog ( <i>Lithobates pipiens</i> )	This species has a limited range on the Arizona Strip and currently only occupies Soap Creek Tank on the Paria Plateau and possibly Kanab Creek. Habitat for this species is not present in or near the project area.
Arizona Toad ( <i>Anaxyrus microscaphus</i> )	Found on the Arizona Strip only along the Virgin River and tributaries. Habitat for this species is not present in or near the project area.
Relict Leopard Frog ( <i>Lithobates pipiens</i> )	This species has a limited range on the Arizona Strip and currently only occupies Tassi Spring. Habitat for this species is not present in or near the project area.
Bald Eagle ( <i>Haliaeetus leucocephalus</i> )	Bald eagles may be found in the project area during the winter months. Carrion and easily scavenged prey items provide important sources of winter food in terrestrial habitats that are away from open water, such as in the allotments. The proposed action would have no impact on carrion food sources. No nests are located on the Arizona Strip and nesting habitat (large trees near bodies of water) is non-existent.
Northern Goshawk ( <i>Accipiter gentilis</i> )	Habitat for this species is not present in the project area. On the Arizona Strip goshawks most frequently occupy ponderosa pine forests. Their nest sites are typically located on north-facing slopes with canopy cover of 50% or greater (Reynolds et al. 1992).
Native Fish (5 species)	These species are restricted to the Virgin River, Paria River, and Kanab Creek. Habitat for these species does not occur within or near the project area.
Spring Snails (2 species)	These species are restricted to very small ranges at spring sites along the Virgin River and Grand Wash and are not present within or near the project area.

## APPENDIX E - Public Comments and Response

Comment No.	Commenter Name	Comment	Response
<i>Three Catchment DOI-BLM-AZ-A030-2019-0010-EA Public Comments</i>			
001	B. Bundy	I am in favor of the proposed construction of the three water catchments and the associated infrastructure including water storage tanks, water troughs and pipelines for the Mt. Trumbull, Whiterock-Soapstone, Belnap, and Big Springs Pipeline Allotments. I have been to all three allotments and have seen the need of these catchments. The catchments will allow for more utilization of each of the pastures by not only livestock but also wildlife.	Thank you for your comment.
002	Western Watersheds Project	As a preliminary matter, it is not appropriate for the BLM to proceed with this project on the basis of an EA and, instead, the agency must prepare an EIS. The significance factors include the massive geographic scope of this project (over 100,000 acres), the proximity to and inclusion of portions of the Grand Canyon-Parashant National Monument and the Lake Mead National Recreation Area, the inclusion of State Trust Lands as part of the allotments and the current policy of the Arizona State Land Department that prohibits any ecological monitoring of State Trust Lands.	<p>The effects of installation, maintenance, and use of range improvements, including water catchments, storage tanks, and troughs are not unknown (or uncertain) or highly controversial. There are no known effects of the action identified and analyzed in the EA that are considered uncertain or involve unique or unknown risks – the effects of livestock grazing, vegetation treatments, and structural range improvements on the Arizona Strip (and elsewhere in the western U.S.) are well known and well documented. The BLM has proficiency implementing similar actions in similar areas. The environmental effects are fully analyzed in the EA (Chapter 4).</p> <p>As shown in Table 2.1 of this EA, the actual ground disturbance associated with the proposal is estimated to be approximately nine acres. Stating that the geographic scope of the project is “over 100,000 acres” as stated by WWP is a gross misrepresentation. The proposed action does encompass three separate geographic sites, but it is incorrect to infer that all of the public lands between the proposed catchment sites would be disturbed or is a significant factor requiring an EIS.</p> <p>The BLM conducted an interdisciplinary review for the proposed action. After consideration of the environmental</p>

			effects described in the EA and supporting documentation, the BLM determined that the actions are not a major Federal action and will not have a significant effect on the quality of the human environment, either individually or cumulatively with other actions in the area. No environmental effects meet the definition of significance in context or intensity, as defined at 40 CFR 1508.27. Therefore, the preparation of an Environmental Impact Statement (EIS) is not required.
003	Western Watersheds Project	Another key issue is that the Land Health Evaluations (LHEs) are woefully outdated, ranging from 2001 for the oldest to 2009 as the most “recent.” These issues preclude a Finding of No Significant Impact.	LHEs were implemented as a qualitative inventory for assessing BLM administered allotments; the BLM does not establish “sunset” criteria for LHEs. While the original LHE reports for the allotments analyzed in this EA were completed between 2001 and 2009, the BLM has continued to monitor the allotments and collect vegetative data. The BLM has implemented quantitative data collection using frequency trends and photo monitoring. Frequency trends have been established in most of the pastures and are re-read every five years, dating back to 1982. This data is analyzed periodically so that rangeland health and condition of the vegetation communities is kept current. The frequency trend data for the four allotments addressed in this EA shows that each pasture continues to meet or make significant progress towards meeting LHE standards, trend is static to upward, and seral stage is mid to late at most sites.
004	Western Watersheds Project	It also appears there is not any actual need for this project. The permittees would prefer to have more livestock infrastructure, but there is no demonstrated need. The LHEs do not call for additional waters. For example, on the Trumbull Allotment, while cattle distribution may not be “optimum” without the catchment and tank, there is no demonstrated need for the “improvements” while the installation, presence, and maintenance of the tank will have negative impacts on the watersheds, wildlife, and will serve as an attractive nuisance.	As stated in Section 1.2 of this EA, the purpose and need for these projects is to provide a reliable water source in those portions of the allotments which currently have unreliable water sources. Earthen reservoirs are the only water sources in these portions of the allotments. Earthen reservoirs are unreliable, as they depend on rainfall events in order to fill, and lack in water storage capabilities. This unreliability of water affects the distribution of livestock and makes uniform grazing on the allotments difficult. The proposed water catchments and troughs would provide reliable water sources to the allotments – some would be new water locations while others would replace existing unreliable waters. It is important to note that the BLM is attempting to be pro-active (i.e., prevent management



