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Environmental Assessment
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Tassi-Gold Butte HMA Wild Burro Gather Plan

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Bureau of Land Management and National Park Service
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List of Acronyms

AAEP	American Association of Equine Practitioners
ACEC	Area of Critical Environmental Concern
AHPA	American Horse Protection Association
AML	Appropriate Management Level
APHIS	Animal and Plant Health Inspection Service
AUM	Animal Unit Month
BLM	Bureau of Land Management
CAWP	Comprehensive Animal Welfare Program
CFR	Code of Federal Regulations
COR	Contracting Officer Representative
EA	Environmental Assessment
EIS	Environmental Impact Statement
FLPMA	Federal Land Policy and Management Act
FONSI	Finding of No Significant Impact
GAO	Government Accountability Office
GCPNM	Grand Canyon-Parashant National Monument
GMP	General Management Plan
HA	Herd Area
HMA	Herd Management Area
HMAP	Herd Management Area Plan
LCOR	Lead Contracting Officer Representative
MOU	Memorandum of Understanding
MRAF	Minimum Requirements Analysis Framework Workbook
NAS	National Academy of Sciences
NEPA	National Environmental Policy Act
NPS	National Park Service
NRA	National Recreation Area
OHV	Off-Highway Vehicle
OIG	Office of Inspector General
ORC	Off-range corral
ORP	Off-range pasture
PI	Project Inspector
PRIA	Public Rangelands Improvement Act
RFF	Reasonably Foreseeable Future
RFFAs	Reasonably Foreseeable Future Actions
RMP	Resource Management Plan
ROD	Record of Decision
S&G	Standards and Guidelines
SOP	Standard Operating Procedure
SOW	Scope of Work
TGA	Taylor Grazing Act
U.S.C.	United States Code
USFWS	United States Fish & Wildlife Service
VRM	Visual Resource Management

WCA	Areas to be Managed to Maintain Wilderness Characteristics
WFRHBA	Wild Free-Roaming Horses and Burros Act
WH&B	Wild Horse and Burro
WHBT	Wild Horse and Burro Territory

1.0 Purpose and Need for Action

1.1 Introduction

This Environmental Assessment (EA) has been prepared to analyze the Bureau of Land Management (BLM) and National Park Service (NPS) Grand Canyon-Parashant National Monument (GCPNM) proposal to gather and remove wild burros from within and outside the Tassi-Gold Butte Herd Management Area (HMA)[1]. The gather plan would allow for an initial gather, as well as future gathers, to achieve and maintain appropriate management levels (AML), which was set to zero in a 1998 agency decision. The proposed gather plan would remove wild burros from both the Tassi-Gold Butte HMA and greater Pakoon Basin area where wild burros are not authorized (see Appendix A, Figure A.1).

This EA is a site-specific analysis of the potential impacts that could result with the implementation of the proposed action. Preparation of an EA assists the BLM and NPS authorized officers to determine whether to prepare an Environmental Impact Statement (EIS) if significant impacts could result, or a Finding of No Significant Impact (FONSI) if no significant impacts are expected.

This document conforms with the Grand Canyon-Parashant National Monument Resource Management Plan/General Management Plan (GCPNM RMP/GMP) (BLM 2008a) and Final Environmental Impact Statement approved January 29, 2008, and is in conformance with the Lake Mead National Recreation Area Burro Management Plan and Final EIS signed April 1995 (NPS 1995).

1.2 Background

Since the passage of the Wild Free-Roaming Horses and Burros Act (WFRHBA) of 1971, BLM has refined its understanding of how to manage wild horse and burro (WH&B) population levels. By law, BLM is required to control any overpopulation, by removing excess animals, once a determination has been made that excess animals are present and removal is necessary. Program goals have always been to establish and maintain a "thriving natural ecological balance," which requires identifying the Appropriate Management Level (AML) for individual herds. In the past two decades, program goals have also explicitly included conducting gathers and applying contraceptive treatments to achieve and maintain wild horse and burro populations within the established AMLs, so as to manage for healthy wild horse and burro populations and healthy rangelands. Other management efforts include using population inventories that rely on peer-reviewed methodology and collecting genetic baseline data to support genetic health assessments. Decreasing the numbers of excess wild horses and burros on the range to levels within AML is consistent with findings and recommendations from the National Academy of Sciences (NAS), American Horse Protection Association (AHPA), the American Association of Equine Practitioners (AAEP), Government Accountability Office (GAO), Office of Inspector General (OIG), and with current BLM policy.

[1] When the Grand Canyon-Parashant National Monument Resource Management Plan/General Management Plan (GCPNM RMP/GMP) set the Appropriate Management Level to zero, it should have changed the designation from a Herd Management Area (HMA) to a Herd Area (HA). This will be resolved during the next GCPNM RMP/GMP revision.

NPS Management Policies, 2006 (NPS 2006), section 8.6.8.3 Trespass and Feral Livestock states that "Livestock trespassing on park lands may be impounded and disposed of pursuant to the provisions of 36 CFR 2.60, with the owner charged for expenses incurred. Wild living or feral livestock having no known owner may also be disposed of in accordance with 36 CFR 2.60."

The WFRHBA does not limit National Park Service authority to manage its lands and resources. Section 1338a specifically notes that "Nothing in this Act shall be deemed to limit the authority of the Secretary in the management of units of the National Park System, and the Secretary may, without regard either to the provisions of this Act, or provisions of section 47 (a) of title 18, use motor vehicles, fixed-wing aircraft, or helicopters, or to contract for such use, in furtherance of the management of the National Park System, and section 47 (a) of title 18 shall be applicable to such use."

The Tassi-Gold Butte Herd Management Area (HMA) and greater Pakoon Basin lies in northwestern Arizona, approximately 60 miles south, southwest of St. George, Utah and 35 miles south, southeast of Mesquite, Nevada (see Appendix A, Figure A.1). It is within the Grand Canyon-Parashant National Monument. The Monument and the HMA are jointly managed by the BLM and the NPS. The HMA and greater Pakoon Basin is bounded on the west by the Arizona-Nevada state line and the Million Hills and on the east by the Grand Wash Cliffs. It lies northeast of Lake Mead National Recreation Area (NRA). The Tassi-Gold Butte HMA is managed by BLM Arizona and NPS, but this herd area is separate and distinct from the nearby Gold Butte HMA, which is managed by BLM Nevada. The Gold Butte HMA in Nevada has an established AML for burros (22-98), and is not the subject of analysis or the decision to be made here.

The original Tassi-Gold Butte Herd Management Area Plan (HMAP) (BLM 1982) was completed in 1982 and allowed a herd of approximately 90 – 100 wild burros to roam freely in what was the Tassi-Gold Butte HMA at that time. This included the public lands managed by the BLM and NPS areas within Lake Mead NRA, encompassing the Lower Grand Wash Cliffs, Grand Wash Bay, and Tassi Spring area.

The 1995 Lake Mead NRA Burro Management Plan and Final EIS (NPS 1995) established those portions within the NRA as zero burro use. The 1998 Decision Record for the Mojave Amendment of the Arizona Strip RMP (BLM 1998) modified the 1982 decision to implement the HMAP and set the wild burro herd management level at zero. The 1998 decision was aimed at protecting the threatened desert tortoise (*Gopherus agassizii*) and its habitat, which is found in the area. The Mojave Amendment called for the removal of burros from the Tassi portion of the HMA, as did the NPS Burro Management Plan. The 2007 Arizona Strip Proposed RMP/GMP/Final EIS BLM (BLM 2007) estimated that there were approximately 30 animals that still needed to be removed to meet the AML of zero.

Currently, the Tassi-Gold Butte HMA has an Appropriate Management Level (AML) set at zero (0) wild burros. This zero AML was established through the BLM and NPS Records of Decision (RODs) and Approved Grand Canyon- Parashant National Monument Resource Management Plan (RMP/GMP)/Environmental Impact Statement (EIS) (BLM 2008a) and the Lake Mead National Recreation Area Burro Management Plan and Final EIS (NPS 1995).

In September 2017, an aerial survey of wild burros was conducted in and around the Tassi-Gold Butte HMA and the greater Pakoon Basin. It was estimated that there were 105 burros on both BLM and NPS lands within the HMA. Fifteen burros were seen on the NPS administered lands within the HMA. Ninety burros were seen on BLM administered lands within the HMA. At the same time, it was estimated that there were an additional 55 wild burros outside of the HMA on BLM land within the greater Pakoon Basin on the GCPNM.

The current population in the Tassi-Gold Butte HMA is estimated to be between 94 and 166 wild burros (Table 1.1). These numbers are based on the most recent aerial survey from September 2017 in the area, which used simultaneous double-observer methods for data recording (Ekernas, Griffin and Lubow 2017) and analysis (Ekernas 2018). Based on the survey, the estimated population inside of the HMA was 105 wild burros. In March 2019, there might have been a reporting error that underestimated the number of burros: 88 burros were reported to the public (available at: www.blm.gov/sites/blm.gov/files/2019_Final_HAHMA_Stats_05022019_final_508.pdf), though there had not been a removal that would have caused that decline.

The last gather of the Tassi-Gold Butte HMA occurred in August 2019, when 40 excess burros were removed from the HMA. Using the 88 number, there would have been 48 burros left in the HMA. From March 2021 through March 2024 an estimated 15% per year growth rate was applied; this growth rate for the herd is net growth accounting for both births and deaths. There are no particular records of widespread or unusually high levels of wild burro deaths between 2017 – 2023, so it is appropriate to use a 15% annual growth rate value, which is typical for many BLM-managed wild burro herds (BLM 2010).

Table 1.1. Population Estimate Inside the Tassi-Gold Butte HMA*.

Year	**Estimated Annual Growth Rate for Wild Burros**	**Population Estimate by Year Using Potential Reporting Error** Rounded up to whole animals	**Corrected Population Estimate by Year Without Potential Reporting Error** Rounded up to whole animals
September 2017 – Aerial Survey	N/A	105	-
March 2018	N/A	105	105
March 2019	+ 15%	88 burros. This is likely incorrect but is what was reported.	121
August 2019	-	Removed 40 wild burros from HMA	-
September 2019	-	48 burros remain in HMA	81
March 2020	+ 15%	54	94
March 2021	+ 15%	62	108

Year	Estimated Annual Growth Rate for Wild Burros	Population Estimate by Year Using Potential Reporting Error Rounded up to whole animals	Corrected Population Estimate by Year Without Potential Reporting Error Rounded up to whole animals
March 2022	+ 15%	71	125
March 2023	+ 15%	82	144
March 2024	+ 15%	94	166
March 2025	+ 15%	108	191
March 2026	+ 15%	124	220
March 2027	+ 15%	143	253
March 2028	+ 15%	165	291
March 2029	+ 15%	190	335

*There are no records of substantially unusual numbers of wild burro deaths during the period 2017 – 2023 in the HMA. The AML for the HMA is zero so the HMA is over desired AML. There could be as many as 190 or more excess burros by 2029. If the reporting number had not been mistakenly changed in 2019, assuming a net 15% annual increase, it might be more accurate to conclude that there are now more than 335 excess burros in the HMA by 2029.

The current estimated population for the greater Pakoon Basin is approximately 125 wild burros outside of the HMA (Table 1.2). These numbers are based on the most recent aerial survey in the area, which was completed in September 2017, which used simultaneous double-observer methods for data recording (Ekernas, Griffin and Lubow 2017) and analysis (Ekernas 2018). In 2017, the estimated population outside of the HMA was 55 burros. Applying the estimated 15% per year growth rate, the current population of excess burros in this area could reasonably be expected to be 125 or more. There have been no burros removed from the greater Pakoon Basin and there are no records of unusually large numbers of wild burro deaths between 2017 – 2023.

Table 1.2. Population Estimate Outside the HMA – Greater Pakoon Basin*.

Year	Estimated Annual Growth Rate for Wild Burros	Population Estimate by Year Rounded up to whole animals
September 2017 – Aerial Survey	N/A	55
March 2018	N/A	55
March 2019	+ 15%	63
March 2020	+ 15%	72
March 2021	+ 15%	83
March 2022	+ 15%	95
March 2023	+ 15%	109
March 2024	+ 15%	125
March 2025	+ 15%	144
March 2026	+ 15%	166
March 2027	+ 15%	191

Year	Estimated Annual Growth Rate for Wild Burros	Population Estimate by Year Rounded up to whole animals
March 2028	+ 15%	220
March 2029	+ 15%	253

*There are no records of substantially unusual numbers of wild burro deaths during the period 2017 – 2023. There have been no wild burros removed from outside of HMA 2017 – Present. Assuming a net annual growth rate of 15 % there could be 125 or more excess wild burros in the greater Pakoon Basin outside of the HMA in 2024. In five years, there could be as many as 253 burros by the year 2029. That would be an additional 128 burros. Wild burros are not permitted outside of the HMA.

Based upon all information available at this time, the BLM and NPS have determined that approximately 219 excess wild burros reside within the HMA and greater Pakoon Basin and need to be removed.

Since the last population inventory was completed in 2017, another population inventory flight should be completed as soon as is practical to provide an updated best estimate of the current number and distribution of wild burros throughout the Tassi-Gold Butte HMA and surrounding greater Pakoon Basin. Conducting yearly population surveys would also better inform the BLM/NPS of the need for any future gathers.

1.3 Purpose and Need for Action

The purpose of the proposed action is to remove wild burros from within the Tassi-Gold Butte HMA and greater Pakoon Basin as delineated in Appendix A, Figure A.1. This would achieve an AML of zero wild burros per the 1995 Lake Mead NRA Burro Management Plan and 2008 GCPNM RMP/GMP and restore a thriving natural ecological balance and multiple use relationship on the public lands consistent with the provisions of Section 1333 (a) of the Wild Free- Roaming Horses and Burros Act of 1971[2] and NPS management policies (2006).

The need for the proposed action is to protect monument resources and to prevent unnecessary or undue degradation of the public lands associated with excess population of wild burros within the Tassi-Gold Butte HMA and the greater Pakoon Basin including, but not limited to:

- Impacts to desert tortoise designated critical habitat
- Impacts to desert springs and water developments from burro trailing and trampling

1.4 Land Use Plan Conformance

The proposed action is in conformance with the GCPNM RMP/GMP, as approved January 29, 2008 (BLM 2008a).

The following decisions are from Table 2.5 in the RMP regarding Special Status Species and burro management:

[2] The Interior Board of Land Appeals (IBLA) defined the goal for managing wild horse (or burro) populations in a thriving natural ecological balance as follows: "As the court stated in Dahl vs. Clark, supra at 594, the 'benchmark test' for determining the suitable number of wild horses on the public range is 'thriving natural ecological balance.' In the words of the conference committee which adopted this standard: 'The goal of WH&B management should be to maintain a thriving ecological balance (TNEB) between WH&B populations, wildlife, livestock and vegetation, and to protect the range from the deterioration associated with overpopulation of wild horses and burros.'"

MA-TE-45:

- Wild horses and burros will not be authorized on NPS and BLM administered lands in the Monument. Burros on NPS-administered lands are managed to prescription set by the 1995 Lake Mead NRA Burro Management Plan.
- The herd management level for the Tassi-Gold Butte Herd Management Area will be set to zero on BLM-administered lands in the Monument. Burros will be removed rather than destroyed on site.

Table 2.6 in the RMP regarding wild burros states:

- MA-HB-01: The Herd Management Level will continue to be set at zero on BLM-administered lands. (See Special Status Species decisions).
  Wild horse and burros will not be authorized on NPS-administered lands.

1.5 Relationship to Laws, Regulations, and Other Plans

The proposed action and the alternative would comply with the following laws and/or agency regulations, other plans and is consistent with applicable Federal and state laws, regulations, and plans to the maximum extent possible. These include but are not limited to the following:

- The Wild Free-Roaming Horses and Burros Act (WFRHBA) (as amended) and applicable regulations at 43 CFR §4700
- State Protocol Agreement between the Bureau of Land Management, Arizona and the Arizona State Historic Preservation Office (2014)
- Lake Mead National Recreation Area Burro Management Plan and EIS (NPS 1995)
- The Antiquities Act of 1906
- NPS Organic Act of 1916
- NPS Management Policies (2006)
- Migratory Bird Treaty Act 1918 (16 U.S.C. § 703-712; Ch. 128; July 13, 1918; 40 Stat.755), as amended and Executive Order 13186 (1/11/01)
- Taylor Grazing Act of 1934 (43 U.S.C. §315)
- Wilderness Act of 1964
- The National Historic Preservation Act of 1966, as amended
- National Environmental Policy Act of 1969 (42 U.S.C. §4321 et seq.)
- Clean Air Act of 1970 (42 U.S.C. § 7401 et seq)
- Endangered Species Act of 1973, as amended
- Federal Land Policy and Management Act (FLPMA) of 1976 (43 U.S.C. § 1701 et seq.)
- Public Rangelands Improvement Act (PRIA) of 1978 (43 U.S.C. § 1901)
- Bald and Golden Eagle Protection Act (16 U.S.C. §668 et seq.)
- American Indian Religious Freedom Act of 1979
- Archaeological Resource Protection Act of 1979
- Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. §3001-3013; 104 Stat. 3048-3058)
- Arizona Water Quality Standards, Revised Statute Title 49, Chapter II
- Fundamentals of Rangeland Health (43 CFR § 4180)
- The BLM Wild Horses and Burros Management Handbook (H-4700-1)

- Presidential Proclamation 7265 – Establishment of the Grand Canyon-Parashant National Monument
- Executive Order 13186 requires the BLM and other Federal agencies to work with the U.S. Fish and Wildlife Service (USFWS) to provide protection for migratory birds. Implementation of the proposed action is not likely to adversely affect any species of migratory bird known or suspected to occur on the allotments. No take of any such species is anticipated.

The Tassi-Gold Butte HMA and the greater Pakoon Basin are in Mohave County, Arizona. The proposed action is consistent with the Mohave County General Plan (revised most recently on September 15, 2015). While wild burro management is not specifically addressed in the Mohave County General Plan, this action does not conflict with decisions contained within the Plan.

1.6 Conformance with Rangeland Health Standards and Guidelines

The proposed action is consistent with the Fundamentals of Rangeland Health (43 CFR § 4180.1) and Standards for Rangeland Health (BLM 1997), which were developed through a collaborative process involving the Arizona Resource Advisory Council and the BLM State Standards and Guidelines (S&G) team. The Secretary of the Interior approved the Standards and Guidelines in April 1997. These Standards for Rangeland Health were incorporated into the GCPNM RMP/GMP (BLM 2008a).

1.7 Decision to be Made

The Authorized Officers would determine whether to implement all, part, or none of the proposed action as described in Section 2.2 to manage wild burros in the HMA and surrounding areas within the established AML and protect the range from deterioration resulting from excess wild burro population. The authorized officer's decision may select gather methods and numbers of burros gathered. The authorized officer would also decide what project design features to apply to any selected actions.

The authorized officer's decision would affect wild burros within the Tassi-Gold Butte HMA, as well as those that have strayed outside of the HMA's boundaries. The BLM and NPS authorized officer's decision would not set or adjust AML, nor would it adjust livestock use, as these were set or reaffirmed in the GCPNM RMP/GMP, as approved January 29, 2008 (BLM 2008a).

1.8 Scoping and Identification of Issues

Issues identified by the joint BLM and NPS interdisciplinary team are discussed in Chapter 3. Resources considered but not be affected to the level requiring detailed analysis are listed on Elements of Resources of the Human Environment table (Section 3.2, Table 3.2).

2.0 Description of the Alternatives

2.1 Introduction

This section of the EA describes the proposed action and no action alternatives, including alternatives that were considered but eliminated from detailed analysis:

- Proposed Action – Gather and remove 100% of existing wild burros found in the Tassi-Gold Butte HMA and surrounding greater Pakoon Basin.
- No Action Alternative – Continuation of Existing Management.

The proposed action was developed to remove wild burros from the range, prevent further deterioration to the range, achieve and maintain the established AML of zero burros, so as to ensure a thriving natural ecological balance. Under the no action alternative, no gathers would occur, and no additional management actions would be undertaken to control the size of the wild burro population at this time. However, it is analyzed in this EA to provide a basis for comparison with the proposed action, and to assess the effects of not conducting gathers to remove excess animals at this time.

2.2 Proposed Action Alternative

The proposed action would gather and remove 100% of the existing wild burros found in the Tassi-Gold Butte HMA and surrounding greater Pakoon Basin (Appendix A, Figure A.1). If gather efficiencies during the initial gather do not allow for the attainment of the proposed action or if additional burros venture into the project area, the GCPNM would conduct follow up gathers to remove wild burros necessary to achieve and maintain the overall herd size of zero wild burros within the HMA and surrounding area. These follow up gather activities to remove all remaining wild burros would be conducted in a manner consistent with those described for the initial gather and could be conducted year-round. Funding limitations and competing priorities might impact the timing of the initial gather and any subsequent maintenance gathers.

A population inventory flight would be completed as soon as practical to provide current data on the wild burro population size and spatial distribution in the Tassi-Gold Butte HMA and the greater Pakoon Basin.

Subsequent population inventories and routine resource/habitat monitoring would be completed periodically after the initial gather to document post-gather population levels, growth rates, and areas of continued resource concern (burro concentrations, riparian impacts, etc.) prior to any follow up gather.

2.2.1 Management Actions and Best Management Practices of the Proposed Action

The BLM and NPS would follow the Standard Operating Procedures (SOPs) found in Appendix B and in BLM Handbook 4700-1 titled Wild Horses and Burros Management Handbook (BLM 2010). Gather methods would be determined on a case-by-case basis depending on access, time of year, funding, personnel availability, and the difficulty of gathering the burros (due to terrain, weather, water and forage availability, and/or number of burros to be gathered).

Gather Operations

- Additional gathers might be needed to remove burros based on gather success, holding capacity limitations, population growth rates, and other national gather priorities. Several factors such as weather conditions, budget, or other considerations could result in adjustments to follow up gathers.
- Any burros residing outside of the Tassi-Gold Butte HMA boundaries and within the greater Pakoon Basin project area would be removed during gather operations (Appendix A, Figure A.1).
- Gather operations would be conducted in accordance with the Comprehensive Animal Welfare Program (CAWP) for Wild Horses and Burro Gathers, which includes provisions of the Comprehensive Animal Welfare Program (BLM Permanent Instructional Memorandum 2021-002) (Appendix B)(BLM 2021b).
- The BLM COR and PI assigned to the gather would be responsible for ensuring contract personnel abide by the contract specifications and the CAWP standards (Appendix B).
- An Animal and Plant Health Inspection Service (APHIS) or other veterinarian may be on-site or on-call during the gather, as needed, to examine animals and make recommendations to BLM for care and treatment of wild burros.
- Decisions to humanely euthanize animals in field situations would be made in conformance with BLM Permanent Instruction Memorandum (PIM) 2021-007 (BLM 2021c).
- Animals would be transported to the nearest BLM off-range corrals (ORC) with available space where they would be prepared (freezemarked, microchipped, vaccinated and de-wormed) for adoption, sale (with limitations), or off-range pastures (ORP).
- Funding limitations and competing priorities might require delaying the gather, which would increase the total number of wild burros that would need to be gathered to achieve zero AML.

Gather Methods

A combination of gather methods might be used to complete the management actions. The methods used would depend on the needs of the specific actions including management needs regarding emergency situations.

The gather methods used in the performance of gather operations include:

- Drive Trap: This gather method involves utilizing a helicopter to herd wild burros into a temporary trap.
- Bait Trap: This gather method involves utilizing bait (e.g., water or feed) to lure wild burros into a temporary trap.

Trap Sites

- Trap sites and temporary holding facilities would be located in previously used sites or other disturbed areas whenever possible and might occur on federal, state and private lands pending approval and clearances. Each trap site would be approximately one acre in size.
- Traps will not be placed within riparian areas.

Monitoring

- Ongoing monitoring of forage condition and utilization, water availability, aerial population surveys, and animal health would continue.

- Population inventories and routine resource/habitat monitoring would be completed between gathers to document current population levels, growth rates, and area of continued resource concern (burro concentrations, riparian impacts, etc.) prior to any follow up gather.

Inventories/Surveys

- Biological and archeological specialists would be consulted as early as possible during the gather planning process to ensure that required surveys or inventories for sensitive species (both plant and animal) and archeological sites/artifacts and cultural sites are avoided during gather operations.
- If a gather is required to occur in an area not previously disturbed, a biologist and archaeologist would be required to assess the area where the trap site is to be placed to prevent impacts.

Communication

- BLM and NPS would communicate and coordinate burro gather activities, locations, and schedules in advance with authorized grazing permittees and private landowner within the greater Pakoon Basin project area.

Rehabilitation

- Rehabilitation might be needed at trap sites or holding facilities. This could involve reseeding with native seed. Areas disturbed by gather activities would be monitored for invasive, non-native plants and noxious weeds and treated as necessary.

Invasive, Non-native Plants and State Listed Noxious Weeds

- To reduce the risk of introduction or spread of weeds, any hay or feed used in conjunction with the gather activities, for example bait trap, holding facilities, or saddle horse feed, would be certified weed free.
- Inspect the project area for noxious weeds prior to any ground disturbance.
- Limit the size of any vegetation and/or ground disturbance to the absolute minimum necessary to perform the activity safely and as designed.
- Begin activities in weed free areas whenever feasible before operating in weed-infested areas.
- Locate equipment storage, machine and vehicle parking or any other area needed for the temporary placement of people, machinery and supplies in areas that are relatively weed free.
- Avoid or minimize all types of travel through weed-infested areas or restrict major activities to periods of time when the spread of seed or plant parts are least likely.

Recreation

- Timing of gather activities would consider recreation use patterns whenever possible. Action should be scheduled to avoid known high-use times such as weekends and hunting season.

Wilderness

- All trap sites, holding facilities, or any other structures would be outside of Wilderness boundaries (Appendix A, Figure A.4).
- There would be no planned landing of aircraft within the Wilderness boundary. Landing aircraft is defined by 43 CFR § 6302.20 as drop or pick up any material, supplies or person

by means of aircraft, including a helicopter, hang glider, hot air balloon, parasail, or parachute.
- During gather activities the aircraft might land in Wilderness due to mechanical or personnel safety issues or if a burro becomes injured.

Migratory Birds
- The migratory bird breeding season generally occurs between mid-February through August. Migratory bird surveys would occur prior to gather sites being constructed during migratory bird breeding season to avoid or minimize potential impacts to breeding migratory birds. If nests are encountered, then the gather site would be moved.

Desert Tortoise
Desert Tortoise Conservation Measures GCPNM RMP/GMP Appendix G 2.1.1 (BLM 2008a)
Appendix A, Figure A.5 is a map that shows Desert Tortoise Designated Critical Habitat within the analysis area.
- For each authorized project, BLM and/or NPS will designate a field contact representative (FCR) who will be responsible for overseeing compliance with these conservation measures and for coordination on compliance with the U.S. Fish and Wildlife Service (Service). The FCR will be a qualified biologist approved by BLM and/or NPS and will have the authority and the responsibility to halt all project activities that are not in compliance with these conservation measures. These individuals will have a copy of these conservation measures while on the work site.
- To the extent possible, project features will be located in previously disturbed areas or outside of desert tortoise habitat.
- To the extent possible, project activities will be scheduled when tortoises are inactive (October 15 through March 15).
- Pre-construction surveys will be conducted to locate desert tortoises that may be injured or killed as a result of proposed activities. Projects will be altered or tortoises in harm's way will be relocated to avoid lethal take of tortoises in project areas. Prior to any surface-disturbing activities associated with projects, work sites will be surveyed for desert tortoises by a qualified biologist approved by BLM and/or NPS. Areas of new disturbance will be surveyed with 100-percent coverage.
- Between October 15 and March 15, any new disturbance will be preceded by 100-percent surveys conducted within one week of the proposed activities. During surveys, occupied desert tortoise burrows in or within 40 feet of areas to be disturbed will be excavated using hand tools under the supervision of an authorized biologist. Tortoises discovered in burrows will be relocated. Burrows will then be collapsed or blocked to prevent entry by tortoises. Desert tortoises and any desert tortoise eggs found in areas to be disturbed will be relocated.
- For project activities occurring during the desert tortoise active season (March 15 through October 15), surveys will be conducted within 24 hours of initiation of surface-disturbing activities. For surface-disturbing activities conducted from March 15 to October 15 in desert tortoise habitat, construction and operation activities will be monitored by a qualified desert tortoise biologist approved by BLM and/or NPS. The biologist will be present during all activities in which encounters with tortoises may occur. The biologist will watch for tortoises wandering into construction areas, check under vehicles, check at least three times per day

any excavations that might trap tortoises, and conduct other activities necessary to ensure that death or injury of tortoises is minimized.

- Only biologists authorized and permitted by the Service and Arizona Game and Fish Department will handle desert tortoises. Additional biologists could be authorized if BLM and/or NPS submits the name(s) of the proposed authorized biologist(s) to the Service for review and approval at least 15 days prior to the onset of activities that could result in a take. Minimum requirements for authorized biologists include attending the Desert Tortoise Council's training course for handling desert tortoises and/or training by an authorized biologist. Authorized biologists must have all valid state and federal permits.
- The authorized biologist will maintain a record of all desert tortoises encountered during project activities. This information will include for each desert tortoise:
    1. The locations and dates of observation
    2. General condition and health, including injuries and state of healing and whether animals voided their bladders
    3. Location moved from and location moved to
    4. Diagnostic markings (i.e. identification numbers of marked lateral scutes)
- Desert tortoises that are handled will be marked for future identification. An identification number (using the acrylic paint/epoxy technique) will be placed on the 4th costal scute (Fish and Wildlife Service 2009). No notching of scutes or replacement of fluids with a syringe is authorized.
- If a tortoise or clutch of tortoise eggs is found in a project area, to the extent practicable activities will be modified to avoid injuring or harming it. If activities cannot be modified, the tortoise/clutch will be moved from harm's way by the authorized biologist the minimum distance possible within appropriate habitat to ensure its safety from death, injury, or collection associated with the project or other activities. The authorized biologist will have some discretion to ensure that survival of each relocated desert tortoise/clutch is likely. Desert tortoises/clutches will not be translocated to lands outside the administration of the Federal government without the written permission of the landowner. Handling procedures for desert tortoises and their eggs will adhere to protocols outlined in Desert Tortoise Council, Guidelines for Handling Desert Tortoises During Construction Projects (Desert Tortoise Council. 1994).
- Areas of new construction or disturbance will be flagged or marked on the ground prior to construction. All construction workers will strictly limit their activities and vehicles to areas that have been marked. Construction personnel will be trained to recognize markers and understand the equipment movement restrictions involved.
- A desert tortoise education program will be presented to all project personnel that may encounter tortoises; such as employees, inspectors, supervisors, contractors, and subcontractors; prior to initiation of activities that may result in disturbance of desert tortoise habitat or death or injury of desert tortoises. The education program will include discussions of the following:
    1. legal protection of the desert tortoise and sensitivity of the species to human activities;
    2. a brief discussion of desert tortoise distribution and ecology;
    3. the terms and conditions of applicable biological opinions;
    4. project features designed to reduce adverse effects to desert tortoises and their habitat, and to promote the species' long-term survival;

5. protocols during encounters with desert tortoises and associated reporting requirements; and
6. the definition of take and penalties for violations of Federal and State laws.

