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Bullfrog Herd Management Area Plan/Gather Plan
Environmental Assessment

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U.S. Department of the Interior
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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) Battle Mountain District (BMD) Tonopah Field Office's (TFO) proposal to establish a Bullfrog Herd Management Area Plan (HMAP) and to gather and remove excess wild horses and wild burros from within and around the Bullfrog Herd Management Area (HMA). The proposed HMAP would identify and establish short- and long-term management and monitoring objectives for the herds and their habitat to guide management of the Bullfrog HMA wild burros. This includes outlining the selected management actions, together with the management and monitoring objectives which, when implemented, would make progress toward achieving land health standards, land use plan goals/objectives, and other relevant objectives. The gather plan, if approved, would authorize an initial gather or gathers to immediately remove excess animals, as well as implementation of fertility control treatments.

This EA will assist the BLM TFO in project planning and ensuring compliance with the National Environmental Policy Act (NEPA[1]), and in making a determination as to whether any significant effects could result from the analyzed actions. Following the requirements of NEPA, this EA describes the potential impacts of a No Action Alternative and the Proposed Action for the Bullfrog HMA. If the BLM determines that the Proposed Action for the Bullfrog HMA is not expected to have significant impacts, it will issue a Finding of No Significant Impact (FONSI) and a Decision Record. If significant effects are anticipated, the BLM will prepare an Environmental Impact Statement (EIS).

This document is tiered to the Tonopah Proposed Resource Management Plan (RMP) and Final Environmental Impact Statement dated October 1994 and is in conformance with the Tonopah RMP that was approved in a Record of Decision (ROD) signed October 1997.

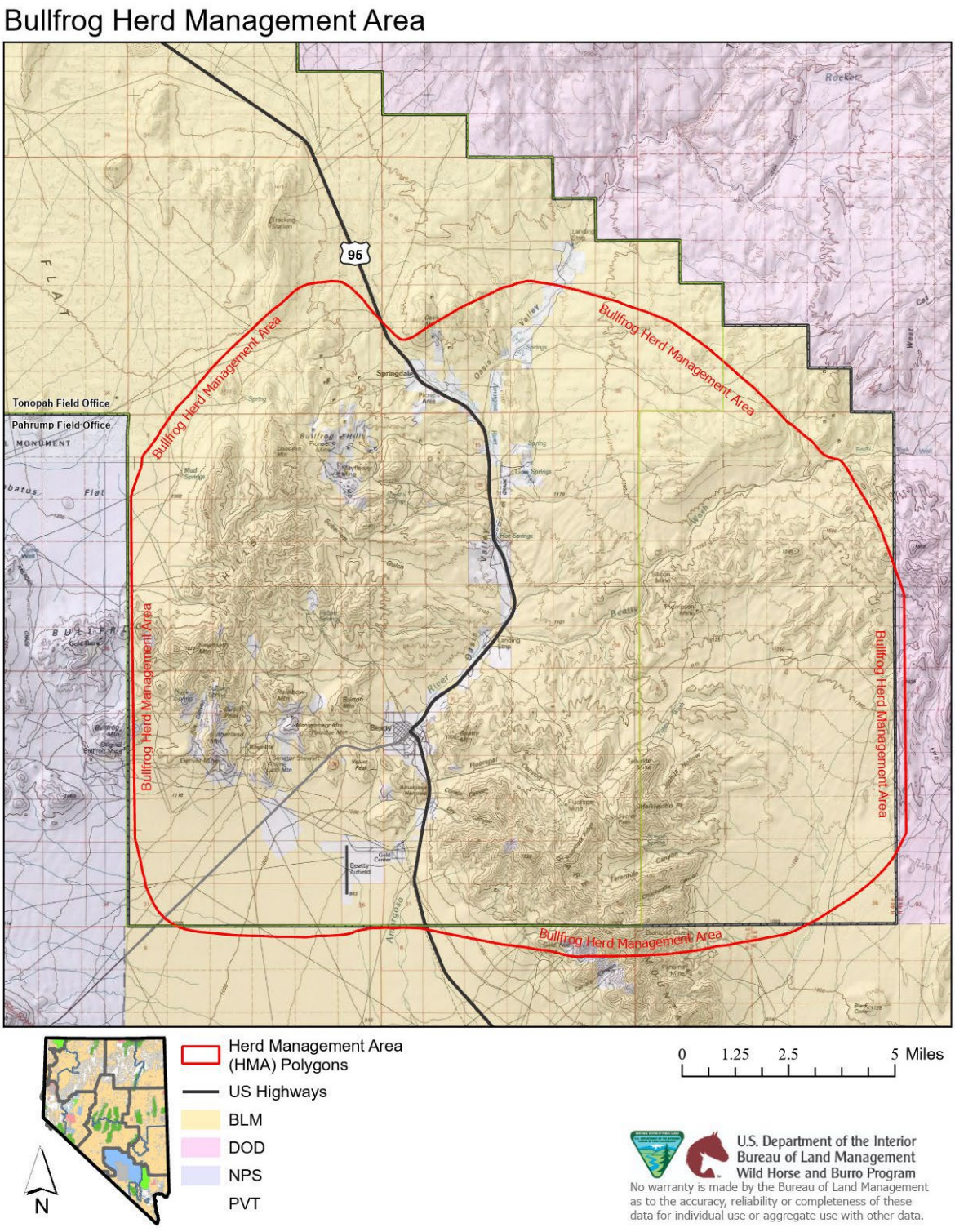
1.2 Background

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 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, goals have also included conducting gathers and applying contraceptive treatments to achieve and maintain wild horse and burro populations within the established AML, 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 ongoing genetic diversity data to support assessments. Reducing the numbers of excess wild 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

[1] Executive Order 14154, Unleashing American Energy (Jan. 20, 2025), and a Presidential Memorandum, Ending Illegal Discrimination and Restoring Merit-Based Opportunity (Jan. 21, 2025), require the Department to strictly adhere to the National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321 et seq. Further, such Order and Memorandum repeal Executive Orders 12898 (Feb. 11, 1994) and 14096 (Apr. 21, 2023). Because Executive Orders 12898 and 14096 have been repealed, complying with such Orders is a legal impossibility. The Bureau of Land Management verifies that it has complied with the requirements of NEPA, including the Department's regulations and procedures implementing NEPA at 43 C.F.R. Part 46 and Part 516 of the Departmental Manual, consistent with the President's January 2025 Order and Memorandum. The BLM has also voluntarily considered the Council on Environmental Quality's rescinded regulations implementing NEPA, previously found at 40 C.F.R. Parts 1500–1508, as guidance to the extent appropriate and consistent with the requirements of NEPA and Executive Order 14154.

Accountability Office (GAO), Office of Inspector General (OIG), among others, and with current BLM policy.

The Bullfrog HMA is in the northern Mojave Desert, approximately 90 miles southeast of Tonopah, Nevada, in Nye County, and is managed by the Bureau of Management (BLM) Tonopah Field Office (TFO). The eastern edge of the HMA borders the Nevada Testing and Training Range (NTTR), and the western border neighbors Death Valley National Park. Burro movement between the HMA and the NTTR has been observed, and similar movement between the National Park and the HMA likely occurs. The southern border of the HMA is the Battle Mountain District boundary, which borders the Southern Nevada District. The town of Beatty, Nevada (pop. 596 as of 2022) lies in the center of the HMA, and United States (U.S.) Highway 95 splits the HMA into eastern and western portions. Most of the burro population resides in the western side of the HMA with some burros residing outside of the HMA boundaries to the south and west. The HMA is approximately 157,180 acres in size, with land status as shown in Table 1 below. **See Map 1.**



Map 1: Bullfrog Herd Management Area

Table 1. Bullfrog HMA Surface Management

Surface Management	Acres*	Percentage*
Bureau of Land Management	146,701	93%
Private	10,479	7%
Total	157,180	100%

*Subject to change over time

In the Bullfrog HMA, the BLM manages for an Appropriate Management Level (AML) range of 58-91 wild burros. The Bullfrog HMA is not designated for wild horse management, and therefore any excess wild horses that stray into the area must be removed. These management directives were established in the 1997 Tonopah RMP based on monitoring data and an in-depth analysis of habitat suitability for maintaining healthy wild burros on rangelands over the long-term.

The estimated number of burros in the herd associated with the Bullfrog HMA, as of March 2025, is at least 1,197 adults, with approximately 40% of those being within the Bullfrog HMA and approximately 60% outside the HMA boundaries. Additional foals can be expected to increase the herd size through 2025. The spring 2025 values are based on the most recent aerial survey of the area, which was conducted in April 2024 and used simultaneous double-observer methods for data recording (Griffin et al. 2020) and analysis (Lubow 2020, Crabb 2025a), and projections of annual herd growth since then. In April 2024, 864 adult burros and 58 foal burros were directly seen in and near the HMA. Data analyses estimated the number of burros that were present but not seen by observers during flights (Crabb 2025a), such that the estimated April 2024 burro population size was at least 1,015 adults and 69 foals. Of that total, 663 burros (or about 60% of the herd) were located outside of HMA boundaries. The 2010 BLM wild horse and burro herd management handbook H-4700-1 defines adults as any animal born in the previous year or older. The 2024 herd size estimate should be considered a minimum, because actual burro population estimates are routinely 25% higher even than the value estimated by simultaneous double-observer surveys (Hennig et al. 2022, Crabb 2025a). Based on this, there could actually be almost 1,500 adult burros in and near the Bullfrog HMA in March 2025, but for the analyses in this EA, the BLM is basing analyses off of the minimum estimated number of burros as of March 2025 (1,197 adults). Wild burro populations grew in this area at an average of approximately 18% per year since the HMA was last gathered, so an 18% annual growth rate was used to estimate the spring 2025 projected herd size (*per* SOP 7, in Griffin et al. 2020). That is: 1,197 adults in early 2025 comes from 1,015 adults estimated in early 2024 plus a net growth of 18%. This 2025 adult burro total is more than 20 times the low range of AML for the Bullfrog HMA, and more than 13 times the high range of AML.

19 wild horses were estimated to be present in areas near but outside of Bullfrog HMA boundaries, based on observations in the same 2024 aerial surveys (Crabb 2025b). Assuming a 20% wild horse annual population growth rate, there may be approximately 21 wild horses in the project area as of April 2025. The Bullfrog HMA is only managed for an AML of 58-91 wild burros, so all these wild horses are excess animals that could be subject to removal. The USGS Statistical Analysis of the referenced 2024 survey of Bullfrog HMA is available for review in **Appendix G**.

The most recent gather for Bullfrog HMA occurred in September 2019, when approximately 690 excess wild burros (over the AML) were removed from the HMA.

Based upon all information available at this time, the BLM has determined that all burros over the low AML of 58 are in excess, as well as all wild horses in the area. These excess wild burros and horses need to be removed to achieve the established AML, restore a thriving natural ecological balance (TNEB) and

prevent further degradation of rangeland resources. This assessment is based on factors including, but not limited to the following rationale:

- Bullfrog HMA estimated populations greatly exceed the established AML range of 58-91 wild burros.
    - An estimated total of 1,015 adult and 69 foal wild burros were present in April 2024 in and around the HMA (Lubow 2020). That means that even at that time, there were approximately 957 excess adult wild burros. Applying a 18% expected annual herd growth rate leads to a current estimate of approximately 1,197 adult wild burros by April 2025 and approximately 1,139 excess wild burros.
- The Beatty Town Advisory Board issued a formal request to the BLM for a gather in 2023 and again in 2024, in response to public safety concerns along Hwy 95 and major roadways around town as well as private property damage/concerns experienced by the town resulting from an overpopulation of wild burros.
- Vehicle collisions with wild burros residing within and outside of the town of Beatty, NV occur frequently and are at times deadly to wild burros.
- Approximately 58% of the HMA occurs within mapped habitat of the threatened Mojave Desert tortoise (*Gopherus agassizii*). Degradation of tortoise habitat threatens meeting TNEB objectives.
- Emergency Petition to List the Oasis Valley Speckled Dace (July 2, 2024) and Amargosa toad cites aquatic habitat alteration and trampling by non-native burros a threat to the petitioned species (Center for Biological Diversity, 2024).
- Utilization monitoring completed in 2022 through 2024 documents heavy utilization of forage during dry years impacting all resources carried forward for analysis.
- Trending drought conditions may compromise the available forage resources within the HMA, leading to increased potential for severe malnutrition of burros in and near the HMA, and attendant need for emergency gathers of wild burros.
- Trending drought conditions may compromise the available forage resources within the HMA, leading to increased potential for emergency gathers of wild burros.
- Water sources available to wild burros are very limited in Bullfrog HMA, and riparian degradation is occurring due to the overpopulation of wild burros using these areas. **See Appendix A, Map 2.**
    - Spring monitoring in 2024 has shown heavy damage to riparian habitats, and extensive trampling and trailing damage by wild burros, causing concern for the longevity of vital spring sources and habitat.
- Historic monitoring and census information indicate that future emergency removals would be necessary due to public safety/private property issues, lack of water and/or forage if gathers are not conducted to reduce the population to AML.
- The BLM must maintain the population of wild burros within the AML range of 58-91 in order to make continued progress towards the Standards for Rangeland Health in accordance with the Mojave-Southern Great Basin Resource Advisory Council (RAC).

1.3 Purpose and Need for Action

The BLM's purpose is to adopt and implement a Herd Management Area Plan (HMAP) consistent with the authority provided in 43 CFR Part 4700, restore and maintain a Thriving Natural Ecological Balance by maintaining wild burro populations within the established AML range for the Bullfrog HMA, and to reduce wild burro population growth rates to extend the time between gather events.

The BLM's need is to prevent undue or unnecessary degradation of the public lands associated with excess wild burros, and to restore a thriving natural ecological balance and multiple-use relationship on public lands, consistent with the Federal Land Policy Management Act (FLPMA) and the WFRHBA

1.4 Land Use Plan Conformance

The Proposed Action is in conformance with the 1997 Tonopah RMP as follows:

Objective: To manage wild horse and/or burro populations within Herd Management Areas at levels which will preserve and maintain a TNEB consistent with other multiple-use objectives (page 14).

1) Continue the following management determinations:
    a) Manage wild horses and/or burros in 16 HMAs listed in Table 3 of the RMP.
    b) Manage wild horses and/or burros at AML or interim herd size (IHS) for each HMA outlined in Table 3. Future herd size or AMLs within each HMA will be adjusted as determined through short-term and long-term monitoring data methods as outlined in the Nevada Rangeland Monitoring Handbook and BLM Technical References.
2) When the AML is exceeded, remove excess wild horses and/or burros to a point which may allow up to three years of population increase before again reaching the AML.

Within the 1997 Tonopah RMP the definition of AML is given as *"the maximum number of wild horses and/or burros to be managed within a herd management area and has been set through monitoring and evaluation or court order"* (page 15).

1.5 Relationship to Laws, Regulations, and Other Plans

FLPMA requires that an action under consideration be in conformance with the applicable BLM land use plan(s), and be consistent with other federal, state, and local laws and policies to the maximum extent possible.

The Proposed Action is consistent with the WFRHBA, which mandates the BLM to *"prevent the range from deterioration associated with overpopulation", and "remove excess horses in order to preserve and maintain a thriving natural ecological balance and multiple use relationships in that area".*
Also the WFRHBA at section 1333 (b)(1) states: *"The purpose of such inventory shall be to: make determinations as to whether and where an overpopulation exists and whether action should be taken to remove excess animals; determine appropriate management levels or wild free-roaming horses and burros on these areas of public land; and determine whether appropriate managements should be achieved by the removal or destruction of excess animals, or other options (such as sterilization, or natural control on population levels)."*

The Proposed Action is consistent with the BLM's regulations that implement the WFRHBA, found at 43 CFR Part 4700:

- 43 CFR 4700.0-6 (a) Wild horses and burros shall be managed as self-sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat.

- 43 CFR 4710.4 Management of wild horses and burros shall be undertaken with the objective of limiting the animals' distribution to herd areas. Management shall be at the minimum level necessary to attain the objectives identified in approved land use plans and herd management area plans.