			<p>issues before they occur). As stated above, the new waters would provide reliable year-round water for both livestock and wildlife, and would result in more uniform distribution of livestock and therefore more uniform utilization of forage. While use in some areas would increase (due to more even distribution across pastures), overall use of the pastures would not increase – i.e., overall utilization would not exceed the maximum allowable utilization level of 50% and no increases in active AUMs would occur. The BLM would continue to monitor the allotments to ensure that they continue to meet or progress toward meeting the Arizona Standards for Rangeland Health, including maintaining or improving the ecological condition of the plant communities.</p>
005	Western Watersheds Project	<p>On the Whiterock-Soapstone allotment a pipeline was installed in the past, but this pipeline dewatered the aquifer to the point of the well going dry. EA at 3. It is curious that the BLM’s “solution” to this problem is to authorize an additional catchment just three miles from an existing catchment, further degrading the watershed. As BLM is aware, water catchments alter the way water flows across the landscape and replenishes groundwater. Unfortunately, these impacts have not been analyzed, nor disclosed, in spite of the fact BLM knows this area suffers from overdrawn aquifers. If this allotment was making significant progress towards meeting standards for rangeland health and additional water sources were not identified in the LHE as necessary, it does not make sense for the BLM to authorize these catchments and tanks. Indeed, if the only rationale is to allow “more uniform distribution of livestock” and “more even use within the pasture,” it is clear that authorizing these catchments and tanks will allow livestock to damage more of the federally managed public lands and will have a negative impact on rangeland health.</p>	<p>See response to Comment No. 004. In addition, please note that, contrary to the comment, the Whiterock-Soapstone Allotment LHE cites the allotment management plan, which includes an objective to “increase distribution of livestock on the allotment to cover 90% of the area. The other 10% is unusable.” The proposed action would help meet this objective. Please note that while the new catchment would be approximately 3 miles from an existing catchment, the new catchment would be in a different pasture of the allotment, creating a reliable water in this other pasture.</p> <p>Commenter is incorrect in stating that “water catchments alter the way water flows across the landscape and replenishes groundwater.” Catchment aprons capture precipitation that falls on them and then pipe that water to a storage tank or pond – they do not “alter the way water flows across the landscape.” It should be noted that the catchment aprons would be no more than 1.5 acres in size, which is miniscule when considering the large size of the surrounding watershed. We are unclear how commenter makes the assertion that “this area suffers from overdrawn aquifers.” We have no information to support this claim. In addition, groundwater pumping is regulated by the State of Arizona, not the BLM.</p>

			<p>The proposed projects are within grazing allotments that are available for livestock use within the Arizona Strip Field Office and Grand Canyon-Parashant National Monument RMPs, and that have current, valid grazing permits. Utilization of up to 50% of current year's growth can occur on all parts of the allotments. Note that this 50% utilization is averaged across an entire use area (generally on a pasture basis). Thus, while it is true that certain areas would have increased utilization due to more even distribution of livestock, overall utilization would not exceed the prescribed utilization limit of 50%. The BLM would continue to monitor the allotments to ensure that they continue to meet/progress toward meeting the Arizona Standards for Rangeland Health, including maintaining or improving the ecological condition of the plant communities. (See EA Section 4.3.1 for a detailed discussion on anticipated impacts to vegetation in the project areas.)</p>
006	Western Watersheds Project	<p>On the Belnap allotment water sources are unreliable due to drought conditions. EA at 3. The LHE for this allotment is from 2002, and at that time the allotment was meeting standards for rangeland health and water improvements were not recommended. Adding catchments to this allotment will not solve the issue of having no rain to fill those catchments.</p>	<p>See response to Comment Nos. 003 and 004.</p> <p>Please note that although the LHE determined that the Belnap Allotment was meeting the Standards for Rangeland Health, the proposed catchment would still be beneficial to land health – reliable water sources would result in more uniform distribution of livestock and thus more uniform utilization of forage (while not exceeding the maximum utilization level of 50%), which is one the stated purposes and needs for the project. Having reliable water helps ensure that pasture rotations would occur as planned, providing more reliable deferment and rest for pastures and thus periodic rest for vegetation. Simply because the allotment meets rangeland health standards does not negate the need for active management to (among other things) improve livestock distribution which would maintain soil health and desired vegetation standards into the future. As such, the BLM is attempting to be pro-active (i.e., prevent management issues before they occur).</p> <p>Catchments that are properly designed catch precipitation year-round. This water is then stored in a tank or lined pit,</p>