- During the tortoise active season (March 15 through October 15), project features that might trap or entangle desert tortoises such as open trenches, pits, open pipes, etc. will be covered or modified to prevent entrapment.
- Project vehicle use will be limited to designated routes (existing routes prior to designation) to the extent possible.
- At no time will vehicle or equipment fluids be dumped on public lands. All accidental spills must be reported to BLM and NPS and cleaned up immediately, using the best available practices according to the requirements of the law. All spills of federally or State-listed hazardous materials that exceed reportable quantities will be promptly reported to the appropriate State agency and the BLM and NPS.
- Vehicles associated with BLM-authorized projects traveling on unpaved roads in desert tortoise habitat will not exceed speed limits established by the BLM as necessary to protect desert tortoises. These speed limits will generally not exceed 40 mph even on the best-unpaved roads but may be much less than this on some roads.
- Unleashed dogs will be prohibited in project areas.
- To reduce attraction of potential desert tortoise predators, project sites in desert tortoise habitat will be maintained in a sanitary condition at all times; waste materials at those sites will be placed in covered receptacles and disposed of promptly at an appropriate waste disposal site. "Waste" refers to all discarded matter, including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes, and equipment. All reasonable effort will also be taken to reduce or eliminate water sources associated with project activities that might attract ravens and other predators.
- After completion of the project, trenches, pits, and other features in which tortoises could be entrapped or entangled, will be filled in, covered, or otherwise modified so they are no longer a hazard to desert tortoises.
- After project completion, measures will be taken to facilitate restoration. Restoration techniques will be tailored to the characteristics of the site and the nature of project impacts. Techniques may include removal of equipment and debris, recontouring; and seeding, planting, transplanting of cacti and yuccas, etc. Only native plant species, preferably from a source on or near the project area, will be used in restoration.

California Condor

California Condor Conservation Measures GCPNM RMP/GMP Appendix G 2.1.1 (BLM 2008a)

- Immediately prior to the start of an authorized drive trap that utilizes a helicopter, BLM/NPS would contact personnel monitoring California condor locations and movements on the Arizona Strip to determine the locations and status of condors in or near the project area.
- The BLM/NPS wildlife lead or condor biologist would be notified if California condors visit the worksite while activities are underway. Activities may be modified, relocated, or delayed where adverse effects to condors may result.
- Where condor nesting activity is known within 0.5 miles of activities that include operation of a helicopter, BLM/NPS would direct the operator cease equipment use during the active nesting season (February 1 to November 30) or as long as the nest is

viable. Where feasible and consistent with NEPA, BLM/NPS may relocate operations to a site greater than 0.5 miles from the condor nest site.

- Work sites will be cleaned up at the end of each day the work is being conducted (e.g., trash disposed of, and scrap materials picked up) to minimize the likelihood of condors and other wildlife visiting the project site. BLM staff may conduct periodic spot checks to ensure adequate project clean-up measures are being appropriately undertaken.
- For projects where potential exists for leakage or spill of hazardous materials, a spill plan will be developed and implemented to prevent water contamination and potential poisoning of condors. The plan will include provisions for immediate cleanup of any hazardous substance and will define how each hazardous substance will be treated in case of leakage or spill. The plan will be reviewed by the BLM condor lead biologist to ensure condors are adequately addressed.
- When in areas occupied by condors, pilots will minimize aircraft use along cliffs to the greatest extent possible.
- Aircraft will maintain and maximize safe flying separation distances from condors in the air or on the ground unless safety concerns override this restriction. If airborne condors approach aircraft, aircraft will give up airspace to the extent possible, as long as this action does not jeopardize safety. Aircraft will keep a minimum of 0.25 miles away from condors located on the ground.

2.3 No Action Alternative

Under the no action alternative, no gather would occur, and no additional management actions would be undertaken to control the size or growth rates of the wild burro population at this time. The no action alternative would not achieve the identified purpose and need. The no action alternative does not comply with the WFRHBA of 1971, its implementing regulations, the approved GCPNM RMP/GMP (BLM 2008a) or the Lake Mead Nation Recreation Area Burro Management Plan and Final EIS (NPS 1995). However, it is analyzed in this EA to provide a basis for comparison to the proposed action, and to assess the effects of not conducting a gather at this time.

2.4 Alternatives Considered but Dismissed from Detailed Analysis

2.4.1 Chemical Immobilization

BLM Policy Manual 4720 describes chemical immobilization as the use of chemicals to sedate or immobilize wild horses or burros to enable their capture (BLM 2010). It is a very specialized technique and is strictly regulated. Under CAWP section II. A. 3. states: Chemical immobilization must only be used for capture under exceptional circumstances and under the direct supervision of an on-site veterinarian experienced with the technique. Chemical immobilization as a method of capturing wild burros was not considered to be a technically feasible alternative for this gather plan. It would be unreasonable for the capture of more than one or two animals at a time. The BLM does not currently have sufficient in-house expertise to implement this method, making it impractical to use given the size of the HMA, access limitations, and approachability of the burros (BLM 2021a).

2.4.2 Raising the Appropriate Management Level for Wild Burros

See Section 1.2 Background for the discussion on why the AML is set at zero wild burros for the Tassi-Gold Butte HMA. The Lake Mead NRA Burro Management Plan and Final EIS (NPS 1995) established those portions within the NRA as zero burro use. The Decision Record for the Mojave Amendment of the Arizona Strip RMP (BLM 1998) modified the decision to implement the 1982 HMAP and set the wild burro herd management level at zero. Consequently, the herd management level for the entire HMA has been set to zero. This decision was aimed at protecting the threatened desert tortoise (*Gopherus agassizii*) and its habitat, which is found in the area. The 1998 Mojave Amendment called for the removal of burros from the Tassi portion of the HMA, as did the 1995 NPS Burro Management Plan (BLM 2007).

Currently, the Tassi-Gold Butte HMA has an Appropriate Management Level (AML) set at zero (0) wild burros. This AML was established through the BLM and NPS Record of Decisions (RODs) and Approved Grand Canyon- Parashant National Monument Resource Management Plan (RMP/GMP)/Environmental Impact Statement (EIS) (BLM 2008a) and the Lake Mead National Recreation Area Burro Management Plan and Final EIS (NPS 1995). Raising the AML above zero counter to previous decisions and policy.

Raising the AML above zero does not meet the purpose and need to remove wild burros from the Tassi-Gold Butte HMA and greater Pakoon Basin to restore a thriving natural ecological balance and to protect monument resources and to prevent unnecessary or undue degradation of the public lands associated with excess population of wild burros.

2.4.3 Wild Burro Numbers Controlled by Fertility Control Vaccines

These alternatives, 2.4.3.1 Fertility Control Treatment Only (No Removal) and 2.4.3.2 Field Darting with ZonaStat-H (Native PZP) and Gonacon (No Gathers, No Removal) below, would rely only on the use of fertility control vaccines to limit herd growth of burros with no burros being removed. Use of fertility control vaccination alone is not expected to cause the herd to reduce down to zero burros; even where fertility control vaccination is used to reduce wild horse and burro growth rates, herds almost always continue to grow. As such, this method would not achieve the purpose and need (Section 1.3) to remove all wild burros to reach and maintain an AML of zero burros and to restore a thriving natural ecological balance and multiple use relationship on the public lands consistent with the provisions of Section 1333 (a) of the Wild Free- Roaming Horses and Burros Act of 1971. It would not protect monument resources and prevent unnecessary or undue degradation of the public lands associated with excess population of wild burros within the Tassi-Gold Butte HMA and the greater Pakoon Basin. These alternatives were eliminated from further consideration.

2.4.3.1 Fertility Control Treatment Only (No Removal)

Experience has shown that herds would only decrease in response to management that only uses fertility vaccines (without gathers and removals) over time scales of more than 10 years, and only if the vast majority of females (i.e., 90% or more) are successfully treated and rendered infertile every year. Available fertility control vaccines require females to be identifiable and require revaccination (booster doses) to cause infertility for more than one year (BLM 2021a). It is not economical or feasible to capture, uniquely mark, vaccinate, and release the majority of jennies every year in the Tassi-Gold Butte HMA and greater Pakoon Basin. A reliance on darting

is not expected to lead to high enough rates of vaccination every year. Because use of a fertility control vaccine-only management would require a very long time to slowly start to reduce herd sizes, and because the burro herds present in the Tassi-Gold Butte HMA and greater Pakoon Basin are currently far greater than AML and are already causing ecological damage, this alternative would not meet the purpose and need for the action, and would be contrary to the WFRHBA, and was dismissed from further study.

2.4.3.2 Field Darting with ZonaStat-H (Native PZP) and Gonacon (No Gathers, No Removal)

This alternative was eliminated from further consideration due to the logistical difficulties in darting wild burros in the project area. Field darting of wild burros might work well in small areas with good access, and where animals are acclimated to the presence of people who come to watch and photograph them. The size of the Tassi-Gold Butte HMA and greater Pakoon Basin is large (approximately 424,545 acres) and many areas do not have safe and ready access, including the wilderness area. The skittishness of the wild burros and general lack of approachability on the Tassi-Gold Butte HMA and greater Pakoon Basin is such that it is not expected that delivering vaccine dose via darting could be possible with any regularity. The presence of multiple water sources within the Tassi-Gold Butte HMA and greater Pakoon Basin make it almost impossible to restrict wild burro access to be able to dart burros consistently. Burro behavior limits their approachability/accessibility, so that the number of jennies expected to be treatable via darting would be insufficient to control growth or result in an AML of zero burros. Available fertility control vaccines require females to be identifiable and require revaccination (booster doses) to cause infertility for more than one year. Without gathering animals to give them unique identifiable marks, BLM would have difficulties keeping records of animals that have been treated due to common and similar colors and patterns. Annual darting of wild burros in large areas is unlikely to lead to the levels of treatment needed to cause ecologically meaningful population declines (BLM 2021a). For these reasons, and because the wild burro herds present in the Tassi-Gold Butte HMA and greater Pakoon Basin exceed the zero AML and are already causing ecological damage, this alternative was determined to not be an effective or feasible method of applying population controls to wild burros from the Tassi-Gold Butte HMA and greater Pakoon Basin or for addressing the resource degradation being caused by the animals.

2.4.4 Wild Burro Numbers Controlled by Natural Means

The alternative of using natural controls to achieve and maintain a desirable AML of zero wild burros has not been shown to be feasible in the past (BLM 2021a). Wild burros in the HMA are not substantially regulated by predators or other natural factors. In addition, wild burros are long-lived species with documented foal survival rates that may exceed 95% (Ransom et al. 2016), and they do not self-regulate their population growth rate (NAS 2013).

Survival rates for wild burros on western public lands is generally high (Ransom et al. 2016). None of the significant natural predators from the ranges of the wild horses and burros in Europe and Asia –wolves, brown bears, and possibly one or more of the larger cat species – exist in significant numbers on the wild horse and burro ranges in the western United States. Predators such as mountain lions may prey on wild equids in some circumstances (Andreasen et al. 2021, Lundgren et al. 2022). While mountain lions may reduce wild burro herd growth rates in rare

circumstances (Turner and Morrison 2001), they do not generally prevent burro herds from growing, perhaps in part because smaller ungulates such as mule deer and bighorn are preferred over burros as prey for mountain lions (Knopff et al. 2010, Blake and Gese 2016, Andreasen et al. 2021).

Many wild burro herds grow at sustained high rates of 15-18% per year, and the species is not self-regulating (NAS 2013). The NAS report (2013) concluded that the primary way that equid populations would be regulated by density would be through increased competition for forage at high densities, which results in smaller quantities for forage available per animal, poorer body condition, decreased natality and survival, and a susceptibility to large mortality events when resource availability fluctuates (such as due to drought). The NAS (2013) also concluded that the effects of severely high burro densities would include impacts to resource and herd health that are contrary to BLM management objectives and statutory and regulatory mandates. This alternative would result in a steady increase in the herd population which would continue to exceed the AML, eventually resulting in a catastrophic mortality of wild burros in the HMA, and irreparable damage to rangeland resources.

While some members of the public have advocated 'letting nature take its course', allowing burros to die of dehydration and starvation would be inhumane treatment and would be contrary to the WFRHBA, which mandates removal of excess wild burros (BLM 2021a). The damage to rangeland resources that results from excess numbers of wild burros is also contrary to the WFRHBA, which mandates the Bureau to "…protect the range from the deterioration associated with over population…," to "…remove excess animals from the range so as to achieve appropriate management levels…," and "…to preserve and maintain a thriving natural ecological balance and multiple-use relationship in that area."

Title 43 CFR § 4700.0-6 (a) states "Wild horses shall be managed as self- sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat" (emphasis added). Land use planning decisions have already established that this population of burros should have AML of zero. As the vegetative resources are over utilized and degraded to the point of no recovery as a result of the wild burro overpopulation, wild burros would start showing signs of malnutrition and starvation. The weaker animals, generally the older animals, and the jennies and foals would be the first to be impacted. It is likely that a majority of these animals would die from starvation and dehydration in a catastrophic die off. The resultant population could be heavily skewed towards the stronger jacks which could contribute to social disruption in the HMA. Competition between wildlife and wild burros for forage and water resources would be severe. Wild burros can be aggressive around water sources, and some wildlife might not be able to compete (reviewed in Crist et al 2019), which could lead to the death of individual animals. Wildlife habitat conditions would also deteriorate as wild burro numbers above AML reduce herbaceous vegetative cover, damage springs, increase erosion, and could result in irreversible damage to the range (BLM 2021a). For these reasons, this alternative was eliminated from further consideration. This alternative would not meet the purpose and need for this EA which it is to remove excess wild burros from within and outside the HMA to the established AML of zero wild burros.

2.4.5 Remove or Reduce Authorized Livestock Grazing within the Tassi-Gold Butte HMA and greater Pakoon Basin

This alternative would remove or reduce authorized livestock grazing instead of gathering and removing wild burros within the HMA and/or the greater Pakoon Basin (Appendix A, Figure A.2 shows current grazing allotment availability). This alternative was not considered in detail because it is outside of the scope of this project and contrary to the GCPNM RMP/GMP (BLM 2008a) decisions which allocated forage for livestock use and set the AML for the HMA to zero, see Section 3.2.1 Table 3.3. Changes in livestock management would not be in conformance with the RMP/GMP (BLM 2008a) or the WFRHBA, which directs the Secretary to immediately remove excess wild burros once the BLM has determined removal is necessary to achieve the established AML of zero burros. Livestock could only be reduced or eliminated through provisions identified within the grazing regulations (43 CFR § 4100) and must be consistent with multiple use allocation set forth in the RMP, see Section 3.2.1 Table 3.3 for the status of grazing allotments within the HMA and greater Pakoon Basin. This alternative would be contrary to the BLM's multiple use missions as outlined in FLPMA because this alternative would exchange use by livestock for use by wild burros. The BLM is required to manage wild burros in a manner designed to achieve a thriving natural ecological balance between wild burro populations, wildlife including the threatened desert tortoise (*Gopherus agassizii)*, livestock, and other uses. The AML for wild burros was set to zero for wild burros in the Tassi-Gold Butte HMA through the Lake Mead NRA Burro Management Plan and Final EIS (NPS 1995) and the Decision Record for the Mojave Amendment of the Arizona Strip RMP (BLM 1998). Consequently, the herd management level for the entire HMA has been set to zero. This decision was aimed at protecting the threatened desert tortoise (*Gopherus agassizii*) and its habitat, which is found in the area. The Mojave Amendment called for the removal of burros from the Tassi portion of the HMA, as did the NPS Burro Management Plan.

Currently, the Tassi-Gold Butte HMA has an Appropriate Management Level (AML) set at zero (0) wild burros. This AML was established through the BLM and NPS Record of Decisions (RODs) and Approved Grand Canyon- Parashant National Monument Resource Management Plan (RMP/GMP)/Environmental Impact Statement (EIS) (BLM 2008a) and the Lake Mead National Recreation Area Burro Management Plan and Final EIS (NPS 1995).

The Tassi grazing allotment that the Tassi-Gold Butte HMA is within has already been closed to permitted livestock by GCPNM RMP/GMP decision (BLM 2008a) see Section 3.2.1 Table 3.3. This includes the lands managed by both the BLM and NPS.

2.4.6 Bait Trap Only

Due to the limited bait trap sites that are accessible by road, equipment and personnel, bait trapping alone would not accomplish the purpose and need of the action of reducing the amount of animals to the AML of zero. In addition to logistical reasons, bait trapping alone is of limited effectiveness due to burro behavior.

3.0 Affected Environment

This section of the EA briefly discusses the relevant components of the human environment which would be either affected or potentially affected by the proposed action or no action alternative.

3.1 General Description of the Affected Environment

Tassi-Gold Butte HMA is approximately 103,180 acres and the greater Pakoon Basin approximately 321,365 acres of remote and rugged Mojave Desert landscape in the northwest corner of Mohave County, AZ (Appendix A, Figure A.1). They are completely within the Grand Canyon-Parashant National Monument. Permanent water sources consist of Lake Mead, the Colorado River, and a few perennial springs such as Tassi Spring, Black Willow Spring, Buckhorn Spring, and Burro Spring in the HMA. In the greater Pakoon Basin outside of the HMA there is Pakoon Spring, Middle Spring, and a number of developed livestock water wells, pipelines, and water troughs in the allotments that are permitted for livestock grazing. There are ephemeral springs and natural rock catchments occasionally found in the analysis area.

The HMA is located within the Mojave Desert. The area is a collection of steep cliffs on the eastern edge giving way to rough, rocky hills and desert bajadas intersected by numerous draws and sandy washes. Major topographic features include the Grand Wash Cliffs, Grand Wash, Pigeon Wash, Gyp Hills and the Nevershine Mesa. A series of springs run along the Grand Wash including Pakoon Springs, Seven Springs and Tassi Spring providing water for desert creatures. The Million Hills and Azure Ridge run along the southwestern edge near the Arizona-Nevada Stateline. Elevation ranges from 1,220 to 4,800 feet. The dominant vegetation is creosote bush/bursage, Mojave mixed shrub with some Great Basin black brush communities. There are small islands of desert riparian vegetation, which may include cottonwood trees and willows, around some of the perennial springs.

Ecological zones in the greater Pakoon Basin grade from Mojave Desert in the south to Mojave Great Basin Transition with increasing latitude and elevation. Vegetation types include Creosote/ Bursage, Great Basin Blackbrush, Mojave Blackbrush and Mojave Mixed Shrub, Pinon-Juniper. Large areas have been burned by wildfires and are in recovery. The northern boundary of the project area is the Grand Canyon-Parashant National Monument boundary with the Arizona Strip Field Office on the south slope of the Virgin Mountains. Elevation within the greater Pakoon Basin ranges from 1,220 to 6,880 feet. Elevation generally increases from south to north and from west to east.

Climate is generally hot, dry in the summer and mild in the winter, with summertime temperatures reaching 110° F. Summer monsoon rains normally occur from July through September and are usually high intensity thunderstorms of short duration. Average annual precipitation is approximately 7 inches.

Although the NPS is not required to manage burros, the agency recognized that burros inhabit lands managed by BLM which adjoin the Lake Mead National Recreation Area. In recognition of a mutual desire to work cooperatively in the management of burros in the area, a Memorandum of Understanding (MOU) was first developed between BLM and NPS in 1994.

Amendment two to the MOU was approved in April 2005. Under the MOU, the NPS developed the 1995 Lake Mead National Recreation Area Burro Management Plan and Final EIS (NPS 1995) which established burro utilization prescriptions, including areas of zero burro use, for the recreation area. The NPS, in consultation and coordination with the BLM, determines when burro removals within the NRA are necessary. Removal of burros is completed in accordance with approved removal plans developed by the NRA and/or BLM personnel and all removals are done in a safe and humane manner to prevent injury and minimize stress of the potential for heat exhaustion to the burros. Under the MOU, burros captured within the recreation area are placed within the BLM's adoption program.

Table 3.1 Tassi-Gold Butte HMA and Greater Pakoon Basin Land Status*

Surface Management Agency	Herd Management Area (approximate GIS acres)	Greater Pakoon Basin excluding the HMA (approximate GIS acres)
Bureau of Land Management (GCPNM)	52,989	312,613
National Park Service (GCPNM)	49,431	3,286
Arizona State Trust Land	600	5,439
Private Land	160	27
Total	103,180*	321,365

*GIS acres are not always the same as acres listed in the GCPNM RMP/GMP.

3.2 Elements of Resources of the Human Environment

The BLM and NPS are 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 2008b, NPS 2015) have been considered by BLM and NPS resource specialists to determine whether they would be potentially affected by the proposed action or alternatives. These elements are identified in Table 3.2, 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 3.2 also contains other resources 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.

Table 3.2. 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 Resources	NI	The project area is unclassified for all pollutants and has been designated as Prevention of Significant Deterioration Class II. Overall, air quality in the area is generally good. Exceptions include short-term pollution (particulate matter) resulting from vehicular traffic on unpaved roads. Fugitive dust is also generated by winds blowing across the area, coming from roads and other disturbed areas. Proposed activities are anticipated to be of short durations. Thus, none of the action alternatives would cause Class II standards to be exceeded. The action alternatives would therefore not measurably impact air quality; as such, a detailed analysis is not required.
Areas of Critical Environmental Concern (ACEC)	NP	After review of GIS and GCPNM RMP/GMP (BLM 2008a), there are no ACECs within the Tassi-Gold Butte HMA or greater Pakoon Basin analysis area.
Areas Managed to Maintain Wilderness Characteristics	PI	There are three areas managed to maintain Wilderness Characteristics. Therefore, this resource is further addressed in the Chapter 3, Section 3.2.7 and Chapter 4, Sections 4.2.7 and 4.3.7. “Areas Managed to Maintain Wilderness Characteristics”
BLM or State Sensitive Plant Species	NI	BLM and Arizona sensitive or special status species are known to occur within the project area. These salvage-restricted non-columnar cacti might be browsed upon by burros, however there is no data from the project area and very little scientific literature quantifying or even suggesting significant impacts on such cacti in the American Southwest.
Cultural Resources	NI	As long as trap sites and temporary corral locations are inventoried prior to use, and identified areas of concern are avoided, there should be no impact to cultural resources eligible for the National Register of Historic Places.

Resource	Determination	Rationale for Determination
Environmental Justice	NI	Minority, low-income populations, tribal nations, and disadvantaged groups are present within the county and might use public lands within the project area. The proposed action would not have a disproportionately high and adverse effect on low income or minority populations, including tribal populations as listed in EO 12898 because the proposed action would not restrict access to the project area or introduce or increase exposure pathways by which any population would come into contact with environmental or health hazards that would result in chemical, biological, physical, or radiological effects (EPA 2024). The no action alternative does not change the existing environment or access.
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 Tassi-Gold Butte HMA or greater Pakoon Basin analysis area or anywhere within the Arizona Strip District, including GCPNM.
Floodplains	NI	Flood plains present in the proposed project area occur very marginally. The proposed activities would not alter the drainage, nor recharge, nor the surface water flow patterns of these features. No impacts would occur to floodplains; for this reason, a detailed analysis is not required.
Fuels / Fire Management	NI	Gather operations would follow policy and have no impact to fire or fuels management activities as no alterations to fuels are planned.
Geology / Mineral Resources / Energy Production	NP	Upon GIS review of the project area, with most of the proposed activity occurring on or near designated routes, and within dry washes, no geologic, nor mineral resources (mines) would be disturbed by the proposed action. GCPNM is withdrawn from mineral entry. Energy production facilities such as hydrocarbon, solar, wind or geothermal infrastructure are not present. No impact to geological or mineral resources would occur nor to energy production.

Resource	Determination	Rationale for Determination
Invasive, Non-Native Plant Species	PI	There are a number of invasive, non-native plants species and one noxious weed species known to occur in the HMA and greater Pakoon Basin. Therefore, this resource is further addressed in the Vegetation including Invasive, Non-native Plant Species, Sections 3.2.4, 4.2.4, and 4.3.4.
Lands / Access	NI	Land use authorizations would not be affected by the proposed action. Existing roads would be utilized for access.
Livestock Grazing	PI	There are ten active and available livestock grazing allotments and one forage reserve within the greater Pakoon Basin. There are no active allotments within the Tassi-Gold Butte HMA. Wild burros above the AML of zero have potential impacts to livestock grazing by competing with permitted livestock for forage and water resources. This will be discussed further in Chapter 3, Section 3.2.1 and Chapter 4, Sections 4.2.1 and 4.3.1.
Native American Religious Concerns	NI	The proposed action is not expected to limit access to or ceremonial use of American Indian sacred sites, or significantly adversely affect the physical integrity of such sacred sites.
Paleontology	NP	This project area consists of tertiary-age basalts with no vertebrate fossils, no marine invertebrate fossils, nor micro-fossils present in the exposed or the immediate underlying geologic strata of the proposed routes of access nor project area. Overall, significant paleontological resources are not present.
Recreation	NI	Activities associated with the action alternative would not impact recreational opportunities such as motorized touring, hunting, non-motorized uses and other dispersed recreational opportunities as capture operations would be dispersed in isolated locations throughout the HMA. Activities would take place over a short duration and would be in conformance with the Grand Canyon Parashant National Monument RMP/GMP (BLM 2008a) for the management of recreational resources. Users of public lands would still have access to use their public lands for the aforementioned activities with little to no interruption. Although users might be temporarily displaced, there are readily available tracts of public lands located nearby that provide similar or substantially the same opportunities as those available on temporarily inaccessible tracts of public lands. Therefore, recreational opportunities are not affected nor are the beneficial outcomes for which BLM and NPS is managing.

Resource	Determination	Rationale for Determination
Socioeconomics	NI	While the proposed action would involve contracting with for-profit organizations, the economic impact of the gather would be negligible compared with the economies of the three counties either adjacent to or encompassing the project area (Mohave, Clark, Washington). The no action alternative would not change the current economic situation.
Soil Resources	PI	Burro populations are not static and are expected to increase over time. Therefore, a no-action approach has impacts, just as the proposed action creates other impacts. Further analysis is required to address these soil conditions possibilities. Refer to this analysis; Chapter 3, Section 3.2.2 and Chapter 4, Sections 4.2.2 and 4.3.2.
Threatened, Endangered, or Candidate Animal Species	PI	The Mojave desert tortoise (Threatened) and the California condor (Endangered, Experimental Non-essential Population) might be present in the project area and might be impacted by the proposed action. Therefore, this resource is analyzed further in Sections 3.2.3, 4.2.3, and 4.3.3.
Threatened, Endangered, or Candidate Plant Species	NP	Upon review of USFWS IPaC (3/21/2024) and known Threatened, Endangered or Candidate plant species locations, no such species are known in the project area.
Vegetation	PI	Wild burro grazing and browsing has a direct impact on vegetation resulting from burros eating and trampling plants within the HMA and greater Pakoon Basin analysis area. Wild burros over the AML of zero impact vegetation by utilizing forage in competition with permitted livestock and wildlife. This issue is therefore analyzed in detail later in the EA, see the Vegetation including Invasive, Non-native Plant Species, Sections 3.2.4, 4.2.4 and 4.3.4.
Visual Resources	NI	The alternatives would not include any long-term ground-disturbing activities. Impacts would be minimal (short term) and would not impact the characteristic landscape and therefore would comply with Visual Resources Management (VRM) Class I, II, III, management objectives.

Resource	Determination	Rationale for Determination
Waste (hazardous or solid)	NP	No known hazardous or solid waste issues occur in the analysis area, and the alternatives would not produce hazardous or solid waste. While motorized vehicles and aircraft used in proposed gather activities and inventories 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. 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.
Water Quality (drinking / ground)	NI	Water sources located within the proposed project area consists of remote springs and seeps. The proposed action would not change the hydrologic discharge nor recharge of these resources, nor the underlying aquifer regarding water quality or quantity. Water quality and the potential to be utilized as potable drinking water would remain unchanged from its current state.
Wetlands / Riparian Zones	PI	Riparian zones are present in the project area and might be impacted by burro removal. Therefore, this resource is analyzed further in Sections 3.2.5, 4.2.5, and 4.3.5.
Wild and Scenic Rivers	NP	A review of GIS shows that there are no river segments within the analysis area that are designated, eligible, or suitable as wild, scenic, or recreational under the Wild and Scenic Rivers Act.
Wilderness including proposed Wilderness	PI	There are BLM designated Wilderness and NPS proposed Wilderness areas in the proposed action area. Therefore, this resource is further addressed in the Chapter 3, Section 3.2.6 and Chapter 4, Sections 4.2.6 and 4.3.6, “Wilderness including Proposed Wilderness”.
Wild Burros	PI	Wild burros have been documented both in the Tassi-Gold Butte HMA and greater Pakoon Basin analysis area. Potential impacts to burros from a gather will be analyzed in detail later in this EA. See Chapter 3, Section 3.2.8, and Chapter 4, Sections 4.2.8 and 4.3.8. There are no wild horses within the Tassi-Gold Butte HMA or greater Pakoon Basin.

Resource	Determination	Rationale for Determination
Wildlife (including sensitive species and migratory birds)	PI	The proposed action might impact wildlife. Therefore, this resource is analyzed further in Sections 3.2.9, 4.2.9, and 4.3.9.
Woodland / Forestry	NI	Pinyon pine and juniper woodlands occur on upper elevations of the greater Pakoon Basin analysis area; however, wild burros are not documented to use these woodlands. In addition, no forestry (timber) resources occur within the project area (BLM 2008a).

3.2.1 Livestock Grazing

Livestock grazing has occurred in the greater Pakoon Basin analysis area since the 1860s (BLM 2007). There are no active and available grazing allotments within the Tassi-Gold Butte HMA, which includes the public lands managed by the BLM and areas within the Lake Mead NRA (NPS). The Tassi Allotment is within the HMA and is closed to grazing see Table 3.3 (Appendix A, Figure A.2). The Pakoon Springs Allotment, and a portion of the Mosby-Nay Allotment are outside of the HMA and are also closed to grazing. The Lake Mead NRA Burro Management Plan and Final EIS (NPS 1995) established those portions within the NRA as zero burro use. The Decision Record for the Mojave Amendment of the Arizona Strip RMP (BLM 1998) set the herd management level at zero. Consequently, the herd management level for the entire HMA has been set to zero. This decision was aimed at protecting the threatened desert tortoise (*Gopherus agassizii*) and its habitat, which is found in the area. The Mojave Amendment called for the removal of burros from the HMA, as did the NPS Burro Management Plan.

There are ten active and available grazing allotments and one forage reserve administered by GCPNM, which occur entirely or partly within the greater Pakoon Basin analysis area (Appendix A, Figure A.2). See Table 3.3 for a list of the allotments. Those allotments are authorized for cattle grazing. Permitted livestock have seasons of use, pasture rotations, and maximum number of AUMs available for use as specified on the grazing permit to better manage grazing and to provide rest from grazing for a portion of the year. These conditions are expected to continue.

Some burros outside of the HMA, particularly during the winter months, move north from the HMA and use springs and water wells and troughs developed and maintained for permitted livestock use on the neighboring active grazing allotments. Grazing permittees on the Pakoon and Mosby-Nay Allotments have reported having wild burros at all of their waters, springs, water troughs, and wells. Burros sometimes dig and chew on water valves and pipelines where water is dripping. See Table 1.1 above for the current and projected population trend.

Table 3.3. Grazing Allotments within the greater Pakoon Basin analysis area within the GCPNM boundary. GCPNM RMP/GMP (BLM 2008a) (Appendix A, Figure A.2).