- 43 CFR 4720.1 Upon examination of current information and a determination by the authorized officer that an excess of wild horses or burros exists, the authorized officer shall remove the excess animals immediately…

- 43 CFR 4720.2 Upon written request from a private landowner…the Authorized Officer shall remove stray wild horses and burros from private lands as soon as practicable.

- 43 CFR 4740.1 (a) Motor vehicles and aircraft may be used by the authorized officer in all phases of the administration of the Act, except that no motor vehicle or aircraft, other than helicopters, shall be used for the purpose of herding or chasing wild horses or burros for capture or destruction. All such use shall be conducted in a humane manner. (b) Before using helicopters or motor vehicles in the management of wild horses or burros, the authorized officer shall conduct a public hearing in the area where such use is to be made.

The Interior Board of Land Appeals (IBLA) in *Animal Protection Institute et al.*, 118 IBLA 63, 75 (1991) found that under the WFRHBA, the BLM is not required to wait until the range has sustained resource damage to reduce the size of the herd, and instead proper range management dictates removal of "excess animals" before range conditions deteriorate in order to preserve and maintain a TNEB and multiple-use relationship in that area.

1.6 Decision to be Made

The Authorized Officer would determine whether to implement all, part, or none of the proposed Herd Management Area Plan and gather/population control measures described in the HMAP and EA to manage wild burros within the Bullfrog HMA. The Authorized Officer would not set or adjust AML, since it was adopted in the 1997 Tonopah RMP based on monitoring.

2.0 Description of the Alternatives

2.1 Introduction

This section of the EA describes the Proposed Action and No Action Alternative, and Alternatives that were considered but eliminated from detailed analysis:

- Proposed Action: Adopt the HMAP with a management strategy of short- and long-term objectives which would include several population growth suppression methods. Also, approve the gather plan to immediately gather and remove excess animals in order to reach low AML as expeditiously as possible through an initial gather, and if necessary, a follow-up gather or gathers, in order to achieve and maintain the population within AML range. Follow-up gathers to remove excess animals to achieve low AML for wild burros will be conducted as promptly as appropriate to allow sufficient time for the animals to settle after water/bait trapping and/or a helicopter gather to provide for a safe, efficient, and effective follow-up gather operation. Population Growth Suppression methods (i.e., fertility control vaccines) may be administered to released wild burros, and a sex ratio of 50/50 would be maintained. Wild horses in the HMA and in surrounding areas near the HMA would be removed, as the Bullfrog HMA is only managed for 58-91 wild burros.

- No Action Alternative: Under the No Action Alternative, the BLM would not implement an HMAP and would not gather to remove excess wild burros. There would be no active management to control population growth rates, the size of the wild burro population, or to bring the wild burro population to AML.

2.2 Herd Management Area Plan

The Herd Management Area Plan (HMAP) is a plan for the management of wild burros within the Bullfrog HMA. The potential HMAP is described in more detail in **Appendix D,** including management, monitoring, and implementation objectives. Potential future actions listed in the objectives of the HMAP would be reviewed prior to implementation to determine if additional NEPA documentation is required.

Table 2. Herd Management Area Plan Action Table

Item	Proposed Action	No Action
Population Management	Manage wild burro population within the established AML range of 58-91 wild burros to protect the range from deterioration associated with overpopulation. Excess wild burros would be removed to the low range of AML upon determination that excess animals are present. Once high-end of AML has been surpassed, follow up gathers would occur to remove excess wild burros back down to low end of AML.	The HMA would be managed under existing management.
Adjustment to AML	AML would be evaluated, as needed, following an in-depth analysis of resource conditions including but not limited to actual use, utilization, available forage and water, range conditions, trend, and precipitation.	
Population Control Method	Gathers to remove excess wild burros. Additional population growth suppression methods would be utilized by implementing fertility control methods.	Continue existing management, a gather to remove excess wild burros would not occur. There would be no active management to control population growth rates, the size of the wild horse population or to bring the wild horse population to AML
Sex Ratio	Approximately 50/50	No sex ratio adjustment would occur
Total animals remaining following gathers	Low Range of AML 58 wild burros	N/A
Selective Removal Criteria	Selective Removals would only be implemented once the HMA is within Appropriate Management Levels. Selection would be focused on returning animals with good conformation or size.	No Selective Removal would occur
Genetic Diversity	The objective is to maintain genetic diversity within the herd (avoid inbreeding depression, i.e. maintain Ho at 0.344 (+ or – 10%) Under the Proposed Action, if future genetic sampling indicates a loss of 10%, 3-4 Jennies from similar HMAs would be introduced.	No correction for potential future genetic loss would be implemented under this alternative.
Rangeland Health	Utilization by all herbivores is limited to 35% of current year's production for key grasses, key shrubs, and forbs.	
Riparian Health	Existing water developments would be periodically maintained, and new water developments could be constructed as needed.	Maintain existing water developments until they outlive their useful life then remove them and readjust AML based on available water.
Wild Horses	The Bullfrog HMA is not designated for long term management for wild horses. All wild horses present	No removal of wild horses.

	within the HMA or outside are determined to be excess, and so would be removed to the extent practicable.	

2.3 Management Actions under the Proposed Action

2.3.1 Population Management

The Proposed Action would implement a management strategy which would incorporate a number of population management methods. Under this strategy the Bullfrog HMA would continue to be managed at an AML range of 58-91 wild burros, which was established in the 1997 Tonopah RMP. The BLM would immediately gather and remove excess wild burros over low AML and all excess wild horses; both within and outside the HMA, which as of March 2025 were estimated to number approximately 1,139 wild burros. The BLM would also administer or boost fertility control vaccines as population growth suppression measures to gathered and released female wild burros over a period of multiple years from the initial gather or gathers. This would allow BLM to achieve management goals and objectives of attaining a herd size that is at the low range of AML, reducing population growth rates, and achieving a thriving natural ecological balance on the range as required by the WFRHBA. Wild horses in the HMA and in surrounding areas near the HMA would be removed, as the Bullfrog HMA is only managed for 58-91 wild burros.

It is expected that many factors may not allow for the removal of sufficient excess animals during the initial gather to reach low AML. Based on BLM's experience over the past few decades, there are a number of logistical and operational factors that can affect BLM's ability to achieve low AML with a single gather, including (but not limited to):

- limitations on holding space mean that BLM may have nowhere to place removed animals;
- gather efficiency is typically less than 80% on average, which reduces the likelihood that all excess animals can be removed in a single operation when the population significantly exceeds AML;
- the likely population undercount (Hennig et al. 2022) can result in additional excess wild burros being identified in a follow-up inventory even if the initially targeted numbers of estimated excess wild burros have been removed;
- the wild burros become more challenging to catch as the helicopter gather operation progresses and they learn to evade the helicopter;
- weather conditions may impede achieving the targeted removal numbers;
- limited availability of contractors with the expertise needed to gather animals safely can impact the ability to continue with a gather until all excess animals have been removed.

For this reason, if low AML cannot be achieved through a single initial gather, a follow-up gather or gathers may be necessary to achieve low AML. The BLM would return to the HMA to remove the remaining excess burros in follow-up gathers as necessary. Follow-up gathers would be scheduled as expeditiously as feasible, considering all factors including logistics, contractor availability, space capacity at holding facilities, and funding. In both initial and follow-up gathers, BLM would aim to remove excess wild burros necessary to achieve and maintain the low range of AML. The BLM may also gather and release a sufficient number of wild burros to implement the population control component of the Proposed Action, which includes fertility control vaccines (PZP vaccines, GonaCon-Equine vaccine) for wild burros remaining in the HMA. Removal of excess wild burros would be prioritized as follows: from areas where public health and safety issue have been identified; private land and non-HMA areas where resource degradation or deficiency has been identified; within HMA from areas where resource degradation or habitat issues are most pressing; and where needed to reach and maintain low AML. Once low AML is reached; enough additional wild burros would be gathered to implement a selective removal procedure which would prioritize removal of younger excess wild burros within the HMA to keep the

population from exceeding the high range of AML so that degraded range resources have sufficient opportunity for recovery, and allow older, less adoptable wild burros, to be released back to the HMA. BLM could begin implementing the population growth suppression components (PZP vaccines, GonaCon-equine vaccine) of this alternative as part of the initial gather and continue with increasing use of fertility controls in the follow-up gathers as the excess population is removed from the range. While in the temporary holding corral, burros would be identified for removal or release based on age, gender, confirmation, and/or other characteristics. Jennies identified for release would be aged, microchipped and freeze-marked for identification prior to being released to help identify the animals for future treatments/boosters and assess the efficacy of fertility control treatments. BLM may also apply fertility control treatments outside of removal operations, either through catch-treat-and- release or other methods like remote darting. To help improve the efficacy and duration of fertility control vaccines, jennies could be held for an additional 30 days and given a booster shot prior to release. It is expected that the number of fertile jennies and jacks will always be a relatively large fraction (i.e., ~60% or more) of low AML, including those elusive animals that are never gathered, and their offspring, fertile jacks, and jennies whose reversible immunocontraceptive fertility control vaccines have become ineffective over time.

Population inventories and routine resource/habitat monitoring would continue to be completed every two to three years to document current population levels, growth rates, and areas of continued resource concerns (burros concentrations, riparian impacts, over-utilization, etc.). Funding limitations and competing national priorities may impact the timing and ability to gather and conduct fertility control components of the Proposed Action.

The management objective for the Bullfrog HMA would be to manage the wild burro population within the AML range to achieve and maintain TNEB. BLM would achieve this through gathering and removing excess wild burros within the HMA to the low AML and also by applying population growth suppression measures to include:

- Administration of fertility control measures (i.e. PZP vaccines, GonaCon-equine vaccine or newly developed vaccine formulations) to released jennies.
- maintaining sex ratios to achieve a 50% male to 50% female ratio.

The fertility control component of the Proposed Action would reduce the total number of wild burros that would otherwise be permanently removed from the range. Primary gather methods would include helicopter drive, bait, and water trapping. It is expected that not all burros would be able to be captured, as gather efficiencies rarely exceed 80-85% especially in the HMA. As a result of that and associated herd growth between gathers, it is expected that a proportion of wild burros (15- 20%+) in the project area may never be captured or treated. Nonetheless, if gathers and fertility control vaccine application could lead to approximately half of all jennies being effectively contracepted in any given year, that would reduce annual growth rates to a level of approximately 5-9% per year, which would be a substantial reduction from the currently expected rate of 18% per year.

As a part of periodic sampling to monitor wild burros' genetic diversity in the HMA, hair follicle samples would be collected after the initial gather. Samples would be collected for analysis to assess the levels of observed heterozygosity, which is a measure of genetic diversity (BLM 2010, NAS 2013) within the HMA. Samples may be analyzed to determine relatedness to established breeds and other federally managed wild burro herds. Genetic sampling may be repeated opportunistically, at times associated with future gathers, or more frequently if the analysis of samples from the initial gather indicate that is warranted.

2.3.2. Population Growth Suppression Methods

The Proposed Action would include the use of fertility control vaccines (PZP vaccines [ZonaStat-H, PZP-22], GonaCon-Equine vaccine or most current formulation) as a means of population growth suppression. In cases where a booster vaccine is required, jennies could be held for approximately 30 days and given a booster shot prior to release. Over the course of multiple gathers, BLM would treat/retreat jennies with fertility control vaccine to help limit herd growth rates and meet herd management objectives. Causing the annual herd growth rates to be between 5-10% per year would be a desirable outcome for fertility control application, but the BLM recognizes that many logistical factors could limit the BLM's ability to reach that outcome. The BLM will individually identify and keep track of the number and type of fertility control vaccine treatments any jenny receives. Even with these treatments, the herd is expected to continue to have positive population growth. The use of any new fertility control method would conform to current best management practices at the direction of the BLM's National Wild Horse and Burro Program.

A detailed analysis on population growth suppression methods is formulated further in **Appendix C**, but the immunocontraceptive vaccines noted above are described briefly below.

2.3.2.1. Porcine Zona Pellucida (PZP) Vaccine

Immunocontraceptive Porcine Zona Pellucida (PZP) vaccines are currently being used on over 75 areas managed for wild and feral horses and burros by the National Park Service, US Forest Service, the Department of Defense, and the BLM and their use is appropriate for free-ranging wild horse and burro herds (EPA 2012, NRC 2013). Taking into consideration available literature on the subject, the National Research Council concluded in their 2013 report that PZP vaccine was one of the preferred available methods for contraception in wild horses and burros (NRC 2013). PZP vaccine use can reduce or eliminate the need for gathers and removals (Turner et al. 1997, Schulman et al 2024). PZP vaccines meet most of the criteria that the National Research Council (2013) used to identify promising fertility control methods, in terms of delivery method, availability, efficacy, and side effects. It has been used extensively in wild horses (NRC 2013), and in feral and wild burros (Turner et al. 1996, Kahler and Boyles-Griffin 2022). PZP vaccine can be relatively inexpensive, meets BLM requirements for safety to mares and the environment, and is commercially produced as ZonaStat-H, an EPA-registered product (EPA 2012, SCC 2015), or as PZP-22, which is a formulation of PZP in polymer pellets that can lead to a longer immune response (Turner et al. 2002, Rutberg et al. 2017, Carey et al. 2019, Grams 2022). It can easily be remotely administered (dart-delivered) in the field, but typically, only where mares or jennies are relatively approachable. Depending on their age and the specific timing of when an immune response to the vaccine wears off, mares that are treated multiple times with ZonaStat-H can become infertile until they die – that is, the vaccine use effectively sterilizes the mares (Nuñez et al. 2017). Standard directions for fertility control vaccine use are included in **Appendix C**. For an analysis of the effects of including fertility control-vaccine treated mares in the herd, see section 3.3; the herd is still expected to grow even if a high fraction of jennies are immunocontracepted (**Appendix C**).

Under the Proposed Action, jennies being treated for the first time would receive a liquid primer dose along with time release pellets ("PZP-22"), if they are available. If no PZP-22 pellets are available at the time, the BLM would hold mares for up to 30 days and treat them with a booster dose of ZonaStat-H before release back to the HMA. BLM would return to the HMA as needed to re-apply PZP-22 and/or ZonaStat-H and initiate new treatments in order to maintain contraceptive effectiveness in controlling population growth rates. Application methods could be by hand in a working chute during gathers (ZonaStat-H and PZP-22), or through field darting (ZonaStat-H) if jennies in some portions of the HMA prove to be approachable. Both forms of PZP can safely be reapplied as necessary to control the population growth rate. Even with repeated booster treatments of PZP, it is expected that most, if not all, jennies would return to fertility, and not all jennies would be treated or receive boosters within the HMA

due to the size of the population, gather efficiencies and logistics of wild burro gathers. Once the population is at AML and population growth seems to be stabilized, BLM could use population planning software (i.e., PopEquus, with a burro module currently in development by USGS Fort Collins Science Center) to determine the required frequency of re-treating jennies with PZP or other fertility control methods.

2.3.2.2. Gonadotropin Releasing Hormone (GnRH) Vaccine, GonaCon-Equine

Registration and safety of GonaCon-Equine
The immune-contraceptive GonaCon-Equine vaccine meets most of the criteria that the National Research Council of the National Academy of Sciences (NRC 2013) used to identify the most promising fertility control methods, in terms of delivery method, availability, efficacy, and side effects. GonaCon-Equine is approved for use by authorized federal, state, tribal, public and private personnel, for application to wild and feral equids in the United States (EPA 2013, 2015). Its use is appropriate for free-ranging wild horse and burro herds. Taking into consideration available literature on the subject, the National Research Council concluded in their 2013 report that GonaCon-B (which is produced under the trade name GonaCon-Equine for use in feral horses and burros) was one of the most preferable available methods for contraception in wild horses and burros (NRC 2013). GonaCon-Equine has been used on feral horses in Theodore Roosevelt National Park (Baker et al. 2018, Baker et al. 2023) and over the past 10 years, has also been applied to an increasing number of BLM-managed wild horses in over 15 HMAs throughout the west. GonaCon-Equine can be remotely administered in the field in cases where mares are relatively approachable, using a customized pneumatic dart (McCann et al. 2017, Baker et al. 2023). Use of remotely delivered (dart-delivered) vaccine is generally limited to populations where individual animals can be accurately identified and repeatedly approached within 50 meters or less.