			<p>allowing a reliable source of water even during a drought. In 2019, even though most of the Arizona Strip received above average winter and spring precipitation, the Arizona Strip received very little monsoonal (summer) moisture. Allotments that have catchments are able to store water and meter it out during the dry periods of the year. Having a reliable water source benefits both livestock and wildlife that rely on year-round water availability.</p>
007	Western Watersheds Project	<p>On the Big Springs Pipeline allotment the catchment would be 2.5 miles from an existing catchment and the remaining water developments are “unreliable earthen ponds.” EA at 4. The 2006 LHE indicated the allotment was making significant progress towards meeting standards for rangeland health and there is no indication that additional waters would further that progress.</p>	<p>There is an existing catchment located in the Big Springs Pipeline Allotment approximately 2.5 miles from the proposed Belnap Allotment catchment. These are two separate allotments. The existing catchment would not be able to provide water to the Belnap Allotment as the Belnap Allotment is uphill from the existing Big Springs Pipeline catchment; catchments and storage tanks rely on gravity to move the water to troughs. Having reliable water sources, including troughs, spaced every couple of miles allows for better livestock grazing distribution, livestock management, and water availability for wildlife. EA Section 3.4.3.1 states that mule deer will typically not travel more than 1.5 miles from grazing areas to water. EA Section 3.4.1 Livestock Grazing states that cows will typically not travel more than one mile from grazing areas to water. Although additional water was not addressed in the LHE, the BLM is being proactive in livestock management by providing for better distribution through water availability in each pasture.</p> <p>See also response to Comment Nos. 003, 004, and 006.</p>
008	Western Watersheds Project	<p>Notably, all of the allotments and pastures that are targeted for additional industrial scale livestock infrastructure suffer from a lack of reliable water, mostly due to drought. The BLM must therefore recognize that the vegetation on these allotments and pastures similarly suffer from the effects of drought, making these areas unsuitable for livestock production. However, instead of requiring a reduction in the number of livestock on the landscape commensurate with the ability of the landscape to support vegetation in times of drought, the BLM proposes to put artificial water</p>	<p>The porous, sandy nature of many of the soils on the Arizona Strip do not retain water effectively, which makes existing earthen dams and conventional stock ponds unreliable for water storage (see EA Section 1.2). The proposed action allows for reliable water sources for both livestock and wildlife throughout the summer season, particularly if monsoonal moisture is late or non-existent in a particular year. A catchment allows for water storage even in a drought year.</p>

		<p>sources on the landscape to artificially support an unrealistic number of livestock.</p>	<p>During drought conditions, grazing permittees readily take voluntary reduced use, or if severe drought conditions occur, mandatory non-use is required by the BLM.</p> <p>As described in the response to Comment No. 003, the frequency trend data for the four allotments addressed in this EA shows that each pasture continues to meet or make significant progress towards meeting LHE Standards, trend is static to upward, and seral stage is mid to late at most sites.</p> <p>While the allotments analyzed within this EA either meet or are progressing toward meeting meet land health standards, the proposed projects would still be beneficial to land health – reliable water sources would result in more uniform distribution of livestock and thus more uniform utilization of forage (while not exceeding the maximum utilization level of 50%), which is one the stated purposes and needs for the projects. Having reliable water helps ensure that pasture rotations would occur as planned, providing more reliable deferment and rest for pastures and thus periodic rest for vegetation. Simply because an allotment meets rangeland health standards does not negate the need for active management to (among other things) improve livestock distribution which would maintain soil health and desired vegetation standards into the future. As such, the BLM is attempting to be pro-active (i.e., prevent management issues before they occur).</p>
009	Western Watersheds Project	<p>The BLM points towards the Arizona Strip Interdisciplinary Mule Deer Management Plan 2010-2014 as another rationale for authorizing these livestock infrastructure projects. EA at 5. However, the Arizona Game and Fish Department is not asking for these water catchments on these allotments – the permittees are alone in this request to BLM. WWP asks the BLM to explain how, specifically, authorizing these catchments protects monument objects? EA at 5. As noted elsewhere in this document, increasing the areas where livestock are present is likely to create additional harms, not reduce them.</p>	<p>The BLM works cooperatively with AGFD in management of habitat for mule deer and other wildlife species. AGFD states that “water distribution should be improved in Units 13A and 13B ... by utilizing both cooperative projects and wildlife catchments” (EA Section 1.2). The three proposed catchments are within Game Management Units 13A and 13B. In the <i>Arizona Strip Interdisciplinary Mule Deer Management Plan (AGFD and BLM 2015)</i>, AGFD recognizes that on the Arizona Strip water is a limiting factor for wildlife numbers and diversity. While the grazing permittees have requested these proposed catchments, increased water availability would also benefit</p>