Allotment Name	Allotment Classification	Within Tassi-Gold Butte HMA
Tassi Allotment (BLM)	Unavailable for livestock grazing	Yes
Tassi Allotment (NPS)	Unavailable in perpetuity for livestock grazing	Yes
Pakoon Springs Allotment	Unavailable for livestock grazing	No
Pakoon Allotment	Available for livestock grazing	No
Mosby-Nay Allotment	A portion of the allotment is available for livestock grazing and a portion is unavailable for livestock grazing	No
Cottonwood West Allotment	Available for livestock grazing	No
Hidden Hills Allotment	Available for livestock grazing	No
Jump Canyon Allotment	Available for livestock grazing	No
Link Spring Allotment	Available for livestock grazing	No

Allotment Name	Allotment Classification	Within Tassi-Gold Butte HMA
Littlefield Community Allotment	Available for livestock grazing	No
Mesquite Community Allotment	Available for livestock grazing	No
Mud and Cane Spring Allotment	Available for livestock grazing	No
Wildcat Allotment	Available for livestock grazing	No
Parashant Forage Reserve	Available for livestock grazing through an annual application	No

3.2.2 Soil Resources

The proposed action takes place in the Pakoon Basin, a large landscape level watershed drainage feature. It is bounded by Grand Wash Cliffs to the east, Northern and Southern Virgin Mountains to the north and west, and openly drains to the Colorado River to the south via multiple large dry washes (Appendix A, Figure A.1). This large area contains a variety of aridisols mostly derived from Quaternary alluvial ranging from gypsiferous Miocene age playa conditions found in the Gyp hills area, to Pleistocene calcrete processes creating shallow soils with hardened rock-like horizons. About 18% of the proposed area has Pliocene age basalt flows creating slumping terraces along multiple hillsides via creep motion, with the underlying less compact alluvial sediments of the Muddy Creek formation.

Given the range of soils occurring in the proposed area, the most common feature of these aridsols are the prevalence of gravel and loam occurring in the topsoils, largely due to ongoing tectonic rifting of Pakoon Basin with parent material stemming from Virgin Mountains, Grand Wash Cliffs, and central basalt flows, breaking down into alluvial and flowing into this basin over 5-12 million years. These soils with their high gravel content lend to widespread desert pavement conditions complimenting the Mojave Desert ecosystem. In dry washes, there are concentrations of gravel and sands due to fluvial sorting, creating braided stream surfaces. Alluvial fans located in the Million Hills area, rich in quartzite gravels, remain weather resistant with lesser amounts of loam and silt, maintaining a high capacity for drainage. Whereas the gypsiferous soils in Gyp hills, create abundant habitat for cryptobiotic soil crusts with very mature, plentiful crusts occurring one meter deep from the surface. These cryptobiotic soil crusts also occur throughout the proposed area although in a more typical distribution and extent as expected in an undisturbed Mojave Desert setting.

Wild burros are present in the proposed area, evident with their trails and bedding turfs they create as they continue with repeated excursions between foraging, resting, and regrouping behaviors. See Appendix A, Figure A.6, photo showing wild burro trail between two springs in an area closed to livestock grazing. A typical burro trail is narrow, 12-16 inches wide, can extend for miles, are well defined, occur in a multitude of parallel and weblike patterns, and create impacts directly to the underlying and adjacent soils. These impacts are largely seen in the alteration of the topsoil cobbles and gravel layer as the repeated burro traffic breaks apart this desert pavement armored crust, exposing the sorted loam and silt sediments. These exposed

sediments are then easily transported by wind and water runoff processes, thereby creating further erosion and degradation of soil characteristics.

In areas with shallow soils these processes have continued unabated all the way to the underlying basement rock of either basalt or calcrete. Adjacent soils to these burro trails are also impacted especially on slopes as soil head erosion extends out from the trail surfaces, creating gullies and even ravine level features. Cryptobiotic soil crusts do not fare well when encountered by frequent burro activity. These fragile crusts are damaged by soil compaction along with ensuing soil erosion as physical weathering exacerbates the impact.

Overall, a visual review via arial photography, estimates 4-8% of the proposed area soils (12,000 to 25,000 acres) have already been impacted by the presence of wild burro. The population of burros have been observed to be increasing over time along with their range of foraging, frequency, and extent of new burro trails. An increasing trend of these changes is expected to continue. Given natural physical and chemical weathering processes in the proposed area, these burro trails can take decades to dissipate and allow the soil surface to resume its natural characteristics.

3.2.3 Threatened, Endangered, or Candidate Animal Species

The Mojave desert tortoise (*Gopherus agassizii*), a federally protected threatened species, is known to occur in the project area. A large portion of the proposed project is within desert tortoise critical habitat (Appendix A, Figure A.5).

Much of the project area supports habitat characteristic of the Mojave Desert. Desert tortoises can potentially survive and reproduce, provided their basic habitat requirements are met. These requirements include a sufficient amount and quality of forage species; shelter sites for protection from predators and environmental extremes; suitable substrates for burrowing, nesting, and overwintering; various plants for shelter; and adequate area for movement, dispersal, and gene flow.

Desert tortoises are most active during the spring and early summer when annual plants are most common. Additional activity occurs during warmer fall months and occasionally after summer rainstorms. In Arizona, tortoises are generally considered to be active from approximately March 15 through October 15, although activity has been observed as early as February and as late as November (depending on climatic conditions). Desert tortoises spend the remainder of the year in burrows, escaping the extreme conditions of the desert.

Survey data indicates that the project area has low tortoise density and contains tortoise sign including live tortoises. The most recent data is from 2021 and the population density estimate was higher than the previous data (USFWS 2022). Tortoise habitat within the project area contains at least some of the key habitat requirements for desert tortoises to survive. Therefore, tortoises are present within the project area and might wander onto the project sites during project related activities.

The California condor (*Gymnogyps californianus*) is a rare visitor to the project area. The condor is listed as endangered. However, the Arizona population was reintroduced under an

experimental, non-essential designation (Section 10J of the Endangered Species Act). Condors were first released into the wild in Northern Arizona in 1996. Since then, they have come to nest in the Vermilion Cliffs, Grand Canyon, and Zion National Park. Condors routinely fly around and between these three areas. Occasionally a condor leaves this core area and travels many miles to other areas, even outside the 10J area. The project area is within the 10J area and all condors that visit the project area are considered experimental non-essential. There is potential nesting habitat along the Grand Wash Cliffs, however, no nesting has ever been observed there. As of June 2024, there were 85 free-flying condors in the Arizona-Utah population. Condor numbers are down due to an outbreak of Highly Pathogenic Avian Influenza in 2023 which killed 21 condors in the Arizona-Utah population (The Peregrine Fund 2024).

3.2.4 Vegetation including Invasive, Non-native Plant Species

The vegetative communities in the analysis area (Appendix A, Figure A.1) are Mojave Desert Ecological Zone, Mojave-Great Basin Transition Zone, and Mojave-Great Basin Ecological Zone. Vegetation communities vary by elevation, soils, and precipitation.

Wildfires have burned through portions of the analysis area and the vegetation is in recovery with a mixture of annual and perennial plants. Generally vegetation trends are stable unless largescale high intensity wildfire occurs, in which case burned areas tend to convert to a predominantly annual grass system.

Tassi-Gold Butte HMA

Vegetation types found within the HMA are Creosote/Bursage (the most dominant by acres), Great Basin Blackbrush, Mixed Shrub, Mojave Blackbrush, Mojave Mixed Shrub, and a small amount of Pinyon-Juniper Woodlands.

Common shrubs within the HMA are creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), littleleaf ratany (*Krameria erecta*), Nevada jointfir (*Ephedra nevadensis*), blackbrush (*Coleogyne ramosissima),* and *Yucca sp.* Perennial grasses are big galleta (*Pleuraphis rigida*), Indian ricegrass (*Achnatherum hymenoides),* and sand dropseed (*Sporobolus cryptandrus).* A few trees occur along the desert washes, catclaw acacia (*Acacia greggii)* and desert willow (*Chilopsis linearis*). Cholla and other cacti. Forbs include desert marigold (*Baileya multiradiata),* desert trumpet (*Eriogonum inflatum),* and desert globemallow (*Sphaeralcea ambigua*).

Greater Pakoon Basin outside of the HMA

Vegetation types found within the greater Pakoon Basin area include Chaparral, Creosote/Bursage, Great Basin Blackbrush, Mixed Shrub, Mojave Blackbrush, Mojave Mixed Shrub, Sagebrush, and Pinyon-Juniper Woodlands. Creosote/Bursage, Great Basin Blackbrush, and Mojave Blackbrush are dominant over the greater Pakoon Basin by acres.

Common plants include creosote bush, white bursage, littleleaf ratany, Joshua tree (*Yucca brevifolia*) occurs in patches, blackbrush, sagebrush (*Artemisia tridentata*), cliffrose (*Purshia mexicana*), rubber rabbitbrush (*Ericameria nauseosa*), Nevada jointfir, winterfat (*Krascheninnikovia lanata),* pinyon pine (*Pinus edulis*) and Utah juniper (*Juniperus osteosperma),* in higher elevations. Perennial grasses include sand dropseed, big galletta, Indian

ricegrass, bottlebrush squirreltail (*Elymus elymoides*), and James' galletta (*Pleuraphis jamesii)*. Cholla and other cacti. Desert globemallow (*Sphaeralcea ambigua*) and other forbs.

Invasive, Non-native Plant Species
Several invasive, non-native plants species are found in the analysis area with red brome (*Bromus rubens*), common Mediterranean grass (*Schismus barbatus*), redstem filaree (*Erodium cicutarium*), and cheatgrass (*Bromus tectorum*) the most dominant. Others include Sahara mustard (*Brassica tournefortii),* and Malta starthistle (*Centaurea melitensis*). Invasive annual grasses and forbs like those listed vary in abundance based on yearly precipitation and disturbance like wildfire, overgrazing, or trailing. Invasive plant numbers, density and distribution vary year to year based on the same factors other forms of vegetation in the project area, though their distribution is generally increasing in previously burned areas.

Malta starthistle (*Centaurea melitensis*), is a State of Arizona noxious weed, it was found and treated in 2003 at Middle Spring in the Mosby Allotment, which is now part of the Mosby-Nay Allotment. Malta starthistle has also been documented at the BLM Pakoon Fire Station parking area, which is within the Cottonwood Ridge Pasture on the eastern edge of the Mosby-Nay Allotment. These sites have been, and would continue to be, monitored; and treated as necessary. Bermuda grass (*Cynodon dactylon*) and Tamarisk (*Tamarix sp.)* have been found around some springs or washes.

3.2.5 Wetlands and Riparian Zones
The project area contains small riparian areas and their associated plant species occurring near seeps, springs, and along sections of perennial drainages.

Vegetation at springs/riparian areas within the analysis area might include: spikerush (*Eleocharis sp.)*, bulrush (*Scirpus americanus),* cattail (*Typha sp*.), yerba-mansa *(Anemopsis californica*), datura (*Datura wrightii*), Gooding's willow (*Salix goodingii)*, coyote willow (*Salix exigua*), seep willow (*Baccharis salicifolia),* Fremont cottonwood (*Populus fremontii*), mesquite (*Prosopis sp.),* and saltgraass (*Distichlis spicata*).

Many of these areas support limited riparian habitat and water flows. Many of the spring heads are fenced to exclude burros protecting a portion of the riparian zone. Unprotected springs and areas outside of fences receive heavy burro use. Trampling and trailing damage by burros is evident at most locations; soil compaction and surface and rill erosion is evident. These trends are expected to continue.

3.2.6 Wilderness including Proposed Wilderness
The proposed project area includes approximately 37,221 GIS acres of the Grand Wash Cliffs Wilderness Area managed by the BLM and approximately 40,109 GIS acres in the Proposed Wilderness areas within the NPS managed lands of the greater Pakoon Basin analysis area (Appendix A, Figure A.4). The Grand Wash Cliffs Wilderness makes up approximately 9% of the greater Pakoon Basin analysis area. NPS Proposed Wilderness areas make up an additional 9% of the analysis area.

Grand Wash Cliffs Wilderness was created in 1984 as part of the Arizona Wilderness Act of 1984. Wilderness boundaries included avoidance of roads within the wilderness. Final Wilderness Management Plan for the Grand Wash Cliffs Wilderness (BLM 1990) includes provisions for the expected human uses including camping, hiking, grazing, research, and other primitive forms of recreation. Grazing and grazing infrastructure were included in the plan as the area was actively grazed by livestock prior to the wilderness designation. An existing route was designated by Congress to remain available for BLM and livestock permittee administrative purposes. The Wilderness is noted to contain a wide variety of vegetative communities ranging from Mojave Desert to pinyon juniper woodlands and wildlife ranging from desert tortoises to desert bighorn sheep. Grand Wash Cliffs Wilderness has experienced relatively few alterations to its character since its creation. Sections of the Wilderness have experienced lightning-caused wildland fires resulting in a periodic decrease in naturalness (post wildland fire vegetation becomes dominated by non-native invasive vegetation). Such changes are expected to continue with any future large-scale fire events.

All proposed wilderness within the project area is on NPS managed lands and subject to NPS Management Policies 2006 (NPS 2006) and Director's Order #41, Wilderness Stewardship (2013). These lands do not have a wilderness management plan and have not yet been designated by Congress; management is guided by NPS policy, the GCPNM RMP/GMP, and the original draft wilderness proposal. Aspects of the 1979 document were incorporated into the Monument's EIS (BLM 2007) and RMP/GMP (BLM 2008a). The original proposal notes the "harsh environment where the desert can be experienced on its own terms". The proposed wilderness within the project area has had almost no changes since the wilderness was proposed in 1979. The area is not expected to change much in the future as the area currently does not experience many wildland fires and human use is largely limited to existing routes.

The term "wilderness character" was first referenced in the 1964 Wilderness Act. The Act states that federal agencies are responsible for preserving the wilderness character of wilderness areas. Wilderness character is a holistic concept based on the interaction of biophysical environments, personal experiences, and symbolic meanings (Landres 2015). Impacts to designated and proposed wilderness were evaluated using the interagency wilderness character framework (BLM 2012). The qualities of wilderness incorporated in the descriptions of the proposed and designated wilderness include solitude, primitive and unconfined recreation, naturalness, and their untrammeled and undeveloped wilderness characteristics.

3.2.7 Areas Managed to Maintain Wilderness Characteristics (WCA)

The proposed project area includes approximately 228,096 acres of Areas Managed to Maintain Wilderness Characteristics by the BLM within the greater Pakoon Basin analysis area (Appendix A, Figure A.4). This is approximately 54% of the analysis area. The area is not expected to change much in the future as the area currently does not experience many wildland fires and human use is largely limited to existing routes.

Federal lands that possess wilderness characteristics (high degree of naturalness, and outstanding opportunities for solitude or outstanding opportunities for primitive and unconfined recreation),

but are not designated as a wilderness by Congress, are managed in the project area. These wilderness characteristics are managed according to direction in the RMP/GMP (BLM 2008a).

3.2.8 Wild Burros

Burros were first introduced to the Tassi-Gold Butte area in Arizona by miners and prospectors in the late 1800s. With few natural predators, the burros have thrived in this environment. Wild burros are medium-sized ungulates that can use a variety of terrain including flat areas as well as the steep, rugged terrain usually associated with desert bighorn sheep. Typically, wild burros are opportunistic grazers that can efficiently use coarse, lower quality forage (BLM 1996). Wild burros are a long-lived species with documented survival rates that may exceed 92% for all age classes, and they do not self-regulate their population size, except through periodic die-offs when resource availability is extremely low (NAS 2013).

Across the desert southwest, mountain lions are thought to be the only predator that predates on wild burros with any frequency, but that frequency is thought to be low (reviewed in Douglas and Hurst 1993). Burros have been reported as being attacked by mountain lions (Mesler and Jones 2021, Lundgren et al. 2022), but the frequency of predation by lions has apparently not slowed down the burro herd growth rate in the Tassi-Gold Butte HMA in recent years. Therefore, it is not thought that mountain lion density is high enough in the Tassi-Gold Butte HMA to cause substantial mortality in the burro herd. Coyotes are not prone to prey on wild burros unless young, or extremely weak. Other predators such as a wolf or bear do not exist in this HMA. Additional published studies about predation are in the literature review in Appendix D. No information exists to suggest that disease would substantially reduce burro herd growth in the HMA now or in the future.

Wild burros are protected, managed, and controlled by the federal government under the authority of the WFRHBA, as amended, to ensure healthy herds thrive on healthy rangelands. The WFRHBA and FLPMA require that the BLM care for wild burros as part of its multiple-use and sustained yield mission (BLM 2020).

Tassi-Gold Butte HMA is approximately 103,180 GIS acres of remote and rugged Mojave Desert landscape within Mohave County, AZ, (Appendix A, Figure A.1). Wild burros living in the HMA are part of a larger metapopulation (NAS 2013) of wild burros, that includes other subpopulations living on other federal lands in Arizona and Nevada. Movements between subpopulations of the larger metapopulation have included natural movements (made by burros themselves) and human-facilitated movements (BLM 2021a).

Currently, the Tassi-Gold Butte HMA has an Appropriate Management Level (AML) set at zero (0) wild burros. There are no wild horses. This AML was established through the BLM and NPS Record of Decisions (RODs) and Approved Grand Canyon- Parashant National Monument Resource Management Plan (RMP/GMP)/Environmental Impact Statement (EIS) (BLM 2008a) and the Lake Mead NRA Burro Management Plan and Final EIS (NPS1995). See Section 1.2 Background for more discussion on the AML.

The most recent aerial survey of the Tassi-Gold Butte HMA and a portion the greater Pakoon Basin took place in September 2017, see Section 1.2 Background and Table 1.1 and 1.2

Population Estimates. It was estimated that there were 105 burros on both BLM and NPS lands within the HMA. 15 burros were seen on the NPS administered lands within the HMA. 90 burros were seen on BLM administered lands within the HMA. At the same time, it was estimated that there were an additional 55 wild burros outside of the HMA on BLM land within the greater Pakoon Basin on the GCPNM.

The current estimated population is approximately at least 94 wild burros in the Tassi-Gold Butte HMA (Table 1.1). These numbers are based on the most recent aerial survey from September 2017 in the area, which used simultaneous double-observer methods for data recording (Ekernas, Griffin and Lubow 2017) and analysis (Ekernas 2018). Based on the survey, the estimated population inside of the HMA at that time was 105 wild burros. In March 2019, there might have been a reporting error that underestimated the number of burros. 88 burros were reported. The last gather of the Tassi-Gold Butte HMA occurred in August 2019, when 40 excess burros were removed from the HMA. Using the 88 number, there would have been 48 burros in the HMA. From March 2021 through March 2024 an estimated 15% per year growth rate was applied; see Table 1.1. There are no records of substantial or unusual levels of wild burro deaths between 2017 – 2023, so it is appropriate to use the approximate net 15% growth rate per year for the herd. The AML for the HMA is zero so the HMA is over desired AML. In five years, applying the 15% per year growth rate, there could be as many as 190 burros by the year 2029.

The current estimated population for the greater Pakoon Basin is approximately 125 wild burros outside of the HMA see Section 1.2 Background Table 1.2 above. These numbers are based on the most recent aerial survey in the area, which was completed in September 2017, which used simultaneous double-observer methods for data recording (Ekernas, Griffin and Lubow 2017) and analysis (Ekernas 2018). In 2017, the estimated population outside of the HMA was 55 burros. Applying the estimated 15% per year growth rate, the current population could be as many as 125 (Table 1.2). Assuming an annual growth rate of 15 % there could be 125 wild burros in the greater Pakoon Basin outside of the HMA in 2024. In five years, there could be as many as 253 burros by the year 2029. Wild burros are not permitted outside of the HMA.

Wild burros have been documented outside of the established Tassi-Gold Butte HMA. They have been observed at various locations in the greater Pakoon Basin, from as far north as the upper part of the Mosby-Nay Allotment, Pakoon Spring, Middle Spring, Middle Well, and the lower portion of the Mud and Cane Spring Allotment (Appendix A, Figure A.2). As far east as the Grand Wash Cliffs and the Middle Bench, and as far south as the Colorado River/Lake Mead (See Appendix A, Figure A.1). The Grand Wash Cliffs are a physical barrier to burro movement east of the Pakoon Basin. Since there are no physical barriers (fences) between the Arizona and Nevada state line, some number of wild burros can travel back and forth between the Tassi-Gold Butte HMA in Arizona and the Gold Butte HMA just over the state line to the west in Nevada (Appendix A, Figure A.1). Management of burros in the Gold Butte HMA in Nevada is outside the scope of the purpose and need for this EA, but it is worth noting that Gold Butte HMA is managed for an AML range of 22 - 98 wild burros and AML of zero for wild horses (BLM 2021a), though the reported herd size as of March 1, 2024 was 825 burros (https://www.blm.gov/programs/wild-horse-and-burro/about-the-program/program-data).

Since the last population survey was completed in 2017, another population survey flight should be completed as soon as is practical to provide a better estimate of the current number and distribution of wild burros throughout the Tassi-Gold Butte HMA and surrounding greater Pakoon Basin. More current population data would better inform the BLM/NPS for the planning of future gathers.

3.2.9 Wildlife (including sensitive species and migratory birds)

Desert bighorn sheep and mule deer occur within the project area (Appendix A, Figure A.1) and populations appear to be stable. Burros can compete with these species for forage and water resources.

Relict leopard frogs (*Lithobates onca*), a BLM sensitive species, occur at two springs within the project area and populations appear to be stable. These riparian habitats have both fenced and unfenced areas where the frogs occur. Excessive burro use can result in damage to frog habitats in the unfenced areas, potentially affecting their numbers. O'Donnell et al. (2023) noted that burros and cattle cause damage to riparian areas in the project area, rendering those areas as unsuitable habitat for another amphibian species of conservation concern, the barred tiger salamander (*Ambystoma mavortium*).

The project area contains riparian habitats, therefore neotropical migratory bird species are expected to occur. If the gather occurs in the winter, fewer migratory species would be present and are not expected to be nesting within the project area. However, in the event that weather or other factors (budget constraints, holding space limitations, etc.) prevent a winter gather, the gather could be during a portion of the migratory bird breeding season and the BMPs would be followed.

Lundgren et al (2021) observed that wild burros can dig in sand or gravel along stream courses where subsurface water is available within 2 meters of the surface, causing ephemeral pools to occur. If this causes water to be available where it otherwise is not that could benefit some wildlife species (Lundgren et al 2021). Bleich et al. (2021) and Rubin et al. (2021) countered that negative effects of burros on wildlife can outweigh their potential positive ecological effects (see additional literature review in Appendix D). No documented observations of ephemeral pools created by burros have been made within the project area.

4.0 Environmental Consequences

4.1 Introduction

This section of the EA documents the potential environmental impacts which would be expected with implementation of the proposed action and/or the no action alternative. These include the direct impacts (those that result from the management actions) and indirect impacts (those that exist once the management action has occurred).

4.2 Predicted Effects of Alternatives

The direct and indirect impacts to these resources which would be expected to result with implementation of the proposed action and no action alternative are discussed in detail below.

4.2.1 Livestock Grazing

Impacts from the Proposed Action

Under the proposed action all wild burros, over the AML of zero, in the Tassi-Gold Butte HMA and greater Pakoon Basin would be captured using drive traps and/or using bait traps in temporary corrals. Gather activities would be coordinated in advance with authorized grazing permittees within the greater Pakoon Basin project area. Direct impacts to livestock near gather activities would be temporarily disturbed or displaced by the aircraft and the increased vehicle traffic during the gather operation. Livestock usually move back into the area once gather operations are completed (BLM 2020).

Livestock throughout the greater Pakoon Basin analysis area could be affected by bait trapping activities since cattle could be attracted to the bait trap area because of the presence of water and/or hay. Livestock could be caught in these traps. Impacts to livestock are expected to be minimal and of short duration. Bait traps would be monitored daily. Communication and coordination between BLM and NPS and the grazing permittee(s) to determine the process(es) for releasing livestock from traps would occur.

Indirect impacts from the removal of excess wild burros to reach and maintain an AML of zero, would result in an increase in forage availability and quality over time, and reduced competition between livestock, wildlife, and wild burros for available forage and water resources. Removal of wild burros would eliminate burros utilizing and damaging springs and existing range improvements and associated infrastructure (water pipelines, valves, troughs, etc.).

Removing wild burros would provide rest to vegetation from potentially year-round grazing from wild burros and would benefit native perennial plant species. Permitted livestock have seasons of use and are usually rotated through pastures or removed from the allotment when utilization levels are reached, providing some yearly rest from grazing. Implementing the proposed action, removing wild burros, would have a beneficial impact for livestock grazing in the analysis area.

Impacts from the No Action Alternative

Implementation of the no action alternative would not remove any wild burros from the Tassi-Gold Butte HMA and greater Pakoon Basin. Livestock would not be displaced or disturbed due to gather operations under the No Action Alternative; however, there would be continued competition with wild burros for limited water and forage resources. The wild burro population

would continue to be over the AML of zero. Over time, impacts to forage and water would increase as the population of wild burros continues to increase. Burro populations would continue to increase at approximately 15% per year. It is estimated that in five years (2029) there could be as many as 190 burros in the HMA, that would be an additional 96 burros over the 2024 estimated population (Table 1.1). Outside of the HMA, in the greater Pakoon Basin, there could be approximately 253 burros in five years (2029) (Table 1.2). That would be an additional 128 animals. Livestock grazing would be adversely impacted by deteriorating range conditions due to increasing numbers of burros; forage and water consumed by wild burros reduces the forage and water available for livestock grazing and wildlife.

4.2.2 Soil Resources

Impacts from the Proposed Action

Proposed action alternative in the proposed area involves removal of wild burro as described in Chapter 2. Short term soil impacts are expected to be minimal as these corralling operations would take place on road surfaces and existing corral structures. Vehicle impacts on soils would be mostly limited to designated roadways and would not be creating additional soil compaction. Ancillary foot traffic and light vehicle activity would be short lived and only occur during the corral operations, resulting in minimal soil disturbance.

Long term impacts to soil conditions are likely to stem from motor vehicles being driven on non-road surfaces. Vehicle impacts on non-disturbed soils would leave behind compaction tracks altering the desert pavement appearance, damage cryptogamic soils, and change surface water runoff patterns. Eventual physical weathering and ongoing soil processes would take decades to dissipate these long-term impacts. Best practice methods would minimize potential vehicle operator errors. Other long-term impacts the short-lived corralling operations mentioned above, would have no lasting effect on the proposed area soils.

Additional long term impacts involving the proposed action would also reduce the presence of wild burros from the project area thereby reducing burro trails of compacted soils, manure piles, and disturbed soil pits - where burros rest. These reduced impacts in the long term, would contribute to less compacted, more stabilized, soils and allow the native vegetation to reclaim the burro trails, manure piles over 5-10 years would degrade and return the nutrient levels of the impacted topsoil to its former state, physical weathering would also return the burro resting pits back to the prevalent armored desert pavement soil crust surface. Given several decades, cryptogrammic soils would regenerate on these disturbed sites, resulting in a topsoil with more resistance to wind erosion, and overall dust abatement.

Impacts from the No Action Alternative

The no action alternative would continue management of the proposed area in its current state. Wild burros would continue to proliferate with expected increases of population size, with more competition for foraging resources, resulting in further expansion of their extent, and more prevalence of burro trails. These trails would continue to alter the landscape by creating vast trail patterns measured by the mile, stripping aridisols of their armored gravels, exacerbating soil erosion and soil compaction.

4.2.3 Threatened, Endangered, or Candidate Animal Species

Impacts from the Proposed Action

The proposed action might have direct impacts on the desert tortoise from activities related to burro gathering, and could include killing or injuring of tortoises, displacement of individuals, and increased potential for harassment of tortoises. If not noticed and avoided during gather activities, desert tortoises could be either injured, killed, or harassed.

Indirect impacts could include increased erosion potential at trap sites due to concentrated burro trampling. However, it is expected that, with the removal of burros from the area under the proposed action, the desert tortoise population in the project area would ultimately benefit due to the reduced risk of trampling and less competition for forage and water. In some areas, wild burro density appears to be negatively correlated with measures of endangered desert tortoise presence which implies that burros should be considered along with other known environmental factors that can degrade tortoise habitat and demographic rates (Berry et al. 2020).

The proposed action might have direct impacts on California condors from activities related to burro gathers using aircraft and could include killing or injuring of condors from collisions with aircraft. The likelihood of condors occurring in the project area and colliding with aircraft is so remote as to be discountable. No impacts to nesting condors would be anticipated because nests would be avoided.

Impacts from the No Action Alternative

Under the no action alternative, no burros would be gathered and removed from the project area, no direct impacts from gather operations would occur to desert tortoises. There would not be a concentration of human activities or ungulates at the proposed bait/drive trap locations to cause the crushing or removal of vegetation. A 2020 study found a negative correlation between wild burro sign and desert tortoise population densities (Berry et al. 2020). If no action is taken, burro density would continue to increase, with the expectation of an increasing rate of further damage to landscape, water, and resources that native desert wildlife depends on, including the desert tortoise. Desert tortoises would continue to be at risk of trampling by burros.

Under the no action alternative, no direct impacts from gather operations would occur to condors. There would not be aircraft use associated with gather operations posing a risk of condor collision.

4.2.4 Vegetation including Invasive, Non-native Plant Species

Impacts from the Proposed Action

The proposed action of removing wild burros to the AML of zero, would directly impact vegetation temporarily with trampling and disturbance of vegetation occurring at gather sites and holding locations. Disturbance would occur to native vegetation in and around temporary gather corrals and holding facilities due to the use of vehicles and concentration of burros in the immediate area of such facilities. Gather corrals and holding facility locations are usually selected in areas easily accessible to livestock trailers and standard equipment, utilizing roads, gravel pits or other previously disturbed sites, and which are accessible using existing roads. New roads are not created to construct capture corrals.

Traps, bait stations, or temporary holding facilities would be located in previously disturbed areas or open desert washes, if possible, in order to minimize impacts. Approximately one acre of vegetation could be affected at each location as a result of the installation and operation of the bait traps/stations. Impacts to vegetation could result from the trap sites, including the drive traps and bait traps. Crushing and trampling of some of the vegetation in the bait trap locations might occur but is expected to be short-term (1 month or less) and intermittent. Additionally, the bait traps would be checked at least once a day; thus, animals would not be in the traps for more than a day. Areas receiving less than one month of bait trap use would not inhibit the reproductive capabilities of individual plants and vegetation would recover during the next growing season. Vegetation is expected to recover within a year. Rehabilitation might be implemented as needed at trap sites (BLM 2020). This could involve reseeding with native seed. Areas disturbed by gather activities would be monitored for invasive, non-native plants and noxious weeds and treated as necessary.

To reduce the risk of introduction or spread of weeds, any hay or feed used in conjunction with the gather activities, for example bait trap, holding facilities, or saddle horse feed, would be certified weed free. Hay is to be free of any weed seeds and any state listed noxious weeds or non-native invasive plants. Areas with non-native invasive plants or noxious weeds would be avoided when establishing and accessing trap sites and holding facilities.

Indirect impacts from removing all wild burros from the Tassi-Gold Butte HMA and greater Pakoon Basin and managing wild burros at the AML of zero would result in improved vegetative conditions by increasing cover in the uplands. Reduction in vegetative use would allow recovery to individual plants and overall plant populations including past and future burned areas. Habitat quality would increase, promoting more cover and forage. Increased cover and quality would provide protection to the soil and reduce erosion and invasive species (BLM 2020).

Wild burro grazing and browsing has a direct impact on vegetation resulting from burros eating and trampling plants within the HMA and greater Pakoon Basin analysis area. Wild burros over the AML of zero impact vegetation by utilizing forage in competition with permitted livestock and wildlife, which could result in overuse. Wild burros also contribute to trampling and trailing particularly to and from and near water sources damaging upland and riparian vegetation and soils crusts (Appendix A. Figure A.6), photo of wild burro trail between Grapevine Spring and Buckhorn Spring. In an area closed to livestock grazing). Removal of burros would eliminate the competition for forage and water in allotments that are permitted for livestock grazing. Removal of wild burros would remove a vector of spread for invasive, non-native plant species and noxious weeds through feces. Implementing the proposed action, removing wild burros to the AML of zero, would have a beneficial impact for Vegetation including Invasive, Non-native Plant Species in the analysis area.