As with other contraceptives applied to wild horses and burros, the long-term goal of GonaCon-Equine use is to reduce or eliminate the need for gathers and removals (NRC 2013). GonaCon-Equine vaccine is an EPA-approved treatment that is relatively inexpensive, meets BLM requirements for safety to mares, jennies, and the environment, and is produced in a USDA-APHIS laboratory. As is the case with ZonaStat-H, its regulatory categorization as a ‘pesticide’ is consistent with regulatory framework for controlling overpopulated vertebrate animals, and in no way is meant to convey that the vaccine is lethal; the intended effect of the vaccine is only as a contraceptive. GonaCon is produced as a pharmaceutical-grade vaccine, including aseptic manufacturing technique to deliver a sterile vaccine product (Miller et al. 2013). If stored at 4° C, the shelf life is 6 months (Miller et al. 2013).

Miller et al. (2013) reviewed the vaccine environmental safety and toxicity. When advisories on the product label (EPA 2015) are followed, the product is safe for users and the environment (EPA 2009b). GonaCon was deemed to pose low risks to the environment, so long as the product label is followed (Wang-Cahill et al. 2022).

Under the Proposed Action, the BLM would return to the HMA as needed to re-apply GonaCon-Equine and initiate new treatments in order to maintain contraceptive effectiveness in controlling population growth rates. Booster dose effects may lead to increased effectiveness of contraception (Baker et al. 2018, Baker et al. 2023), which is generally the intent. GonaCon-Equine can safely be reapplied as necessary to control the population growth rate. Even with one booster treatment of GonaCon-Equine, it is expected that most, if not all, mares would return to fertility at some point (based on results from Baker et al. 2023), although the average duration of effect after booster doses has not yet been quantified. The decreasing trend in fertility control efficacy over time that is observed in data from Baker et al. (2023) indicate a progressive return to fertility, although the precise expected rate for the return to fertility rate in equids boosted more than once with GonaCon-Equine is not well quantified. However, as is true for

mares treated multiple times with the PZP vaccine ZonaStat-H (Nuñez et al. 2017), lifetime infertility (i.e., sterility) may result for some mares or jennies treated multiple times with GonaCon-Equine. Once the herd size in the project area is at AML and population growth seems to be stabilized, BLM would make a determination as to the required frequency of new mare treatments and mare re-treatments with GonaCon-Equine vaccine or other fertility control methods, to maintain the number of burros within AML.

2.4 Description of the Proposed Action

The primary gather techniques would be the helicopter-drive and water/bait trapping. The use of roping from horseback could also be used when necessary. Multiple, temporary gather sites (traps) would be used to gather wild burros both from within and outside the HMA. In addition to public lands, private property may be utilized for gather sites and temporary holding facilities (with the landowner's permission) if necessary, to ensure accessibility and/or based on prior disturbance. Use of private land would be subject to the BLM's then-current Standard Operating Procedures (SOPs) (**Appendix B**) and to the written approval/authorization of the landowner.

Any trapping activities would be scheduled in locations and during time periods that would be most effective to gather a sufficient number of animals to achieve management goals for the areas being gathered. The most efficient gather technique would be chosen as determined by the gather needs of the specific area, and all gathers would be conducted consisted with the then-current comprehensive animal welfare program (**Appendix B**).

Temporary trap and holding sites would be no larger than 0.5 acres. Temporary holding sites could be in place for up to 60 days depending on length of gather. Bait or water trapping sites could remain in place up to one year. The exact location of the trap sites and holding sites are determined by the contractor in coordination with the BLM, based on site-specific factors, and may not be determined until immediately prior to the gather because the location of the animals on the landscape is variable and unpredictable.

Trap and holding sites are often located in previously disturbed areas, but if a new site needs to be used, the BLM will conduct a cultural inventory prior to using such a site. If cultural resources are encountered, the location of the gather/holding site would be adjusted to avoid all cultural resources.

No trap or holding sites would be set up in Desert tortoise habitat, known populations of sensitive species, in riparian areas, in cultural resource sites, sacred sites, paleontological sites, or congressionally designated Areas with Wilderness Characteristics. All gather sites, holding facilities, and camping areas on public lands would be recorded with Global Positioning System equipment, given to the BLM Battle Mountain District Invasive, Non-native Weed Coordinators, and then assigned for monitoring and any necessary treatment during the next several years for invasive, non-native weeds. All gather and handling activities (including gather site selections) would be conducted in accordance with SOPs in **Appendix B**, or the then-current version.

Activities in listed species habitat would be subject to Section 7 consultation under the Endangered Species Act with the level of consultation to be determined based upon the project site-specific proposed action. BLM would complete consultation prior to implementation of any specific action which may have an effect on a listed species.

2.4.1. Helicopter Drive Trapping

The BLM would utilize a contractor to perform the gather activities in cooperation with the BLM. The contractor would be required to conduct all helicopter operations in a safe manner and in compliance with Federal Aviation Administration (FAA) regulations including 14 CFR § 91.119. Helicopter landings

would not be allowed in wilderness except in the case of an emergency. For safety purposes, any public observers must be located a minimum of 1,000 from the areas where the helicopter may be herding animals or flying over.

Helicopter-drive trapping may be needed to meet management objectives to capture the highest percentage of wild horses and burros possible. The appropriate gather method would be determined by the BLM based on the location, accessibility of the animals, local terrain, vegetative cover, and available sources of water and forage. Roping from horseback could also be used when necessary. Based on wild horse and burro watering locations in this area, it is anticipated that multiple trap sites may be used during trapping activities.

Helicopter drive trapping involves use of a helicopter to herd wild horses and burros into a temporary trap. The SOPs outlined in **Appendix B** would be implemented to ensure that the gather is conducted in a safe and humane manner, and to minimize potential impacts or injury to the wild horses and burros. Utilizing the topography, traps would be set in areas with high probability of burros access. This would assist with capturing excess wild burros residing nearby. Traps consist of a large catch pen with several connected holding corrals, jute-covered wings and a loading chute. The jute covered wings are made of fibrous material, not wire, to avoid injury to the horses and burros. The wings form an alley way used to guide the burros into the trap. Trap locations are changed during the gather to reduce the distance that the animals must travel. A helicopter is used to locate and herd wild burros to the trap location. The pilot uses a pressure and release system while guiding them to the trap site, allowing them to travel at their own pace. As the herd approaches the trap the pilot applies pressure. Once the burros have been guided to the wings, cowboys on horse-back apply pressure and herd them into the trap with the assistance of the helicopter. Once burros are gathered, they are removed from the trap and transported to a temporary holding facility where they are sorted.

The BLM may find it necessary to issue a temporary closure and restriction order, in order to ensure that gather operations will be effective and to protect the safety of the contractors, employees, public and the wild horses and burros during gather operations. Any such closures will comply with the public notification process outlined in the BLM's regulations at 43 C.F.R. § 8364.1. The BLM will limit any such closures to the appropriate area needed to conduct gather operations and may move the during gather operations. Any such closures will comply with the public notification process outlined in the BLM's regulations at 43 C.F.R. § 8364.1. The BLM will limit any such closures to the appropriate area needed to conduct gather operations and may move the closed/restricted area from capture site to capture site to ensure access to public lands when operations are not occurring near the capture site or temporary holding corrals. Where possible, closed areas may be open to traffic when directed by a pilot car.

During helicopter drive-trapping operations, BLM would require that an Animal and Plant Health Inspection Service (APHIS) veterinarian or contracted licensed veterinarian is on-site or on call to examine animals and make recommendations to BLM for care and treatment of wild horses and burros. BLM staff would be present on the gather at all times to observe animal condition, ensure humane treatment of wild horses and burros, and ensure contract requirements are met.

2.4.2. Bait/Water Trapping

Bait and/or water trapping would be used as appropriate to gather wild equids efficiently and effectively. Bait and water trapping may be utilized when wild horses and burros are in an area where there is a limited resource (such as food or water). The use of bait and water trapping, though effective in specific areas and circumstances, is not timely, cost-effective, or practical as the primary or sole gather method for the HMA and nearby areas. However, water or bait trapping could be used as a supplementary approach to achieve the desired goals of the BLM in portions of the HMA. Bait and/or water trapping generally require a longer window of time for success than helicopter drive trapping. Although the trap would be set

in a high probability area for capturing excess wild horses and burros residing within the area and at the most effective time periods, time is required for the horses and burros to acclimate to the trap and/or decide to access the water/bait.

Trapping involves setting up portable panels around an existing water source or in an active wild horse or burro area, or around a pre-set water or bait source. The portable panels would be set up to allow wild horses and burros to go freely in and out of the corral until they have adjusted to it. When the wild horses and burros fully adapt to the corral, it is fitted with a gate system. The adaptation of the horses and burros creates a low stress trapping method. During this acclimation period the horses would experience some stress due to the panels being setup and perceived access restriction to the water/bait source. See Water and Bait Trapping SOP, **Appendix B**.

Gathering excess wild horses and burros using bait/water trapping could occur at any time of the year and traps would remain in place until the target numbers of animals are removed. As the proposed bait and/or water trapping in this area is a lower stress approach to gathering wild horses and burros, such trapping can continue into the foaling season without harming the mares or foals. Due to the nature of the bait and water trap method, wild horses and burros are reluctant to approach the trap site when there is too much activity. Therefore, only essential gather operations personnel are able to be at the trap site during gather operations and there is generally no public observation allowed. The BLM may issue a closure and restriction order in accordance with 43 C.F.R. § 8364.1 in order to ensure that the gather is effective and to protect wild horses and burros and public safety.

2.4.3. Gather-related Temporary Holding Facilities (Corrals)

Wild horses or burros that are gathered would be transported from the gather sites to a temporary holding corral. At the temporary holding corral wild horses would be sorted into different pens. Mares would be identified for fertility control and treated at the corrals. The horses or burros would be provided good quality hay and water. At the temporary holding facility, a veterinarian, when present, would provide recommendations to the BLM regarding care and treatment of recently captured wild horses or burros. Any animals affected by a chronic or incurable disease, injury, lameness, or serious physical defect (such as severe tooth loss or wear, club foot, and other severe congenital abnormalities) would be humanely euthanized using methods acceptable to the American Veterinary Medical Association (AVMA).

Herd health and characteristics data would be collected as part of continued monitoring of the wild horse and/or burro herds. Hair follicle samples would be collected to allow for ongoing genetic diversity monitoring of the wild horses or burros within the combined project area. Samples may also be analyzed in terms of herd relatedness to domestic breeds and other wild burro herds.

Gathered wild horses or burros would be transported to BLM off-range corrals where they would be prepared for adoption and/or sale to qualified individuals or transfer to off-range pastures or other disposition authorized by the WFRHBA.

2.4.4. Transport, Off-range Corrals, and Adoption Preparation

All gathered wild horses and burros would be removed and transported to Off-Range Corrals (ORC, formerly short-term holding facility) where they would be inspected by facility staff (and if needed by a contract veterinarian) to observe health conditions and ensure that the animals are being humanely cared for. Wild horses and burros removed from the range would be transported to the receiving ORC in a goose-neck stock trailer or straight-deck semi-tractor trailers. Trucks and trailers used to haul the wild horses and burros would be inspected prior to use to ensure wild horses and burros can be safely transported. Wild horses and burros would be segregated by age and sex when possible and loaded into separate compartments. Mares or jennies and their un-weaned foals may be shipped together. Transportation of recently captured wild horses and burros is limited to a maximum of 10 hours.

Upon arrival, recently captured wild horses or burros are off-loaded by compartment and placed in holding pens where they are provided good quality hay and water. Most wild horses and 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 horses and burros. Any animals affected by a chronic or incurable disease, injury, lameness, or serious physical defect (such as severe tooth loss or wear, club foot, and other severe congenital abnormalities) would be humanely euthanized using methods acceptable to the AVMA. Wild horses or burros in very thin condition, or those animals with injuries, are sorted and placed in hospital pens, fed separately, and/or treated for their injuries. Recently captured animals in very thin condition may have difficulty transitioning to feed. Some of these animals may be in such poor condition that it is unlikely they would have survived if left on the range. Similarly, some females may lose their pregnancies. Certain management techniques would be taken to help females make a quiet, low stress transition to captivity and domestic feed to minimize the risk of miscarriage or death.

Mortality averages about 5% per year associated with transportation, ORCs, adoption or sale and about 8% per year associated with ORPs. The 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). Mortality may also be caused by hyperlipidemia. In horses and burros, hyperlipidemia may be caused by a negative energy balance exacerbated by stress (stress hormones such as adrenaline and cortisol), pregnancy, lactation, etc. When this occurs, animals may either deplete their glycogen stores and switch to using fatty acids from fat to energy or become less sensitive to insulin which causes the same switch to mobilizing fat into the bloodstream. Paradoxically, obesity as well as starvation can predispose animals to the disease. The inability to obtain and process energy from the new feed ration provided in corrals may also be caused by the stressful condition of the gather, changing social structures, behavioral responses and adaption to the new environment. These factors on top of the increased energy demands of pregnancy, lactation, roundup, shipping etc. are what may trigger the condition.

After recently captured wild horses and burros have transitioned to their new environment, they are prepared for adoption, sale, or transport to off-range pastures. Preparation involves freeze marking the animals with a unique identification number, vaccination against common diseases, castration, microchipping, and deworming. At ORC facilities, a minimum of 700 square feet of space is provided per wild horse and wild burro. Wild horse mortality at ORCs averages approximately 5% per year (GAO, 2008), and includes animals euthanized due to preexisting conditions; animals in extremely poor condition; animals that are injured and would not recover; animals which are unable to transition to feed; and animals which are seriously injured or accidentally die during sorting, handling, or preparation. ORCs may be BLM-owned or contracted private facilities.

2.4.5. Adoption

Adoption applicants are required to have at least a 400 square foot corral with panels that are at least six feet tall for wild horses and four and half feet tall for wild burros. Applicants are required to provide adequate shelter, feed, and water. The BLM retains title to the horse or burro for one year and inspects the animal and facilities during this period. After one year, the applicant may take title to the animal, at which point it becomes the property of the applicant. Adoptions are conducted in accordance with 43 CFR Subpart 4750.

2.4.6. Sale with Limitations

Buyers must fill out an application and be pre-approved before they may buy a wild horse or burro. A sale-eligible wild horse or burro is any animal that is more than 10 years old or has been offered unsuccessfully for adoption at least three times. The application also specifies that buyers cannot sell the

horse or burro to anyone who would sell the animals to a commercial processing plant. Sales of wild horses and burros are conducted in accordance with the WFRHBA and congressional limitations.

2.4.7. Off-Range Pastures

When shipping wild horses or burros for adoption, sale, or Off-Range Pastures (ORPs), the animals may be transported for up to a maximum of 24 hours. Immediately prior to transportation, and after every 24 hours of transportation, animals are off-loaded and provided a minimum of 8 hours on the-ground rest. During the rest period, each animal is provided access to unlimited amounts of clean water and two pounds of good quality hay per 100 pounds of body weight with adequate space to allow all animals to eat at one time. Mares / jennies and sterilized stallions / jacks (geldings) are segregated by species and sex into separate pastures. Although the animals are placed in ORP, they remain available for adoption or sale to qualified individuals; and foals born to pregnant mares or jennies in ORP are gathered and weaned when they reach about 8-12 months of age and are also made available for adoption. The ORP contracts specify the care that wild horses must receive to ensure they remain healthy and well-cared for. Handling by humans is minimized to the extent possible although regular on-the-ground observation by the ORP contractor and periodic counts of the wild horses or burros to ascertain their well-being and safety are conducted by BLM personnel and/or veterinarians.