			<p>wildlife, as noted by AGFD in the Mule Deer Management Plan.</p> <p>Water is essential for all animals. Wildlife populations in general, and mule deer and migratory birds, depend on reliable water sources. When ambient temperatures are high, it is reasonable to assume that survival and productivity of wildlife could be adversely affected by a lack of water. In semi-arid regions, such as the project areas addressed in this EA, water developments can be beneficial in combination with adequate foraging areas (Rosenstock et al. 1999). Wildlife will traditionally use water catchments during the hottest, driest months of the year when natural water sources dry up. For example, the <i>Arizona Strip Interdisciplinary Mule Deer Management Plan</i> states, “Significant efforts have been implemented across the Arizona Strip to improve water distribution. Perennial sources are generally lacking, and man-made sources such as livestock tanks, water catchment facilities and spring developments provide the bulk of water sources available for mule deer. It has been demonstrated on the Arizona Strip that improving water distribution improves distribution and habitat use by mule deer and has positive impacts on populations” (AGFD and BLM 2015).</p> <p>As stated previously, reliable water sources would result in more uniform distribution of livestock and thus more uniform utilization of forage (while not exceeding the maximum utilization level of 50%), which is one the stated purposes and needs for the projects. Having reliable water helps ensure that pasture rotations would occur as planned, providing more reliable deferment and rest for pastures and thus periodic rest for vegetation. Simply because an allotment meets rangeland health standards does not negate the need for active management to (among other things) improve livestock distribution which would maintain soil health and desired vegetation standards into the future. As such, the BLM is attempting to be pro-active (i.e., prevent management issues before they occur). These additional water developments would allow a better, reliable pasture</p>
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			<p>rotation. This facilitates complete rest for pastures, allowing better seed production and plant growth, which provides additional forage for wildlife as well as livestock.</p> <p>Monument objects are addressed in the EA under a variety of categories, as described in Section 1.3 and documented in Table 3.1.</p>
010	Western Watersheds Project	<p>The BLM states that these livestock infrastructure projects conform with the Arizona Strip Field Office RMP and the Grand Canyon-Parashant National Monument RMP because they will improve or maintain healthy, sustainable rangeland ecosystems, wildlife habitat, livestock forage, recreation opportunities, clean water, and functional watersheds. EA at 5, citing DFC-GM-01. However, this infrastructure serves a single purpose – to facilitate the presence and movement of livestock on federal public lands. In fact, these catchments will damage the watershed by altering how water flows across the landscape and infiltrates the soil. Similarly, while these catchments and tanks may facilitate the movement and presence of livestock across the project area, which the BLM believes will reduce impacts to vegetation in some areas (citing DFC-GM-02), this requires BLM to ignore the fact that a more widespread presence of livestock will harm vegetation in many other areas and BLM has failed to identify an alternative that would reduce the number of livestock on these lands, which would actually improve the health of the watershed, wildlife habitat, clean water, and all other rangeland resources. EA at 5. It is unclear how adding additional, artificial water sources will actually comply with DFC-WF-03.</p>	<p>See response to Comment Nos. 003, 004, 005, and 006.</p> <p>Grazing livestock is a legal use of public lands, as authorized by the Taylor Grazing Act and FLPMA, and affirmed in Presidential Proclamation 7265. Management of grazing on the Arizona Strip Field Office and Grand Canyon-Parashant National Monument is guided by the applicable RMPs that outline decisions and objectives to be met. The proposed action specifically conforms to Decision No. DFC-WF-03 in that additional waters would be provided for wildlife, as discussed in the response to Comment No. 009. While the proposed action may have been requested by the grazing permittees to benefit livestock management, other resources would benefit as well, specifically wildlife and vegetation, as discussed in the EA (see Sections 4.3.1 and 4.4.1).</p> <p>The BLM did not include an alternative on reducing current livestock use levels – this issue would be addressed during the permit renewal process for each allotment. The proposed projects are within grazing allotments that are available for livestock use within the Arizona Strip Field Office RMP and Grand Canyon-Parashant National Monument RMP, and that have current, valid grazing permits. The grazing permit is the instrument that authorizes a particular use (including amount of grazing preference) of an allotment. The issue of considering reduced livestock numbers would be addressed during the permit renewal process, when a variety of information (including the land health evaluation) is considered and evaluated. It should be noted that there must be valid data to suggest that reducing livestock use is warranted. Current monitoring data does not suggest that a reduction in</p>

			grazing preference is necessary – none of the land health evaluations completed for the subject allotments indicated that livestock grazing was causing non-attainment of land health standards (see EA Section 3.4.2); these LHE determinations are supported by current monitoring data. The BLM would continue to monitor the allotments to ensure that desired resource conditions are met, and that the allotments meet (or are making progress toward meeting) the Arizona Standards for Rangeland Health, including maintaining or improving the ecological condition of the plant communities. (See Section 4.3.1 for a detailed discussion on anticipated impacts to vegetation in these allotments.)
011	Western Watersheds Project	The project would fence wildlife out of the area where the catchments are located, making them unavailable as a wildlife water source. The water would be pumped to troughs for livestock, which are designed for livestock, not wildlife, and which pose threats to wildlife.	The catchment aprons would be fenced to exclude livestock; small mammals and birds would be able to access the apron portion of the catchment. Livestock and larger wildlife would also be excluded from storage tanks or pits for safety reasons. If ponds are constructed for water storage, a fence would be constructed around its perimeter to impede animals from entering and getting trapped; if storage tanks are chosen, either lids or wildlife escape ramps and floating bird ladders would be installed to prevent animals from getting trapped. Water troughs are designed and available for both livestock and wildlife – escape ramps are required to reduce drowning by small mammals and birds.
012	Western Watersheds Project	Two new roads would be constructed and then possibly (very likely) included as part of the designated public road system. Maintenance for this project is expected to stretch for up to 50 years. This is harmful to the project area, not restorative nor protective.	Approximately 1,733 feet of new road would be required to allow construction of the Belnap and Mt. Trumbull catchments. Both of the newly constructed roads would be designated public routes for ASFO and GCPNM travel management purposes, in accordance with decisions from each applicable RMP that state “New roads on BLM-administered lands, once authorized and constructed, will become part of the designated transportation system” (Decision No. MA-TM-27 – GCPNM RMP; Decision No. MA-TM-19 – ASFO RMP). Although these two routes would be open to public use, it is likely that they would receive limited use, primarily for catchment apron maintenance purposes once construction is complete.