Burros can be more destructive to the range than cattle due to their differing grazing habits. Wild burros can exploit poor quality forage (reviewed in Douglas and Hurst 1993), as they have a similar digestive system to horses. However, the equine digestive system requires that horses and burros consume 20-65% more forage than a cow of equal body mass (Hanley and Hanley 1982, Menard et al. 2002). Unlike cattle, wild horses and burros use their flexible lips and upper front incisors to trim vegetation more closely to the ground (Symanski 1994, Menard et al. 2002,

Beever 2003). As a result, areas grazed by horses and burros might retain fewer plant species and might be subject to higher utilization levels than areas grazed by cattle or other ungulates. Although seeds can pass through the horse digestive systems without being digested, this potential benefit has negative consequences when invasive species germinate from feces (i.e., King et al. 2019); germination of invasive species from burro feces can be assumed to be comparable. During times of greatest physiological stress (increased temperature, decreased precipitation), horses and burros can monopolize access to water sources, leaving limited time for other species. This raises concern for native species in water-limited environments (Hall et al. 2016) such as those which exist throughout the HMA (BLM 2020).

The dietary overlap between wild burros and cattle is much higher than with wildlife, and averages between 60 and 80% (Hubbard and Hansen 1976, Hansen et al. 1977, Hanley and Hanley 1982, Krysl et al. 1984, McInnis and Vavra 1987). Ruminants, especially cattle, must graze selectively, searching out digestible tissue (Olsen and Hansen 1977). As cecal digesters, burros are one of the least selective grazers in the West because they can consume high fiber foods and digest larger food fragments (Hanley and Hanley 1982, Beever 2003). Additional summaries of scientific literature on the subject is in Appendix D. A gather would ultimately benefit rangeland resources. Removal of all wild burros would allow for reduced competition for the remaining resources left on the range (BLM 2020).

Impacts from the No Action Alternative

Under the no action alternative, no burros would be gathered and removed from the analysis area, no direct impacts from gather operations would occur to vegetative resources. There would not be a concentration of human activities or ungulates at the proposed bait/ drive trap locations to cause the crushing or removal of vegetation. The potential for red brome or other invasive or noxious plant species to increase as a result of bait trap, bait stations, or temporary holding facilities would not occur.

Indirect impacts to vegetation from continuing to have wild burros over the AML, would result in burros utilizing forage in competition with permitted livestock and wildlife. Wild burros also contribute to trampling and trailing particularly to and from and near water sources damaging upland and riparian vegetation and soils crusts where there are no permitted livestock. Wild burros would remain a vector for spreading invasive, non-native plant parts and seeds through their feces, on their coats, and in the mud in their hooves. Habitat conditions for all vegetation species would deteriorate over time as wild burro numbers continue to increase, see Section 1.2, Tables 1.1 and 1.2 population estimates, and as a result vegetation across the Tassi-Gold Butte HMA and greater Pakoon Basin could be over utilized. It would further reduce herbaceous vegetative cover and increase invasive species and noxious weeds, particularly in burned areas.

High burro numbers would likely lead to over-utilization on vegetative resources, causing more decadence in plant species and increasing bare ground. The number of areas experiencing over utilization by wild burros would increase over time. This would be expected to result in increased damage to vegetation resources throughout the greater Pakoon Basin. High utilization on vegetation would reduce reproductive capabilities and might cause loss of species. Reduced vegetation and increased bare ground could cause soil erosion and increase potential for invasives to establish and spread. The no action alternative would have negative impacts to

upland and riparian vegetation plant communities, range condition, and invasive, non-native plants and noxious weeds over time.

4.2.5 Wetlands and Riparian Zones

Impacts from the Proposed Action

No direct impacts to riparian zones are anticipated from burro gather activities, since trap sites would be located outside of riparian zones. Indirectly, the removal of burros is expected to have beneficial effects to riparian zones including a reduction in damage to vegetation and soils from reduced foraging and trampling. Burros were listed as one source of wetland degradation, causing some water resources in the Pakoon Basin to be unsuitable for an amphibian species of concern, the barred tiger salamander (O'Donnell et al 2023).

Impacts from the No Action Alternative

Under the no action alternative, the burro population would continue to increase. Trampling and trailing damage by burros in and around springs would be expected to increase, resulting in larger, more extensive areas of bare ground. Springs would continue to deteriorate further reducing vegetative cover, increasing soil erosion, and resulting in continued reductions to spring functionality.

4.2.6 Wilderness including Proposed Wilderness

Impacts from the Proposed Action

Proposed actions within a designated wilderness area or a proposed wilderness area must be reviewed using the minimum requirements framework. A Minimum Requirements Analysis Framework Workbook (MRAF) has been developed as part of this analysis (Appendix C). It addresses the minimum tools necessary to implement the alternatives as well as the impact to wilderness characteristics in designated wilderness or proposed wilderness within the gather area. The five qualities of wilderness character analyzed are: Untrammeled, Undeveloped, Naturalness, Opportunities for Solitude and Primitive Unconfined Recreation, and Other Features of Value.

Under the proposed action neither the helicopter or fixed wings aircraft overflights or the emergency actions in the wilderness represent manipulations of the natural processes on-going in wilderness and therefore would have no impacts to the untrammeled quality of the wilderness. Any landing of a helicopter in wilderness is a prohibited use under the Wilderness Act and a negative impact on the undeveloped quality. An emergency landing situation would be of short duration and is unlikely, therefore the negative impact would be temporary and rare. Naturalness would be indirectly positively impacted by the removal of non-native species (burros) that damage ecosystem integrity. The surveying and gather activities conducted by helicopter and fixed wing aircraft could directly negatively affect opportunities for solitude for visitors to the wilderness who experience the noise or sight of the aircraft flying over, even at a distance; however this would be a short duration in time, likely measured in hours.

The alternative might have direct impacts on other features of value, namely the desert tortoise, from activities related to burro gathering, and could include killing or injuring of tortoises, displacement of individuals, and increased potential for harassment of tortoises. However, the impact is expected to be minimal due to design features. Longer term indirect effects of the

gather would decrease the threat to other features of value by decreasing the disturbance caused by burros.

Impacts from the No Action Alternative
Under the no action alternative, no action would be taken in wilderness and there would be no impacts to the untrammeled, undeveloped, and outstanding opportunities for solitude or primitive and unconfined recreation qualities. No action would occur in wilderness to remove burros that cause damage to the Mojave Desert ecosystems which would have a negative effect on the natural quality (see Appendix C, MRAF for details)**.** Other features of value would continue to be harmed by ongoing burro presence. Burros would reproduce and further damage the landscape, water, and resources that desert tortoise depend on. Desert tortoises would continue to be at risk of trampling by burros.

4.2.7 Areas Managed to Maintain Wilderness Characteristics (WCA)

Impacts of the Proposed Action
Under the proposed action neither the helicopter or fixed wing aircraft overflights or the emergency actions in the WCA represent manipulations of the natural processes on-going in WCA. Naturalness would be indirectly positively impacted by the removal of non-native burros that damage ecosystem integrity. The surveying and gather activities conducted by helicopter and fixed wing aircraft could directly negatively affect opportunities for solitude for visitors to the WCA who experience the noise or sight of the aircraft flying over, even at a distance. The effects of surveying and gather activities would be highly localized and short term.

Impacts from the No Action Alternative
Under the no action alternative, no action would be taken in WCA; therefore, there would be no impacts to the outstanding opportunities for solitude or primitive and unconfined recreation qualities. No action would occur in WCA to remove a non-native species (burro) that causes damage to the Mojave Desert transition ecosystems which would have a negative effect on the natural quality (see Appendix C, MRAF for details).

4.2.8 Wild Burros

Impacts of the Proposed Action
Gathering wild burros can cause direct and indirect impacts. In addition to the description below, further review of available scientific literature on the effects of gathers on wild horses and burros is included in Appendix D. However, BLM follows guidelines to minimize those impacts and ensure humane animal care and high standards of welfare, including veterinary oversight. Indirect impacts can occur to burros after the initial stress event (capture) and could include increased social displacement or increased conflict between jacks. These impacts are known to occur intermittently during wild burro gather operations, whether by drive trap or bait trap. Traumatic injuries could occur and typically involve biting and /or kicking bruises. Burros might potentially strike or kick gates, panels, or the working chute while in corrals or trap which might cause injuries. After a gather, lowered competition for forage and water resources on desert rangelands would reduce stress and fighting for limited resources (water and forage) and promote healthier animals. Indirect individual impacts are those impacts which occur to individual wild burros after the initial stress event and might include spontaneous abortions in jennies. These impacts, like direct individual impacts, are known to occur intermittently during

and after wild burro gather operations. An example of an indirect individual impact would be the brief skirmish which occurs among jacks following sorting and release into the jack pen, which lasts less than a few minutes and ends when one jack retreats. Traumatic injuries usually do not result from these conflicts. These injuries typically involve a bite and/or kicking with bruises which do not break the skin. Like direct individual impacts, the frequency of occurrence of these impacts among a population varies with the individual animal (BLM 2021a).

Foals are sometimes gathered that were orphaned on the range (prior to the gather) because the mother rejected it or died. These foals might be in poor body condition. Orphans encountered during gathers are cared for promptly and rarely die or must be euthanized. It is unlikely that orphan foals would be encountered since most of the foals would be old enough to travel with the group of wild burros (BLM 2021a).

Gathering wild burros during the summer months can potentially cause heat stress. Gathering wild burros during the fall/winter months reduces risk of heat stress, although this can occur during any gather, especially in older or weaker animals. Adherence to the Comprehensive Animal Welfare Program (CAWP) standards, and techniques used by the gather contractor or BLM staff would help minimize the risks of heat stress. Heat stress does not occur often, but if it does, death can result. Most temperature related issues during a gather can be mitigated by adjusting daily gather times to avoid the extreme hot or cold periods of the day. The BLM and the contractor would be pro-active in controlling dust in and around the holding facility and the gather corrals to limit the burros' exposure to dust (BLM 2021a).

The BLM has been gathering excess wild burros from public lands since 1975 and has been using helicopters for such gathers since the late 1970's. Refer to Appendix B for information on the methods that are utilized to reduce injury or stress to wild burros during gathers (BLM 2021b).

As a measure of expected capture-related mortality, since 2009, BLM Arizona has gathered over 3,500 nuisance or excess wild horses and burros. Of these, gather-related mortality has averaged 0.1% (one per thousand), which is very low when handling wild animals; this rate reflects mortality at gathers and transportation. Another 0.2% of the animals captured were humanely euthanized due to pre-existing conditions and in accordance with BLM policy. These results are similar to BLM results of gathers more broadly; for wild burro bait / water trap, mortality rates were 0.05% due to acute injury caused by the gather process, and death for burros with pre-existing conditions was 0.2% (Scasta 2020). Further details on reviews of gather-related mortality and conditions are included in Appendix D. This data supports that the use of helicopters and motorized vehicles are a safe, humane, effective and practical means for gathering and removing excess wild horses and burros from the range (BLM 2020).

Through the capture and sorting process, wild burros are examined for health, injury and other defects. Decisions to humanely euthanize animals in field situations would be made in conformance with BLM policy. BLM Euthanasia Policy PIM 2021-007 is used as a guide to determine if animals meet the criteria and should be euthanized (BLM 2021b).

Temporary Holding Facilities During Gathers

Wild burros gathered would be transported from the trap sites to a temporary holding corral within the HMA, greater Pakoon Basin or other suitable location in goose-neck trailers or straight-deck semi-tractor trailers. At the temporary holding corral, the wild burros would be aged and sorted into different pens based on sex. The burros would be provided ample supply of good quality hay and water. Jennies and their un-weaned foals would be kept in pens together.

At the temporary holding facility, a veterinarian would provide recommendations to the BLM regarding care, treatment, and if necessary, euthanasia of the recently captured wild burros.

Transport, Off-Range Corrals, and Adoption Preparation

Wild burros removed from the range as excess would be transported to the receiving off-range corral (ORC, short-term holding facility) in a goose-neck stock trailer or straight-deck semi-tractor trailers in accordance with CAWP standards. Trucks and trailers used to haul the wild burros would be inspected prior to use to ensure wild burros can be safely transported and that the interior of the vehicle is in a sanitary condition. Wild burros would be segregated by age and sex when possible and loaded into separate compartments. Jennies and their un-weaned foals may be shipped together. Transportation of recently captured wild burros is limited to a maximum of 10 hours. During transport, potential impacts to individual burros can include stress, as well as slipping, falling, kicking, biting, or being stepped on by another animal. Unless wild burros are in extremely poor condition, it is rare for an animal to die during transport.

Upon arrival, recently captured wild burros are off-loaded by compartment and placed in holding pens where they are fed good quality hay and water. Most wild burros begin to eat and drink immediately and adjust rapidly to their new situation. At the ORC, a veterinarian provides recommendations to the BLM regarding care, treatment, and if necessary, euthanasia of the recently captured wild burros. Wild burros in very thin condition or animals with injuries are sorted and placed in hospital pens, fed separately and/or treated for their injuries. In instances where a wild burro becomes sick, BLM and attending veterinary personnel try to address animal health as soon as possible. Recently captured wild burros, generally jennies, in very thin condition might have difficulty transitioning to feed. A small percentage of animals can die during this transition; however, some of these animals are in such poor condition that it is unlikely they would have survived if left on the range.

After recently captured wild burros have transitioned to their new environment, they are prepared for adoption or sale. Preparation involves freeze-marking the animals with a unique identification number, vaccination against common diseases, microchipping, castration, and de-worming. During the preparation process, potential impacts to wild burros are similar to those that can occur during transport. Injury or mortality during the preparation process is low but can occur.

Mortality at ORCs averages approximately 5% (GAO-09-77, Page 51 (GAO 2008)), and includes animals euthanized due to a pre-existing condition, animals in extremely poor condition, animals that are injured and would not recover, animals which are unable to transition to feed; and animals which die accidentally during sorting, handling, or preparation. In principle, an unadopted or unsold burro could be transported to an off-range pasture, but the historical trend

has been that nearly every wild burro removed from the range has been adopted or sold with limitation. There are currently no wild burros in BLM-controlled off-range pastures, and it is not expected that any burros from the Tassi-Gold Butte HMA would go to off-range pastures.

Adoption
Adoption applicants are required to have at least a 400 square foot corral with panels that are at least six feet tall. Applicants are required to provide adequate shelter, feed, and water. The BLM retains title to the burro for one year and the burro and facilities are inspected. After one year, the applicant may take title to the burro at which point the burro become the property of the applicant. Adoptions are conducted in accordance with 43 CFR § Subpart 4750.

Sale with Limitation
Buyers must fill out an application and be pre-approved before they may buy a wild burro. Sale-eligible wild burros must be more than 10 years old or have been offered unsuccessfully for adoption at least three times. The application also specifies that all buyers are not to sell to slaughter buyers or anyone who would sell the animals to a commercial processing plant. Sale of wild burros are conducted in accordance with the 1971 WFRHBA and congressional limitations currently in place.

Euthanasia and Sale Without Limitation
Under the WFRHBA, healthy excess wild burros can be euthanized or sold without limitation if there is no adoption demand for the animals. However, while euthanasia and sale without limitation are allowed under the statute, these activities have not been permitted under current Congressional appropriations for over a decade and are consequently inconsistent with BLM policy. If Congress should remove this prohibition, then excess burros removed from the HMA or greater Pakoon Basin could potentially be sold without limitations or humanely euthanized, as required by statute, if no adoption or sale demand exists for some of the removed excess burros.

Wild Burros Remaining in the HMA Following the Gather
Under the proposed action, the post-gather population of wild burros would be zero (0) if all excess wild burros can be removed, which is the established AML for the HMA. It is also possible that, due to the difficulty of gather operations in such an area as Tassi-Gold Butte HMA and the greater Pakoon Basin, the BLM might be unable to gather a sufficient number of burros in an initial gather to reach AML. Even if AML is not achieved with the initial gather, reducing population size through an initial gather would increase the likelihood that subsequent gathers would be able to reduce the herd size to zero.

The wild burros that are not captured might be temporarily disturbed and move into another area during the gather operations. With the exception of changes to herd demographics, direct population wide impacts have proven, over the last 20 years, to be temporary in nature with most if not all impacts disappearing within hours to several days of when wild burros are released back into the complex. No observable effects associated with these impacts would be expected within one month of release except for a heightened awareness of human presence.

The primary effects directly related to this proposed gather to the wild burro population would be the effects to herd population dynamics, age structure or sex ratio, and subsequently to the growth

rates and population size over time. Namely, it is expected that the herd size would decrease. It is unlikely that the gather would necessarily lead to substantial changes in age or sex structure of the herd, unless gathered animals happen to not be representative of the age and sex structure in the herd at present. Returning wild burros to the herd after being gathered, such as might take place in managed herds where there is a particular desired value for sex ratio, would not be consistent with the purpose and need to reduce the herd size to zero. As such, the wild burros not captured are expected to maintain the general qualities of wild burro social structure and demography, except at lower density. No observable effects to the remaining population would be expected except a heightened shyness toward human contact.

Impacts to the rangeland due to the current overpopulation of wild burros (relative to available natural resources) would be reduced under the gather and removal alternative. Territorial fighting among jacks would be expected to decrease since they would protect their position at water sources less frequently; injuries and death to all age classes of animals would also be expected to be reduced as competition for limited forage and water resources is decreased.

Indirect individual impacts are those impacts which occur to individual wild burros after the initial stress event, and might include spontaneous abortions in jennies, and increased social displacement and conflict in jacks. These impacts, like direct individual impacts, are known to occur intermittently during wild burro gather operations. An example of an indirect individual impact would be the brief skirmish which occurs among older jacks following sorting and release into the jack pen, which lasts less than two minutes and ends when one jack retreats. Traumatic injuries usually do not result from these conflicts. These injuries typically involve a bite and/or kicking with bruises which don't break the skin. Like direct individual impacts, the frequency of occurrence of these impacts among a population varies with the individual animal.

Spontaneous abortion events among pregnant jennies following capture are also rare, though poor body condition can increase the incidence of such spontaneous abortions. Given the timing of these gathers, spontaneous abortion is not considered to be an issue for the proposed gather.

A few foals might be orphaned during gathers. There are multiple reasons for orphaned foals.

- The jenny rejects the foal. This occurs most often with young mothers or very young foals.
- The foal and mother become separated during sorting and cannot be matched.
- The jenny dies or must be humanely euthanized during the gather.
- The foal is ill, weak, or needs immediate special care that requires removal from the mother.
- The mother does not produce enough milk to support the foal.

Most gathered foals would be over four months of age and some would be ready for weaning from their mothers. In private industry, domestic horses and burros are normally weaned between four and six months of age.

Gathering the wild burros in seasons other than summer reduces risk of heat stress, although this can occur during any gather, regardless of season, especially in older or weaker animals. Adherence to the SOPs as well and techniques used by the gather contractor help minimize the risks of heat stress. Heat stress does not occur often, but if it does, death can result.

During summer gathers, roads and corrals might become dusty, depending upon the soils and specific conditions at the gather area. The BLM would ensure that contractors mitigate any potential impacts from dust by slowing speeds on dusty roads and watering down corrals and alleyways. Despite precautions, it is possible for some animals to develop complications from dust inhalation and contract dust pneumonia. This is rare, and usually affects animals that are already weak or otherwise debilitated due to older age or poor body condition. Summer gathers pose increased risk of heat stress, so contractors use techniques that minimize heat stress, such as conducting gather activities in the early morning, when temperatures are coolest, and stopping well before the hottest period of the day. The helicopter pilot also brings in the burros at an easy pace. If there are extreme heat conditions, gather activities are suspended during that time. Water consumption is monitored. Individual animals are also monitored, and veterinary or supportive care administered as needed. Electrolytes can be administered to the drinking water during gathers that involve animals in weakened conditions or during summer gathers. Additionally, BLM Wild Horse and Burro staff maintains supplies of electrolyte paste if needed to directly administer to an affected animal. As a result of adherence to the CAWP (Appendix B) and care taken during summer gathers, potential risks to wild burros associated with summer gathers can be minimized or eliminated.

During winter gathers, wild burros are often located in lower elevations, in less steep terrain due to the potential for snow cover in the higher elevations. Subsequently, the animals are closer to the potential gather corrals, and need to maneuver less difficult terrain in many cases. However, snow cover can increase fatigue and stress during winter gathers, therefore the helicopter pilot allows burros to travel slowly at their own pace. The Contractor may plow trails in the snow leading to the gather corrals to make it easier for animals to travel to the gather site and to ensure the wild burros can be safely gathered. Snowy conditions, though, are not frequently expected in this locale.

Impacts of the No Action Alternative

Under the no action alternative, there would be no active management to control the population size of wild burros or to bring the population of the HMA to the established AML of zero at this time. In the absence of a gather, wild burro populations would continue to grow at an average rate of approximately 15-18% per year. Without a gather and removal now, the wild burro populations in the HMA would grow to approximately 190 animals in five years' time (2029) based on the average annual growth rate (see Table 1.1). The wild burro population outside of the HMA, in the greater Pakoon Basin, could reach 253 burros by 2029 (see Table 1.2).

Competition between wildlife, livestock, and wild burros for limited forage and water would continue. Damage to upland and riparian rangeland resources would continue to worsen. At some point, burro density might be so great and available forage and water resources so limited that even the burros own very high fertility rates could decline, and mortality due to starvation could increase (NAS 2013). By such a time, damage to upland and riparian rangeland resources would have become extremely severe. Over time, the potential risks to the health of individual burros would increase, and the need for emergency removals to prevent their death from starvation or thirst would also increase. Allowing wild burros to die of dehydration or starvation would be inhumane and would be contrary to the WFRHBA which requires that excess wild

burros be immediately removed. Allowing rangeland damage to continue to result from wild burro overpopulation would also be contrary to the WFRHBA which requires the BLM to "*protect the range from the deterioration associated with overpopulation*", "*remove excess animals from the range so as to achieve appropriate management levels*", and "*to preserve and maintain a thriving natural ecological balance and multiple-use relationship in that area*."

4.2.9 Wildlife (including sensitive species and migratory birds)

Impacts from the Proposed Action

Under the proposed action, disturbance to migratory birds, sensitive species, and wildlife from the helicopter, increased human activity around trap sites, and the trapped burros could occur but would be short-term. Damage to vegetation at trap sites would be on a small scale and would not have a measurable impact. Human presence at trap sites would disrupt wildlife activities. Short and long-term impacts would result from reducing burro numbers within the project area. The removal of excess burros would provide immediate benefit to migratory birds, special status species, and wildlife through less competition for forage and water and would allow gradual improvement of upland and riparian health.

The project area contains riparian and creosote/sagebrush habitats, therefore potential impacts to neotropical migrants might be expected. If the gather occurs in the winter, this is when migratory species are not expected to be present within the HMA. If weather or other factors (budget constraints, holding space limitations, etc.) prevent a winter gather, the gather could take place during a portion of the migratory bird breeding season (February 15th – August 31st). Noise and activity from gathers occurring during this time period might disturb migratory birds during the remaining portion of the breeding season. Migratory bird surveys would occur prior to gather sites being constructed during migratory bird breeding season to avoid or minimize potential impacts to breeding migratory birds.

This impact would be minimal (approximately 1 acre/trap site), temporary, and short-term (two weeks or less) in nature. Indirect impacts would be related to wild burro densities and patterns of use. The reduction in the current burro population would provide opportunity for vegetative communities to progress toward achieving a thriving natural ecological balance. The proposed action alternative would support a more diverse vegetative composition and structure through improvement and maintenance of healthy populations of native perennial plants.

Competition with wildlife for water at natural springs and seeps would be drastically reduced. More water would be available for a longer period of time for wildlife species.

Impacts from the No Action Alternative

Under the no action alternative, negative direct impacts such as disturbance to wildlife due to a gather would not occur under this alternative, therefore resulting in less direct negative impacts. Beneficial indirect impacts to migratory bird, wildlife, and sensitive species habitats, however, would not be realized and increasing burro numbers would result in continuing decline of habitat condition and increased competition for resources. With a greater number of wild burros in the greater Pakoon Basin, there would be an increasing probability that burros could cause damage to fenced and unfenced relict leopard frog habitats.

4.3 Cumulative Effects

"Cumulative impacts" are those impacts resulting from the incremental impact of an action when added to other past, present, or reasonably foreseeable future 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 a wide variety of uses and activities occurring on the lands within and adjacent to the Tassi-Gold Butte HMA and greater Pakoon Basin, including livestock grazing, hiking, camping, hunting, vehicle touring, etc. Specific actions that have occurred, are occurring, or are likely to occur in the reasonably foreseeable future (RFF) include:

- Past actions include mineral prospecting and mining starting in the late 1800's. During this time burros were used as beasts of burden. Livestock men and miners often turned animals loose and strays from captivity contributed to the increase of burros in the Tassi-Gold Butte area. Other actions include: establishment of Tassi-Gold Butte HMA for wild burros (WFRHBA 1971), establishment of AML for wild burros (Tassi-Gold Butte Herd Management Area Plan (BLM 1982)), modification of the AML to zero due to desert tortoise concerns in 1998 Decision Record for the Mojave Amendment of the Arizona Strip RMP (BLM 1998), wild burro gathers, livestock grazing, range improvement projects such as water sources and fencing, and recreational activities. Some of these activities have increased the presence of non-native invasive plants and noxious weeds. See Appendix A, Figure A.8 wild burros at old waterhole near Pakoon Springs which is now closed livestock grazing.

- 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. Some speculate that the changes were permanent and irreversible, turning plant communities from grass and herbaceous species to brush and trees. Protective vegetative cover was reduced, and more runoff brought erosion, rills, and gullies.

  In response to these problems, livestock grazing reform began in 1934 with the passage of the Taylor Grazing Act (TGA). 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 actions such as 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.

- Recreation activities in the Tassi-Gold Butte HMA and greater Pakoon Basin 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 for both large and small game, hiking, wildlife viewing, horseback riding, camping, backpacking, mountain biking, geocaching, picnicking, and night-sky viewing, and photography. The GCPNM is known for its large-scale undeveloped areas and remoteness, which provide 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. Visitor use levels are highest in the fall, winter, and spring, and low to moderate in the summer. In the long-term, as the population of the surrounding area increases, use of public lands would continue to increase. See Appendix A, Figure A.7 photo of wild burro chewing damage to trailhead fencing. This area is closed to livestock grazing.

4.3.1 Livestock Grazing

Cumulative Impacts of the Proposed Action Alternative

When considered with other past, present, and reasonably foreseeable future actions (RFFAs), the proposed action alternative would not result in adverse impacts to livestock grazing. The largest impact to livestock grazing was the overgrazing that occurred prior to implementation of the TGA, FLPMA, and PRIA. Overgrazing resulted in erosion, loss of forage, and introduction of non-native invasive plants and noxious weeds. Rangeland health conditions are improving but wild burro populations over the established AML of zero are impacting availability of water and forage for wildlife and livestock.

Experience has shown that wild burro gather operations have few direct impacts to cattle grazing. Livestock located near gather activities would be temporarily disturbed or displaced by the helicopter and the increased vehicle traffic during the gather operation. Some cattle could get caught in the bait traps which could increase animal stress until they are released. Typically, livestock would move back into the area once gather operations cease (BLM 2020). Competition between livestock and wild burros for water and forage resources would be reduced as the burro numbers are reduced to AML. Under the proposed action, forage availability and quality would improve over time. Impacts from activities proposed would be potential trampling of forage from both human and animal activities around trap sites. Trampled areas might be less productive than non-trampled areas, leading to reduced rangeland health when considered with other impacts to rangeland from human-caused disturbance.

Once all gathering operations have concluded, livestock would no longer be stressed from bait trap activities. Removing excess burros and managing the population at AML of zero would eliminate competition for forage between livestock, wildlife, and burros. Water sources are limited and with the removal of burros there would be less competition for water and less grazing pressure around water sources, which could reduce impacts to springs and riparian vegetation, especially in the HMA and allotments that have been closed to permitted livestock grazing (i.e. Tassi Allotment, Pakoon Springs Allotment, and a portion of the Mosby-Nay Allotment. See

Section 3.2.1 Livestock Grazing Table 3.3). Removal of burros would reduce grazing pressure which should help improve the health of upland and riparian plant communities over time.

Livestock grazing would continue in active available grazing allotments within the greater Pakoon Basin, the GCPNM, and the Arizona Strip District. Maintenance of existing range improvements, including fences, corrals and water developments would continue. New range improvements might be planned and implemented.

Cumulative Impacts from the No Action Alternative

When considered with other past, present, and RFFAs, cumulative effects of the no action alternative would result in increased demand on forage and water from burros. Burro numbers would continue to increase, allowing over-utilization of vegetation to continue which could have a negative effect on the health of upland and riparian plant communities over time. Water resources would also continue to be over-utilized which could affect functionality of riparian resources. Over time, impacts to vegetative and water sources could affect the amount of forage and water available to authorized livestock on grazing allotments within the greater Pakoon Basin. Cumulative effects from the no action alternative would incrementally increase damage to rangeland ecosystems. With unchecked population growth and no planned gathers, rangeland resources would become degraded at an accelerated rate.

4.3.2 Soil Resources

Cumulative Impacts of the Proposed Action Alternative

The proposed action alternative, in terms of soils, would have meaningful positive cumulative effects. The corralling and burro removal proposed actions, as described in Chapter 2, would have limited direct impacts as these are short-lived operations. However, the long-term indirect impacts resulting from the absence of wild burro in the proposed area, include the re-absorption of non-used burro trails back into the landscape which would take decades. These altered soils surfaces would continue to modify precipitation run-off which would have some slight changes to terrain in terms of geomorphology. Given enough time for arid climate weather processes to occur, most traces of the burro trails would be eliminated with natural gravel surfaces and cryptobiotic soil crusts restored. Another consideration would be the absence of burro manure which frequently occurs on or next to burro trails. Whereas typical condition of soils in the region is to have lower concentrations of nutrients and organic materials, these manure piles provide a source of nutrients and organic material which alter how the soils interact with the Mojave vegetation. Wild horse manure has been shown to support germination of invasive annual plants such as cheatgrass (King et al. 2019) and the same may be true for burros. The absence of manure nutrients over time would allow for soils to gradually revert to an original nutrient state to which native vegetation patterns could adapt.

Cumulative Impacts of the No Action Alternative

The no action alternative would allow the continuation of wild burro impacts to persist and to amplify within the proposed area. Direct impacts would be proliferation of burro trails, resulting in modifying large soil surface areas creating greater soil erosion impacts from gullies to ravines. Indirect impacts over a longer duration would include soil erosion processes exposing larger portions of the underlying soils containing salinity minerals allowing for rainfall surface run-off events to be more saline in composition, then draining into the Colorado river, affecting a source

of drinking water consumption. Another indirect impact would be the ongoing soil erosion exposing the less anchored loam sediments as dust, affecting air quality. Dust levels would affect visibility for recreation, wildlife, along with health concerns from gypsiferous soils located in Gyp Hills, producing dust particulates with arsenic and selenium, denigrating air quality. Burro manure would also become common on burro trails creating an elevated source of nutrients and organic material (Appendix A, Figure A.6, Photo of burro trail). With consistent deposits of this manure, soil compositions would become altered and allow for a shift of vegetation patterns to include opportunist invasive plants.

4.3.3 Threatened, Endangered, or Candidate Animal Species

Cumulative Impacts of the Proposed Action Alternative

Cumulative impacts to desert tortoise from the proposed action when added to past, present, and reasonably foreseeable future actions include habitat damage, disturbance, injury, and fatality from recreation, particularly OHV use, as well as competition for resources from livestock grazing and burros. Since these direct effects of the proposed action are short-term (days to months) and small in scale (approximately one acre per trap site) it is not anticipated that they would add much cumulative impact to desert tortoise in the analysis area. The long-term impact is improved suitable habitat and potential increased numbers of tortoises. Removal of burros from the Pakoon Basin might reduce the risk of burro trampling and damage to relict leopard frog habitats.