2.4.8. Euthanasia or Sale without Limitations

Under the WFRHBA, healthy excess wild horses or 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, for several decades Congress has prohibited the use of appropriated funds for this purpose. If Congress were to lift the current appropriations restrictions, then it is possible that excess horses or burros removed from the HMA could potentially be euthanized or sold without limitation consistent with the provisions of the WFRHBA.

Any old, sick, or lame horses or burros unable to maintain an acceptable body condition (greater than or equal to a Henneke BCS of 3) or with serious physical defects would be humanely euthanized either before gather activities begin or during the gather operations as well as within off-range corrals. Decisions to humanely euthanize animals in field situations would be made in conformance with BLM policy (Washington Office Instruction Memorandum (WO Permanent IM) 2021-007 or most current edition). Conditions requiring humane euthanasia occur infrequently and are described in more detail in Washington Office Permanent Instruction Memorandum 2021-007.

2.4.9. Public Viewing Opportunities

Opportunities for public observation of the gather activities on public lands would be provided, when and where feasible, consistent with WO IM No. 2013-058 or other current policy and Wild Horse and Burro Gather Observation Protocol (**Appendix H**). As part of public viewing of the gather operations, BLM will establish observation locations that reduce safety risks to the public during helicopter gathers (e.g., from helicopter-related debris or from the rare helicopter crash landing, or from the potential path of gathered wild horses or burros), to the wild horses or burros (e.g., by ensuring observers would not be in the line of vision of wild horses or burros being moved to the gather site), and to contractors and BLM employees who must remain focused on the gather operations and the health and well-being of the wild horses or burros. As feasible, observation locations would be located near gather or holding sites, although safety, gather efficiency, terrain, and land status factor into how close observation locations will be. All observation locations would be subject to the same cultural resource requirements as gather and holding sites.

During water/bait trapping operations, spectators and viewers would be prohibited as it would impact the contractor's ability to capture wild horses. Only essential gather operation personnel would be allowed at the trap site during operations.

2.5 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, its implementing regulations, or the 1997 Tonopah RMP. However, it is analyzed in this EA to provide a basis for comparison to the Proposed Action.

The wild burro population would likely continue to increase at an approximate rate of 18% per year. Within five years, the wild burro population inside and outside the HMA combined could exceed 2,000 (see Table 3). Wild burros residing outside the HMA would remain in areas not designated for management of wild burros and population numbers would continue to increase. Increasing numbers of wild burros crossing highways and impacting private lands would intensify the current wild burro/public safety concerns. Wild horse populations would also continue to increase in areas that are not designated for their management.

Table 3: Population size projections for the number of burros (No Action Alternative)

Year	Population Estimate (Adults)	18% Net Herd Growth (Estimated births minus estimated deaths)[2]
2024, April*	1,015	182
2025, January	1,197	215
2026, January	1,412	254
2027, January	1,666	299
2028, January	1,965	353
2029, January	2,318	417

*Latest year surveyed. Estimate is based on analysis of observed aerial survey data (Crabb 2025a).

2.6 Alternatives Considered but Dismissed from Detailed Analysis

2.6.1 Gather the HMA to the AML Upper Limit

This alternative was dismissed from detailed study because AML would be exceeded in the Bullfrog HMA the foaling season following the initial gather. This would result in the need to follow up with another gather within less than one year, and in increased stress to individual wild burros and the herd and continuing resource damage due to wild burro overpopulation relative to available resources in the interim. This alternative would not be consistent with the WFRHBA, which upon determination excess that wild burros are present, requires their immediate removal.

[2]The assumption is that these animals (births minus deaths) are added to the herd over the course of the year (Griffin et al. 2020).

2.6.2 Fertility Control Treatment Only (No Removal)

This alternative would rely only on the use of fertility control vaccines to limit herd growth of wild burros. Experience with wild horses (such as, at Assateague National Seashore) has shown that herds will 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%+) 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 prolonged periods. It is not economical or feasible to capture, uniquely mark, vaccinate, and release the majority of jennies every year in the Bullfrog HMA. 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 HMA 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.

2.6.3 Field Darting with ZonaStat-H (Native PZP) and GonaCon-Equine (No Gathers, No Removal)

This alternative was eliminated from further consideration due to the difficulties inherent in darting wild burros in the project area. Field darting of wild burros may 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, such as in the town of Beatty, NV. The size of the HMA is large (approximately 157,000 acres) and while a portion of the population does reside semi-permanently in and near the town of Beatty, NV, the majority of the animals reside outside of the town on federal lands. The presence of private water sources within the HMA makes 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. 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. For these reasons, and because the wild burro herds present in the HMA are currently far greater than 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 HMA or for addressing the resource degradation being caused by the excess animals.

2.6.4 Chemical Immobilization

Chemical immobilization as a method of capturing wild burros was not considered to be a viable alternative because it is a very specialized technique and is strictly regulated. Currently the BLM does not have sufficient expertise to implement this method and it would be impractical to use, given the size of the HMA, access limitations, and approachability of the burros.

2.6.5 Use of Wrangler on Horseback Drive-trapping

Use of wranglers on horseback drive-trapping to remove excess wild burros can be somewhat effective on a small scale but due to the number of animals to be gathered, the large geographic size of the HMA, and lack of approachability of the animals, this technique would be ineffective and impractical as a substitute for helicopter trapping or water/bait trapping. Wild burros often outrun and outlast domestic horses carrying riders. Helicopter assisted roping is typically only used if necessary and when the wild burros are

in close proximity to the gather site. For these reasons, this method was eliminated from further consideration.

2.6.6 Raising the Appropriate Management Level for Wild Burros

Raising the AML where there are known resource degradation issues associated with an overpopulation of wild burros does not meet the Purpose and Need to restore a thriving natural ecological balance or meet Rangeland Health Standards. Monitoring data collected within the HMA does not indicate that an increase in AML is warranted at this time. On the contrary, such monitoring data confirms the need to remove excess wild burros to reverse downward trends and promote improvement of rangeland health. Delay of a gather until AML can be evaluated and adjusted is not consistent with the WFRHBA, Public Rangelands Improvement Act (PRIA), FLPMA, or Tonopah RMP. Severe range degradation would occur in the meantime and even larger numbers of excess wild burros would ultimately need to be removed from the range in order to achieve the AMLs or to prevent the death of individual animals under emergency conditions. This alternative was eliminated from further consideration because it is contrary to the WFRHBA which requires the BLM to manage the rangelands to prevent the range from deterioration associated with an overpopulation of wild burros.

2.6.7 Wild Horse and Burro Numbers Controlled by Natural Means

This alternative was eliminated from further consideration because it is contrary to the WFRHBA which requires the BLM to prevent range deterioration associated with an overpopulation of wild burros. The alternative of using natural controls to achieve a desirable AML has not been shown to be feasible in the past. As evidenced by the consistent growth of this herd over time, wild burros in the Bullfrog HMA are not substantially regulated by predators or other natural factors. In addition, wild burros are long-lived species with inherently high annual growth rates (Douglas and Hurst 1993, 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 (Douglas and Hurst 1993). 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 (Turner and Morrison 2001, Andreasen et al. 2021, Lundgren et al. 2022, Iacono et al. 2024). 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 et al. (2024). 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. However, monitoring indicates that the population of wild burros within the HMA grows at a rate of about 15-18% per year. Observed annual rates of growth in the HMA indicate that predator populations within the HMA are not sufficient to effectively slow wild burro population growth. Further, wildlife management is the responsibility of the Nevada Department of Wildlife; BLM does not have the authority to manage predators within the state of Nevada.

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 carrying capacity of the range, 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. 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…," "…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). 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 mares/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 stallions/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 may 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. This degree of resource impact would likely lead to management of wild burros at a greatly reduced level if BLM is able to manage for wild burros at all on the range in the future. 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 and to reduce the wild burro population growth rates to manage wild burros within established AML ranges in order to protect rangeland resources and allow for deteriorated range resources to recover.

3.0 Affected Environment and Environmental Consequences

This section of the EA briefly discusses the relevant components of the human environment which could be either affected or potentially affected by the Proposed Action or the No Action Alternative and the potential environmental consequences which would be expected with implementation of the Proposed Action or 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).

3.1 General Description of the Affected Environment

The Bullfrog HMA surrounds the town of Beatty, Nevada, located within Nye County. The HMA is 18 miles wide and 14 miles long. The area consists of 146,701 acres of BLM land and 10,479 acres of a mix of private and other public lands for a total of 157,180 acres. Due to a lack of key forage species and the presence of the federally listed Mojave desert tortoise (*Gopherus agassizii*) and other BLM Special Status Species, there are no grazing allotments located within the HMA. See **Appendix A** Maps. Permanent water sources consist of several springs, seeps, and water developments ("guzzlers") which capture runoff water from springs and periodic storm events in a trough.

The HMA is located within the Mojave Desert, the smallest of the North American deserts. The primary use areas within the HMA/HAs are broad, arid valleys surrounded by low, rocky desert mountains. The animals, at times, have to travel up to ten miles to and from water each day during the drier part of the

year. Wild burros drink at least once each day during the hotter part of the year but can survive by drinking every second day during the winter and early spring. Vegetation in the HMA is typical Mojave Desert scrub; low growing and able to survive long periods of drought. The vegetation at lower elevations consists of salt-tolerant plants such as saltbush (*Atriplex* spp.), black greasewood *(Sarcobatus vermiculatus)* and creosotebush (*Larrea tridentata*), with grasses such as galleta grass *(Pleuraphis* spp.) and Indian ricegrass (*Achnatherum hymenoides*). The mountains contain singleleaf pinyon pine *(Pinus monophylla*) and Utah juniper (*Juniperus osteosperma*) trees, with an understory of Wyoming big sagebrush (*Artemisia tridentata ssp. wyomingensis*) and other mountain shrubs and small amounts of grass.

Climate in the area is quite harsh, with winter temperatures falling below 32 degrees Fahrenheit and summer temperatures over 100 degrees. Rainfall averages only 3 to 6 inches per year, with the majority of the precipitation falling during the winter months as rain.

No livestock grazing is authorized within the Bullfrog HMA; livestock grazing has not been authorized since the mid to late 1990s in order to protect desert tortoise habitat.

3.2 Description of Affected Resources

Table 2 lists the elements of the human environment subject to requirements in statute, regulation, or executive order that may be affected by the proposed project and rationale for whether the topic will be carried forward for detailed analysis. Those resources or uses that the resource specialists on BLM's interdisciplinary team (IDT) determined not present or present but not affected by the alternatives are not carried forward or discussed further. Resources or uses determined to be present that may be affected are carried forward in the document for detailed analysis.

Table 4. Supplemental Authorities (Critical Elements of the Human Environment)

Supplemental Authorities	Present	Affected	Rationale
ACECs	**No**	**NO**	No ACECs are located in the HMA or Proposed Gather Area.
Air Quality	**YES**	**NO**	The planning area is outside a non-attainment area. Implementation of the Proposed Action would result in small and temporary areas of disturbance and so would not affect air quality in any measurable way.
Cultural Resources	**YES**	**NO**	Trap sites and temporary holding facilities would be located in previously disturbed areas to avoid impacts to cultural resources. If locations are needed outside of disturbed areas, appropriate Class III cultural resource inventories would be conducted to avoid placing gather facilities in areas with cultural resources and to ensure that measures are taken to avoid any cultural resource impacts.
Fish Habitat	**NO**	**NO**	Not present.
Floodplains	**Yes**	**NO**	Trap sites and temporary holding facilities would be located outside floodplains.
Forest and Rangelands/Vegetation	**YES**	**YES**	Present and affected – see analysis.
Fuels and Fire Management	**YES**	**NO**	Follow best management practices to prevent human caused wildfires. Consult with the Fire Management Officer on current fire danger two

			weeks prior to field activities. The effects on fire and fuels is analyzed in this EA (Section 3.2.2).
Migratory Birds/Wildlife	**YES**	**YES**	Migratory birds and their nests may be present around and adjacent to the gather site. See Section 3.2.2 and 4.3.
Native American Religious Concerns	**YES**	**NO**	Traditional religious or cultural sites of importance have not been identified; However, Tribal consultation may be conducted prior to specific gathers in the future, when the gather date has been set and if new undisturbed trap locations have been identified. See section 6.0 for more information.
Noxious Weeds	**YES**	**NO**	To prevent the risk for spreading weeds, hay is to be free of any weed seeds and any noxious weeds or non-native invasive weeds would be avoided when establishing and accessing trap sites and holding facilities. In addition, best management practices, such as washing vehicles before moving between gather sites, would be followed to prevent the spread of weeds. See Appendix B for environmental protection measures.
Prime or Unique Farmlands	**NO**	**NO**	Not present.
Riparian-Wetland Zones/Soils	**YES**	**YES**	Present- see analysis.
Federally Threatened and Endangered Species / BLM Special Status Species	**YES**	**YES**	Present – see analysis.
Water Quality	**YES**	**NO**	The proposed action would not affect drinking water or groundwater quality. Activities would avoid surface water and riparian systems to avoid impact to water quality.
Waste (Hazardous or Solid)	**NO**	**NO**	Not present.
Wild and Scenic Rivers	**NO**	**NO**	Not present.
Wilderness, Wilderness Study Areas, and Lands with Wilderness Characteristics	**YES**	**NO**	The project does not overlap Wilderness or Wilderness Study Areas. The project area includes one inventory unit (lands) with Wilderness Characteristics (NV-050-363). Although the unit has wilderness characteristics and Section 201 of the FLPMA requires the BLM to maintain, on a continuing basis, an inventory of all public lands and their resources and other values, which includes wilderness characteristics, BLM manages the land for multiple use. This resource is not analyzed in this EA.
Wild Horse and Burro	**YES**	**YES**	Present- see analysis.

Critical elements of the human environment identified as present and potentially affected by the Proposed Action (Alternative A), Alternative B, and/or the No Action Alternative include:

- Forest and Rangelands/Vegetation
- Migratory Birds/Wildlife
- Riparian-Wetland Zones/Soils
- Federally Threatened, Endangered, Proposed, or Candidate Animal Species and Critical Habitat
- Wild Horse and Burro

3.2.1 Forest and Rangelands/Vegetation

Affected Environment
Floristically, the HMA is within the Mojave Desert floristic province. The lower elevation vegetation of this area is characterized by Mojave creosote-bursage scrub, which is comprised largely of sparse shrub communities, with very little forage available. This area has been invaded by the non-native grass species, red brome (*Bromus rubens*), which is not palatable to burros most of the year. The HMA is also habitat for multiple BLM sensitive species, some of which are also state endangered. Vegetation within the Mojave creosote -bursage scrub community may also be utilized as Forestry resources including native seed for collection, native plants for transplanting, and plant biomass or boughs.

Monitoring data collected from the HMA shows that heavy to severe utilization on key forage species is attributable to wild burros in areas surrounding key water sources. Wild burro numbers have continued to increase while wildlife numbers have remained fairly constant. Excess utilization in key grazing areas and trampling in riparian areas by wild burros is currently impacting rangeland health and inhibiting recovery of both uplands and riparian areas. Without the removal of wild burros in excess of low-end AML we would see not improvement of rangeland resources. Many wild burros are also residing for many months outside of the HMA boundaries which is resulting in impacts to resources outside of their designated management areas.

Environmental Effects of the Proposed Action
The Proposed Action would 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. The disturbed area; however, would make up less than one acre. 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.

Removal of burros over AML will increase vegetative cover within the HMA and have a net beneficial effect to the rangeland as a result. Forest and Rangeland resources within the area would be affected due to temporary removal of native vegetation in disturbed areas and long-term increases in native vegetation, which would change the spatial extent and availability of vegetation utilized for Forestry permits within the project area. Reducing wild burros to AML would improve forage for the threatened Mojave desert tortoise. Overall impacts from the proposed action on vegetation communities and sensitive species would be positive. Effects of equids on rangeland ecosystems are reviewed in **Appendix D**.