			See also response to Comment Nos. 004, 005, and 009.
013	Western Watersheds Project	The analysis of air quality fails to consider the impacts of the more widespread presence of livestock on the landscape. EA at 14. If the point of the water developments is to facilitate the movement of livestock throughout the project area, the BLM must consider how hoof action, vegetation removal, and wallowing will impact air quality, which will not be “localized and temporary” at only water developments. Similarly, the impacts to cultural resources from livestock will now be much more widespread and the BLM has failed to analyze those impacts.	<p>Through proper grazing, the amount of bare ground as evidenced by the frequency trend data, has decreased in these allotments over the thirty years of data collection. Corresponding litter has increased in these four allotments over the period of monitoring. The interdisciplinary team review for this EA analysis considered impacts to air quality. As stated in Table 3.1, while livestock movement and congregating at waters can create fugitive dust, this dust would be localized and temporary, and would not cause Prevention of Significant Deterioration Class II standards to be exceeded.</p> <p>Impacts to cultural resources are addressed within this EA (see Table 3.1). The proposed new range infrastructure is located in areas that have been grazed previously. Likely areas where livestock could congregate and potentially impact surface resources (i.e. around new water troughs) were inventoried for cultural resources and none were found. No potential cultural areas, such as rock shelters, rock art or standing architecture were found near these project areas. In the event that significant cultural resources are found to be adversely impacted due to construction and use of the proposed range facilities, preventative and mitigation measures would be determined on a site-specific basis, and then implemented. This was clarified in Table 3.1</p>
014	Western Watersheds Project	As livestock are encouraged to disperse throughout more of the project area they will facilitate the spread of noxious weeds such as Scotch thistle ( <i>Onopordum acanthium</i> ) and cheatgrass, an invasive species. The new roads and the ongoing use of roads for maintenance for the next 20-50 years will cause the further spread of brome, Russian thistle ( <i>Salsola kali</i> ), field bindweed ( <i>Convolvulus arvensis</i> ) and non-native mustards.	Weed containment and control are implemented with all ground disturbing activities on the Arizona Strip. We recognize that many things including livestock can be a vector to spreading noxious weeds. However, through compliance inspections, utilization monitoring, long-term trend monitoring, site visits, cooperative weed management days, and discussions with permittees, new infestations are detected and treated while treating existing infestations. It is important to note that cattle already can access the areas where improved livestock distribution is sought – the purpose for the proposed projects is to distribute cattle more evenly across each subject pasture for more uniform utilization, rather than to allow livestock grazing to occur



			in “new areas” which have never before been available to livestock use. No discernible impacts from the proposed action are therefore anticipated. This was clarified in Table 3.1. Through best management practices, design features, and active control measures, weeds including the species mentioned by commenter are being managed throughout the Arizona Strip District (see Section 2.2.1).
015	Western Watersheds Project	There are already over 100 water developments in the project area. If this industrial level of artificial water development has not adequately facilitated the livestock industry, it is unclear why the BLM believes these additional water developments will provide the needed water, especially in light of ongoing drought, and especially in light of the LHEs for all allotments not identifying additional water developments as a strategy for meeting standards for rangeland health.	See response to Comment No. 008.
016	Western Watersheds Project	The BLM has failed to analyze the impacts of illegal dumping and target shooting that is well known to take place at livestock waters, tanks, and other developments. These new water developments will act as an attractive nuisance, resulting in trash accumulation as well as toxic residues left behind by target shooters.	We acknowledge that trash dumping does sometimes occur on public land (not just at range improvement sites), which is a law enforcement issue and beyond the scope of this EA analysis. Target shooting also occurs on public lands but is not an illegal activity in most areas (including in these allotments). It is speculative to suggest that these sites would become trash dumping sites and target shooting areas. Similar water development sites exist across most of the Arizona Strip District that have no documented target shooting or dumping – trash dumping is the exception, not the rule. Proximity to paved roads, highly improved roads, and urban areas tend to attract dumping and shooting. None of the sites addressed in this EA are near paved roads, highly improved roads, or urban areas.
017	Western Watersheds Project	There are other impacts associated with water developments that should have been, and now must be, analyzed before this project can move forward. For example, wildlife are directly negatively impacted by water developments from crushing and displacement during construction, and drowning after the tanks are filled. Wildlife are indirectly impacted when people leave trash at the water developments or use tanks as target shooting backdrops. Please see Appendix A, WWP photos	Commenter has submitted these same photos for other projects on the Arizona Strip. These photos were not relevant or applicable to those projects and are not to this current project either. These photos likely represent neighboring Arizona State managed lands and range improvements that are in closer proximity to urban areas, and do not represent the typical water developments on BLM lands. The permittees on the allotments addressed in this EA have a good history of maintaining range