Cumulative impacts to California condors from the proposed action when added to past, present, and reasonably foreseeable future actions include injury and fatality from recreation, particularly hunting. Condors have in the past and continue to be impacted by consuming carcasses with lead fragments from lead ammunition used in recreational hunting. However, there are no records of condors feeding in the project area, so this impact is likely extremely small.

Cumulative Impacts of the No Action Alternative

Cumulative impacts to desert tortoise from the no action alternative when added to past, present, and reasonably foreseeable future actions include habitat damage, disturbance, injury, and fatality from recreation, particularly OHV use, as well as competition for resources from livestock grazing and burro management. These cumulative impacts would result from the indirect impacts of not removing burros. Burro numbers would continue to increase and habitat damage, potential trampling, and competition for resources would increase, including in upland and riparian habitats. These ongoing and increased impacts to tortoise would result in reduced numbers of tortoises, reduced suitable habitat, and potential local extirpation.

There would be no cumulative impacts to California condors from the no action alternative when added to past, present, and reasonably foreseeable future actions because there are no impact to condors from this alternative.

4.3.4 Vegetation including Invasive, Non-native Plant Species

Cumulative Impacts of the Proposed Action Alternative

Cumulative impacts to vegetation in the Tassi-Gold Butte HMA and greater Pakoon Basin area include livestock grazing, wild burro grazing, disturbance from OHV recreation and creation of new routes. Cumulative impacts from the proposed action would result in a lower level of impact

to vegetation as removal of the wild burros would decrease impacts on these resources. Invasive non-native plant and noxious weed management within the analysis area is ongoing.

When considered with other past, present, and RFFAs, cumulative effects of the proposed action alternative could add to vegetation damage and invasion of invasive species in bait trap and holding areas. Increased off-highway vehicle use has reduced habitat quality and increased invasive species. Monitoring for invasive non-native plants and noxious weeds and treatment would continue as necessary. Removing excess burros and managing the HMA and greater Pakoon Basin at the AML of zero would reduce foraging impacts to vegetation, minimizing impact from hoof activity and reduce compaction to soils. Removing burros would remove pressure off vegetative reproduction by limiting overgrazing and leaving individual plants with reproductive capabilities. While livestock grazing would continue in permitted allotments, there would be no increase in livestock numbers due to a decrease in burro numbers. Allotments that are closed to livestock grazing would continue to remain closed regardless of burro numbers.

The cumulative effects of the proposed action alternative would have a potentially beneficial effect on long-term management goals to maintain rangeland health. Removing burros to the AML of zero would minimize trailing as well as reduce the probability of invasive species being transported to new locations.

Cumulative Impacts of the No Action Alternative
Cumulative impacts from the no action alternative would result in higher overall and sustained disturbance to vegetation, as not removing the burros would result in a herd that would continue to increase in number and contribute to impacts on vegetation, invasive non-native plants, and noxious weeds in the Tassi-Gold Butte HMA and greater Pakoon Basin.

When considered with other past, present, and RFFAs, cumulative effects of the no action alternative would result in reduced habitat as overgrazing, trailing, and trampling would continue to occur in high-populated burro areas. The cumulative effects from the no action alternative would continue to increase damage to soil resources. Vegetation would continue to be degraded by overgrazing, reducing forage and habitat value for all native species. Riparian vegetation would be at great risk, as high use would continue, which eventually could lead to negative impacts to water resources.

4.3.5 Wetlands and Riparian Zones

Cumulative Impacts of the Proposed Action Alternative
Since there are no anticipated adverse direct impacts from the proposed action there would be no cumulative negative impacts added to the impacts of past, present, and reasonably foreseeable future actions. Long-term improvements to wetland and riparian function could be expected if the absence of burro trampling leads to improved soil structure conditions nearby.

Cumulative Impacts of the No Action Alternative
Cumulative impacts to riparian zones from the no action alternative when added to past, present, and reasonably foreseeable future actions include damage to vegetation and soils from livestock grazing and burro management. These cumulative impacts would result from the indirect impacts

of not removing burros. Burro numbers would continue to increase and damage to wetlands and riparian areas would continue and increase over time.

4.3.6 Wilderness including Proposed Wilderness

Cumulative Impacts of the Proposed Action Alternative

Cumulative impacts to wilderness and proposed wilderness from the proposed action when added to past, present, and reasonably foreseeable future actions include a short-term ephemeral impact to the opportunities for solitude or primitive and unconfined recreation quality from survey and gather operations in addition to other activities in the wilderness by other uses such as grazing and other authorized users.

The basic vegetative structure in the wilderness areas has been altered by past land practices including grazing and restoration efforts. Grazing, compatible with the Wilderness Act, continues in the Grand Wash Cliffs Wilderness section of the project area. Viewpoints, and hunting and camping opportunities in the wilderness areas continue to draw recreationists. Other foreseeable activities include emergency wildfire related protection of cultural resources and facilities. These combined with the proposed action would assist in returning the vegetative communities to their potential natural community thus helping to keep the natural component of wilderness intact.

Cumulative Impacts of the No Action Alternative

Cumulative impacts to wilderness from the no action alternative when added to past, present, and reasonably foreseeable future actions include habitat damage and disturbance from recreation, as well as competition for resources from livestock grazing and burro management. These cumulative impacts would result from the indirect impacts of not removing burros. Burro numbers would continue to increase and damage habitat, potential trampling, and competition for resources would increase thus affecting the natural quality of wilderness character.

4.3.7 Areas Managed to Maintain Wilderness Characteristics (WCA)

Cumulative Impacts of the Proposed Action Alternative

Past, present, and reasonably foreseeable impacts to areas managed to maintain wilderness characteristics include livestock grazing, hunting, sightseeing, and OHV tours. The impacts of these associated activities can affect naturalness, and opportunities for solitude or primitive and unconfined recreation within the project area. The effects to solitude and primitive unconfined recreation have been generally short-term, while naturalness has been impacted for a greater length of time due to the longer lasting effects of grazing (the presence of fences, corrals, etc.), although these activities did not affect the ability of BLM to identify and manage for wilderness characteristics. Livestock grazing is expected to continue in the project area, and recreation (particularly OHV use) is expected to increase as local and regional communities grow. When considered in conjunction with these other activities the proposed action would not add to any decline of naturalness but would decrease a different aspect of solitude than grazing by short term localized introduction of non-natural sound. This alternative would not substantially impact recreation opportunities or settings of areas managed to maintain wilderness characteristics, even when considered cumulatively with the impacts of other past, present, and reasonably foreseeable future actions.

Cumulative Impacts from the No Action Alternative
Burros and wildfires could affect the naturalness of the landscape and require greater management actions to restore the native landscape in the future. However, this alternative would not substantially impact recreation opportunities or settings of areas managed to maintain wilderness characteristics, even when considered cumulatively with the impacts of other past, present, and reasonably foreseeable future actions.

4.3.8 Wild Burros

Cumulative Impacts of the Proposed Action Alternative
The past actions which have influenced today's wild burro populations are primarily gathers, with the last one having taken place in 2019, when 40 wild burros were removed from the HMA. Funding did not allow the BLM to remove more burros at that time. The result being there were still an estimated 48 burros in the HMA and as many as 55 burros in the greater Pakoon Basin. To achieve and maintain the established AML of zero burros within the Tassi-Gold Butte HMA and greater Pakoon Basin, wild burro gathers, and removals would still be necessary for the foreseeable future, or until the herd size is brought to a level of zero. Frequency of the gathers would depend on the wild burro population at that time. Currently, burro populations are growing and are expected to continue to grow at the 15% annual rate range wide. Even with a 100% gather within the project area, burros from Nevada are expected to continue to enter the Monument, since there are no fences to prevent their movement, and would require maintenance gathers into the future to protect resources. Future actions would include maintenance gathers about every 3-4 years to remove excess wild burros in order to maintain the established AML of zero. Population inventories and routine resource/habitat monitoring would be completed between gathers to document current population levels, growth rates, and area of continued resource concern (burro concentrations, riparian impacts, etc.) prior to any follow up gather.

Cumulative impacts to wild burros from the proposed action alternative would be beneficial in the long term. Gathering and adopting the burros would be initially stressful in the short term in the project area. Excess wild burros gathered and removed from the Tassi-Gold Butte HMA in Arizona would be placed into the BLM Adoption Program.

Wild burros would continue to be wild and free roaming in the neighboring Gold Butte HMA in Nevada.

Cumulative Impacts of the No Action Alternative
Under the no action alternative, wild burros would not be removed, the wild burro population within the HMA could reach 190 burros by 2029, see Table 1.1. The population of burros in the greater Pakoon Basin outside of the HMA could reach 253 in 2029, Table 1.2. AML of zero would not be achieved. Continued and expanded movement outside the HMA would be expected as greater numbers of burros search for food and water for survival, thus impacting larger areas of public lands as wild burros search for forage and water. Past wild burro management (or lack thereof) has contributed to the wide distribution and abundance of wild burros throughout the greater Pakoon Basin. As wild burro populations continue to increase within and outside the HMA, rangeland degradation would likely increase on public lands. As wild burro populations increase, conflicts with private landowners would increase. There is a private land inclusion within the Tassi-Gold Butte HMA. In the past there have been requests by the landowner for

nuisance burro removal. Burros have been negatively impacting springs on private land. Impacts of the no action alternative include foregoing the opportunity to improve rangeland health.

4.3.9 Wildlife (including sensitive species and migratory birds)

Cumulative Impacts of the Proposed Action Alternative

Cumulative impacts to migratory birds, sensitive species, and wildlife from the proposed action when added to past, present, and reasonably foreseeable future actions include habitat damage, disturbance, injury, and fatality from recreation, particularly OHV use, as well as competition for resources from livestock grazing and burro management. Since these direct effects of the proposed action are short-term and small in scale it is not anticipated that they would add much cumulative impact to wildlife in the analysis area.

Cumulative Impacts of the No Action Alternative

Cumulative impacts to wildlife from the no action alternative when added to past, present, and reasonably foreseeable future actions include habitat damage, disturbance, injury, and fatality from recreation, particularly OHV use, as well as competition for resources from livestock grazing and burro management. These cumulative impacts would result from the indirect impacts of not removing burros. Burro numbers would continue to increase and habitat damage, potential trampling, and competition for resources would increase.

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 Tribal Consultation

The BLM and NPS consults with federally recognized tribes before making decisions or undertaking activities that would influence federally recognized tribes, their assets, rights, services, or programs. GCPNM contacted the tribes listed below as part of the formal Tribal consultation process, which was initiated on July 8, 2024. No Tribal response has been received as of July 30, 2024.

Tribal entities consulted with include:

- Chemehuevi Indian Tribe
- Colorado River Indian Tribe
- Havasupai Indian Tribe
- Hualapai Indian Tribe
- Kaibab Band of Paiute Indians
- Las Vegas Paiute Tribe
- Moapa Band of Paiute Indians
- Navajo Nation
- Paiute Indian Tribe of Utah
- San Juan Southern Paiute Tribe
- The Hopi Tribe
- The Pueblo of Zuni

5.3 U.S. Fish and Wildlife Service Consultation

Consultation under Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) is ongoing.

5.4 Public Participation

A Notice of Public Comment Period letter announced that the draft EA was available for review and comment for a 30-day public comment period from August 9 through September 9, 2024.

5.5 List of Preparers and Reviewers

Table 5.1 List of BLM and NPS Preparers and Reviewers

Name	Title	Responsible for the Following Program(s)
Brandon Boshell	Monument Manager	Authorizing Officer
Ben Roberts	Superintendent	Authorizing Officer
Gloria Benson	Tribal Liaison	Native American Religious Concerns
Pam Blackmore	GIS Specialist	Geospatial
Jannice Cutler	Rangeland Management Specialist	Project Lead, Wild Horse and Burro/Livestock Grazing/ Vegetation/Invasive Non-Native Plants
Jennifer Fox	Ecologist	NEPA Compliance/Special Status Plants/Wilderness
Joseph Mizer	Fire Management Officer	Fire/Fuels
Eathan McIntyre	Physical Scientist	Minerals/Soil/Water/Air
Greg Page	Outdoor Recreation Planner	Recreation/Wilderness/VRM
Kendra Thomas	Realty Specialist	Lands/Realty
David van Alfen	Archaeologist	Cultural Resources
Jeff Young	Wildlife Biologist	Wildlife/T&E Animals
John Hall	Arizona State BLM Wild Horse and Burro Program Lead	Wild Horse and Burro Program
Paul Griffin	Wild Horse and Burro Specialist	Wild Horse and Burro Program
Chad Hunter	Wild Horse and Burro Specialist	Wild Horse and Burro Program
Zachary Siegert	Planning & Environmental Coordinator	Wild Horse and Burro Program
Amy McGowan	Arizona State BLM Planning and Environmental Coordinator	NEPA Compliance
Danette Woo Nolan	NPS Regional Planning and Environmental Coordinator	NEPA Compliance
Nicholas Mitrovich	NPS Environmental Protection Specialist	NEPA Compliance
Sarah Kilinger	NPS Regional Section 106 Coordinator	Cultural Resources
Erik Frenzel	NPS Regional Wilderness Coordinator	Wilderness
Katy Delaney	NPS Regional Wildlife Biologist (acting)	Wildlife
Neal Darby	Wildlife Biologist	Desert Tortoise

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Appendix A. Maps and Photos

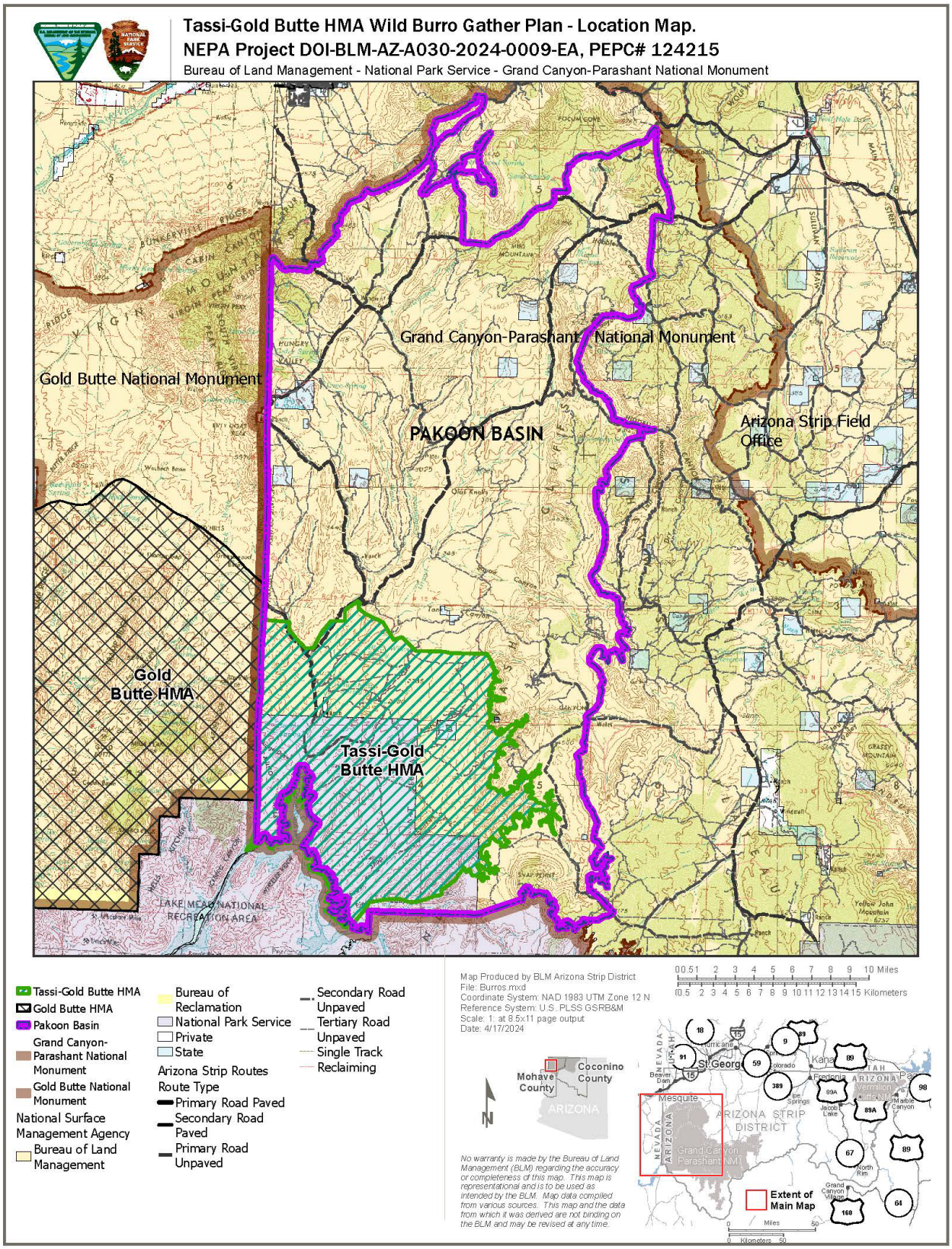

Figure A.1. Location Map

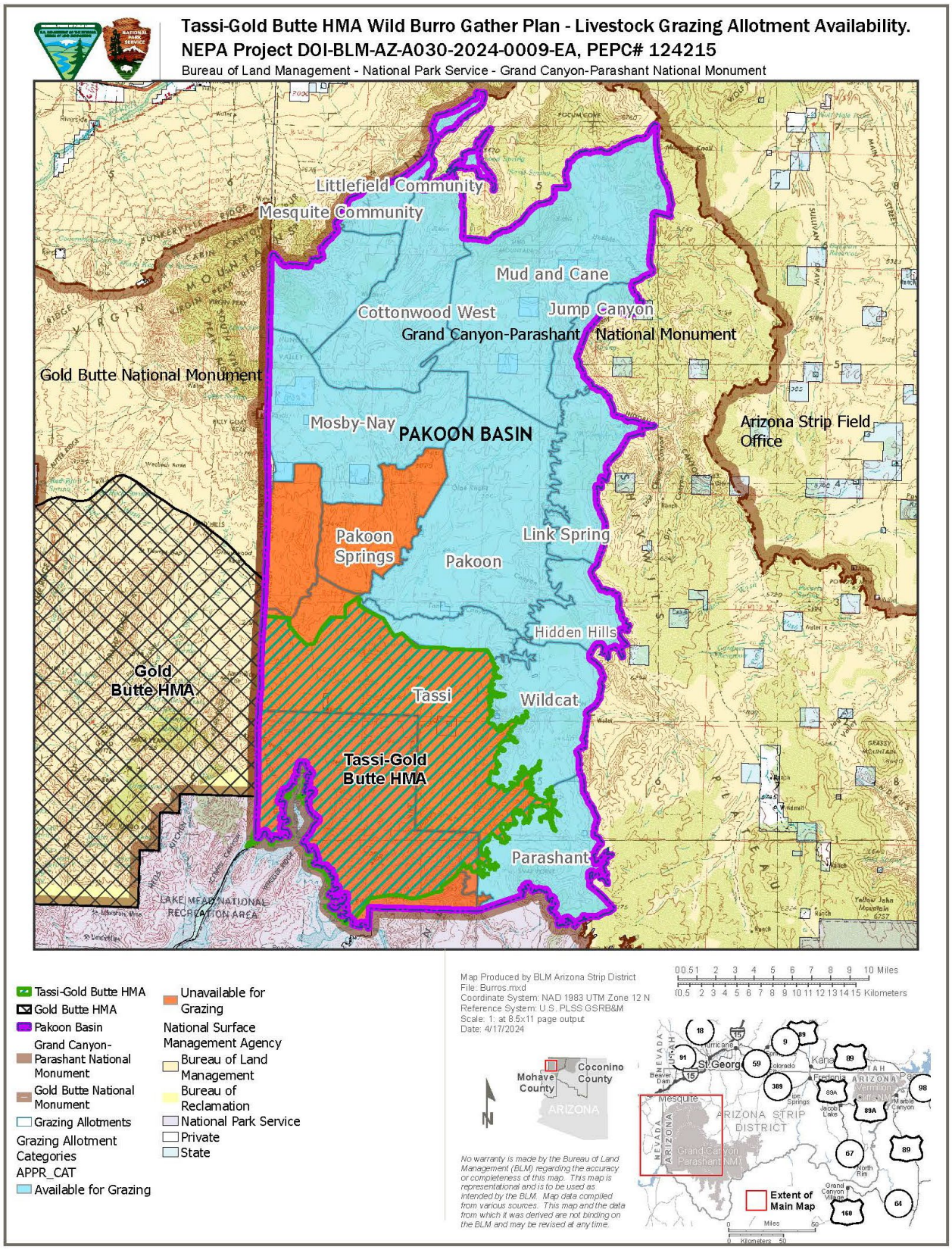

Figure A.2. Livestock Grazing Allotment Availability

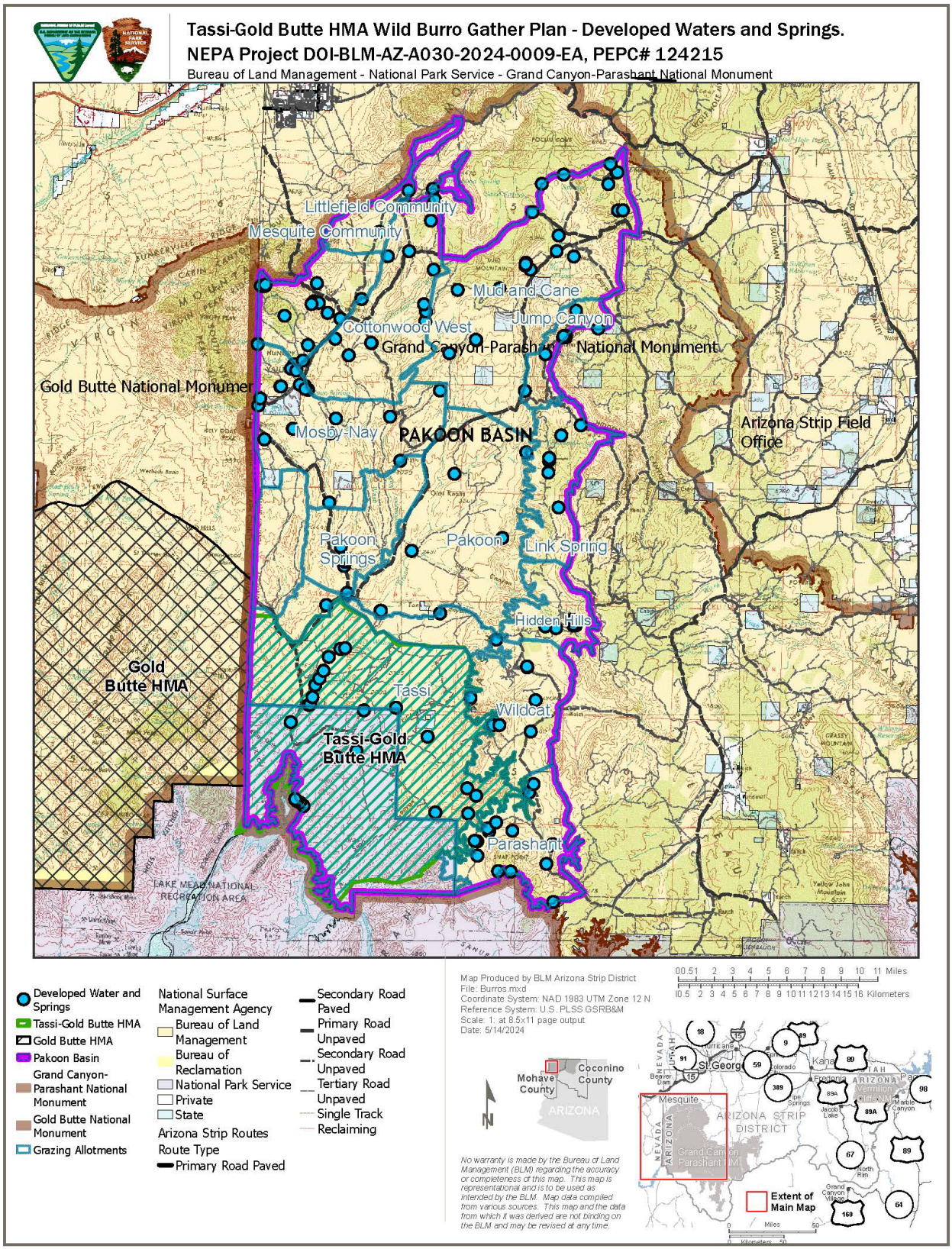

Figure A.3. Developed Waters and Springs

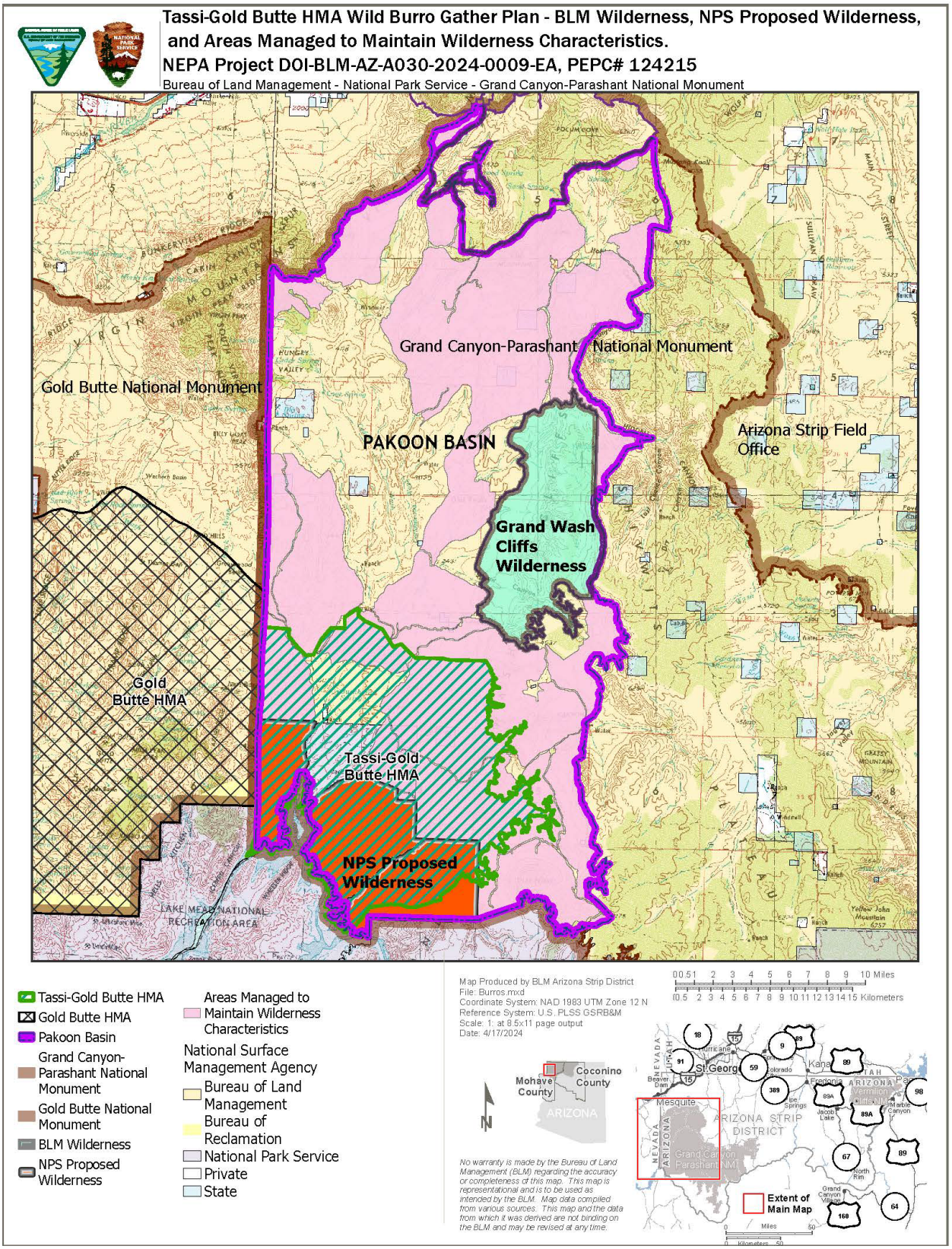

Figure A.4. BLM Wilderness, NPS Proposed Wilderness, and Areas Managed to Maintain Wilderness Characteristics

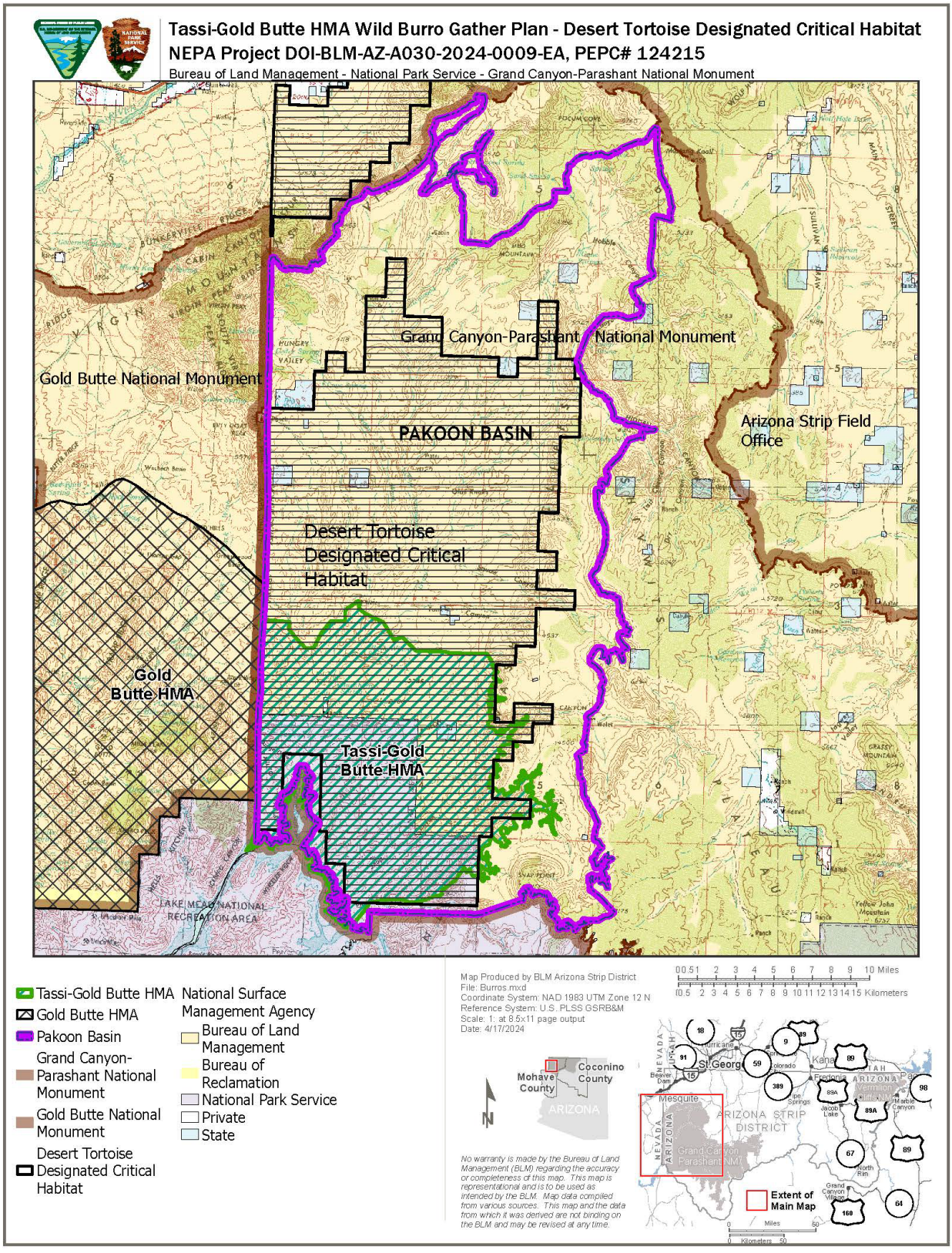

Figure A.5. Desert Tortoise Designated Critical Habitat

Figure A.6. Wild burro trail between Grapevine Spring and Buckhorn Spring (NPS Photo). This area is closed to livestock grazing.