Effects from the No Action Alternative
Under the no action alternative wild burro levels would continue to increase and as a result areas of vegetative communities (rangeland) across the HMA would continue to be over-utilized by burros. No short-term, localized disturbance would take place as no temporary corrals would be erected, but the continued presence of burros over AML degrades habitat and removes forage plants for other wildlife species. Under the No Action Alternative, the impacts to the rangeland and to sensitive species would be detrimental.

3.2.2 Fire and Fuels

Affected Environment
The Bullfrog HMA is an area dominated by Mojave creosote-bursage scrub (see 3.2.1). Maintaining a balance of grazing animals and controlling the timing and amount of forage that is consumed each year by wildlife, livestock, and wild burros (and horses) is crucial to maintaining healthy upland plant communities within HMAs. Appropriate grazing levels by large ungulates has been associated with the

known effect of reducing the cover, density, and volume of fuels, particularly fine fuels, on the landscape (Schmelzer et al., 2014). In turn, this reduces the probability and severity of catastrophic wildfires. In shrub and grasslands of other HMAs, the fuel reducing benefits are known. Recent research has identified that grazing by many global herbivore species, including but not limited to horses (and burros), aids in the reduction of fuel loading and the impact of grazing by herbivores, including livestock, have long been recognized (Rouet-Leduc, 2021; Davies et al., 2010). Year-round heavy grazing on upland vegetation from all ungulates reduces the overall number of fuels available for wildfires but heavy grazing does not allow upland sites to recover from past disturbances and those areas are in danger of trending downward in ecological health and increasing in annual invasive grasses (Davies et al., 2024).

Additionally, plant communities and sagebrush ecosystems that have been impacted in the past by wildfires and historic overgrazing are vulnerable to losing more of their native perennial grass component when grazed at higher than moderate utilization levels (less than 60%) (USFS, 2017). Excess grazing pressure shifts plant communities toward annuals vs perennials. This shift can result in increased fuels in the wet growing season years and that fuel load can persist to cause big fires in subsequent years. In the big growth years, the number of animals needed to control fuels is not sustainable in the normal or especially dry years. In the abundant fine-fuels years, the dispersal of animals causes minimal impact to fuels. To use animals to control fuels and reduce fire size, animals must be controlled to create fuel breaks. This is not possible with free-roaming wild burros.

Environmental Effects of the Proposed Action
The growing scientific literature has continued to affirm that even though grazing reduces fuel loading, proper grazing management is critical for the advancement of land health characteristics (Copeland et al., 2023). Soil health, hydrologic function, and biotic integrity are all impacted differently depending on the location, timing, duration, and intensity of grazing management (Hennig et al., 2021). Properly managed grazing is critical to achieve reductions in fuel loads while curbing the expansion of invasive annual grasses, promoting native perennial species, and protecting sensitive riparian habitats. Research continues to indicate that a variable season of use contributes to site resiliency while repeated early-season, high intensity use, contributes to the degradation of rangelands and the expansion of annual grasses (Copeland et al., 2023; Davies et al., 2015; Davies et al., 2024). Moderate fall grazing of uplands has also been identified with the reduction of invasive annual grasses and the promotion of native perennial species (Copeland et al., 2023; Davies et al., 2010).

While the BLM is granted the duty of managing wild burros, the day-to-day movement of wild burros on the range is inherently unmanaged from a livestock management perspective (Davies & Boyd, 2019). With the exception of fencing, wild burros graze whatever location they want to, for whatever timing and duration they want to, and whatever intensity (amount) they want to. In more natural systems, predation may augment the location, timing, and duration. However, wild burros face very limited predation and subsequently impressive reproduction rates as a result (Garrott, 2018). Under Alternative A the numbers of wild burros would be reduced, and maintained at AML, which would result in a short-term increase in the volume of fine fuels throughout the HMA. This would be due to a reduction in total amount of forage consumed year-round by wild burros on the HMA and surrounding areas. The increase of fuels available, especially during the late summer months, could result in a theoretical increase in wildfires. Conversely, the removal of excess wild burros may reduce the long-term increase in areas dominated by annual invasive grasses (cheatgrass). Reducing the amount of future area potentially dominated by annual invasive grasses and would theoretically reduce the amount and frequency of future fires.

Effects from the No Action Alternative
The No Action Alternative could be expected to result in a continued decrease of the overall availability of fuels, particularly fine fuels, within the HMA and surrounding areas in the short term. However, it

would result in a continued increase in the number of wild burros above AML, which would have compounding impacts upon upland vegetation composition and the potential for future fires. The continued overgrazing of the landscape could be expected to decrease the native grass component and increase the invasive non-native species across the landscape which would reduce the resistance and resiliency of the landscape to disturbance such as wildfires. The increase in invasive non-native species would promote a more frequent and intense fire cycle that would further reduce native species across the landscape.

3.2.3 Migratory Birds/Wildlife

Affected Environment
The project area contains small riparian areas and near seeps, springs, and along sections of perennial drainages. Many of these areas support limited riparian habitat and water flows. In addition, many of the spring sources and riparian areas along the Amargosa River channel which are dominated by riparian grasses, sedges, and rushes, but play a significant role as migratory bird and wildlife habitat.

Wild burros trample and compact spring sources, resulting in reduced riparian coverage, up to the complete disruption of surface water flow and presence of a spring. Reduced riparian areas can result in less habitat for migratory birds and wildlife.

Environmental Effects of the Proposed Action
The Proposed Action would add slightly to the environmental impacts of drought where vehicles and humans participating in a gather use roads and trails to herd and gather the burros. Disturbance to migratory birds, special status species, and wildlife from the helicopter and wild burros could occur but would be short-term and minimal. 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 wild burro numbers within the assessment area. The removal of excess wild 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/bursage habitats; therefore, potential impacts to neotropical migrants may be expected. If the gather occurs in the winter, this is when migratory species are not expected to be present within the HMA. 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 (March 1 – August 31) and the Golden Eagle breeding season (December 15 – July 31). Noise and activity from gathers occurring during this time period may disturb migratory birds during the remaining portion of the breeding season. The BLM would conduct migratory bird surveys 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 (generally less than 0.5 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 wild burro populations 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. Habitat improvements would result for migratory bird species including loggerhead shrikes, Brewer's sparrows, sage thrashers, burrowing owls and migratory and resident raptor species. According to Paige and Ritter (1999), "Long–term heavy grazing may ultimately reduce prey habitat and degrade the vegetation structure for nesting and roosting. Light to moderate grazing may provide open foraging habitat."

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 the number of burros at AML and wildlife species dependent on the same source(s).

Effects from the No Action Alternative
Negative direct impacts such as disturbance and possible injury to wildlife due to a gather would not occur under this alternative, therefore resulting in less direct negative impacts. Beneficial indirect impacts to bird, wildlife, and special status species habitats, however, would not be realized and wild burro numbers in excess of AML would result in continuing decline of habitat condition and could adversely affect the viability of some bird and wildlife populations.

3.2.4 Riparian-Wetland Zones/Soils

Affected Environment
Water resources within the HMA are an important limiting factor as there are few springs and seeps. Riparian areas make up only a small component in the HMA and are usually less than one acre in size. The majority of which are found throughout the mountainous areas and near the Amargosa River. They usually consist of small patches of wet soil at seeps and springs, which are dominated by riparian grasses, sedges, and rushes, but play a significant role as wildlife habitat. The Amargosa River channel runs through the HMA but most areas along its course are private land, the majority of it fenced. Most of the river is seasonal in nature and does not provide wild burros with a dependable source of water. Other sources of available water in the HMA are in forms of springs and seeps. Due to the limited number of springs and an overpopulation of wild burros, there is considerable use of available water sources; competition with wildlife species is an increasing concern. The current over-population of wild burros is increasing beyond the production capability of the springs on public lands. There is significant resource damage and prevention of recovery of key sites and wildlife habitat. With the high rate of consumption, pattern of drought, and decreasing spring health, even with the development of water storage and troughs of different springs, current water supply is unable to meet the demands of the excessive wild burro populations within the HMA. Increasingly, many wild burros seek water sources provided inappropriately by members of the public in Beatty, NV.

The HMA public land use areas contain small riparian areas and their associated plant species occur near seeps, springs, and along sections of perennial drainages. Many of these areas support limited riparian habitat and water flows. In addition, many of the spring sources and riparian areas along the Amargosa River channel provide habitat for the BLM Special Status Species Amargosa Toad (*Anaxyrus nelsoni*), which is discussed further in Section 3.2.4. Available data show that wild burro use of most of these areas currently ranges between heavy to severe use. Trampling and trailing damage by wild burros is evident at most locations; soil compaction and surface and rill erosion are evident.

Environmental Effects of the Proposed Action
In terms of direct impacts, removal of wild burros to AML of the Proposed Action would have beneficial impacts to riparian and wetland areas. The removal of excess wild burros could reduce soil compaction near springs and wetland areas, which in turn, may increase vegetative cover leading to better interception of precipitation, and overall decrease in surface water run-off. These specific effects may result in improvement to the local infiltration rate, which is beneficial to riparian and wetland areas. In addition, the proposed action will help restore previous hydrologic conditions at perched aquifer-fed wetlands and springs, which have been impacted by wild burros compacting soils and consuming vegetation, causing severe erosion. Erosion and reduction in vegetation decreases the infiltration rate and may ultimately reduce the perched shallow water table.

The composition of the recovering vegetation (native versus non-native vegetation) may also affect infiltration and precipitation capture based on variation in plant density. As the diverse coverage of grasses, trees, and shrubs increases, water retention may increase, allowing for more infiltration of water into groundwater aquifers. Wild burros are known to dig holes in the ground to access water in the streambeds of sandy or gravelly intermittent streams (Lundgren et al. 2017, Lundgren et al. 2021), but that activity could persist, even if a lower number of burros is present. Effects of equids on rangeland ecosystems are reviewed in **Appendix D**.

Effects from the No Action Alternative
Under the no action alternative wild burro levels would continue to increase and vegetative cover would continue to decrease. The removal of vegetation may decrease rainfall retention into the soil, especially following large-scale rain events. In addition, loss of living vegetative cover from invasive species may increase surface water run-off. Such impacts may be most pronounced in the areas of concentrated animal numbers. Grazing affects the species composition and biomass production of native plant communities through selective foraging. Desert vegetation is very slow to recover if overgrazed or disturbed. As the currently unsustainable population levels continue to grow, the overall density of vegetation will continue to decline, and precipitation capture will be further reduced, causing greater surface water run-off. Overall, impacts from the proposed no action may include lower transpiration and decreased interception of water from a lack of mature vegetative cover.

Furthermore, under the no action alternative the severe erosion and lowering of the potentiometric of perched aquifer surfaces would continue, probably at an accelerated rate, potentially to a point where restoration would not be possible over any meaningful time scale.

3.2.5 Federally Threatened and Endangered Species / BLM Special Status Species

Affected Environment
There are wildlife concerns when wild burro populations are above AML and there is heavy concentration at water sources. This situation causes riparian resources to be impacted and poses a risk to native and endemic Nevada wildlife. These wildlife species of special concern live within the HMA: the Mojave Desert tortoise (*Gopherus agassizii*) (USFWS threatened), Southwestern Willow Flycatcher (*Empidonax traillii extimus)* (USFWS Endangered), Yellow-billed Cuckoo *(Coccyzus americanus)* (USFWS threatened), Spring-loving Centaury *(Centaurium namophilum)* (USFWS threatened), the Amargosa toad (*Anaxyrus nelsoni*) (USFWS in review [USFWS 2025]; BLM sensitive), Oasis Valley speckled dace (*Rhinichthys osculus* ssp. 6) (BLM sensitive), the Southwestern Willow Flycatcher (*Empidonax traillii extimus*), and the desert bighorn sheep (*Ovis canadensis nelsoni*) (BLM sensitive). Emergency Petitions to List the Oasis Valley Speckled Dace (July 2, 2024) and Amargosa toad cite aquatic habitat alteration and trampling by non-native burros a threat to the petitioned species (Center for Biological Diversity, 2024). Approximately 58.5% of the Bullfrog HMA has been mapped as desert tortoise habitat. In addition to the federal Endangered Species Act, in Nevada, the Mojave Desert tortoise is protected under Nevada Revised Statute (NRS 501.100), and Nevada Administrative Code (NAC 503.080). Desert tortoises depend on the spring green-up period and forbs produced therein to attain adequate health and body condition to survive harsher conditions the rest of the year, thus over-utilization by grazers can threaten tortoise survival. Because of the importance of the area as tortoise habitat as well as the effects of wild burro grazing, there is no cattle grazing authorized within Bullfrog HMA.

The proposed project area supports and is adjacent to lands that support wildlife 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.

Historical survey data indicates that the project area and surrounding project area has low to moderate tortoise density and contains tortoise sign including live tortoises. Undisturbed lands within and adjacent to the proposed project site contain the key habitat requirements for desert tortoises to survive. Therefore, there is the potential for tortoises to be present within and adjacent to the proposed project site and may wander onto the project site during project related activities. Prior to gather activities wildlife biologists will be consulted to determine if the proposed project area includes desert tortoise habitat and what protection measures may need to be followed during the gather operations. A recently published study found a negative correlation between wild burro sign and desert tortoise sign (Berry et al. 2020), though other factors such as raven density and off-road vehicle activity may have stronger influence on tortoise demographic rates than wild equids.

Amargosa toads rely on wetland habitats for reproduction and survival. Although in some circumstances a degree of burro use in wetland areas may maintain open waters (Lundgren et al. 2021), burros may trample all life stages of toads (Center for Biological Diversity 2024). The US Fish and Wildlife Service (2010) noted that, "limited use by livestock or feral burros provides disturbance that benefits toads; however, excessive use by livestock or feral burros result in degradation of habitat," and that "burros and livestock (ungulates) may trample Amargosa toad eggs and larvae." Burro populations have grown since 2010 and the high wild burro population numbers in the area are noted among factors in a recent petition to the Department of the Interior to list the Amargosa toad as threatened or endangered (Center for Biological Diversity 2024) and subsequent intent to review whether the toad should be listed (USFWS 2025).

Environmental Effects of the Proposed Action
The potential negative primary direct impacts of the proposed action on the desert tortoise could result from activities related to burro gathering, and could include killing or maiming 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 noise, introduction and spread of weeds, and increased erosion potential. However, it is expected that, with the removal of wild burros from the area under the proposed action, the desert tortoise population in the HMA area would ultimately benefit due to the reduced risk of trampling and less competition for forage and water. Similarly, it could be expected that if wild burro numbers are reduced from their currently very high levels, that would lead to potential improvements in Amargosa toad habitat and reduced levels of Amargosa toad trampling.

Section 7 Consultation for this project is covered under the Programmatic Biological Opinion (File No.: 1-5-01-F-570) contingent on compliance with the terms and conditions. A copy of the terms and conditions has been provided with this document (Sec 7 Log # NV-052-20-041).

Effects from the No Action Alternative
If no action is taken, burros will continue to reproduce and further damage the landscape, water, and resources that native desert wildlife depends on. Increased presence of wild burros may have contributed to a decline in tortoise and toad populations as well (e.g., Berry et al. 2020, USFWS 2010). Under the no action alternative, burros will continue to deplete the landscape of water and forage for native species, including but not limiting to desert tortoise and Amargosa toad. Desert tortoises and the Amargosa toad are also at risk of trampling.

3.2.6 Wild Burros

Affected Environment

The Bullfrog HMA is located in the northern Mojave Desert, approximately 90 miles southeast of Tonopah, Nevada, in Nye County. The eastern edge of the HMA borders the NTTR, and the western border neighbors Death Valley National Park. Burro movement between the HMA and the NTTR has been observed, and similar movement between the National Park and the HMA is likely to occur. The southern border of the HMA is the Battle Mountain District boundary, which borders the Southern Nevada District. The town of Beatty, Nevada (pop. 596 as of 2022) lies in the center of the HMA, and United States (U.S.) Highway 95 splits the HMA into eastern and western portions. Most of the burro population resides in the western side of the HMA with some burros residing outside of the HMA boundaries to the south and west. The area consists of 146,701 acres of BLM land and 10,479 acres of a mix of private and other public lands for a total of 157,180 acres (**Appendix A**). Permanent water sources consist of the Amargosa River, and springs found within the HMA, though many are ephemeral (**see Appendix A, Map 3)**. Wild burros have been quite numerous in the HMA and its vicinity, such that it is expected that there has been a fairly high level of genetic interchange between groups of burros in the region.