		<p>of trash and other impacts at water developments at nearby allotments.</p> <p>As noted above, it is improper for the BLM to claim that wildlife will benefit from the water developments while the BLM’s plan for some of those same water developments is to fence wildlife out. EA at 8. Further, the BLM has failed to analyze the impacts to prey species that can be negatively impacted when predator species are benefited by artificial waters.</p>	<p>improvements on these allotments, and the public in general does not dump trash at these sites.</p> <p>The EA fully analyzed impacts to wildlife from construction and use of the proposed water developments. The EA also analyzed impacts to wildlife and their prey species – see Section 4.4.1.</p> <p>Please also see response to Comment Nos. 009, 011, and 016.</p>
018	Western Watersheds Project	<p>Air Quality (EA at 15) – this issue was determined to be NI, with the rationale that the air quality in the area is generally good and that livestock cause fugitive dust only where they congregate at waters, making the dust impacts localized and temporary. This analysis fails to acknowledge that livestock grazing removes vegetation from large swaths of the landscape, hoof action disturbs desert soil crusts, and the potential for fugitive dust related to livestock grazing covers the entire allotment acreage.<sup>2</sup> Therefore, air quality impacts should have been analyzed in the EA.</p>	<p>See response to Comment No. 013.</p>
019	Western Watersheds Project	<p>Recreation (EA at 19) – this issue was determined to be NI, but this is likely because the EA fails to discuss how livestock grazing displaces those public lands visitors who are put off by livestock, cow dung, and landscapes degraded by livestock. Additionally, fencing can make the public feel they are not allowed access to certain areas. These issues related to recreation should be analyzed. This is especially important to adequately analyze given the proximity and overlap with the Grand Canyon-Parashant National Monument and Lake Mead National Recreation Area.</p>	<p>As stated in Table 3.1, the proposed project locations are in remote areas away from primary travel routes used by visitors. Due to the remoteness of the proposed project areas and the low overall visitation to these areas, disturbance to the recreating public (including displacement of users) is unlikely. Lake Mead National Recreation Area, which formerly included portions of Grand Canyon-Parashant National Monument, lies on the south side of the Grand Canyon, far removed from the project area (see Figure 1). This has been clarified in the EA 1.1 Introduction and Background.</p>
020	Western Watersheds Project	<p>Visual Resources (EA at 19) – this issue was determined to be NI, but the EA fails to acknowledge the fact that the catchments, tanks, fencing and roads, do have an impact on visual resources and can act as an attractive nuisance.</p>	<p>The catchments all lie within areas designated as VRM Class III. The proposed projects may draw attention to the casual observer but would not dominate the landscape and would not be seen by the majority of visitors to the ASFO and GCPNM. The projects would therefore meet VRM Class III objectives, as described in Table 3.1.</p>

021	Western Watersheds Project	Mule deer are described as present throughout these allotments. While described as occurring at low densities in some areas, they are present throughout with the population in Game Management Unit (GMU) 13A showing signs of growth and the Black Rock Mountain area having very high densities with populations estimated at 1,539 in GMU13B and 1,396 in GMU 13A. EA at 28. The deer are present throughout the allotments even though “[t]his area contains few perennial water sources” and it would appear, from the information in the EA, these allotments are suitable for wildlife at this time and any proposed changes could be detrimental. However, the analysis of the impacts to wildlife are secondary to the analysis and plans to make the allotment more suitable to livestock.	See response to Comment Nos. 009 and 017.
022	Western Watersheds Project	Finally, where FLPMA requires that goals and objectives for public lands be established by law as guidelines for public land use planning, and that management is on the basis of multiple use and sustained yield, it adds, “unless otherwise specified by law.” §102(a)(7). And “multiple use” is specifically defined in the statute as, in part, “making the most judicious use of the land for some or all of these resources...the use of some land for less than all of the resources... with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output.” §103(c). Simply because the overarching land management plan describes these allotments as “available” for grazing doesn’t preclude the agency from taking a hard look at the balance of uses at the site-specific level.	The EA represents the hard look requirement as per NEPA. The EA was prepared by an interdisciplinary team of resource specialists (see Table 5.2) and many resources and elements of the human environment were considered. Table 3.1 lists the resources/elements of the human environment that were considered, and Chapters 3 and 4 present those resources that could be potentially impacted and are therefore carried forward for detailed analysis.  See also response to Comment No. 010.
023	R. Spotts	I reviewed this EA and it is generally excellent. Kudos to those who prepared it. With the prospect of more prolonged droughts due to climate change, these water catchments will likely become of increasing importance to the survival of vulnerable wildlife species.	Thank you for your comment.
024	Sierra Club	This project stands in opposition to the monument proclamation. This project would establish three new water catchments, totaling up to nine acres of disturbance and adding more than 3.4 miles of new roads (EA at p.9).	Table 2.1 shows that the combined length of new road would be approximately 1,733 feet, or 0.33 miles. The remainder of access roads would be on existing roads that would require varying degrees of road maintenance, as