Figure A.7. Wild burro chewing damage to Pakoon Springs Trailhead fence (BLM Photo). This area is closed to livestock grazing.

Figure A.8. Wild burros at an old waterhole near Pakoon Springs (BLM Photo). This area is closed to livestock grazing.

Appendix B. Gather Operations Standard Operating Procedures/Comprehensive Animal Welfare Program (PIM 2021-002)

Gathers would be conducted by utilizing contractors from one of the national wild horse and burro gather contracts, or BLM personnel. The following procedures for gathering and handling wild horses would apply whether a contractor or BLM personnel conduct a gather. For helicopter gathers conducted by BLM personnel, gather operations will be conducted in conformance with the *Wild Horse Aviation Management Handbook* (January 2009).

Prior to any gathering operation, the BLM will provide a pre-gather evaluation of existing conditions in the gather area(s). The evaluation will include animal conditions, prevailing temperatures, drought conditions, soil conditions, road conditions, and a topographic map with wilderness boundaries, the location of fences, other physical barriers, and acceptable trap locations in relation to animal distribution. The evaluation will determine whether the proposed activities will necessitate the presence of a veterinarian during operations. If it is determined that a large number of animals might need to be euthanized or gather operations could be facilitated by a veterinarian, these services would be arranged before the gather would proceed. The contractor will be apprised of all conditions and will be given instructions regarding the gather and handling of animals to ensure their health and welfare is protected.

Trap sites and temporary holding sites will be located to reduce the likelihood of injury and stress to the animals, and to minimize potential damage to the natural resources of the area. These sites would be located on or near existing roads whenever possible.

The primary gather methods used in the performance of gather operations include:
1. Helicopter Drive Trapping. This gather method involves utilizing a helicopter to herd wild horses into a temporary trap.

2. Helicopter Assisted Roping. This gather method involves utilizing a helicopter to herd wild horses or burros to ropers.

3. Bait Trapping. This gather method involves utilizing bait (e.g., water or feed) to lure wild horses into a temporary trap.

The following procedures and stipulations will be followed to ensure the welfare, safety and humane treatment of wild horses in accordance with the provisions of 43 CFR 4700.

Helicopter Gather Methods used in the Performance of Gather Contract Operations

The primary concern of the contractor is the safe and humane handling of all animals gathered.

All gather attempts shall incorporate the following:

1. All trap and holding facilities locations must be approved by the Contracting Officer's Representative (COR) and/or the Project Inspector (PI) prior to construction. All trap and holding facilities locations must be approved by the LCOR/COR/PI prior to construction. The

Contractor might also be required to change or move trap locations as determined by the LCOR/COR/PI. LCOR/COR/PI will determine when capture objectives are met. All traps and holding facilities not located on public land must have prior written approval of the landowner that will be provided to the LCOR prior to use. Selection of all traps and holding sites will include consideration for public and media observation.

2. The rate of movement and distance the animals travel must not exceed limitations set by the LCOR/COR/PI who will consider terrain, physical barriers, access limitations, weather, condition of the animals, urgency of the operation (animals facing drought, starvation, fire, etc.) and other factors. The trap site shall be moved close to WH&B locations whenever possible to minimize the distance the animals need to travel.

3. All traps, wings, and holding facilities shall be constructed, maintained and operated to handle the animals in a safe and humane manner and be in accordance with the following:

a. When moving the animals from one pasture/allotment to another pasture/allotment, the fencing wire needs to be let down for a distance that is approved by the LCOR on either side of the gate or crossing.

b. If jute is hung on the fence posts of an existing wire fence in the trap wing, the wire should either be rolled up or let down for the entire length of the jute in such a way that minimizes the possibility of entanglement by WH&Bs unless otherwise approved by the LCOR/COR/PI. No modification of existing fences will be made without authorization from the LCOR/COR/PI. The Contractor shall be responsible for restoration of any fence modification which they have made.

c. Building a trail using domestic horses through the fence line, crossing or gate may be necessary to avoid animals hitting the fence.

d. The trap site and temporary holding facility must be constructed of stout materials and must be maintained in proper working condition. Traps and holding facilities shall be constructed of portable panels, the top of which shall not be less than 72 inches high for horses and 60 inches for burros, and the bottom rail of which shall not be more than 12 inches from ground level. All traps and holding facilities shall be oval or round in design with rounded corners.

e. All portable loading chute sides shall be a minimum of 6 feet high and shall be fully covered on the sides with plywood, or metal without holes.

f. All alleyways that lead to the fly chute or sorting area shall be a minimum of 30 feet long and a minimum of 6 feet high for horses, and 5 feet high for burros and the bottom rail must not be more than 12 inches from ground level. All gates and panels in the animal holding and handling pens and alleys of the trap site must be covered with plywood, burlap, plastic snow fence or like material approximately 48” in height to provide a visual barrier for the animals. All materials shall be secured in place. These guidelines apply:

i. For exterior fences, material covering panels and gates must extend from the top of the panel or gate toward the ground.

ii. For alleys and small internal handling pens, material covering panels and gates shall extend from no more than 12 inches below the top of the panel or gate toward the ground to facilitate visibility of animals and the use of flags and paddles during sorting.

iii. The initial capture pen may be left uncovered as necessary to encourage animals to enter the first pen of the trap.

iv. Padding must be installed on the overhead bars of all gates used in single file ally.

v. An appropriate chute designed for restraining WH&B's must be available for necessary procedures at the temporary holding facility. The government furnished portable fly chute to restrain, age, or provide additional care for the animals shall be placed in the alleyway in a manner as instructed by or in concurrence with the LCOR/COR/PI.

vi. There must be no holes, gaps or openings, protruding surfaces, or sharp edges present in fence panels, latches**,** or other structures that may cause escape or possible injury.

vii. Hinged, self-latching gates must be used in all pens and alleys except for entry gates into the trap, which may be secured with tie ropes or chains.

viii. When dust conditions occur within or adjacent to the trap or holding facility, the Contractor shall be required to wet down the ground with water.

All animals gathered shall be sorted into holding pens as to age, size, temperament, sex, condition, and whether animals are identified for removal as excess or retained in the HMA. These holding pens shall be of sufficient size to minimize, to the extent possible, injury due to fighting and trampling as well as to allow animals to move easily and have adequate access to water and feed. All pens will be capable of expansion on request of the LCOR/COR/PI. Alternate pens, within the holding facility shall be furnished by the Contractor to separate mares or Jennies with small foals, sick and injured animals, and private animals from the other animals. Under normal conditions, the BLM will require that animals be restrained to determine an animal's age, sex, and ownership. In other situations restraint may be required to conduct other procedures such as veterinary treatments, restraint for fertility control vaccinations, castration, spaying, branding, blood draw, collection of hair samples for genetic monitoring, testing for equine diseases, and any application of GPS collars and radio tags (if called for). In these instances, a portable restraining chute may be necessary and will be provided by the government. Alternate pens shall be furnished by the Contractor to hold animals if the specific gathering requires that animals be released back into the capture area(s) following selective removal and/or population suppression treatments. In areas requiring one or more satellite traps, and where a centralized holding facility is utilized, the contractor may be required to provide additional holding pens to segregate animals transported from remote locations so they may be returned to their traditional ranges. Either segregation or temporary marking and later segregation will be at the discretion of the LCOR/COR/PI. The LCOR will determine if the corral size needs to be expanded due to horses staying longer, large.

FEEDING AND WATERING

a. Adult WH&Bs held in traps or temporary holding pens for longer than 12 hours must be fed every morning and evening and provided with drinking water at all times other than when animals are being sorted or worked.

b. Dependent foals must be reunited with their mares/jennies at the temporary holding facility within four hours of capture unless the LCOR/COR/PI authorizes a longer time or foals are old

enough to be weaned. If a nursing foal is held in temporary holding pens for longer than 4 hours without their dams, it must be provided with water and good quality weed seed free hay.

c. Water must be provided at a minimum rate of 10 gallons per 1,000 pound animal per day, adjusted accordingly for larger or smaller horses, burros and foals, and environmental conditions, with each trough placed in a separate location of the pen (i.e. troughs at opposite ends of the pen) with a minimum of one trough per 30 horses. Water must be refilled at least every morning and evening when necessary.

d. Good quality weed seed free hay must be fed at a minimum rate of 20 pounds per 1,000 pound adult animal per day, adjusted accordingly for larger or smaller horses, burros and foals.

1. Hay must not contain poisonous weeds or toxic substances.
2. Hay placement must allow all WH&B's to eat simultaneously.

e. When water or feed deprivation conditions exist on the range prior to the gather, the LCOR/COR/PI shall adjust the watering and feeding arrangements in consultation with the onsite veterinarian as necessary to provide for the needs of the animals to avoid any toxicity concerns.

TRAP SITE

A dependent foal or weak/debilitated animal must be separated from other WH&Bs at the trap site to avoid injuries during transportation to the temporary holding facility. Separation of dependent foals from mares / jennies must not exceed four hours unless the LCOR/COR/PI authorizes a longer time or the decision is made to wean the foals.

TEMPORARY HOLDING FACILITY

a. All WH&B's in confinement must be observed at least twice daily during feeding time to identify sick or injured WH&Bs and ensure adequate food and water.

b. Non-ambulatory WH&B's must be located in a pen separate from the general population and must be examined by the LCOR/COR/PI and/or on-call or on-site veterinarian no more than 4 hours after recumbency (lying down) is observed. Unless otherwise directed by a veterinarian, hay and water must be accessible to an animal within six hours after recumbency.

c. Alternate pens must be made available for the following:

1. WH&Bs that are weak or debilitated
2. Mares/jennies with dependent foals
3. Aggressive WH&B's that could cause serious injury to other animals.

d. WH&B's in pens at the temporary holding facility shall be maintained at a proper stocking density such that when at rest all WH&B's occupy no more than half the pen area.

e. It is the responsibility of the Contractor to provide security to prevent loss, injury or death of captured animals until delivery to final destination.

f. It is the responsibility of the Contractor to provide for the safety of the animals and personnel working at the trap locations and temporary holding corrals in consultation with the LCOR/COR/PI. This responsibility will not be used to exclude or limit public and media observation as long as current BLM policies are followed.

g. The contractor will ensure that non-essential personnel and equipment are located as to minimize disturbance of WH&Bs. Trash, debris, and reflective or noisy objects shall be eliminated from the trap site and temporary holding facility.

h. The Contractor shall restrain sick or injured animals if treatment is necessary in consultation with the LCOR/COR/PI and/or onsite veterinarian. The LCOR/COR/PI and/or onsite veterinarian will determine if injured animals must be euthanized and provide for the euthanasia of such animals. The Contractor may be required to humanely euthanize animals in the field and to dispose of the carcasses as directed by the LCOR/COR/PI, at no additional cost to the Government.

i. Once the animal has been determined by the LCOR/COR/PI to be removed from the HMA/HA, animals shall be transported to final destination from temporary holding facilities within 48 hours after capture unless prior approval is granted by the LCOR/COR/PI. Animals to be released back into the HMA following gather operations will be held for a specified length of time as stated in the Task Order/SOW. The Contractor shall schedule shipments of animals to arrive at final destination between 7:00 a.m. and 4:00 p.m. unless prior approval has been obtained by the LCOR. No shipments shall be scheduled to arrive at final destination on Sunday and Federal holidays, unless prior approval has been obtained by the LCOR. Animals shall not be allowed to remain standing on gooseneck or semi-trailers while not in transport for a combined period of greater than three (3) hours. Total planned transportation time from the temporary holding to the BLM facility will not exceed 10 hours. Animals that are to be released back into the capture area may need to be transported back to the original trap site per direction of the LCOR.

CAPTURE METHODS THAT MAY BE USED IN THE PERFORMANCE OF A GATHER

Helicopter Drive Trapping

a. The helicopter must be operated using pressure and release methods to herd the animals in a desired direction and shall not repeatedly evoke erratic behavior in the WH&B's causing injury or exhaustion. Animals must not be pursued to a point of exhaustion; the on-site veterinarian must examine WH&B's for signs of exhaustion.

b. The rate of movement and distance the animals travel must not exceed limitations set by the LCOR/COR/PI who will consider terrain, physical barriers, access limitations, weather, condition of the animals, urgency of the operation (animals facing drought, starvation, fire, etc.) and other factors.

i. WH&B's that are weak or debilitated must be identified by BLM staff or the contractors. Appropriate gather and handling methods shall be used according to the direction of the LCOR/COR/PI as defined in this contract.

ii. The appropriate herding distance and rate of movement must be determined the LCOR/COR/PI on a case-by-case basis considering the weakest or smallest animal in the group (e.g., foals, pregnant mares, or horses that are weakened by body condition, age, or poor health) and the range and environmental conditions present.

iii. Rate of movement and distance travelled must not result in exhaustion at the trap site, unless the exhausted animals were already in a severely compromised condition prior to the gather. Where compromised animals cannot be left on the range or where doing so would only serve to prolong their suffering, the LCOR/COR/PI will determine if euthanasia will be performed in accordance with BLM policy.

c. WH&B's must not be pursued repeatedly by the helicopter such that the rate of movement and distance travelled exceeds the limitation set by the LCOR/COR/PI. Abandoning the pursuit or alternative capture methods may be considered by the LCOR/COR/PI in these cases.

d. The helicopter is prohibited from coming into physical contact with any WH&B regardless of whether the contact is accidental or deliberate.

e. WH&B's may escape or evade the gather site while being moved by the helicopter. If there are mare/dependent foal pairs in a group being brought to a trap and half of an identified pair is thought to have evaded capture, multiple attempts by helicopter may be used to bring the missing half of the pair to the trap or to facilitate capture by roping. In these instances, animal condition and fatigue will be evaluated by the LCOR/COR/PI or on-site veterinarian on a case-by-case basis to determine the number of attempts that can be made to capture an animal.

f. Horse captures must not be conducted when ambient temperature at the trap site is below 10ºF or above 95ºF without approval of the LCOR/COR/PI. Burro captures must not be conducted when ambient temperature is below 10ºF or above 100ºF without approval of the LCOR/COR/PI. The LCOR/COR/PI will not approve captures when the ambient temperature exceeds 105 ºF.

g. The contractor shall assure that dependent foals shall not be left behind. Any animals identified as such will be recovered as a priority in completing the gather.

h. Any adult horse or burro that cannot make it to the trap due to physical limitations shall be identified to the LCOR/COR/PI by the pilot or contractor immediately. An inspection of the animal will be made to determine the problem and the LCOR/COR/PI and/or veterinarian will decide if that animal needs to be humanely euthanized.

ROPING

a. The roping of any WH&B must be approved by the LCOR/COR/PI prior to the action.

b. The roping of any WH&B will be documented by the LCOR/COR/PI along with the circumstances. WH&Bs may be roped under circumstances which include but are not limited to

the following: reunite a mare or jenny and her dependent foal; capture nuisance, injured or sick WH&Bs or those that require euthanasia; environmental reasons such as deep snow or traps that cannot be set up due to location or environmental sensitivity; and public and animal safety or legal mandates for removal.

c. Ropers should dally the rope to their saddle horn such that animals can gradually be brought to a stop and must not tie the rope hard and fast to the saddle, which can cause the animals to be jerked off their feet.

d. WH&Bs that are roped and tied down in recumbency must be continuously observed and monitored by an attendant at a maximum of 100 feet from the animal.

e. WH&Bs that are roped and tied down in recumbency must be untied within 30 minutes.

f. If the animal is tied down within the wings of the trap, helicopter drive trapping within the wings will cease until the tied-down animal is removed.

g. Sleds, slide boards, or slip sheets must be placed underneath the animal's body to move and/or load recumbent WH&Bs.

h. Halters and ropes tied to a WH&B may be used to roll, turn, and position or load a recumbent animal, but a WH&B must not be dragged across the ground by a halter or rope attached to its body while in a recumbent position.

i. All animals captured by roping must be marked at the trap site by the contractor for evaluation by the on-site/on-call veterinarian within four hours after capture, and re-evaluation periodically as deemed necessary by the on-site/on-call veterinarian.

HANDLING

Willful Acts of Abuse
The following are prohibited:
a. Hitting, kicking, striking, or beating any WH&B in an abusive manner.

b. Dragging a recumbent WH&B across the ground without a sled, slide board or slip sheet. Ropes used for moving the recumbent animal must be attached to the sled, slide board or slip sheet unless being loaded as specified in Section C 9.2.h

c. Deliberate driving of WH&Bs into other animals, closed gates, panels, or other equipment.

d. Deliberate slamming of gates and doors on WH&Bs.

e. Excessive noise (e.g., constant yelling) or sudden activity causing WH&Bs to become unnecessarily flighty, disturbed or agitated.

General Handling

a. All sorting, loading or unloading of WH&Bs during gathers must be performed during daylight hours except when unforeseen circumstances develop and the LCOR/COR/PI approves the use of supplemental light.

b. WH&Bs should be handled to enter runways or chutes in a forward direction.

c. WH&Bs should not remain in single-file alleyways, runways, or chutes longer than 30 minutes.

d. With the exception of helicopters, equipment should be operated in a manner to minimize flighty behavior and injury to WH&Bs.

Handling Aids
a. Handling aids such as flags and shaker paddles are the primary tools for driving and moving WH&Bs during handling and transport procedures. Contact of the flag or paddle end with a WH&B is allowed. Ropes looped around the hindquarters may be used from horseback or on foot to assist in moving an animal forward or during loading.

b. Routine use of electric prods as a driving aid or handling tool is prohibited. Electric prods may be used in limited circumstances only if the following guidelines are followed:

1. Electric prods must only be a commercially available make and model that uses DC battery power and batteries should be fully charged at all times.
2. The electric prod device must never be disguised or concealed.
3. Electric prods must only be used after three attempts using other handling aids (flag, shaker paddle, voice or body position) have been tried unsuccessfully to move the WH&Bs.
4. Electric prods must only be picked up when intended to deliver a stimulus; these devices must not be constantly carried by the handlers.
5. Space in front of an animal must be available to move the WH&B forward prior to application of the electric prod.
6. Electric prods must never be applied to the face, genitals, anus, or underside of the tail of a WH&B.
7. Electric prods must not be applied to any one WH&B more than three times during a procedure (e.g., sorting, loading) except in extreme cases with approval of the LCOR/COR/PI. Each exception must be approved at the time by the LCOR/COR/PI.
8. Any electric prod use that may be necessary must be documented daily by the LCOR/COR/PI including time of day, circumstances, handler, location (trap site or temporary holding facility), and any injuries (to WH&B or human)

MOTORIZED EQUIPMENT

Loading and Unloading Areas
a. Facilities in areas for loading and unloading WH&B's at the trap site or temporary holding facility must be maintained in a safe and proper working condition, including gates that swing freely and latch or tie easily.

b. The side panels of the loading chute must be a minimum of 6 feet high and fully covered with materials such as plywood or metal without holes that may cause injury.

c. There must be no holes, gaps or openings, protruding surfaces, or sharp edges present in fence panels or other structures that may cause escape or possible injury.

d. All gates and doors must open and close properly and latch securely.

e. Loading and unloading ramps must have a non-slip surface and be maintained in a safe and proper working condition to prevent slips and falls**.** Examples of non-slip flooring would include, but not be limited to, rubber mats, sand, shavings, and steel reinforcement rods built into ramp. There must be no holes in the flooring or items that can cause an animal to trip.

f. Trailers must be properly aligned with loading and unloading chutes and panels such that no gaps exist between the chute/panel and floor or sides of the trailer creating a situation where a WH&B could injure itself.

g. Stock trailers shall be positioned for loading or unloading such that there is no more than 12" clearance between the ground and floor of the trailer for burros and 18" for horses. . If animals refuse to load, it may be necessary to dig a tire track hole where the trailer level is closer to ground level.

TRANSPORTATION

A. General

1. All sorting, loading, or unloading of WH&Bs during gathers must be performed during daylight hours except when unforeseen circumstances develop and the LCOR/COR/PI approves the use of supplemental light.

2. WH&Bs identified for removal should be shipped from the temporary holding facility to a BLM facility within 48 hours.

3. Shipping delays for animals that are being held for release to range or potential on-site adoption must be approved by the LCOR/COR/PI.

4. Shipping should occur in the following order of priority; 1) debilitated animals, 2) pairs, 3) weanlings, 4) dry mares and 5) studs.

5. Total planned transport time to the BLM preparation facility from the trap site or temporary holding facility must not exceed 10 hours.

6. WH&Bs should not wait in stock trailers and/or semi-trailers at a standstill for more than a combined period of three hours during the entire journey.

B. Vehicles

1. All motorized equipment employed in the transportation of captured animals shall be in compliance with appropriate State and Federal laws and regulations applicable to the humane transportation of animals. The Contractor shall provide the CO annually, with a current safety inspection (less than one year old) for all motorized equipment and tractor-trailers used to transport animals to final destination.

2. Only tractor-trailers or stock trailers with a covered top or overhead bars shall be allowed for transporting animals from trap site(s) to temporary holding facilities, and from temporary holding facilities to final destination(s). Sides or stock racks of all trailers used for transporting animals shall be a minimum height of 6 feet 6 inches from the floor. Single deck tractor-trailers 40 feet or longer shall have two (2) partition gates providing three (3) compartments within the trailer to separate animals. Tractor-trailers less than 40 feet shall have at least one partition gate providing two (2) compartments within the trailer to separate the animals. Compartments in all tractor-trailers shall be of equal size plus or minus 10 percent. Each partition shall be a minimum of 6 feet high and shall have a minimum 5 foot wide swinging gate. The use of double deck tractor-trailers is prohibited. Only straight deck trailers and stock trailers are to be used for transporting WH&B's.

3. WH&B's must have adequate headroom during loading and unloading and must be able to maintain a normal posture with all four feet on the floor during transport without contacting the roof or overhead bars.

4. The width and height of all gates and doors must allow WH&B's to move through freely.

5. All gates and doors must open and close easily and be able to be secured in a closed position.

6. The rear door(s) of stock trailers must be capable of opening the full width of the trailer.

7. Loading and unloading ramps must have a non-slip surface and be maintained in proper working condition to prevent slips and falls.

8. All partitions and panels inside of trailers must be free of sharp edges or holes that could cause injury to WH&B's.

9. The inner lining of all trailers must be strong enough to withstand failure by kicking that would lead to injuries.

10. Partition gates in transport vehicles shall be used to distribute the load into compartments during travel.

11. Surfaces and floors of trailers must be cleaned of dirt, manure and other organic matter prior to the beginning of a gather.

12. Surfaces and floors of trailers shall have non-slip surface, use of shavings, dirt, and floor mates.

C. Care of WH&B's during Transport Procedures

1. WH&B's that are loaded and transported from the temporary holding facility to the BLM preparation facility must be fit to endure travel per direction of LCOR/COR/PI following consultation with on-site/on-call veterinarian.

2. WH&B's that are non-ambulatory, blind in both eyes, or severely injured must not be loaded and shipped unless it is to receive immediate veterinary care or euthanasia.

3. WH&B's that are weak or debilitated must not be transported without approval of the LCOR/COR/PI in consultation with the on-site veterinarian. Appropriate actions for their care during transport must be taken according to direction of the LCOR/COR/PI.

4. WH&B's shall be sorted prior to transport to ensure compatibility and minimize aggressive behavior that may cause injury.

5. Trailers must be loaded using the minimum space allowance in all compartments as follows:

a. For a 6.8 foot wide; 24 foot long stock trailer 12 to 14 adult horses;
b. For a 6.8 foot wide; 24 foot long stock trailer 18 to 21 adult burros
c. For a 6.8 foot wide; 20 foot long stock trailer 10 to 12 adult horses can be loaded
d. For a 6.8 foot wide; 20 foot long stock trailer 15 to 18 adult burros

For a semi-trailer:
a. 12 square feet per adult horse.
bi. 6.0 square feet per dependent horse foal.
c. 8.0 square feet per adult burro.
d. 4.0 square feet per dependent burro foal

6. Considering the condition of the animals, prevailing weather, travel distance and other factors or if animals are going down on trailers or arriving at their destination down or with injuries or a condition suggesting they may have been down, additional space or footing provisions may be necessary and will be required if directed by the LCOR/COR.

7. The LCOR/COR/PI, in consultation with the receiving Facility Manager, must document any WH&B that is recumbent or dead upon arrival at the destination. Non-ambulatory or recumbent WH&B's must be evaluated on the trailer and either euthanized or removed from the trailers using a sled, slide board or slip sheet.

8. Saddle horses must not be transported in the same compartment with WH&B's.

EUTHANASIA or DEATH

Euthanasia Procedure during Gather Operations

1. An authorized, properly trained, and experienced person as well as a firearm appropriate for the circumstances must be available at all times during gather operations. When the travel time between the trap site and temporary holding facility exceeds one hour or if radio or cellular

communication is not reliable, provisions for euthanasia must be in place at both the trap site and temporary holding facility during the gather operation.

2. Euthanasia must be performed according to American Veterinary Medical Association euthanasia guidelines (2013) using methods of gunshot or injection of an approved euthanasia agent.

3. The decision to euthanize and method of euthanasia must be directed by the LCOR/COR/PI who must be on site and may consult with the on-site/on-call veterinarian. In event and rare circumstance that the LCOR/COR/PI is not available, the contractor if properly trained may euthanize an animal as an act of mercy.

4. All carcasses will be disposed of in accordance with state and local laws and as directed by the LCORCOR/PI.

5. Carcasses left on the range should not be placed in washes or riparian areas where future runoff may carry debris into ponds or waterways. Trenches or holes for buried animals should be dug so the bottom of the hole is at least 6 feet above the water table and 4-6 feet of level earth covers the top of the carcass with additional dirt mounded on top where possible.

COMMUNICATIONS
a. The Contractor shall have the means to communicate with the LCOR/COR/PI and all contractor personnel engaged in the capture of wild horses and burros utilizing a VHF/FM Transceiver or VHF/FM portable Two-Way radio.

b. The Contractor shall obtain the necessary FCC licenses for the radio system.

SAFETY AND SECURITY
a. All accidents involving animals or people that occur during the performance of any task order shall be immediately reported to the LCOR/COR/PI.

b. It is the responsibility of the Contractor to provide security to prevent unauthorized release, injury or death of captured animals until delivery to final destination.

c. The contractor must comply with all applicable federal, state and local regulations.

d. Fueling operations shall not take place within 1,000 feet of animals or personnel and equipment other than the refueling truck and equipment.

e. Children under the age of 12 shall not be allowed within the gather's working areas which include near the chute when working animals at the temporary holding facility, or near the pens at the trap site when working and loading of animals. Children under the age of 12 in the non-working area must be accompanied by an adult at either location at all times.

BIOSECURITY

A. Health records for all saddle and pilot horses used on WH&B gathers must be provided to the LCOR during the BLM/Contractor pre-work meeting, including:

1. Certificate of Veterinary Inspection (Health Certificate, within 30 days).
2. Proof of:
    a. A negative test for equine infectious anemia (Coggins or EIA ELISA test) within 12 months.
    b. Vaccination for tetanus, eastern and western equine encephalomyelitis, West Nile virus, equine herpes virus, influenza, *Streptococcus equi*, and rabies within 12 months.

B. Saddle horses and pilot horses must not be removed from the gather operation (such as for an equestrian event) and allowed to return unless they have been observed to be free from signs of infectious disease for a period of at least three weeks and a new Certificate of Veterinary Inspection is obtained after three weeks and prior to returning to the gather.

C. WH&B's, saddle horses, and pilot horses showing signs of infectious disease must be examined by the on-site/on-call veterinarian.

1. Any saddle or pilot horses showing signs of infectious disease (fever, nasal discharge or illness) must be removed from service and isolated from other animals on the gather until such time as the horse is free from signs of infectious disease and approved by the on-site/on-call veterinarian to return to the gather.
2. WH&B's showing signs of infectious disease will normally not be mixed with groups of healthy WH&B's at the temporary holding facility, or during transport.

PUBLIC AND MEDIA INTERACTION

a. Due to heightened public interest in wild horse and burro gathers, the BLM and NPS expects an increasing number of requests from the public and media to view the operation. All requests received by the Contractor to view gather operation shall be forwarded to the BLM, who will provide a person with the expertise necessary to escort the public and media. The safety of the wild horses and burros, agency employees, Contractor crew, Contractor's private animals, and the media and public will be the first priority in determining whether a viewing opportunity will be provided, and if so, the time, location, and conditions associated with the viewing opportunity.

b. Assuming the BLM determines that providing a viewing opportunity for the media and the public is appropriate, the Contractor will establish the viewing area in accordance with instructions from the LCOR/COR/PI and current wild horse and burro program policy and guidance. BLM's observation policy will be discussed with the contractor during the pre-work meeting.

c. Member(s) of the viewing public or media whose conduct interferes with the gather operation in a way that threatens the safety of the WH&B's, BLM employees, contractor crew (including animals), the media, or the public will be warned once to terminate the conduct. If the conduct

persists, the offending individual(s) will be asked to leave the viewing area and the gather operation. The LCOR/COR/PI may direct the Contractor to temporarily shut down the gather operation until the situation is resolved.

d. Under no circumstances will the public or any media or media equipment be allowed in or on the gather helicopter or on the trap or holding equipment. The public, media, and media equipment must be at least 500 feet away from the trap during the trapping operation.

e. The public and media may be escorted closer than 500 feet to the trap site if approved by the LCOR/COR and in consultation with the Contractor during the time between gather runs or before or after the gather operation.

f. The Contractor shall not release any information to the news media or the public regarding the activities being conducted under this contract. All communications regarding BLM WH&B management, including but not limited to media, public and local stakeholders, are to come from the BLM unless it expressly authorizes the Contractor to give interviews, etc.

CONTRACTOR-FURNISHED PROPERTY

a. As specified herein, it is the contractor's responsibility to provide all necessary support equipment and vehicles including weed seed free hay and water for the captured animals and any other items, personnel, vehicles (which shall include good condition trucks and stock trailers to haul horses and burros from the trap site to the holding facility and two tractor trailers in good condition to haul horses from the holding facility to the preparation facility), saddle horses, etc. to support the humane and compassionate capture, care, feeding, transportation, treatment, and as appropriate, release of wild horses and burros. Other equipment includes but is not limited to, a minimum 2,500 linear feet of 72-inch high (minimum height) panels for horses or 60-inch high (minimum height) for burros for traps and holding facilities. Separate water troughs shall be provided at each pen where animals are being held meeting the standards in section C.6. Water troughs shall be constructed of such material (e.g., rubber, galvanized metal with rolled edges, rubber over metal) so as to avoid injury to the animals.

b. The Contractor shall provide a radio transceiver to ensure communications are maintained with the BLM project PI when driving or transporting the wild horses/burros. The contractor needs to ensure communications can be made with the BLM and be capable of operating in the 150 MHz to 174 MHz frequency band, frequency synthesized, CTCSS 32 sub-audible tone capable, operator programmable, 5kHz channel increment, minimum 5 watts carrier power.

c. The Contractor shall provide water and weed seed free hay.

d. The proper operation, service and maintenance of all contractor furnished property is the responsibility of the Contractor.