The Esmeralda-Southern Nye Resource Management Plan Record of Decision was signed on October 10, 1986, and established the original boundaries of the Bullfrog HMA. The Tonopah Field Office's Final Multiple Use Decision of June 8, 1994, established an Appropriate Management Level (AML) in the Razorback Allotment portion of the Bullfrog HMA at 53. A Rangeland Health Evaluation in 2007 culminated in the completion of the Montezuma Complex Final Multiple Use Decision (FMUD) of 2007, which updated the AML to a range of 58 to 91 burros for the entirety of the HMA. The AML was established in consideration of the naturally low precipitation and subsequent low producing vegetation communities, drought cycles, and lack of available water for wild burros. The AML was also established at that level to protect key forage, prevent wild burro emergencies, and protect habitat for threatened and sensitive wildlife species.

The most recent population census of Bullfrog HMA was conducted in April 2024 and was associated with an estimated 1,015 adult burros and 69 foals at that time associated with the HMA (Crabb 2025a). The current estimate of 1,197 adult wild burros as of early 2025 is more than 20 times over the low end of AML, which is 58 burros. Table 2 shows population growth estimates if no management actions occur over the next 5 years.

The estimated growth rate for this HMA is 18% per year. Previous gathers and removals of excess wild burros were conducted in 2019, 2018, 2015, 2012, 2007, 1996, 1995, and 1990 resulting in lower population numbers the following years. Due to extreme drought conditions in the 1990s, the BLM conducted two emergency gathers within and around this HMA. The BLM has also conducted nuisance and emergency gathers due to hazardous conditions arising from the limiting nature of the Mojave Desert ecosystem, periods of consecutive years of droughts, the high fecundity and survival of wild burros, as well as the overlap with human infrastructure and subsequent frequent interaction between wild burro populations and the public. Wild burros in general are very resilient and adaptable animals with a metabolism that has evolved to allow them to survive and thrive in poor quality habitat. Wild burros have strong bones and hooves and rarely succumb to ailments that plague domestic horses or burros. Due in part to their hardiness, wild burros typically do not begin to show signs of body condition decline until the habitat components are severely deficient. Once the decline begins, their health deteriorates rapidly. Additionally, wild burros are a long-lived species with documented high survival rates (Douglas and Hurst 1993), and they do not have the ability to self-regulate their population size (NAS 2013). Predation and disease have not substantially regulated wild burro population levels within or outside the Bullfrog

HMA. Throughout the HMAs administered by the Battle Mountain District, there are few predators that exist to control wild burro populations. Some mountain lion predation may occur in select areas, but it is not believed to be substantial or significant enough to reduce the 18% growth rate. Coyotes are not prone to prey on wild burros unless very young, or extremely weak. Other predators such as wolves or bears do not exist in this area.

Because of history, context, and the potential for natural or human-caused movements, wild burros that live in the Bullfrog HMA should not be considered to be a genetically isolated population. The National Academies of Sciences report (2013) recommended that wild horses and burros living in single HMAs should not be considered genetically isolated populations. Rather, managed herds of wild burros should be considered as components of interacting metapopulations, connected by similar ancestry and interchange of individuals and genes due to both natural and human-facilitated movements. Wild burros in the Bullfrog HMA can be considered part of a larger metapopulation (NRC 2013) that has demographic and genetic connections with other BLM-managed herds. The burro population within the Bullfrog HMA likely doubles, if not triples, during summer months when water availability becomes limited in areas outside the HMA. The additional burros move in from adjacent National Park lands, NTTR lands and BLM lands outside the HMA. This ingress of burros from surrounding areas may facilitate gene flow in a way that maintains relatively high genetic diversity in this herd. Wild burro herds in the larger metapopulation have a background of diverse domestic breed heritage, probably caused by natural and intentional movements of animals between herds. Under the proposed action, hair samples would be collected during gathers to assess the genetic diversity of the herds at the time of the gather. Analysis would determine whether management is maintaining acceptable levels of genetic diversity (and avoiding excessive risk of inbreeding depression). Under all action alternatives, fertile wild burro introductions could augment observed heterozygosity, which is a measure of genetic diversity, if needed. The result of introductions should be to reduce the risk of inbreeding-related health effects. Introducing a small number of fertile animals every generation (about every 7 years) is a standard management technique that can alleviate potential inbreeding concerns (BLM 2010 wild horse and burro management handbook H-4700-1).

In 2012, hair follicles from 49 burros from the herd were sampled and analyzed to assess baseline genetic diversity using a panel of microsatellite genetic markers. The herd at that time had high genetic diversity relative to other wild burro herds; the observed heterozygosity value was 0.492, which was greater than the feral burro mean (0.403) and the domestic burro mean (0.450), per Cothran (2014). A dendrogram of genetic similarity indicated that the two other previously-sampled wild burro herds most genetically similar to the Bullfrog HMA burros were Twin Peaks HMA in California and Cibola/Trigo HMA in Arizona (Cothran 2014). Appendix H of the 2013 NAS report is a table showing the estimated 'fixation index' (Fst) values between 25 pairs of samples from wild burro herds available at that time. Fst is a measure of genetic differentiation, in this case as estimated by the pattern of microsatellite allelic diversity analyzed by Cothran's laboratory. Low values of Fst indicate that a given pair of sampled herds has a shared genetic background. Only if values are above about 0.15 are any two sampled subpopulations considered to have evidence of 'elevated differentiation' (Frankham et al. 2010). Pairwise Fst values for the 2012 samples were less than 0.15 with 5 other sampled herds (in Arizona and California). These results support the interpretation that the Bullfrog HMA wild burros are components in a connected metapopulation that includes many herds.

When water sources are insufficient in the HMA during the hottest months of the year, wild burros will increase pressure on the town of Beatty, NV. They also encroach on private lands and conservation areas

outside of town, causing damage to fencing, ecological restoration projects, and sensitive riparian areas. The increased interaction between humans and burros resulting from this behavior can lead to dangerous situations, namely vehicle collisions, but also entanglement with trash, the ingesting of inappropriate and possibly toxic food sources, and habitation. Intentional feeding and watering of wild burros by the public compounds these issues by creating a dependence on human resources and driving wild burros to occupy space within Beatty, NV. Due to heavy competition for water and limited water resources, wild burro health is often observed to be impacted during the hotter parts of the year.

The most recent aerial survey in the HMA took place in April 2024. Based on a statistical analysis of the double-observer data collected following standard methods (Griffin 2020), it was estimated that there was a total of 1,015 adult burros on the Bullfrog HMA at that time (Crabb 2025a). In surveys, yearlings are included with adults, and young-of-the-year are recorded as foals. Guidelines for population projection, based on a previous year's survey, are provided in the SOPs for wild horse and burro aerial surveys (Griffin et al. 2020). To calculate the expected current herd size of the HMA, the BLM added an annual herd growth rate for burros, of 18% per year, applied once to the 2024 estimates.

Environmental Effects of the Proposed Action

Impacts can occur to burros after the initially stressful event (capture) and could include increased social displacement or increased conflict between studs and between jacks. These impacts are known to occur intermittently during wild burro gather operations. Traumatic injuries could occur and typically involve biting and /or kicking bruises. Burros may potentially strike or kick gates, panels or the working chute while in corrals or trap which may 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 may include spontaneous abortions in mares and 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 studs following sorting and release into the stud/jack pen, which lasts less than a few minutes and ends when one stud/jacks 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.

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

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 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.

The BLM has been gathering excess wild horses and 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 horses and burros during gathers.

Since 2006, BLM Nevada has gathered over 40,000 excess animals. Of these, gather related mortality has averaged only 0.5%, which is very low when handling wild animals. Another 0.6% of the animals captured were humanely euthanized due to pre-existing conditions and in accordance with BLM policy. Scasta (2020) found similar results in their analysis of mortality and operational attributes relative to feral horse and burro capture techniques based on publicly available data from 2010-2019. This data affirms 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.

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. Animals that are euthanized for non-gather related reasons include those with old injuries (broken hip, leg) that have caused the animal to suffer from pain or which prevent them from being able to travel or maintain body condition: old animals that have lived a successful life on the range, but now have few teeth remaining, are in poor body condition, or are weak from old age; and wild burros that have congenital (genetic) or serious physical defects such as club foot, or sway back and should not be returned to the range.

Temporary Holding Facilities During Gathers

Wild burros gathered would be transported from the trap sites to a temporary holding corral within the HMA 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. Mares/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. Any animals affected by a chronic or incurable disease, injury, lameness or serious physical defect (such as severe tooth loss or wear, club foot, and other severe congenital abnormalities) would be humanely euthanized using methods acceptable to the American Veterinary Medical Association (AVMA).

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. 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. Mares/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. Any animals

affected by a chronic or incurable disease, injury, lameness or serious physical defect (such as severe tooth loss or wear, club foot, and other severe congenital abnormalities) that was not diagnosed previously at the temporary holding corrals at the gather site would be humanely euthanized using methods acceptable to the AVMA. 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. Recently captured wild burros, generally jennies, in very thin condition may 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 2008, Page 51), 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.

Adoption
Adoption applicants are required to have at least a 400 square foot corral with panels that are at least six feet tall for wild horses and four and half feet tall for wild burros. 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. A sale-eligible burro is any animal that is more than 10 years old; or has been offered unsuccessfully for adoption at least 3 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 that are presently in place.

Euthanasia and Sale Without Limitation
Under the WFRHBA, healthy excess wild horses and 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 horses and burros removed from the HMA 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 horses and burros.

Wild Burros Remaining in the HMA Following the Gather
Under the Proposed Action, the post-gather population of wild burros may start as low as about 58 wild burros if all excess wild burros can be removed, which is near the low end of the AML range for the HMA, and then grow over time. It is also possible that, due to the difficulty of gather operations in such an area as HMA, which includes wilderness areas, the BLM may 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 would ensure that the remaining wild burros are healthier and more vigorous, and not at risk of death or suffering from starvation due to insufficient habitat coupled with the effects of frequent drought (lack of forage and water).

The wild burros that are not captured may 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 HMA. No observable effects associated with these impacts would be expected within one month of release, except for a heightened awareness of human presence.

As a result of lower density of wild burros across the HMA following the removal of excess burros, competition for resources would be reduced, allowing wild burros that remain on the range to utilize to utilize preferred, quality habitat. Confrontations between jacks would also become less frequent, as would fighting among wild burro bands at water sources. Achieving the AML and improving the overall health and fitness of wild burros could also increase foaling rates and foaling survival rates over the current conditions.

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

The remaining wild burros not captured are expected to maintain their social structure and herd demographics (age and sex ratios). No observable effects to the remaining population associated with the gather impacts would be expected except a heightened shyness toward human contact.

Baseline genetic information for the wild burros living in the HMA was summarized by Cothran (2014). Further genetic monitoring in the herd will be possible after hair follicle samples have been collected from gathered animals. Removing burros so that the remaining herd size in the Bullfrog HMA is approximately 58 (low AML) animals after the initial gather, then increasing over time, is not expected to lead to an unacceptable loss of genetic diversity in this herd for three reasons. First, the BLM has the expectation that the existing burro herd has a relatively high genetic diversity (as measured by observed heterozygosity), due to a history of mixed breed ancestry, relative proximity to other historic burro populations (such as Death Valley National Park and the Spring Mountains Complex), and the currently large population size. This expectation was supported by results from 2012 samples (Cothran 2014) and current genetic diversity values will be measurable, based on analysis of genetic samples that would be collected at the time of the first gather under either the Proposed Action or Alternative B. Second, under the proposed action BLM will take protection measures to augment genetic diversity in the herd, if needed (BLM 2010). The effects of the fertility control vaccines applied to jennies are not expected to end existing pregnancies, and female foals born to vaccine-treated jennies are expected to be fertile. Fertility control vaccination is not generally expected to prevent treated jennies from reproducing in the future, as vaccine effects tend to wane over time as the immune response to vaccines decreases, depending on the number and frequency of doses administered (see **Appendix D**).

Impacts to the rangeland as a result of the current overpopulation of wild burros 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 may 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 horse and 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 is 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 may be orphaned during gathers. This may occur due to:

- 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.

Sometimes, foals are gathered that were already orphans on the range (prior to the gather) because the mother rejected it or died. These foals are usually in poor, unthrifty condition. Orphans encountered during gathers are cared for promptly and rarely die or have to be euthanized.

Most foals that would be gathered 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 horses and 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 may become dusty, depending upon the soils and specific conditions at the gather area. The BLM ensures 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 horses and burros at an easy pace. If there are extreme heat conditions, gather activities are suspended during that time. Water consumption is monitored, and horses or burros are often lightly sprayed with water as the corrals are being sprayed to reduce dust. The wild horses and burros appear to enjoy the cool spray during summer gathers. 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 SOPs and care taken during summer gathers, potential risks to wild horses and burros associated with

summer gathers can be minimized or eliminated.

During winter gathers, wild horses and burros are often located in lower elevations, in less steep terrain due to 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 horses and 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 horses and burros can be safely gathered. Snowy conditions, though, are not frequently expected in this locale.

Any jennies released back into the HMA would be held briefly in a temporary or permanent corral, individually marked, could be treated with fertility control vaccines (i.e., PZP ZonaStat vaccine, PZP-22 pellet vaccine, GonaCon-Equine), and returned to the range. Individual marking would include a uniquely numbered RFID chip inserted into the nuchal ligament and could include freeze brand identification. For practical use by BLM, RFID chips can only be read if the animal is in close proximity to a chip reader (for example, because the animal is constrained). If animals have unique hip freezebrands or neck freezebrand marks, then they could be identified as candidates to receive booster doses of fertility control vaccine via darting. However, darting in the HMA is not expected to be practical, for reasons noted in section 2.3.3. In the state of Nevada, the BLM is generally not allowed to apply individual marks to wild horses or burros that are returned to the range, though a fertility control freezemark can be applied. Expected effects of fertility control vaccine are primarily a reduced fertility rate in treated jennies and changes that are directly associated with not becoming pregnant or having a foal. Other effects may include associated changes in estrus cyclicity, injection site reactions, and increased longevity. A thorough review of the effects of fertility control vaccines is included in **Appendix D**.

Genetic monitoring would be conducted following gathers, to continue assessments of genetic diversity in the herd during the initial gather, and subsequent levels of genetic diversity during follow-up gathers. Having some portion of the jennies in the herd temporarily infertile should not prevent the herd from being self-sustaining, and should not cause an inappropriate loss of genetic diversity. Under the proposed action, at least 3-5 fertile animals could be introduced from another HMA(s), approximately every 7 years if genetic monitoring indicates that is needed to increase genetic diversity. This action is expected to increase the genetic diversity in the herd, to reduce the negative effects of potential inbreeding and genetic drift. Should genetic monitoring results indicate that introduction of additional fertile burros is warranted to increase genetic diversity in the herd, BLM can take that action.

Effects from the No Action Alternative
Under the No Action Alternative, there would be no active management to control the population size within the established AML at this time. In the absence of a gather, wild burro populations would continue to grow at an average rate of approximately 15-20% per year. Without a gather and removal now, the wild burro populations could exceed 2,000 animals in four years (Table 2).

Use by wild burros would continue to exceed the amount of forage available for their use. Competition between wildlife and wild burros for limited forage would continue. Damage to rangeland resources, including habitats for sensitive wildlife species would continue or increase. 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, and their unsafe activities in and near Beatty would also increase. Over the long-term, the health and sustainability of the wild burro population is dependent upon achieving a thriving natural ecological balance and sustaining healthy rangelands. Allowing wild burros to die of dehydration, starvation, or increasing rates of vehicle collision would be inhumane and would be contrary to the WFRHBA which requires that excess wild horses be immediately removed. Allowing rangeland

damage to continue to result from wild horse and 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*."