		<p>The establishment of new water catchments and roads is counter to the very spirit of the monument’s creation.</p> <p>The monument proclamation declares: Despite the hardships created by rugged isolation and the lack of natural waters, the monument has a long and rich human history spanning more than 11,000 years... Full of natural splendor and a sense of solitude, this area remains remote and unspoiled, qualities that are essential to the protection of the scientific and historic resources it contains...</p> <p>Archaeological evidence shows much human use of the area over the past centuries. Because of their remoteness and the lack of easy road access, the sites in this area have experienced relatively little vandalism...</p> <p>The monument also contains outstanding biological resources preserved by remoteness and limited travel corridors. (Establishment of the Grand Canyon-Parashant National Monument (#7265) By the President of the United States of America: A Proclamation, “proclamation”, pp.1-2).</p> <p>The monument proclamation identifies biological diversity, beauty, and open, undeveloped spaces; fossils, geology, and a long history of inhabitation by Southern Paiutes and other “existing Indian tribes” and their predecessors. The only mention of ranching in the proclamation is a reference to a historic period: Ranch structures and corrals, fences, water tanks, and the ruins of sawmills are scattered across the monument and tell the stories of the remote family ranches and the lifestyles of early homesteaders. (proclamation, p. 2).</p>	<p>described in Section 2.1. Please note that two of the three projects (Mt. Trumbull Allotment and Whiterock-Soapstone Allotment) are within the ASFO, not within GCPNM. The length of proposed new road within GCPNM is 528 feet, or 0.1 mile. The other 1,205 feet (0.23 mile) of proposed new road would be within ASFO.</p> <p>Commenter fails to mention the portion of the Proclamation that directly addressed continued livestock grazing on GCPNM (page 11 CFR-2001-title3-volume 1): <i>“The Bureau of Land Management shall continue to issue and administer grazing leases within the portion of the monument within the Lake Mead National Recreation Area, consistent with the Lake Mead National Recreation Area authorizing legislation. Laws, regulations, and policies followed by the Bureau of Land Management in issuing and administering grazing leases on all lands under its jurisdiction shall continue to apply to the remaining portion of the monument.”</i></p>
025	Sierra Club	<p>BLM does not justify a need for new water catchments. The only need for this project appears to be that grazing permittees requested them: “In 2018 and 2019, proposals for the construction of three water catchments and associated water tanks, troughs, and pipelines were received from three livestock grazing permittees.” (Environmental Assessment, “EA” at p.1) The EA states that, “The addition of these proposed water sources would distribute livestock more evenly throughout</p>	<p>See response to Comment Nos. 004, 005, 006, 008, and 009.</p>

		the allotments and result in more uniform use across the pastures,” which means that livestock impacts would be cast across a wider area (EA at p.1). It should be BLM’s priority to preserve the “lack of natural waters,” “natural splendor and a sense of solitude,” the “remote and unspoiled” area rather than subsidizing damage to natural resources (proclamation, pp. 1-2).	
026	Sierra Club	<p>BLM mentions that the “proposed projects would also provide additional water sources for wildlife (including mule deer).” (EA at p.5) This is followed by a claim that by spreading grazing over the wider landscape with these catchments, “Thus, other wildlife species (along with mule deer) would benefit from the proposed water projects by improving water distribution and improving habitat use by these species as well” (EA at p.5).</p> <p>The agencies have been constructing tanks throughout our public lands for more than 40 years, yet there is no solid evidence that they benefit animals on a population level, especially over time. Use does not represent a benefit, necessarily. If BLM intends to increase habitat value for big game through this project, it should focus on increasing forage and hiding cover.</p> <p>In recent years, elk have begun migrating onto the Arizona Strip, and cattle grazing occurs throughout the landscape. Elk could be attracted by wildlife drinkers and stock tanks. Both elk and mule deer become less abundant on lands grazed by cattle (Wallace and Krausman 1987, Stewart et al. 2002). Competition between elk, cattle, and mule deer can cause niche partitioning between the three species, with cattle displacing elk and deer, and the latter two species temporally separating their niche use within the remaining space (Stewart et al. 2002). Mule deer make niche decisions to avoid elk (Johnson et al. 2000, Stewart et al. 2002, Stewart et al. 2010).</p>	<p>See response to Comment No. 009.</p> <p>Please note also that conducting vegetation treatments to “increase[e] forage and hiding cover” is outside the scope of this EA analysis.</p>
027	Sierra Club	<p>To ensure climate change resiliency, BLM should focus on maintaining natural water sources, such as springs and wet meadows, rather than diverting water into catchments. Drought and temperature increases will negatively impact these natural waters, and protecting them will benefit all</p>	<p>Actions pertaining to maintaining natural water sources is outside the scope of this EA analysis.</p>