BLM ROLES AND RESPONSIBILITIES

a. Veterinarian

1. On-site veterinary support must be provided for all helicopter gathers.

2. Veterinary support will be under the direction of the LCOR/COR/PI. Upon request, the on-site/on-call veterinarian will consult with the LCOR/COR/PI on matters related to WH&B health, handling, welfare and euthanasia. All final decisions regarding medical treatment or euthanasia will be made by the on-site LCOR/COR/PI based on recommendations from the on-site veterinarian.

b. Transportation

1. The LCOR/COR/PI shall consider the condition and size of the animals, weather conditions, distance to be transported to the final destination or release, recommendations from the contractor and on-site veterinarian and other factors when planning for the movement of captured animals. The LCOR/COR/PI shall provide for any brand inspection services required for the movement of captured animals to BLM prep facilities. If animals are to be transported over state lines the LCOR will be responsible for obtaining a waiver from the receiving State Veterinarian.

2. If the LCOR/COR/PI determines that conditions are such that the animals could be endangered during transportation, the Contractor will be instructed to adjust speed or delay transportation until conditions improve.

GOVERNMENT FURNISHED EQUIPMENT/SUPPLIES/MATERIALS

a. The government will provide:

1. A portable restraining chute for each contractor to be used for the purpose of restraining animals to determine the age of specific individuals or other similar procedures. The contractor will be responsible for the maintenance of the portable restraining chute during the gather season.
2. All inoculate syringes, freezemarking equipment, and all related equipment for fertility control treatments.
3. A boat to transport burros as appropriate.
4. Sleds, slide boards, or slip sheets for loading of recumbent animals.

b. The Contractor shall be responsible for the security of all Government Furnished Property.

SITE CLEARANCES

a. Prior to setting up a trap or temporary holding facility, BLM will conduct all necessary legal reviews and clearances (NEPA, ARPA, NHPA, etc.). All proposed site(s) must be inspected by a government archaeologist. Once archaeological clearance has been obtained, the trap or temporary holding facility may be set up. Said clearance shall be coordinated and arranged for by the COR/ PI, or other BLM employees.

Water and Bait Trapping Standard Operating Procedures

The work consists of the capture, handling, care, feeding, daily rate and transportation of wild horses and/or burros from the States of Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah and Wyoming. The method of capture will be with the use of bait and/or water traps in accordance with the standards identified in the Comprehensive Animal

Welfare Program (CAWP) for Wild horse and Burro Gathers, Bureau of Land Management (BLM) Permanent Instruction Memorandum 2021-002. Items listed in the sections of the Statement of Work (SOW) either are not covered or deviate from the CAWP, the SOW takes precedence over the CAWP when there is conflicting information. Extended care, handling and animal restraint for purposes of population growth suppression treatments may be required for some trapping operations. The contractor shall furnish all labor, supplies, transportation and equipment necessary to accomplish the individual task order requirements with the exception of a Government provided restraint fly chute, as needed for population growth suppression. The work shall be accomplished in a safe and humane manner and be in accordance with the provisions of 43 CFR Part 4700, the CAWP, the specifications and provisions included in this SOW, and any subsequent SOW documents issued with individual task orders. The primary concern of the contractor shall be the safety of all personnel involved and the humane capture and handling of all wild horses and burros. It is the responsibility of the contractor to provide appropriate safety and security measures to prevent loss, injury or death of captured wild horses and burros.

Any reference to hay in this SOW or subsequent SOW documents issued with individual task orders will be implied as certified weed-free hay (grass or alfalfa). The contractor will be responsible for providing certifications upon request from the Government. The COR/PI's will observe a minimum of at least 25% of the trapping activity. BLM reserves the right to place game cameras or other cameras in the capture area to document animal activity and response, capture techniques and procedures, and humane care during trapping. No private/non-BLM camera will be placed within the capture areas.

Trapping activities would be on the HA/HMA/WHBT or outside areas specified in the task order. However, trapping could be required on adjacent land, federal, state, tribal, military, or private property. If trapping operations include work on military and/or other restricted areas, the BLM will coordinate all necessary clearances, such as background checks, to conduct operations for equipment and personnel.

The permissions to use private/state/tribal lands during task order performance will be coordinated by the BLM, contractor, and landowner. The need for these permissions will be identified in the Task Order SOW and will be obtained in writing.

Prior to any gathering operation, the BLM will provide for a pre-capture evaluation of existing conditions in the gather area(s). The evaluation will include animal conditions, prevailing temperatures, drought conditions, soil conditions, road conditions, and preparation of a topographic map with wilderness boundaries, the location of fences, other physical barriers, and acceptable gather site locations in relation to animal distribution. The evaluation will determine whether the proposed activities will necessitate the presence of a veterinarian during operations. If it is determined that capture operations necessitate the services of a veterinarian, one would be obtained before the capture would proceed. The contractor will be apprised of all conditions and will be given instructions regarding the capture and handling of animals to ensure their health and welfare is protected.

Gather sites and temporary holding sites will be located to reduce the likelihood of undue injury and stress to the animals, and to minimize potential damage to the natural and cultural resources of the area. Temporary holding sites would be located on or near existing roads.

Bait Trapping - Facility Design (Temporary Holding Facility Area and Traps)
All trap and temporary holding facility areas locations must be approved by the COR and/or the Project Inspector (PI) prior to construction and/or operation. The contractor may also be required to change or move trap locations as determined by the COR/PI. All traps and temporary holding facilities not located on public land must have prior written approval of the landowner or other management agency.

Facility design to include traps, wings, alleys, handling pens, finger gates, and temporary holding facilities, etc. shall be constructed, maintained and operated to handle the wild horses and burros in a safe and humane manner in accordance with the standards identified in the Comprehensive Animal Welfare Program (CAWP) for Wild Horse and Burro Gathers, Bureau of Land Management (BLM) Permanent Instruction Memorandum 2021-002.

Some gather operations will require the construction of an off-site temporary holding facility as identified in specific individual task orders for extended care and handling for purposes of slow trapping conditions or management activities such as research, population growth suppression treatments, etc.

No modification of existing fences will be made without authorization from the COR/PI. The contractor shall be responsible for restoring any fences that are modified back to the original condition.

Temporary holding and sorting pens shall be of sufficient size to prevent injury due to fighting and trampling. These pens shall also allow for captured horses and burros to move freely and have adequate access to water and feed.

All pens will be capable of expansion when requested by the COR/PI.

Separate water troughs shall be provided for each pen where wild horses and burros are being held. Water troughs shall be constructed of such material (e.g., rubber, plastic, fiberglass, galvanized metal with rolled edges, and rubber over metal) so as to avoid injury to the wild horses and burros.

Any changes or substitutions to trigger and/or trip devices previously approved for use by the Government must be approved by the COR prior to use.

Bait Trapping, Animal Care, and Handling
If water is to be used as the bait agent and the Government determines that cutting off other water sources is the best action to take under the individual task order, elimination of other water sources shall not last longer than a period of time approved by the COR/PI.

Hazing/Driving of wild horses and burros for the purpose of trapping the animals will not be allowed for the purposes of fulfilling individual task orders. Roping will be utilized only as directed by the COR.

Darting of wild horses and burros for trapping purposes will not be allowed.

No barbed wire material shall be used in the construction of any traps or used in new construction to exclude horses or burros from water sources.

Captured wild horses and burros shall be sorted into separate pens (i.e. by age, gender, animal health/condition, population growth suppression, etc.).

A temporary holding facility area will be required away from the trap site for any wild horses and burros that are being held for more than 24 hours.

The contractor shall assure that captured mares/jennies and their dependent foals shall not be separated for more than 4 hours, unless the COR/PI determines it necessary.

The contractor shall provide a saddle horse on site that is available to assist with the pairing up of mares/jennies with their dependent foals and other tasks as needed.

Contractor will report any injuries/deaths that resulted from trapping operations as well as preexisting conditions to the COR/PI within 12 hours of capture and will be included in daily gather activity report to the COR.

The COR/PI may utilize contractor constructed facilities when necessary in the performance of individual task orders for such management actions as population growth suppression, and/or selecting animals to return to the range.

In performance of individual task orders, the contractor may be directed by the COR to transport and release wild horses or burros back to the range.

At the discretion of the COR/PI the contractor may be required to delay shipment of horses until the COR/PI inspects the wild horses and burros at the trap site and/or the temporary holding facility prior to transporting them to the designated facility.

Wild Horse and Burro Care and Biosecurity
The contractor shall restrain sick or injured wild horses and burros if treatment is necessary in consultation with the COR/PI and/or veterinarian.

Any saddle or pilot horses used by the contractor will be vaccinated within 12 months of use (EWT, West Nile, Flu/rhino, strangles).

Transportation and Animal Care
The contractor, following coordination with the COR, shall schedule shipments of wild horses and burros to arrive during the normal operating hours of the designated facility unless prior

approval has been obtained from the designated facility manager by the COR. Shipments scheduled to arrive at designated facilities on a Sunday or a Federal holiday requires prior facility personnel approval.

All motorized equipment employed in the transportation of captured wild horses and burros shall be incompliance with appropriate State and Federal laws and regulations.

Sides or dividers of all trailers used for transporting wild horses and burros shall be a minimum height of 6 feet 6 inches from the floor. A minimum of one full height partition is required in each stock trailer. All trailers shall be covered with solid material or bars to prevent horses from jumping out.

The contractor shall consider the condition and size of the wild horses and burros, weather conditions, distance to be transported, or other factors when planning for the movement of captured wild horses and burros.

The Government shall provide for any brand and/or veterinary inspection services required for captured wild horses and burros. Prior to shipping across state lines the Government will be responsible for coordinating with the receiving state veterinarian to transport the animals without a health certificate or coggins test. If the receiving state does not agree to grant entry to animals without a current health certificate or coggins test, the Government will obtain them prior to shipment.

When transporting wild horses and burros, drivers shall inspect for downed animals a minimum of every two hours when travelling on gravel roads or when leaving gravel roads onto paved roads and a minimum of every four hours when travelling on paved roads.

Euthanasia or Death
The COR/PI will determine if a wild horse or burro must be euthanized and will/may direct the contractor to destroy the animal in accordance with the BLM Animal Health, Maintenance, Evaluation, and Response Instruction Memorandum, 2015-070 (Attachment 2). Any contractor personnel performing this task shall be trained as described in this Memorandum.

Pursuant to the IM 2015-070 the contractor may be directed by the Authorized Officer and/or COR to humanely euthanize wild horses and burros in the field and to dispose of the carcasses in accordance with state and local laws.

Safety and Communication
The nature of work performed under this contract may involve inherently hazardous situations. The primary concern of the contractor shall be the safety of all personnel involved and the humane handling of all wild horses and burros. It is the responsibility of the contractor to provide appropriate safety and security measures to prevent loss, injury or death of captured wild horses and burros until delivery to the final destination.

The BLM reserves the right to remove from service immediately any contractor personnel or contractor furnished equipment which, in the opinion of the COR and/or CO violate contract

rules, are unsafe or otherwise unsatisfactory. In this event, BLM will notify the contractor to furnish replacement personnel or equipment within 24 hours of notification. All such replacements must be approved in advance by the COR and/or CO.

Contractor personnel who utilize firearms for purposes of euthanasia will be required to possess proof of completing a State or National Rifle Association firearm safety certification or equivalent (conceal carry, hunter safety, etc.).

All accidents involving wild horses and burros or people that occur during the performance of any task order shall be immediately reported to the COR/PI.

The contractor shall have the means to communicate with the COR/PI and all contractor personnel engaged in the capture of wild horses and burros utilizing a cell/satellite phone or radio at all times during the trapping operations. The Contractor will be responsible for furnishing all communication equipment for contractor use. BLM will provide the frequency for radio communications.

The contractor will provide daily gather activity reports to the COR/PI if they are not present.

Public and Media
Due to increased public interest in the Wild Horse and Burro Gathers, any media or visitation requests received by the contractor shall be forwarded to the COR immediately. Only the COR or CO can approve these requests.

The Contractor shall not post any information or images to social media networks or release any information to the news media or the public regarding the activities conducted under this contract.

If the public or media interfere in any way with the trapping operation, such that the health and well-being of the crew, or horses and burros are threatened, the contractor will immediately report the incident to the COR and trapping operations will be suspended until the situation is resolved as directed by the COR.

1. All motorized equipment employed in the transportation of captured animals shall be in compliance with appropriate State and Federal laws and regulations applicable to the humane transportation of animals. The Contractor shall provide the COR/PI with a current safety inspection (less than one year old) for all motorized equipment and tractor-trailers used to transport animals to final destination.

2. All motorized equipment, tractor-trailers, and stock trailers shall be in good repair, of adequate rated capacity, and operated so as to ensure that captured animals are transported without undue risk or injury.

3. Only tractor-trailers or stock trailers with a covered top shall be allowed for transporting animals from gather site(s) to temporary holding facilities and from temporary holding facilities to final destination(s). Sides or stock racks of all trailers used for transporting animals shall be a

minimum height of 6 feet 6 inches from the floor. Single deck tractor-trailers 40 feet or longer shall have two (2) partition gates providing three (3) compartments within the trailer to separate animals. Tractor-trailers less than 40 feet shall have at least one partition gate providing two (2) compartments within the trailer to separate the animals. Compartments in all tractor-trailers shall be of equal size plus or minus 10 percent. Each partition shall be a minimum of 6 feet high and shall have a minimum 5 foot wide swinging gate. The use of double deck tractor-trailers is unacceptable and shall not be allowed.

4. All tractor-trailers used to transport animals to final destination(s) shall be equipped with at least one (1) door at the rear end of the trailer which is capable of sliding either horizontally or vertically. The rear door(s) of tractor- trailers and stock trailers must be capable of opening the full width of the trailer. Panels facing the inside of all trailers must be free of sharp edges or holes that could cause injury to the animals. The material facing the inside of all trailers must be strong enough so that the animals cannot push their hooves through the side. Final approval of tractor-trailers and stock trailers used to transport animals shall be held by the COR/PI.

5. Floors of tractor-trailers, stock trailers and loading chutes shall be covered and maintained with wood shavings to prevent the animals from slipping.

6. Animals to be loaded and transported in any trailer shall be as directed by the COR/PI and may include limitations on numbers according to age, size, sex, temperament and animal condition. The following minimum square feet per animal shall be allowed in all trailers:

a. 11 square feet per adult horse (1.4 linear foot in an 8 foot wide trailer);
b. 8 square feet per adult burro (1.0 linear foot in an 8 foot wide trailer);
c. 6 square feet per horse foal (.75 linear foot in an 8 foot wide trailer);
d. 4 square feet per burro foal (.50 linear feet in an 8 foot wide trailer).

7. The COR/PI shall consider the condition and size of the animals, weather conditions, distance to be transported, or other factors when planning for the movement of captured animals. The COR/PI shall provide for any brand and/or inspection services required for the captured animals.

8. If the COR/PI determines that dust conditions are such that the animals could be endangered during transportation, the Contractor will be instructed to adjust speed.

Safety and Communications

1. The Contractor shall have the means to communicate with the COR/PI and all contractor personnel engaged in the capture of wild horses and burros utilizing a VHF/FM Transceiver or VHF/FM portable Two-Way radio. If communications are ineffective the government will take steps necessary to protect the welfare of the animals.

a. The proper operation, service and maintenance of all contractor furnished property are the responsibility of the Contractor. The BLM reserves the right to remove from service any contractor personnel or contractor furnished equipment which, in the opinion of the contracting officer or COR/PI violate contract rules, are unsafe or otherwise unsatisfactory. In this event, the Contractor will be notified in writing to furnish replacement personnel or equipment within 48

hours of notification. All such replacements must be approved in advance of operation by the Contracting Officer or his/her representative.

b. The Contractor shall obtain the necessary FCC licenses for the radio system

c. All accidents occurring during the performance of any task order shall be immediately reported to the COR/PI.

Public and Media

Due to heightened public interest in wild horse and burro gathers, the BLM/Contractor may expect an increasing number of requests from the public and media to view the operation.

1. Due to this type of operation (luring wild horses and burros to bait) spectators and viewers will be prohibited as it will have impacts on the ability to capture wild horses and burros. Only essential personnel (COR/PI, veterinarian, contractor, contractor employees, etc.) will be allowed at the trap site during operations.

2. Public viewing of the wild horses and burros trapped may be provided at the staging area and/or the BLM preparation facility by appointment.

3. The Contractor agrees that there shall be no release of information to the news media regarding the removal or remedial activities conducted under this contract.

4. All information will be released to the news media by the assigned government public affairs officer.

5. If the public or media interfere in any way with the trapping operation, such that the health and wellbeing of the crew, horses and burros is threatened, the trapping operation will be suspended until the situation is resolved.

COR/PI Responsibilities

a. In emergency situations, the COR/PI will implement procedures to protect animals as rehab is initiated, i.e. rationed feeding and watering at trap and or staging area.

b. The COR/PI will authorize the contractor to euthanize any wild horse or burros as an act of mercy.

c. The COR/PI will ensure wild horses or burros with pre-existing conditions are euthanized in the field according to BLM policy.

d. Prior to setting up a trap or staging area on public land, the BLM and/or Forest Service will conduct all necessary clearances (archaeological, T&E, etc.). All proposed sites must be inspected by a government archaeologist or equivalent. Once archaeological clearance has been obtained, the trap or staging area may be set up. Said clearances shall be arranged for by the COR/PI.

e. The COR/PI will provide the contractor with all pertinent information on the areas and wild horses and burros to be trapped.

f. The COR/PI will be responsible to establish the frequency of communicating with the contractor.

g. The COR/PI shall inspect trap operation prior to Contractor initiating trapping.

h. The Contractor shall make all efforts to allow the COR/PI to observe a minimum of at least 25% of the trapping activity.

i. The COR/PI is responsible to arrange for a brand inspector and/or veterinarian to inspect all wild horses and burros prior to transporting to a BLM preparation facility when legally required.

j. The COR/PI will be responsible for the establishing a holding area for administering PZP, gelding of stallions, holding animals in poor condition until they are ready of shipment, holding for EIA testing, etc.

k. The COR/PI will ensure the trailers are cleaned and disinfected before WH&B's are transported. This will help prevent transmission of disease into our populations at a BLM Preparation Facility.

Responsibility and Lines of Communication
The Wild Horse Specialist (COR) or delegate has direct responsibility to ensure human and animal safety. The Field Manager will take an active role to ensure that appropriate lines of communication are established between the field, field office, state office, national program office, and BLM holding facility offices.

All employees involved in the gathering operations will keep the best interests of the animals at the forefront at all times.

All publicity and public contact and inquiries will be handled through the Office of Communications. These individuals will be the primary contact and will coordinate with the COR on any inquiries.

The BLM delegate will coordinate with the corrals to ensure animals are being transported from the capture site in a safe and humane manner and are arriving in good condition.

The BLM require humane treatment and care of the animals during removal operations. These specifications are designed to minimize the risk of injury and death during and after capture of the animals. The specifications will be vigorously enforced.

Resource Protection
Gather sites and holding facilities would be located in previously disturbed areas whenever possible to minimize potential damage to the natural and cultural resources.

Gather sites and temporary holding facilities would not be constructed on wetlands or riparian zones.

Prior to implementation of gather operations, gather sites and temporary holding facilities would be evaluated to determine their potential for containing cultural resources. To avoid cultural resources, a BLM archaeologist will be consulted in the early planning process to confirm appropriate areas for facilities that avoids cultural resources. If not in a disturbed area, alternative locations will include previously inventoried areas to avoid cultural resources.

Gather sites and holding facilities would not be placed in known areas of Native American concern.

The contractor would not disturb, alter, injure or destroy any scientifically important paleontological remains; any historical or archaeological site, structure, building, grave, object or artifact; or any location having Native American traditional or spiritual significance within the project area or surrounding lands. The contractor would be responsible for ensuring that its employees, subcontractors or any others associated with the project do not collect artifacts and fossils, or damage or vandalize archaeological, historical or paleontological sites or the artifacts within them.

Should damage to cultural or paleontological resources occur during the period of gather due to the unauthorized, inadvertent or negligent actions of the contractor or any other project personnel, the contractor would be responsible for costs of rehabilitation or mitigation. Individuals involved in illegal activities may be subject to penalties under the Archaeological Resources Protection.

Appendix C. Minimum Requirements Analysis Framework Workbook (MRAF)

MINIMUM REQUIREMENTS ANALYSIS FRAMEWORK WORKBOOK

"…except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act…"

— Section 4(c), Wilderness Act of 1964

Introduction

The Minimum Requirements Analysis (MRA) is designed to examine whether a project truly needs to occur in wilderness, and if so, how to accomplish it with the least impact to the wilderness resource. The framework below is intended to help managers: 1) evaluate actions proposed in wilderness involving a use otherwise prohibited by the Wilderness Act; and 2) consider appropriate choices about administrative actions they might take. Like the previous version of this document (the Minimum Requirements Decision Guide (MRDG)), the MRA Framework (MRAF) is based on the Wilderness Act and is consistent with agency policy. The MRAF incorporates lessons learned by agency employees as they used the MRDG over the years. The goal of the MRAF is to help provide consistency in the way wilderness-managing agencies consider actions to address threats to wilderness, and to ensure that agencies strive to preserve wilderness character through their on-the-ground decisions.

This document is intended for uses prohibited by Section 4(c) of the Wilderness Act in designated wilderness, but it can be used to analyze all projects in wilderness. Check agency policy to determine if this workbook may be appropriate for other proposals in wilderness.

If applicable, per agency policies, collaborate and coordinate with associated Tribe(s) and/or Tribe(s) with historical, treaty, or related ties to the area.

Title: Tassi-Gold Butte HMA Wild Burro Gather Plan

Step 1: Determine If Administrative Action May Be Necessary

Issue Statement

There is a need to protect monument resources and to prevent unnecessary or undue degradation of the public lands associated with excess population of wild burros within the Tassi-Gold Butte HMA and the greater Pakoon Basin. The proposed method is to gather and remove wild burros.

Options Outside of Wilderness

Is this issue wilderness dependent, or can an action occur outside of wilderness to properly resolve the issue now or over time?

Can the issue be resolved or addressed outside of wilderness?

☐ YES **STOP – EXPLAIN BELOW AND DO NOT TAKE ACTION**

☒ NO **EXPLAIN BELOW AND PROCEED TO THE NEXT SECTION**

The burros have been sighted in both designated Wilderness and Proposed Wilderness areas. There is no practical method to draw the burros out of the approximately 62,000 combined acres from outside the wilderness.

Criteria for Determining Necessity

Do any of the criteria below apply?

A. Wilderness Character
Based on the Issue Statement, are any of the qualities of wilderness character degraded, impaired, or threatened to a degree that it is necessary to analyze potential action otherwise prohibited by Section 4(c) to address the issue?

UNTRAMMELED

☐ YES ☒ NO

This project is not necessary to preserve the untrammeled wilderness character.

UNDEVELOPED

☐ YES ☒ NO

This project is not necessary to preserve the undeveloped wilderness character.

NATURAL

☒ YES ☐ NO

Burros are a nonnative species, introduced by humans, that damage the ecosystem integrity of the Mojave Desert and Mojave Desert Transition zones. In addition, the AML within the HMA was set at 0 to assist in the recovery of the Mojave desert tortoise.

OUTSTANDING OPPORTUNITIES FOR SOLITUDE OR PRIMITIVE AND UNCONFINED RECREATION

☐ YES ☒ NO

This project is not necessary to preserve the solitude or primitive and unconfined recreation wilderness character.

OTHER FEATURES OF VALUE

☒ YES ☐ NO

Presidential Proclamation 7265 – Establishment of the Grand Canyon-Parashant National Monument (2000) states that "There are numerous threatened or endangered species as well, including the Mexican spotted owl, the California condor, the desert tortoise, and the

southwestern willow flycatcher." This recognizes the importance of these species to the formation and continuance of the monument.

B. Valid Existing Rights

Select your answer.

Is action necessary to satisfy a valid existing right? If so, cite the specific right, terms and conditions, and source.

☐ YES ☒ NO

There are no valid existing rights requiring burro removal.

C. Special Provisions of Wilderness Legislation

Is action necessary to satisfy a special provision in wilderness legislation (i.e., Section 4(d) of the Wilderness Act of 1964 or subsequent wilderness-enabling laws) that requires action? Cite law and section.

☐ YES ☒ NO

There are no "Special Provisions of Wilderness Legislation" requiring burro removal.

D. Requirements of Other Federal Laws

*Not including special provisions found in wilderness-enabling laws, does another Federal law, by itself or as implemented or interpreted through EO, court order, etc., **require** action? Cite law and section.*

☒ YES ☐ NO

Since the passage of the Wild Free-Roaming Horses and Burros Act (WFRHBA) of 1971, BLM has refined its understanding of how to manage wild horse and burro population levels. By law, BLM is required to control any overpopulation, by removing excess animals, once a determination has been made that excess animals are present, and removal is necessary.

Step 1: Determination – Is Administrative Action Necessary in Wilderness?

Based on the responses and detailed explanations in A through D above, is there a need to proceed to Step 2? If at least one criterion in B through D in Step 1 has been met, or at least one quality of wilderness character is threatened, check the "Yes" box and provide a thorough explanation of the rationale described in A through D. It may also be helpful to describe in this determination how action would be consistent with the public purposes of wilderness or satisfy a specific agency obligation. If none of the criteria have been met, action is NOT necessary. Check the "No" box, explain why the proposed project does not meet the criteria, and stop your analysis.

☒ YES **EXPLAIN BELOW AND COMPLETE STEP 2 OF THE MRAF**

☐ NO **STOP – EXPLAIN BELOW AND DO NOT TAKE ACTION**

Burros are a non-native species that damage the ecosystem integrity of the Mojave Desert and Mojave Desert Transition zones. In addition, the AML within the HMA was set at 0 to assist in the recovery of the Desert Tortoise. Thus, this negatively impacts the natural wilderness characteristic of the wilderness areas as well as potentially the desert tortoise. Therefore

administrative action is necessary in wilderness to remove burros that are affecting naturalness. In addition, removal actions would likely be necessary as it is unlikely that all burros would be lured out of the wilderness to bait and trap sites.

Step 2: Determine the Minimum Activity

Other Direction

Is there "special provisions" language in legislation or other congressional direction that explicitly allows consideration of (but does not require) a prohibited use? (Step 1 has a similar question in Section C, but that question is specific to other legislation requiring action in wilderness; this question is specific to other legislation addressing consideration of prohibited uses).

AND/OR

Has the issue been addressed or prescribed in agency policy, management plans, or legal directive (e.g., treaty, EO, court order, or other binding agreement with federal, state, or local agencies or authorities)?

☒ YES **DESCRIBE OTHER DIRECTION**

☐ NO **SKIP TO "UNCONTROLLABLE TIMING REQUIREMENTS"**

The following decisions are from Table 2.5 in the Grand Canyon-Parashant National Monument Resource Management Plan/General Management Plan (RMP/GMP) regarding Special Status Species and burro management:

- MA-TE-45: Wild horses and burros will not be authorized on NPS and BLM administered lands in the Monument. Burros on NPS-administered lands are managed to prescription set by the 1995 Lake Mead NRA Burro Management Plan. The herd management level for the Tassi-Gold Butte Herd Management Area will be set to zero on BLM-administered lands in the Monument. Burros will be removed rather than destroyed on site.

Table 2.6 in the RMP/GMP regarding wild burros states:

- MA-HB-01: The Herd Management Level will continue to be set at zero on BLM-administered lands. (See Special Status Species decisions). Wild horse and burros will not be authorized on NPS-administered lands.

Uncontrollable Timing Requirements

What, if any, are the considerations that would dictate timing of the action?

Safely removing the burros without causing undue stress, particularly high heat, and foaling season, would dictate the timing of the gather.

Workflow Components
What are the distinct components or phases of the action?

Component	Description
Component 1	Transportation of personnel during survey operations.
Component 2	Transportation of personnel during gather operations.
Component 3	Emergency Actions.

Feasibility of Alternatives
Only include feasible alternatives in this section. Some alternatives that are not feasible may warrant documentation in the "Alternatives Considered but Dismissed" section to provide a brief description and explanation of why it was dismissed and not considered in detail.

Possible reasons for dismissal include alternatives that are impossible, have unacceptable impacts, are unsafe, are proven ineffective, have excessive costs, or whose timing would cause degradation to wilderness character.

The alternatives should also be reasonable. For example, there is no need to include helicopters in an alternative for equipment transport when that equipment can be easily carried by people or pack stock along a maintained trail.

Refer to the MRAF instructions regarding alternatives and the effects to each of the comparison criteria.

Step 2: Alternatives

Alternative 1
Gather and remove wild burros.

Component Methods
How will each of the components of the action be performed under this alternative?

Component	Workflow Components	Component Methods for this Alternative
1	Transportation of personnel during survey operations.	Conduct survey with personnel in a helicopter or fixed wing aircraft.
2	Transportation of personnel during gather operations.	Conduct gather with personnel in a helicopter.
3	Emergency Actions.	Land helicopter during gather if emergency occurs.

Description of the Alternative
The proposed action would gather and remove 100% of the existing wild burros found in the HMA and surrounding greater Pakoon Basin.

Gathering could be conducted year-round within parameters set to promote burro health and safety and protect monument resources.

Population inventories would be conducted using aerial surveys. Routine resource/habitat monitoring would be completed periodically after the initial gather to document post-gather population levels, growth rates and areas of continued resource concern (burro concentrations, riparian impacts, etc.) prior to any follow-up gather.

Gather operations would be conducted in accordance with the Comprehensive Animal Welfare Program (CAWP) for Wild Horses and Burro Gathers, which includes provisions of the Comprehensive Animal Welfare Program (BLM Permanent Instructional Memorandum 2021-002). A combination of gather methods might be used to complete the management actions and the methods to be used would depend on the needs of the specific actions including management needs regarding emergency situations.

The primary gather methods used in the performance of gather operations include:

- Drive Trap. This gather method involves utilizing a helicopter to herd wild burros into a temporary trap outside wilderness.
- Bait Trap: This gather method involves utilizing bait (e.g., water or feed) to lure wild burros into a temporary trap.

An Animal and Plant Inspection Service (APHIS) or other veterinarian might be on-site or on-call during the gather, as needed, to examine animals and make recommendations to BLM for care and treatment of wild burros.

Decisions to humanely euthanize animals in field situations would be made in conformance with BLM Permanent Instruction Memorandum (PIM) 2021-007.

During gather activities the helicopter might sit down in Wilderness due to mechanical or personnel safety issues or if a burro becomes unduly stressed or injured.

Wilderness Character

Component Number	For each component number, indicate the impact the **method for this alternative** will have on each of the five qualities of Wilderness: Positive = P, Negative = N, No Effect = 0 *Describe in detail the impacts to each of the five qualities in the narrative section below*	Untrammeled	Undeveloped	Natural	Solitude or Primitive and Unconfined Recreation	Other Features of Value
1	Conduct survey with personnel in a helicopter or fixed wing aircraft.	0	0	0	N	0
2	Conduct gather with personnel in a helicopter	0	0	P	N	P/N
3	Land helicopter during gather if emergency occurs	0	N	0	0	0

What is the effect of each Component Method on the qualities of wilderness character? What mitigation measures will be taken? Include cumulative impacts in the explanation.

UNTRAMMELED: **Explain the intensity of the action that would intentionally control, manipulate, or hinder the conditions or processes of ecological systems:**

Neither the helicopter or fixed wings aircraft overflights or the emergency actions in the wilderness represent manipulations of the natural processes on-going in wilderness and therefore have no impacts to the untrammeled quality.

UNDEVELOPED: **Explain the effects to this quality in terms of how "the imprint of man's work [would] remain substantially unnoticeable," and how wilderness will continue to be in contrast with other areas of "growing mechanization":**

Any landing of a helicopter in wilderness is a prohibited use and a negative impact on the Undeveloped quality. Landing would be of short duration and is unlikely, therefore the negative impact would be temporary and rare.

NATURAL: **Explain the effects to this quality in terms of protection, degradation, or restoration of natural conditions:**

Naturalness would be positively impacted by the removal of non-native species (burro) that damage ecosystem integrity.