4.0 Reasonably Foreseeable Effects

Reasonably foreseeable effects are impacts or effects on the environment that result from the incremental effects of the action when added to other past, present, and reasonably foreseeable future actions. Reasonably foreseeable effects can result from individually minor but collectively significant actions taking place over a period of time. The reasonably effects area (REA) is the Bullfrog HMA. Only those resources directly or indirectly affected by the action alternatives are considered for reasonably foreseeable effects.

4.1 Past, Present, and Reasonably Foreseeable Future Actions

Past actions considered are those whose impacts to one or more of the affected resources have persisted to present day. Present actions are those occurring at the time of this evaluation and during implementation of the action alternatives. Reasonably foreseeable future actions (RFFAs) include actions that are permitted, known, or could reasonably be anticipated to occur within the analysis area for each resource, within a timeframe commensurate with the expected impacts from the action or alternatives.

4.1.1 Past and Present Actions

Past actions include establishment of wild burro HMAs, establishment of AML for wild burros, wild burro gathers, mineral exploration and extraction, range improvement projects such as water sources and fencing, development of transportation and infrastructure, housing and commercial development, and recreational activities. Some of these activities have increased the presence of invasive plants and noxious weeds.

Mineral exploration and mining activities have occurred in the Bullfrog HMA since the early 1900s. The Bullfrog Mining District has a long history of silver and gold mining, with the precious minerals having first been discovered there in 1904. Many of the operations ended prior to the current reclamation requirements and some have not been reclaimed. Presently, AngloGold Ashanti North America Inc. is operating the Sterling Silver Mine, under the jurisdiction of the Southern Nevada District Office, but is physically located a few hundred feet from the unfenced southern boundaries of the Bullfrog HMA. In addition, AGA is preplanning the North Bullfrog Mine project, an open pit precious metal mining operation.

Recreation activities in the Bullfrog HMA include off-highway vehicle use, off-highway vehicle racing, camping, hiking, recreational shooting, rock hounding, wildlife watching/photography, and wild burro watching/ photography.

The focus of wild burro management has also expanded to place more emphasis on achieving rangeland health as measured through the BLM Resource Advisory Council's developed standards and guidelines for rangeland health (BLM 1997) that are the basis for grazing administration on public lands within Nevada. Adjustments in numbers, season of use, grazing season, and allowable use are based on evaluating progress toward reaching the standards. The actions which have influenced today's wild burro populations are primarily gathers, with the last one having taken place in 2019, when 690 wild burros were removed from the HMA.

Approximately 2,338 wild burros have been removed from the Bullfrog HMA since 1986. Small nuisance burro gathers are continuing to occur to address the public safety concerns, as well as address private landowner complaints in and outside the HMAs.

4.1.2 Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions include gathers about every 3-4 years to remove excess wild burros in order to manage population size within the established AML range so as to provide an opportunity for degraded range resources to recover. The excess animals removed would be transported to ORC where they would be prepared for adoption, sale (with limitations), or ORP. A relatively small number of female burros would be returned to the Bullfrog HMA after treatment with fertility control vaccine, to help meet the intended goal of reducing the annual growth rate in this herd. A small number of burros could be introduced from other HMAs, if that is deemed necessary to ensure that genetic diversity remains adequate to prevent negative effects of inbreeding on viable foal production.

Mineral exploration in the area includes authorized or pending plans of operation (for either exploration or mining) totaling 15,273.8 acres, mining notices totaling 24.25 acres, and mineral material sources totaling 698.25 acres. The combined activities total approximately 16,000 acres of surface potential surface disturbance. These activities might include construction of drill roads and drill pads up to open pit mining. Mineral properties are located throughout the Bullfrog HMA. Overall, within the Bullfrog there could be exploration targets in the future, which may cause additional surface disturbance. All mining activities require reclamation bonds.

4.2 Forest and Rangelands/Vegetation

Reasonably Foreseeable Effects of the Proposed Action
Reasonably foreseeable effects to vegetation in the Bullfrog area include disturbance from OHV use and potential creation of new routes. Several sensitive species of plants occur in gypsum soils within the area, and these soils are easily disturbed and slow to recover. Impacts from the proposed action will result in a lower level of effect to sensitive plants and vegetation as removal of the wild burros will decrease effects on these resources.

Effects of the No Action Alternative
Reasonably Foreseeable Effects from the No Action Alternative would result in higher overall and sustained disturbance to Mojave Desert vegetation and sensitive species, as not removing these animals would result in a herd that would continue to increase in number and contribute to impacts on vegetation in the HMA area.

4.3 Fire and Fuels

Reasonably Foreseeable Effects of the Proposed Action
Past and present fire history data within the Bullfrog HMA is characterized by relatively low fire occurrence, but with substantially larger fires than areas of similar fuel type. The majority of the HMA is found to be within the historic fire regime range of variability, which is rated as Fire Regime Condition Class 1. However, high elevation areas within the HMA have significantly departed the historic average fire regime and exhibit characteristics of Fire Regime Condition Class 2. There have been 7 reported ignitions for a total of 24,593 acres burned since 1992 within the Bullfrog HMA. The median fire size is 22 acres with the largest fire being recorded at 20,751 acres. The two largest fires within the area both occurred in 2006 at higher elevations within the HMA. Fuels treatments are disproportionately low within the HMA due to the relatively low probability of fire risk within these fuel types. Additionally, the Battle Mountain District typically avoids treating in areas that are over AML due to the reduced chance of

success of the vegetation treatments. This is particularly true of treatment methods to restore landscapes encroached upon by pinyon and juniper or depleted sagebrush that require seeding (i.e. chaining, mastication, mowing, etc.).

Effects of the No Action Alternative
Reasonably Foreseeable Effects from the No Action Alternative would result in higher overall wildfire risk due to increased potential for non-native species and altered fire regimes.

4.4 Migratory Birds/Wildlife

Reasonably Foreseeable Effects of the Proposed Action
Desert ecosystems are slow to recover from disturbance. These areas are negatively impacted by wild horses and burros, due to population over the AML and overuse of the ecosystem. As these populations are established and continue to grow, the environment and resources are negatively impacted from over grazing, trampling and depleted water sources. Increasing wild horse and burro populations also increases the potential of human presence and increased casual use at these locations.

Disturbance to migratory birds from the helicopter and wild burros could occur but would be short-term and minimal. 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 effects would result from reducing wild burro numbers within the assessment area.

The removal of excess wild burros would provide immediate benefit to migratory birds, special status species, and wildlife through less competition for forage, nest sites and water thus would allow gradual improvement of upland and riparian health.

Effects of the No Action Alternative
Under the No Action Alternative wild burro levels would continue to increase and result in areas of vegetative communities to continue to be over utilized by horses and burros. The continued presence of horses and burros over AML degrades habitat and removes forage plants and potential nest sites for avian species and other wildlife. Under the No Action Alternative, the impacts to the rangeland and to sensitive species would be detrimental.

4.5 Riparian-Wetland Zones/Soils

Reasonably Foreseeable Effects of the Proposed Action
Reasonably foreseeable effects to vegetation in the HMA include disturbance from OHV, creation of new routes, and soil erosion from reduction of native plant materials. Soil erosion will decrease, and water quality will increase once wild horse and burro numbers are reduced. Hoof action on the soil around unimproved springs and streambanks would be lessened which should lead to increased streambank stability and decreased compaction and erosion. Improved vegetation around riparian areas would dissipate stream-energy associated with high flows, and filter sediment, resulting in associated improvements in water quality. The Proposed Action would make progress towards achieving and maintaining proper functioning condition at riparian areas.

Effects of the No Action Alternative
Under the No Action Alternative soil erosion and water quality will further deteriorate and/or at a higher rate than under current AML.

4.6 Federally Threatened, Endangered, Proposed, or Candidate Animal Species and Critical Habitat

Reasonably Foreseeable Effects of the Proposed Action

Reasonably foreseeable effects to desert tortoise and the Amargosa toad and their habitat can result from the incremental improvements to habitat quality that would be expected from the slow recovery of semi-arid environments, especially for the tortoise, and riparian and nearby habitats especially for the toad. The reduced wild burro population should decrease the potential for invasion of non-native vegetation and improve the expected availability of potential tortoise forage and nesting/burrowing and cover sites. Having burros at a low population size should still allow for some periodic disturbance of wetlands used by toads but should reduce the risk of overuse and trampling at toad reproduction sites. Reasonably foreseeable effects of the proposed action may result in recovery of areas that have been heavily impacted by wild burros resulting in increased forage potential, reduced risk of trampling, potentially reducing the spread of weeds and increased water quality and availability at spring locations.

Effects of the No Action Alternative
Under the No Action Alternative wild burro levels would continue to increase and result in areas of vegetative communities that would continue to be over-utilized by burros, at levels that would become even worse over time. The continued presence of burros over AML degrades habitat and removes forage plants and potential burrow sites for desert tortoise. Desert tortoises and Amargosa toads would be additionally at higher risk of being trampled. Under the No Action Alternative, impacts to the desert tortoise would be detrimental.

4.7 Wild Horses and Burros

Reasonably Foreseeable Effects of the Proposed Action
The reasonably foreseeable effects associated with the capture and removal of excess wild burros includes gather-related mortality of less than 1% of the captured animals, about 5% per year associated with transportation, short-term holding, adoption or sale with limitations and about 8% per year associated with long-term holding. This compares with natural mortality on the range ranging from about 20-40% per year for foals (animals under age 1), and 3-5% for adults (Douglas and Hurst 1993)). In situations where forage and/or water are limited, mortality rates increase, with the greatest impact to young foals, nursing jennies, and older burros. Animals can experience lameness associated with trailing to/from water and forage, foals may be orphaned (left behind) if they cannot keep up with their mother, or animals may become too weak to travel. After suffering, often for an extended period, the animals may die. Before these conditions arise, the BLM generally removes the excess animals to prevent their suffering from dehydration or starvation.

While humane euthanasia and sale without limitation of healthy horses and burros for which there is no adoption demand is authorized under the WFRHBA, Congress prohibited the use of appropriated funds between 1987 and 2004 and has again since 2010 for this purpose.

Potential impacts on wild jennies treated with fertility control vaccines, and associated potential effects on the herd, are detailed in **Appendix C**.

Other effects which would be expected when incrementally adding either of the Action Alternatives to the REA would include continued improvement of upland vegetation conditions, which would in turn benefit native wildlife and wild burro population as forage (habitat) quality and quantity is improved over the current level. Benefits from the removal of excess wild burros would include fewer animals competing for limited forage and water resources. Overall, the wild burro population would be more stable, with healthier rangelands, healthier remaining wild burros and fewer multiple use conflicts in the area over the short and long-term. Over the next 15-20 years, continuing to manage wild burros at the established AML would be expected to allow BLM to achieve and maintain a thriving natural ecological balance and multiple use relationship on public lands in the area.

Effects of the No Action Alternative
Under the No Action Alternative, the wild burro populations could exceed 2,000 animals in four years (see Section 2.5, **Table 2** for population growth projections). 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. Heavy to excessive utilization of the available forage would be expected. Eventually, native plant communities would be damaged to the extent that they are no longer sustainable, and the wild burro population would be expected to crash.

Emergency removals could be expected in order to prevent individual animals from suffering or death as a result of insufficient forage and water. As the herd continues to grow, these emergency removals could occur as early as 2025. During emergency conditions, competition for the available forage and water increases. This competition generally impacts the oldest and youngest burros as well as lactating jennies first. These groups would experience substantial weight loss and diminished health, which could lead to their prolonged suffering and eventual death. If emergency actions are not taken, the overall population could be affected by severely skewed sex ratios towards jacks as they are generally the strongest and healthiest portion of the population. An altered age structure would also be expected if foal mortality increases at high burro herd densities.

Overall effects include increased degradation of range resources and foregoing the opportunity to improve rangeland health and to properly manage wild burros in balance with the available forage and water and other multiple uses. Attainment of site-specific vegetation management objectives and Standards for Rangeland Health would not be achieved. AML would not be achieved and the opportunity to collect the scientific data necessary to re-evaluate AML levels, in relationship to rangeland health standards, would be foregone.

5.0 Environmental Protection Measures

5.1 Forest and Rangelands/Vegetation

- All locations for gathering and staging will be cleared with the BLM botanist prior to use to avoid impacts to rare plant populations (which are often in areas with less vegetation).

5.2 Migratory Birds/Wildlife

- If a gather is to occur during the migratory bird breeding season (March 1st to August 31st) or the Golden Eagle breeding season (December 15th to July 31st), a biologist is required to survey the trap location to ensure no birds are nesting within the vicinity.
- In compliance with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act, gathering operations should be scheduled outside of the bird breeding season, which generally occurs (March 1st through August 31st For Migratory birds and December 15th through July 31st for Golden Eagles)If a project has to occur during the breeding season, then a qualified biologist must survey the gather and holding locations for nests, including ground nesting species, immediately prior to commencement of project activities. If any active nests are found, an appropriately sized buffer area must be established and maintained until the young birds fledge. If feasible, the buffer area should connect to suitable, undisturbed habitat. As the above dates are a general guideline, any active nests that are observed outside this range, must be avoided as described above.
- Any infrastructure for projects will be designed and constructed in a manner that does not allow open pipes that birds or other wildlife could be trapped in. This includes fencing, gates, or other materials with open holes. All open pipes will be capped or secured so that wildlife cannot access.

5.3 Riparian-Wetland Zones/Soils

- All locations for gathering and staging wild horses and burros (other than bait traps) should occur at least 0.25 miles away from natural water sources and riparian areas and should occur in previously disturbed areas to reduce impacts to intact riparian/wetland areas.

5.4 Federally Threatened, Endangered, Proposed, or Candidate Animal Species & Critical Habitat

- The Section 7 consultation for this project is covered under the current Programmatic Biological Opinion (File No.: 1-5-01-F-570) contingent on compliance with the terms and conditions. **A copy of the terms and conditions has been provided for this project (Sec 7 Log # NV-052-20-041).**
- Trap sites for wild burro removal should be located in previous trap sites or in previously disturbed areas, if at all possible.
- Holding facilities for gather operations should be placed either in previously disturbed areas or outside of desert tortoise habitat.
- Trap sites and holding sites will be cleared by a qualified biologist before being set up or designated. The site will be surveyed for desert tortoise using survey techniques which provide 100 percent coverage.
- All vehicle use in desert tortoise habitat shall be restricted to existing roads and trails; vehicle speed should not exceed 25 miles-per-hour (mph).
- Trash and garbage shall be removed from each trap and holding site and disposed of in an off-site designated facility. No trash or garbage shall be buried at the sites.
- Use of hay or grains as enticements into the traps will not be authorized within desert tortoise habitat to avoid introduction of non-native plant species. The feeding of hay or grains to animals shall be avoided in holding facilities within desert tortoise habitat, when possible, with the exception of weed-free hay.
- BLM will provide information to all contractors about the desert tortoise. This will be in the form of a fact sheet on the life history of the desert tortoise, legal protection for desert tortoise, the definition of take, penalties for violations of Federal and State laws, general tortoise activity patterns, reporting requirements, measures to protect tortoises, and personal measures employees can take to promote the conservation of desert tortoise. The fact sheet will include the pertinent terms and conditions of the biological opinion. The contractor will ensure that all employees working on the gather are knowledgeable of the terms and conditions of the biological opinion.
- The discharge of firearms will be prohibited at all trap and holding facilities except in the case of euthanasia of a captured animal by an authorized BLM employee or contractor.
- If the HMA includes grazing allotments, combined usage shall not exceed the limits set above (35%).

5.5 Wild Burros

- The BLM COR and PI assigned to the gather will be responsible for ensuring contract personnel abide by the contract specifications and the CAWP standards (**Appendix B**).
- Ongoing monitoring of forage condition and utilization, water availability, aerial population surveys, and animal health will continue.
- A small number of fertile burros from another HMA(s) may be periodically introduced to the herd to maintain high levels of heterozygosity. Sampling genetic materials (hair follicles) during the first gather and as resources allow would be collected approximately every 10 years (or more frequently if results from the first gather lead to a recommendation from the population geneticist that that is appropriate) would allow for ongoing analysis of genetic diversity.