		species, including those that will not or cannot draw water from catchments.	
028	Sierra Club	To increase habitat quality, BLM should focus on obliterating project--related roads, removing cattle and elk, or taking other actions that have been proven to increase abundance of mule deer and pronghorn (Rost et al. 1979, Broyles 1995, Krausman and Etchberger 1995, Krausman and Czech 1998, Bladh 2004, Marshal et al. 2006, Cain et al. 2008, Horncastle et al. 2013).	The actions suggested by commenter are outside the scope of this EA analysis.  See also response to Comment Nos. 009 and 010.
029	Sierra Club	<p>BLM should not construct new roads in the monument. Despite referring to the new roads as “construction of two new (short) routes off existing roads,” 3.5 miles is a significant addition to the road system that has not been analyzed as part of Travel Management Planning (EA at p.9). BLM has never performed a GIS-based roadless analysis of the entire monument and should determine where large core roadless habitats exist and then protect those areas.</p> <p>Once roads are created in these lands, it will not be possible to prevent future trespass and use without obliterating and obscuring them, or gating them for administrative use only.</p> <p>Roads and even temporary road construction can cause resource damage including erosion and sedimentation, exotic species spread and disruption of wildlife (Rost and Bailey 1979, Trombulak and Frissell 2000, Long et al. 2010).</p> <p>The proclamation makes a clear declaration that the Monument is so spectacular because of its lack of roads: “outstanding biological resources preserved by remoteness and limited travel corridors.” (proclamation, p. 2)</p> <p>Yet BLM seems like it is using this project to create recreational routes: “Both of the newly constructed roads would be evaluated as designated public routes for ASFO and GCPNM travel management purposes.” (EA at p.9)</p> <p>Vehicles should stay on established roadways. Once vehicles drive on roads, whether administrative or open for public access, they will appear to be open to the public. Administrative roads should be gated or otherwise blocked and obscured to prevent trespass.</p>	<p>As stated in the response to Comment No. 024, only 528 feet of new road would be authorized within GCPNM. The road would not create a “significant addition to the road system”. Vehicles are already required to remain on designated roads – nothing in this EA would change that. Impacts to wildlife, including cumulative impacts from recreational use, are fully analyzed in the EA (see Sections 4.4.1 and 4.5.3).</p> <p>See also response to Comment Nos. 014 and 019.</p> <p>Conducting a Monument-wide roadless analysis is outside the scope of this EA analysis.</p> <p>The GCPNM RMP (Decision No. DFC-TM-08) and ASFO RMP (Decision No. DFC-TM-09) state: “<i>The building of new roads, or altering or upgrading of existing roads, will be minimized to the greatest extent possible, except as needed to protect natural and cultural resources on public lands <u>or</u> support achieving other resource management objectives identified in this Approved Plan.</i>” (emphasis added).</p> <p>The shortest distance to the catchment sites from existing roads was considered and planned for in developing the proposed action, using existing roads and disturbance to the greatest extent possible. RMP objectives include providing water for wildlife and livestock as described in Chapter 2 of the EA. See also responses to Comment Nos. 009 and 024.</p>

030	Sierra Club	<p>The public should not pay to subsidize ranching infrastructure The EA declares that, “The BLM, along with... grazing permittee[s]... have proposed to build...” each of these catchments (EA at pp. 2-4). The public (i.e., BLM) should not be subsidizing private business interests. Grazing permittees should be responsible for their own costs of doing business on our public lands. Who in the public, besides the grazing permittees, benefits from these developments? Surely not those who are seeking “natural splendor and a sense of solitude...remote and unspoiled, qualities that are essential to the protection of the scientific and historic resources... outstanding biological resources preserved by remoteness and limited travel corridors.” (proclamation, pp.1-2)</p> <p>It is painfully clear that BLM is not investing in evaluating or protecting the health of our public lands. Rangeland Health Assessments (“LHE”s) have not been conducted in these pastures for the past 10 to 20 years (EA at pp. 2-4).</p>	<p>Materials for construction of the proposed projects would primarily be provided by the Natural Resources Conservation Service. Additional funding may be provided by the permittees, Arizona Strip Grazing Board, AGFD, and the BLM, since public land resources would benefit from the installation of new waters, as described in Chapter 4 of this EA. Labor is typically provided by the grazing permittees as part of the cost sharing agreement. This information has been added to the EA (in Section 2.2.1).</p> <p>See response to Comment Nos. 003 and 009.</p>
031	Sierra Club	<p>Other considerations: Cultural resources and their impacts should be discussed with affiliated tribes early in the project planning process, and their suggestions or prohibitions should be incorporated into the project plan.</p>	<p>Cultural inventories were completed for each of the proposed catchment and infrastructure sites. There are no anticipated impacts to cultural resources as all sites would be avoided and excluded from the project areas (see Section 2.2.1). See also response to Comment No. 013.</p>
032	Sierra Club	<p>Any seeding done to restore areas after any work is completed should be conducted only with native plant seeds. BLM should disclose the composition of the seed mix(es) to be used.</p>	<p>As stated in Section 4.3.1, seeding was not deemed necessary based on existing seed sources in the project areas. Section 2.2.1 outlines invasive plant/weed monitoring to be completed on each site for a period of two years. Should it be determined that seeding is necessary, the chosen seed mix would be appropriate for the particular ecological site. The seed mix would primarily be composed of native seeds, although non-native species could be used, as allowed by both applicable RMPs.</p>