OUTSTANDING OPPORTUNITIES FOR SOLITUDE OR PRIMITIVE and UNCONFINED RECREATION: **Explain how opportunities for visitors to experience solitude or a primitive and unconfined type of recreation will be protected or degraded. As appropriate, describe solitude, primitive recreation, and unconfined recreation separately**:

The surveying and gather activities conducted by helicopter and fixed wing aircraft could negatively affect visitors to the wilderness who experience the noise or sight of the aircraft flying over, even at a distance.

OTHER FEATURES OF VALUE: **Explain any effects to features of scientific, educational, scenic, or historical value that are not accounted for in the above qualities, including cultural and paleontological resources that are integral to wilderness character:**

The alternative might have direct impacts on the desert tortoise from activities related to burro gathering, and could include killing or injuring of tortoises, displacement of individuals, and increased potential for harassment of tortoises. If not noticed and avoided during gather activities, desert tortoises could be either injured, killed, or harassed.
It is expected that, with the removal of burros from the area under the alternative, the desert tortoise population in the project area would ultimately benefit due to the reduced risk of trampling and less competition for forage and water.

Alternative 2
Not conduct the wild burro gather.

Component Methods
How will each of the components of the action be performed under this alternative?

Component	Workflow Components	Component Methods for this Alternative
1	Transportation of personnel during survey operations.	Not conduct survey operations
2	Transportation of personnel during gather operations.	Not conduct gather.
3	Emergency Actions.	No action.

Description of the Alternative
What are the details of this alternative? When, where, and how will the action occur? What mitigation measures will be taken? Provide a complete narrative description of the Component Methods identified above.

Under the no action alternative, no gather would occur, and no additional management actions would be undertaken to control the size or growth rates of the wild burro population at this time.

Wilderness Character

Component Number	For each component number, indicate the impact the **method for this alternative** will have on each of the five qualities of Wilderness: Positive = P, Negative = N, No Effect = 0 *Describe in detail the impacts to each of the five qualities in the narrative section below*	Untrammeled	Undeveloped	Natural	Solitude or Primitive and Unconfined Recreation	Other Features of Value
1	Not conduct survey operations.	0	0	0	0	0
2	Not conduct gather	0	0	N	0	N
3	No action	0	0	0	0	N

What is the effect of each Component Method on the qualities of wilderness character? What mitigation measures will be taken? Include cumulative impacts in the explanation.

UNTRAMMELED: **Explain the intensity of the action that would intentionally control, manipulate, or hinder the conditions or processes of ecological systems:**

No action would be taken in wilderness; therefore there would be no impacts to this quality.

UNDEVELOPED: **Explain the effects to this quality in terms of how "the imprint of man's work [would] remain substantially unnoticeable," and how wilderness will continue to be in contrast with other areas of "growing mechanization":**

No action would be taken in wilderness; therefore there would be no impacts to this quality.

NATURAL: **Explain the effects to this quality in terms of protection, degradation, or restoration of natural conditions:**

No action would occur in wilderness to remove a non-native species (burro) that causes damage to the Mojave Desert transition ecosystems; therefore as populations increase a continued negative affect on vegetation and soils would be expected to occur.

OUTSTANDING OPPORTUNITIES FOR SOLITUDE OR PRIMITIVE and UNCONFINED RECREATION: **Explain how opportunities for visitors to experience solitude or a primitive and unconfined type of recreation will be protected or degraded. As appropriate, describe solitude, primitive recreation, and unconfined recreation separately**:

No action would be taken in wilderness; therefore there would be no impacts to this quality.

OTHER FEATURES OF VALUE: **Explain any effects to features of scientific, educational, scenic, or historical value that are not accounted for in the above qualities, including cultural and paleontological resources that are integral to wilderness character:**

If no action is taken, burros will continue to reproduce and further damage the landscape, water, and resources that desert tortoise depend on. Desert tortoises would continue to be at risk of trampling by burros.

Step 2: Alternatives Considered but Dismissed

What alternatives were considered but dismissed? Why were they dismissed?

Explain:

Chemical immobilization was considered however it is impractical to use, given the size of the HMA, access limitations, and approachability of the burros.

Raising the AML was considered but would decrease the Natural Wilderness character.

Fertility Control Treatment and Field Darting with ZonaStat-H (Native PZP) and Gonacon was considered however it would not quickly reduce the number of burros to the set AML. The methodology would include helicopter use, similar to Alternative 1.

Control of burro numbers was considered. This would require the introduction of sufficient numbers of natural predators to decrease the numbers in a reasonable amount of time to positively affect the Naturalness of the wilderness. Such introductions are infeasible.

Use of bait traps as the only gather method was considered. Due to the limited vehicular access for trailers and personnel to access trap sites, the degradation of the undeveloped quality of Wilderness for trapping apparatus to be set up in Wilderness, and the behavior of burros, this alternative was not considered further.

Step 2: Determination – What is the Minimum Activity?

Refer to the MRAF instructions before identifying the selected alternative and explaining the rationale for its selection.

Selected Alternative

Explain rationale for selection, including a comparison of the selected alternative with other alternatives:

Approved?	Prohibited Use	Quantity, Timing, Frequency, or Duration
☐	Mechanical Transport:	Click or tap here to enter text.
☐	Motorized Equipment:	Click or tap here to enter text.
☐	Motor Vehicles:	Click or tap here to enter text.
☐	Motorboats:	Click or tap here to enter text.
☐	Landing of Aircraft:	Click or tap here to enter text.
☐	Temporary Roads:	Click or tap here to enter text.
☐	Structures:	Click or tap here to enter text.
☐	Installations:	Click or tap here to enter text.

Describe mitigation measures as well as monitoring and reporting requirements, if appropriate:

Approvals

Project Title (from page 2)**:**

Tassi-Gold Butte HMA Wild Burro Gather Plan

Refer to agency policies for the following signature authorities:

Prepared by:
Name Greg Page Position Outdoor Recreation Planner

Signature _____ Date _____

Reviewed by:
Name Jennifer Fox Position Ecologist

Signature _____ Date _____

Reviewed by:
Name Position

Signature _____ Date _____

Approved by:
Name Position

Signature _____ Date _____

Appendix D. Supplemental Scientific Literature Review

This appendix includes scientific literature reviews addressing two topics: effects of gathers on wild horses and burros, and effects of wild horses and burros on rangeland ecosystems. Although the species are separate, and do not have identical diet, behavior, habitat preferences, demography, or social systems, it can be useful to include what is known about horses in this literature, to make informed inferences for topics that may also affect burros, even if precisely quantified outcomes for burros have not yet been published.

Effects of Gathers on Wild Horses and Burros

Gathering any wild animals into pens has the potential to cause impacts to individual animals. There is also the potential for impacts to individual horses and burros during transportation, short-term holding, long-term holding that take place after a gather. However, BLM follows guidelines to minimize those impacts and ensure humane animal care and high standards of welfare. The following literature review summarizes the limited number of scientific papers and government reports that have examined the effects of gathers and holding on wild horses and burros.

Two early papers, by Hansen and Mosley (2000) and Ashley and Holcomb (2001) examined limited effects of gathers, including behavioral effects and effects on foaling rates. Hansen and Mosley (2000) observed BLM gathers in Idaho and Wyoming. They monitored wild horse behaviors before and after a gather event, and compared the behavioral and reproductive outcomes for animals that were gathered by helicopter against those outcomes for animals that were not. This comparison led to the conclusion that gather activities used at that time had no effect on observed wild horse foraging or social behaviors, in terms of time spent resting, feeding, vigilant, traveling, or engaged in agonistic encounters (Hansen and Mosley 2000). Similarly, the authors did not find any statistically significant difference in foaling rates in the year after the gather in comparisons between horses that were captured, those that were chased by a helicopter but evaded capture, or those that were not chased by a helicopter. The authors concluded that the gathers had no deleterious effects on behavior or reproduction. Ashley and Holcomb (2001) conducted observations of reproductive rates at Garfield Flat HMA in Nevada, where horses were gathered in 1993 and 1997, and compared those observations at Granite Range HMA in Nevada, where there was no gather. The authors found that the two gathers had a short-term effect on foaling rates; pregnant mares that were gathered had lower foaling rates than pregnant mares that were not gathered. The authors suggested that BLM make changes to the gather methods used at that time, to minimize the length of time that pregnant mares are held prior to their release back to the range. Since the publications by Hansen and Mosley (2000) and by Ashley and Holcomb (2001), BLM did make changes to reduce the stress that gathered animals, including pregnant females, may experience as a result of gather and removal activities; these measures have been formalized as policy in the comprehensive animal welfare program (BLM IM 2021-002). That policy also covers care of animals in corrals, where measures to ensure wild horse and burro health and welfare include oversight by attending veterinarians.

A thorough review of gather practices and their effects on wild horses and burros can be found in a 2008 report from the Government Accounting Office. The report found that the BLM had controls in place to help ensure the humane treatment of wild horses and burros (GAO 2008).

The controls included SOPs for gather operations, inspections, and data collection to monitor animal welfare. These procedures led to humane treatment during gathers, and in short-term and long-term holding facilities. The report found that cumulative effects associated with the capture and removal of excess wild horses include gather-related mortality averaged only about 0.5% and approximately 0.7% of the captured animals, on average, are humanely euthanized due to pre-existing conditions (such as lameness or club feet) in accordance with BLM policy. Scasta (2020) found the same overall mortality rate (1.2%) for BLM WH&B gathers in 2010-2019, with a mortality rate of 0.25% caused directly by the gather, and a mortality rate of 0.94% attributable to euthanasia of animals with pre-existing conditions such as blindness or club-footedness. Scasta (2020) summarized mortality rates from 70 BLM WH&B gathers across nine states, from 2010-2019. Records for 28,821 horses and 2,005 burros came from helicopter and bait/water trapping. For wild burro bait / water trapping, mortality rates were 0.05% due to acute injury caused by the gather process, and death for burros with pre-existing conditions was 0.2% (Scasta 2020). For wild horse bait / water trapping, mortality rates were 0.3% due to acute injury, and the mortality rate due to pre-existing conditions was 1.4% (Scasta 2020). For wild horses gathered with the help of helicopters, mortality rates were only slightly lower than for bait / water trapping, with 0.3% due to acute causes, and 0.8% due to pre-existing conditions (Scasta 2020). Scasta (2020) noted that for other wildlife species capture operations, mortality rates above 2% are considered unacceptable and that, by that measure, BLM WH&B "…welfare is being optimized to a level acceptable across other animal handling disciplines." In a separate analysis of 2010-2019 BLM wild horse gathers, Scasta et al. (2021) concluded that fewer than 20% of wild horse deaths at gathers were attributable to acute causes, with the great majority being euthanasia of animals with pre-existing, chronic conditions.

King et al. (2023) studied the fate of wild horse foals, as part of a broader 2016-2020 study on the effects of having some geldings in with breeding herds (King et al. 2022). In two HMAs in Utah that were intensively monitored for 4 years, about 5% of foals died in their first year of life, and about 2.5% of foals younger than 70 days old that became separated from their mothers (dams) survived and joined other social bands. BLM gather activities were not associated with any statistical increase in foal mortality, foal separation from their dams, or infanticide. King et al. (2023) concluded that, "…separation of offspring may be more common than previously considered, and that this is a natural event that does not necessarily result in mortality. … the separation of young foals from their dams was not a result of human disturbance or handling, resulting in the conclusion that foals even as young as 2 months old have a good chance of survival if separated from their dam or orphaned, as long as other social groups remain on the range that they can join."

The GAO report (2008) noted the precautions that BLM takes before gather operations, including screening potential gather sites for environmental and safety concerns, approving facility plans to ensure that there are no hazards to the animals there, and limiting the speeds that animals travel to trap sites. BLM used SOPs for short-term holding facilities (e.g., corrals) that included procedures to minimize excitement of the animals to prevent injury, separating horses by age, sex, and size, regular observation of the animals, and recording information about the animals in a BLM database. The GAO reported that BLM had regular inspections of short-term holding facilities and that animals I there, ensuring that the corral equipment is up to code and that animals are treated with appropriate veterinary care (including that hooves are trimmed

adequately to prevent injury). Mortality was found to be about 5% per year associated with transportation, short term holding, and adoption or sale with limitations. The GAO noted that BLM also had controls in place to ensure humane care at long-term holding facilities (i.e., pastures). BLM staff monitor the number of animals, the pasture conditions, winter feeding, and animal health. Veterinarians from the USDA Animal and Plant Health Inspection Service inspect long-term facilities annually, including a full count of animals, with written reports. Contract veterinarians provide animal care at long-term facilities, when needed. Weekly counts provide an incentive for contractors that operate long-term holding facilities to maintain animal health (GAO 2008). Mortality at long-term holding was found to be about 8% per year, on average (GAO 2008). The mortality rates at short-term and long-term holding facilities are comparable to the natural annual mortality rate on the range of about 16% per year for foals (animals under age 1), about 5-10% per year for horses ages 1-10 years, and about 10-25% for animals aged 10-20 years (Ransom et al. 2016).

In 2010, the American Association of Equine Practitioners (AAEP 2011) was invited by the BLM to visit the BLM operations and facilities, spend time on WH&B gathers and evaluate the management of the wild equids. The AAEP Task Force evaluated horses in the BLM Wild Horse and Burro Program through several visits to wild horse gathers, and short- and long-term holding facilities. The task force was specifically asked to "review animal care and handling within the Wild Horse and Burro Program, and make whatever recommendations, if any, the Association feels may be indicated, and if possible, issue a public statement regarding the care and welfare of animals under BLM management." In their report (AAEP 2011), the task force concluded "that the care, handling and management practices utilized by the agency are appropriate for this population of horses and generally support the safety, health status and welfare of the animals." The comprehensive animal welfare program (BLM 2021b) includes standards of care of animals in corrals, where measures include oversight by attending veterinarians.

In June 2010 BLM invited independent observers organized by American Horse Protection Association (AHPA) to observe BLM gathers and document their findings. AHPA engaged four independent credentialed professionals who are academia-based equine veterinarians or equine specialists. Each observer served on a team of two, and was tasked specifically to observe the care and handling of the animals for a 3-4-day period during the gather process, and submit their findings to AHPA. An Evaluation Checklist was provided to each of the observers that included four sections: Gather Activities; Horse Handling During Gather; Horse Description; and Temporary Holding Facility. The independent group visited 3 separate gather operations and found that "BLM and contractors are responsible and concerned about the welfare of the horses before, during and after the gather process" and that "gentle and knowledgeable, used acceptable methods for moving horses… demonstrated the ability to review, assess and adapt procedures to ensure the care and well-being of the animals" (Greene et al. 2011).

BLM commissioned the Natural Resources Council of the National Academies of Sciences (NAS) to conduct an independent, technical evaluation of the science, methodology, and technical decision making approaches of the BLM Wild Horse and Burro Management Program. Among the conclusions of their 2013 report, NAS (2013) concluded that wild horse populations grow at 15-20 percent a year, and that predation will not typically control population growth

rates of free-ranging horses. The report (NAS 2013) also noted that, because there are human-created barriers to dispersal and movement (such as fences and highways) and not enough substantial predator pressure to actually cause herds to decrease, maintaining a herd within an AML requires removing animals in roundups, also known as gathers, and may require management actions that limit population growth rates. The report (NAS 2013) examined a number of population growth suppression techniques, including the use of sterilization, fertility control vaccines, and sex ratio manipulation.

The effects of gathers as part of feral horse management have also been documented on National Park Service Lands. Since the 1980s, managers at Theodore Roosevelt National Park have used periodic gathers, removals, and auctions to maintain the feral horse herd size at a carrying capacity level of 50 to 90 horses (Amberg et al. 2014). In practical terms, this carrying capacity is equivalent to an AML. Horse herd sizes at those levels were determined to allow for maintenance of certain sensitive forage plant species. Gathers every 3-5 years did not prevent the herd from self-sustaining. The herd continues to grow, to the point that the NPS now uses gathers and removals along with temporary fertility control methods in its feral horse management (Amberg et al. 2014).

Effects of Wild Horses and Burros on Rangeland Ecosystems

The presence of wild horses and wild burros can have substantial effects on rangeland ecosystems, and on the capacity for habitat restoration efforts to achieve landscape conservation and restoration goals. While wild horses and burros may have some beneficial ecological effects, such benefits are outweighed by ecological damage they cause when herds are at levels greater than supportable by allocated, available natural resources (i.e., when herds are greater than AML).

In the biological sense, all free-roaming horses and burros in North America are feral, meaning that they are descendants of domesticated animals brought to the Americas by European colonists. Available evidence has indicated that horses went extinct in the Americas by the end of the Pleistocene, about 10,000 years ago (Webb 1984; MacFadden 2005), though DNA samples from permafrost suggest their extinction from Alaska could possibly have been as recent as about 6,000 years ago (Murchie et al. 2021). Burros evolved in Eurasia (Geigl et al. 2016). After domesticated horses were introduced to the Americas, their geographic distribution was facilitated by Native Americans and colonizing Europeans (Taylor et al. 2023a, 2023b). The published literature refers to free-roaming horses and burros as either feral or wild. In the ecological context the terms are interchangeable, but the terms ‘wild horse’ and ‘wild burro’ are associated with a specific legal status. The legal status of federally recognized wild horses and burros stems entirely from the WFRHBA of 1971, and is not dependent on whether the animals are or are not considered ‘native’ to the particular lands of the western USA where they are managed by the BLM and US Forest Service. Whether or not those animals were continuously present throughout the Holocene period in the 10 states where they are currently managed does not appear to influence the magnitude or direction of their ecological effects (Lundgren et al. 2024), but those effects are by no measure benign with respect to less well known plant and animal species, many of which have far more limited geographic distributions.

The following literature review on the effects of wild horses and burros on rangeland ecosystems draws on scientific studies of feral horses and burros, some of which also have wild horse or wild burro legal status. Parts of this review draw heavily on Parts 1 and 2 of the 'Science framework for conservation and restoration of the sagebrush biome' interagency report (Chambers et al. 2017, Crist et al. 2019).

Because of the known damage that overpopulated wild horse and burro herds can cause in rangeland ecosystems, the presence of wild horses and burros is considered a threat to Greater sage-grouse habitat quality, particularly in the bird species' western range (Beever and Aldridge 2011, USFWS 2013). Wild horse population sizes on federal lands have more than doubled in the five years since the USFWS report (2013) was published (BLM 2018). On lands administered by the BLM, there were over 82,000 BLM-administered wild horses and burros as of March 1, 2022, which does not include foals born in 2020. Lands with wild horses and burros are managed for multiple uses; scientific studies designed to separate out effects of wild horses and burros, which are summarized below, point to conclusions that landscapes with greater wild horse and burro abundance would tend to have lower resilience to disturbance and lower resistance to invasive plants than similar landscapes with herds at or below target AML levels.

In contrast to managed livestock grazing, neither the seasonal timing nor the intensity of wild horse and burro grazing can be managed, except through efforts to manage their numbers and distribution. Wild horses live on the range year round, they roam freely, and wild horse populations have the potential to grow 15-20% per year (Wolfe 1980; Eberhardt et al. 1982; Garrott et al 1991; Dawson 2005; Roelle et al. 2010; Scorolli and Cazorla 2010). Although this annual growth rate may be lower in some areas where mountain lions can take foals (Turner and Morrison 2001, Turner 2015), horses tend to favor use of more open habitats (Schoenecker 2016) that are dominated by grasses and shrubs and where ambush is less likely. Wild horses may compete for forage with elk, mule deer, other wild ungulates, and managed livestock (Smith et al. 1986a, Scasta et al. 2016, Platte and Torland 2024).

As a result of the potential for wild horse populations to grow rapidly, impacts from wild horses on water, soil, vegetation, and native wildlife resources (Davies and Boyd 2019) can increase exponentially unless there is active management to limit their population sizes. For the majority of wild horse herds, there is little overall evidence that population growth is significantly affected by predation (NAS 2013), although wild horse and burro herd growth rates may be somewhat reduced by predation in some localized areas, particularly where individual cougars specialize on horse or burro predation (Turner and Morrison 2001, Roelle et al. 2010, Mesler and Jones 2021). Andreasen et al. (2021) and Iacono (2023) found that the level of specializing on young horse varies across individual mountain lions (*Puma concolor*). This specialization seems more prevalent where horses are at very high densities and native ungulates are at very low densities (Andreasen et al. 2021). Some of the greatest recorded rates of predation on horses, by mountain lions, have been in the Virginia Range, where the state of Nevada manages a herd of feral horses that is not federally protected. Where lion predation on horses was common, Andreasen et al. (2021) found that female lions preyed on horses year-round, but 13% or fewer of horses killed by lions were adults. Andreasen et al. (2021) concluded that, "at landscape scales, cougar predation is unlikely to limit the growth of feral horse populations." Mesler and Jones (2021) also documented that some mountain lions have a far higher prevalence of wild

burro in their diet than others, though their sample size was relatively lower than Andreasen et al. (2021) or Iacono (2023). Similarly, Lundgren et al. (2022) documented that mountain lions kill feral burros in Death Valley National Park. Lundgren et al. (2022) advocated for not eliminating wild equids from landscapes, but that is not a consideration on HMAs, where the BLM aims to have herd sizes of wild horses and burros that are at or above the low level of AML. BLM does not have the legal authority to regulate or manage mountain lion populations, and it is not clear whether there are any mountain lions in the Tassi-Gold Butte HMA that specialize on burro predation. Andreasen et al. (2021) concluded that "At landscape scales, cougar predation is unlikely to limit the growth of feral horse populations." In a study of Mexican wolf predation in an area of Arizona with free-roaming horses, horses were not part of the documented wolf diet (Smith et al. 2023). Given the recent history of consistent growth in the Tassi-Gold Butte HMA wild burro herd, as documented by repeated aerial survey, the inference that predation does not limit local wild burro herd growth rates apparently applies.

The USFWS (2008), Beever and Aldridge (2011), and Chambers et al (2017) summarize much of the literature that quantifies direct ecosystem effects of wild horse presence. Beever and Aldridge (2011) present a conceptual model that illustrates the effects of wild horses on sagebrush ecosystems. In the Great Basin, areas without wild horses had greater shrub cover, plant cover, species richness, native plant cover, and overall plant biomass, and less cover percentage of grazing-tolerant, unpalatable, and invasive plant species, including cheatgrass, compared to areas with horses (Smith 1986b; Beever et al. 2008; Davies et al. 2014; Zeigenfuss et al. 2014; Boyd et al. 2017). There were also measurable increases in soil penetration resistance and erosion, decreases in ant mound and granivorous small mammal densities, and changes in reptile communities (Beever et al. 2003; Beever and Brussard 2004; Beever and Herrick 2006; Ostermann-Kelm et al. 2009). Intensive grazing by horses and other ungulates can damage biological crusts (Belnap et al. 2001). In contrast to domestic livestock grazing, where post-fire grazing rest and deferment can foster recovery, wild horse grazing occurs year round. These effects imply that horse presence can have broad effects on ecosystem function that could influence conservation and restoration actions.

Many studies corroborate the general conclusion that wild horses can lead to biologically significant changes in rangeland ecosystems, particularly when their populations are overabundant relative to water and forage resources, and other wildlife living on the landscape (Eldridge et al. 2020). The presence of wild horses is associated with a reduced degree of Greater sage-grouse lekking behavior (Muñoz et al. 2020). Moreover, increasing densities of wild horses, measured as a percentage above AML, are associated with decreasing greater sage-grouse population sizes, measured by lek counts (Coates et al. 2021). In northwest Nevada, Behnke et al. (2023) found that Greater sage-grouse nesting rates were marginally higher in areas with wild horses, but Behnke et al. (2022) found that Greater sage-grouse in areas with feral horses had elevated corticosterone levels, especially under drought conditions. Behnke et al. (2022) also found that high corticosterone levels were associated with low Greater sage-grouse nesting success rates. In Wyoming, Hennig et al (2023) found a high degree of spatial overlap between wild horses and Greater sage-grouse in summer. Horses are primarily grazers (Hanley and Hanley 1982), but shrubs – including sagebrush – can represent a large part of a horse's diet, at least in summer in the Great Basin (Nordquist 2011). Horses may crop grazed plants closer to the ground than bovids because horses have agile lips and top and bottom teeth (Chapter 21 in

McNew et al. 2023). Free-ranging equids have a high affinity for habitats that are close to water (Esmaeili et al. 2021, Karish et al 2023), which appears to be stronger than for like-sized ruminants (Esmaeili et al. 2021). Grazing by wild horses can have severe impacts on water source quality, aquatic ecosystems and riparian communities as well (Beever and Brussard 2000; Barnett 2002; Nordquist 2011; USFWS 2008; Earnst et al. 2012; USFWS 2012, Kaweck et al. 2018), sometimes excluding native ungulates from water sources (Ostermann-Kelm et al. 2008; USFWS 2008; Perry et al. 2015; Hall et al. 2016; Gooch et al. 2017; Hall et al. 2018). Impacts to riparian vegetation per individual wild horse can exceed impacts per individual domestic cow (Kaweck et al. 2018, Burdick et al. 2021). Bird nest survival may be lower in areas with wild horses (Zalba and Cozzani 2004), and bird populations have recovered substantially after livestock and / or wild horses have been removed (Earnst et al. 2005; Earnst et al. 2012; Batchelor et al. 2015). Wild horses can spread nonnative plant species, including cheatgrass, and may limit the effectiveness of habitat restoration projects (Beever et al. 2003; Couvreur et al. 2004; Jessop and Anderson 2007; Loydi and Zalba 2009). Riparian and wildlife habitat improvement projects intended to increase the availability of grasses, forbs, riparian habitats, and water would likely attract and be subject to heavy grazing and trampling by wild horses that live in the vicinity of the project. Even after domestic livestock are removed, continued wild horse grazing can cause ongoing detrimental ecosystem effects (USFWS 2008; Davies et al. 2014) which may require several decades for recovery (e.g., Anderson and Inouye 2001).

Wild horses and burros may have ecologically beneficial effects, especially when herd sizes are low relative to available natural resources, but those ecological benefits do not typically outweigh damage caused when herd sizes are high, relative to available natural resources. Under some conditions, there may not be observable competition with other ungulate species for water (e.g., Meeker 1979), but recent studies that used remote cameras have found wild horses excluding native wildlife from water sources under conditions of relative water scarcity (Perry et al. 2015, Hall et al. 2016, Hall et al. 2018). Compared to landscapes where large herbivores such as horses and burros are completely absent, the presence of some large herbivores can cause local-scale ecological disturbances that may increase local species diversity (Trepel et al. 2024); this is consistent with the intermediate disturbance hypothesis (e.g., Wilkinson 1999), which also predicts that excessive disturbance, such as may be associated with wild horse herds far above AML, leads to reduced species diversity. Wild burros (and, less frequently, wild horses) have been observed digging ‘wells;’ such digging may improve habitat conditions for some vertebrate species and, in one site, may improve tree seedling survival (Lundgren et al. 2021). This behavior has been observed in intermittent stream beds where subsurface water is within 2 meters of the surface (Lundgren et al. 2021). The BLM is not aware of published studies that document wild horses or burros in the western United States causing similar or widespread habitat amelioration on drier upland habitats such as sagebrush, grasslands, or pinyon-juniper woodlands. Lundgren et al. (2021) suggested that, due to well-digging in ephemeral streambeds, wild burros (and horses) could be considered ‘ecosystem engineers;’ a term for species that modify resource availability for other species (Jones et al. 1994). Rubin et al. (2021) and Bleich et al. (2021) responded by pointing out that ecological benefits from wild horse and burro presence must be weighted against ecological damage they can cause, especially at high densities. Burro density appears to be negatively correlated with endangered desert tortoise presence which implies that burros should be considered along with other known environmental factors that can degrade tortoise habitat and demographic rates (Berry et al. 2020). O’Donnell et

al. (2023) noted that burros and cattle cause damage to riparian areas in the project area, rendering them unsuitable habitat for another amphibian species of conservation concern, the barred tiger salamander (*Ambystoma mavortium*).

In HMAs where wild horse and burro biomass is very large relative to the biomass of native ungulates (Boyce and McLoughlin 2021), they should probably also be considered 'dominant species' (Power and Mills 1995) whose ecological influences result from their prevalence on the landscape. Wild horse densities could be maintained at high levels in part because artificial selection for early or extended reproduction may mean that wild horse population dynamics are not constrained in the same way as large herbivores that were never domesticated (Boyce and McLoughlin 2021). Another potentially positive ecological effect of wild horses and burros is that they, like all large herbivores, redistribute organic matter and nutrients in dung piles (i.e., King and Gurnell 2006), which could disperse and improve germination of undigested seeds. This could be beneficial if the animals spread viable native plant seeds (i.e., Downer 2022), but could have negative consequences if the animals spread viable seeds of invasive plants such as cheatgrass (i.e,, Loydi and Zalba 2009, King et al. 2019). Increased wild horse and burro density would be expected to increase the spatial extent and frequency of seed dispersal, whether the seeds distributed are desirable or undesirable. As is true of herbivory by any grazing animals, light grazing can increase rates of nutrient cycling (Manley et al. 1995) and foster compensatory growth in grazed plants which may stimulate root growth (Osterheld and McNaughton 1991, Schuman et al. 1999) and, potentially, an increase in carbon sequestration in the soil (i.e., Derner and Schuman 2007, He et al. 2011). In Spain, Segarra et al. (2023) noted that an area lightly to moderately grazed by donkeys had lower net productivity but higher plant biodiversity than ungrazed pastures where trees were encroaching. However, when grazer density is high relative to available forage resources – as can be the case when wild horse and burro densities exceed AML – then overgrazing by any species can lead to long-term reductions in plant productivity, including decreased root biomass (Herbel 1982, Williams et al. 1968) and potential reduction of stored carbon in soil horizons. Ecological processes associated with large herbivore carcass decomposition can contribute to higher insect and microbial diversity and localized nutrient flux to soils and plants, with effects that may last for several years (Newsome and Barton 2023). Degraded ecosystems may not have the capacity to use and recycle the ecological benefits of decomposing carcasses to the same level as healthy, diverse, resilient ecosystems (Newsome and Barton 2023).

Recognizing the potential beneficial effects of low-density wild horse and burro herds, but also recognizing the totality of available published studies documented ecological effects of wild horse and burro herds, especially when above AML (as noted elsewhere), it is prudent to conclude that horse and burro herd sizes above AML may cause levels of disturbance that reduce landscapes' capacity for resilience in the face of further disturbance, such as is posed by extreme weather events and other consequences of climate change.

Most analyses of wild horse effects have contrasted areas with wild horses to areas without, which is a study design that should control for effects of other grazers, but historical or ongoing effects of livestock grazing may be difficult to separate from horse effects in some cases (Davies et al. 2014). Analyses have generally not included horse density as a continuous covariate; therefore, ecosystem effects have not been quantified as a linear function of increasing wild

horse density. One exception is an analysis of satellite imagery confirming that varied levels of feral horse biomass were negatively correlated with average plant biomass growth (Ziegenfuss et al. 2014).

Horses require access to large amounts of water; an individual can drink an average of 7.4 gallons of water per day (Groenendyk et al. 1988). Despite a general preference for habitats near water (e.g., Crane et al. 1997), wild horses would routinely commute long distances (e.g., 10+ miles per day) between water sources and palatable vegetation (Hampson et al. 2010).

Wild burros can also substantially affect riparian habitats (e.g., Tiller 1997), native wildlife (e.g., Seegmiller and Ohmart 1981), and have grazing and trampling impacts that are similar to wild horses (Carothers et al. 1976; Hanley and Brady 1977; Douglas and Hurst 1993). Where wild burros and Greater sage-grouse co-occur, burros' year-round use of low-elevation habitats may lead to a high degree of overlap between burros and Greater sage-grouse (Beever and Aldridge 2011).