5.6 Wilderness Study Areas

- Timing of activities will consider recreation use patterns whenever possible. Action should be

scheduled to avoid known high-use times such as weekends and hunting season.
- All trap sites and holding facilities must be in previously disturbed areas or outside of the lands with wilderness characteristics boundary.
- Any motorized/mechanized travel and landing of aircraft must not create any new surface disturbance.

6.0 Consultation and Coordination

The BLM hosts public hearings annually to discuss the use of motorized vehicles, including helicopters and fixed-wing aircraft, in the management of wild horses and burros. During these meetings, the public is given the opportunity to present new information and to voice any concerns regarding the use of the motorized vehicles. The BLM hosted its annual public hearing on the use of motorized vehicles in the management of wild horses and burros on May 6, 2025 via Teams.. The Bureau of Land Management (BLM) held its 2025 annual public hearing on the use of motorized vehicles in wild horse and burro management on May 6, 2025, via Microsoft Teams. A total of 17 individuals provided oral comments during the hearing, and 3,084 written comments were submitted by email. Most public input expressed opposition to the use of helicopters for gathering excess wild horses and burros. All oral and written comments submitted by the deadline are part of the official record. In response to the concerns raised, the BLM reviewed its Standard Operating Procedures (SOPs) governing motorized vehicle use. Based on this review, no changes to the SOPs were warranted.

The use of helicopters and motorized vehicles has proven to be a safe, effective, and practical means for the gather and removal of excess wild horses and burros from the range. Since 2006, Nevada has gathered over 40,000 animals with a total mortality of approximately 1.1% (of which .5% was gather related), which is very low when handling wild animals.

During a Tribal Questions and Discussion Forum held at the Tonopah Field Office on March 11, 2025, it was indicated by the Duckwater Shoshone Tribe that they prefer to be consulted on a case-by-case basis when locations have been finalized for projects involving multiple sites in large areas. Gather trap sites are built in pre-disturbed areas whenever feasible, however previously un-surveyed proposed trap sites and holding facilities would be surveyed prior to the gather(s) by an Archeologist; if any cultural resources eligible for listing on the national register are discovered, that site would not be used. If unanticipated cultural resources are discovered during the trapping process at the capture sites, trapping would cease immediately, and the Authorized Officer would be notified.

7.0 List of Preparers

Table 5. List of Preparers

Battle Mountain District Office		
Name	**Title**	**Responsible for contributing to the Following Section(s) of this Document**
Eden Long	Wild Horse Specialist	Project Lead/Wild Horse Specialist
Melissa Jennings	Planning & Environmental Coordinator	National Environmental Policy Act
Daltrey Balmer	Assistant Field Manger	Livestock Grazing, Special Status Species

Robert Burdick	Supervisory Fire Management Specialist	Forestry, Vegetation, Fire/Fuels
William Clemons	Natural Resource Specialist	Wildlife, Migratory Birds, Livestock Grazing
Gabrielle Buttermore	Wildlife Biologist	Wildlife, Special Status Species
Julia Olson	Natural Resource Specialist	Livestock Grazing
Kenner Elena Vorheis	Outdoor Recreation Planner	Wilderness/LWC
Ashton Jenks	Archaeologist	Cultural Resources

8.0 Public Involvement

The Tonopah Field Office initiated public scoping with a public announcement and letter to interested parties soliciting public input. An evaluation report was prepared and made available for public review on the BLM ePlanning site. The report documents key issues that would aid in alternative development of the Bullfrog HMA. Public scoping started on September 17, 2024, and ended on October 21, 2024, and solicited public input for the development of a Herd Management Area Plan and Gather Plan for the Bullfrog HMA. Comments were received from approximately 2,000 individuals, groups, and agencies. Many of the comments received expressed concern about the long-term management strategy for the Bullfrog HMA, Including private property/public safety, genetic diversity of the herd, and the long-term strategy for population management. The comments that were within scope were incorporated in the preparation of the preliminary environmental assessment and the Proposed HMAP.

The Following Concerns were identified as a result of public and internal scoping:
1. Impacts to vegetation, riparian, soil and water resources
    - Water Resources
    - Habitat Resources
2. Impacts to Wild Burro population management
    - Burro Behavior
    - Population Control
    - Genetic Diversity
    - Gather Operations
    - Evaluation of Appropriate Management Level
    - Animal health and condition
3.Impacts to private property and public safety concerns
    - Nuisance animals
4. Public Observation
5. Livestock Grazing

The Bullfrog Herd Management Area Plan and Gather Environmental Assessment was made available to the public from February 20 to March 24, 2025. The BLM received input from approximately 1,189 individuals through a signed petition with the Cloud Foundation, and several individuals independent of the petition. In addition, comments were received from Return to Freedom, Wild Horse Education, the Cloud Foundation, Beatty Town Advisory Board, Beatty General Improvement District, SpayVac, and Friends of Animals. The public comment table and BLM responses are found in **Appendix J**.

This EA was revised in Chapter 4 to conform to Executive Order 14154. E.O.14154 Unleashing American Energy (Jan. 20, 2025), and a Presidential Memorandum, Ending Illegal Discrimination and Restoring Merit-Based Opportunity (Jan. 21, 2025), require the Department to strictly adhere to the

National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321 et seq. Further, such Order and Memorandum repeal Executive Orders 12898 (Feb. 11, 1994) and 14096 (Apr. 21, 2023). Because Executive Orders 12898 and 14096 have been repealed, complying with such Orders is a legal impossibility. The [bureau] verifies that it has complied with the requirements of NEPA, including the Department's regulations and procedures implementing NEPA at 43 C.F.R. Part 46 and Part 516 of the Departmental Manual, consistent with the President's January 2025 Order and Memorandum. The [bureau] has also voluntarily considered the Council on Environmental Quality's rescinded regulations implementing NEPA, previously found at 40 C.F.R. Parts 1500–1508, as guidance to the extent appropriate and consistent with the requirements of NEPA and Executive Order 14154. This resulted in wording changes in Chapter 4.

In addition, the scoping and comment period dates were edited to reflect the exact dates of release and closure of scoping and public comment periods. Based on public comments a section was added for fire and fuels (3.2.2 and 4.3).

Appendix A. Maps

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

Appendix C. Fertility Control Vaccines SOPs, Radio Collars and Literature Review

Appendix D. Bullfrog Herd Management Area Plan

Introduction

Herd Management Area Description

The Bullfrog Herd Management Area Plan (HMAP) will establish short and long-term management objectives for the wild burro herd and their habitat within lands administered by the Bureau of Land Management (BLM). These objectives will guide management of the Bullfrog Herd Management Area (HMA), and the wild burros within the HMA, over the life of the plan. The Bullfrog HMAP will remain in effect until superseded by another document.

The Bullfrog HMA is in the northern Mojave Desert, approximately 90 miles southeast of Tonopah, Nevada, in Nye County, and is managed by the BLM, Tonopah Field Office (TFO), Battle Mountain District. The eastern edge of the HMA borders the Nevada Testing and Training Range (NTTR), and the western border neighbors Death Valley National Park. Burro movement between the HMA and the NTTR has been observed, and similar movement between the National Park and the HMA is likely to occur. The southern border of the HMA is the Battle Mountain District boundary, which borders the Southern Nevada District. The town of Beatty, Nevada (pop. 596 as of 2022) lies in the center of the HMA, and United States (U.S.) Highway 95 splits the HMA into eastern and western portions. Most of the burro population resides in the western side of the HMA with some burros residing outside of the HMA boundaries to the south and west. The HMA is approximately 157,180 acres in size, with land status as shown in HMAP Table 1. See **Appendix A Maps**.

HMAP Table 1. Bullfrog HMA Surface Management

Surface Management	Acres*	Percentage*
Bureau of Land Management	146,701	93%

Private	10,479	7%
Total	157,180	100%

*Subject to change over time

HMAP Table 2. Estimated Wild Burro Population and Removal by Year.

Estimated Wild Burro Population by Year								
Year	Est. Pop. of Burros*	Number Removed from the HMA	Year	Est. Pop. of Burros*	Number Removed from the HMA	Year	Est. Pop. of Burros*	Number Removed from the HMA
1986	47	78	1999			2012	195	77
1987			2000	28		2013	154	
1988	256		2001			2014	181	
1989	61		2002			2015	203	44
1990	203	64	2003			2016	197	
1991	130		2004			2017	620	
1992	94		2005	34		2018	738	404
1993	227	57	2006	41		2019	397	690
1994	432		2007	82	12	2020	138	
1995	183	492	2008	87		2021	164	
1996	17	417	2009	102		2022	189	2
1997			2010	125		2023	217	
1998	20	1	2011	148		2024	1,015	

*Estimated values reflect the best available knowledge at the time of reporting, but there are years when population size appears to jump as a result of improved information, from aerial surveys.

Appropriate Management Level

The objective for Wild Horses and Burros from the Tonopah Resource Management Plan (RMP) is to manage wild horse and/or burro populations within the HMA at levels which will preserve and maintain a thriving natural ecological balance consistent with other multiple-use objectives. The BLM manages for an Appropriate Management Level (AML) range of **58-91** wild burros and "0" wild horses within the Bullfrog HMA. These AMLs and management directives were established based on monitoring data and an in-depth analysis of habitat suitability for maintaining healthy wild burros on rangelands over the long-term. The initial values were established through the Tonopah Resource Management Plan (RMP) and Record of Decision signed October 1997 and the Proposed RMP and Final Environmental Impact Statement dated October 1994.

The current AML for the Bullfrog HMA was revised in 2007 through the Montezuma Complex Final Multiple Use Decision (FMUD) issued following completion of a Rangeland Health Evaluation (RHE) for the Montezuma Allotment Complex.

Subsequent environmental analysis for gather plans have referenced utilization, precipitation, rangeland health, and population data which affirm the suitability of the upper AML value in the Bullfrog HMA is in accordance with the AML established in 2007; that is, 91 wild burros and no wild horses.

Goals and Objectives

The purpose for the Bullfrog Herd Management Area Plan (HMAP) is to establish short- and long-term management and monitoring objectives that would guide management for the wild burro herd and their habitat within the Bullfrog HMA. The need for the HMAP is based on 43 Code of Federal Regulation (CFR) 4710 3-1 where "the authorized officer shall prepare a herd management area plan, which may cover one or more herd management areas." Establishing the HMAP and Bullfrog HMA Gather Plan EA (the Proposed Action), would allow the BLM to remove wild burros from within and around the HMA over the life of the plan; remove wild burros to achieve and maintain established AML ranges for the HMA, reduce the wild burro population growth rate in order to prevent undue or unnecessary degradation of the public lands associated with an overpopulation of excess wild burros within and outside the HMA, and reduce the number of wild burros that would need to be removed over time, address public safety and nuisance concerns from wild burros within and outside of the town of Beatty, NV, minimize degradation of critical spring water sources and habitat from wild burros, and restore a thriving natural ecological balance and multiple use relationship on the public lands consistent with the provisions of Section 3(b)(2) of the Wild Free-Roaming Horses and Burros Act of 1971 (WFRHBA) [1].

Included in the Proposed Action would be application of fertility control to jennies released following the gather.

Implementation of the HMAP is consistent with the authority provided in 43 CFR 4700 and the 1971 Wild Free-Roaming Horses and Burros Act (WFRHBA). The HMAP is needed to manage wild burros within the Bullfrog HMA to maintain the wild burro herd as a self-sustaining population of healthy animals in balance with other uses and the productive capacity of their habitat and attain the objectives within this document. This document is tiered to the Tonopah Resource Management Plan (RMP) and Record of Decision signed October 1997 and the Proposed RMP and Final Environmental Impact Statement dated October 1994.

Herd Management Area Plan

Management Actions

- Future gather operations will be conducted in accordance with the SOPs outlined in Appendix B and/or the National Wild Horse Gather Contract.
- Future gather operations will be conducted in accordance with the most current direction and policies from the BLM.
- Breeding age jennies selected for release back to the range can be treated with Porcine Zona Pellucida (PZP) vaccine, GonaCon-Equine vaccine, or another approved fertility treatment in accordance with Standard BLM Operating Procedures for Fertility Control Treatment in Appendix D of the 2025 Bullfrog HMA Gather Plan EA.
    - Causing the annual herd growth rates to be between 5-10% per year would be a desirable outcome for fertility control application, but logistical factors could limit the BLM's ability to reach that outcome.
- The appropriate gather method would be determined by the BLM based on the location, accessibility of the animals, local terrain, vegetative cover, and available sources of water and forage. Roping from horseback could also be used when necessary. Based on wild horse and burro watering locations in this area, it is estimated that multiple trap sites may be used during trapping activities. The helicopter drive method and helicopter assisted roping from horseback will be the primary gather methods used. To the extent possible, gather sites (traps) will be located in previously disturbed areas. Post-gather, every effort will be made to return released animals to the same general area from which they were gathered.

- Bait and/or water trapping would be used as appropriate to gather wild equids efficiently and effectively. Bait and water trapping may be utilized when wild horses and burros are in an area where there is a limited resource (such as food or water). Bait and/or water trapping generally require a longer window of time for success than helicopter drive trapping. Although the trap would be set in a high probability area for capturing excess wild horses and burros residing within the area and at the most effective time periods, time is required for the horses and burros to acclimate to the trap and/or decide to access the water/bait.
- An Animal and Plant Inspection Service (APHIS) or other licensed veterinarian may be on-site or on-call during future gathers, as needed, to examine animals and make recommendations to BLM for the care and treatment of the wild burros. Decisions to humanely euthanize animals in field situations will be made in conformance with BLM policy.
- Once AML is achieved a selective removal strategy would be implemented. Selective removal criteria for the Bullfrog HMA include: (1) First Priority: Age Class Five Years and Younger; (2) Second Priority: Age Class Six to Fifteen Years Old; (3) Third Priority: Age Class Sixteen Years and Older.
- Data including sex and age distribution, reproduction, condition class information (using the Henneke rating system), color, size, and other information may also be recorded, along with the disposition of that animal (removed or released).
    - Hair and/or blood samples will be acquired at the time of the first gather after adoption of the HMAP, and as resources allow would be collected approximately every 10 years after that to determine whether BLM management is maintaining acceptable genetic diversity (avoiding inbreeding depression).
    - Fertile animals could be introduced from another HMA(s) as needed if that is determined necessary to increase genetic diversity.
- Any wild horses residing within the boundaries of the Bullfrog HMA will be removed during the regular gather cycle and placed into the BLM adoption program.
- Any horses or burros gathered and determined, with consultation between BLM and Nye County brand inspectors, to be domestic animals will be turned over to the local brand inspector in accordance with state law. This is in accordance with the Department of Agriculture, State of Nevada and the Nevada State Office, BLM operational procedures.

Management Objectives:

HMAP Table 3. Specific management, monitoring and implementation objectives.

Management Objective(s)	Monitoring Objective(s)	Implementation Objective(s)
A. Population Control Manage wild burro populations within the AML range (58-91) to protect range, plant and animal communities and the public from issues related to overpopulation.	Population inventories at a minimum of once every 3-4 years. Additional inventories as funding and time allows. Determine annual population growth rate and as necessary, consider population inventories surveys to extend beyond the HMA boundaries to capture movement.	Schedule gathers to remove excess wild burros when the total wild burro population exceeds the high AML range for the HMA, when animals permanently reside on lands outside the Bullfrog HMA boundaries (i.e. use is more than seasonal drift), or whenever animal health/condition is at risk. Remove excess wild horses and/or burros to a point which may allow up to 3 years of population increase before again reaching the appropriate management level, in accordance with the 1997 Tonopah RMP.

		The use of population growth suppression (fertility control) methods should be considered as an option to aid in slowing herd population growth, preferably to levels of between 5-10% per year. This type of tool can reduce the frequency of gathers needed over time.
B. Sustain Healthy Populations of Wild Burros Manage wild burros to maintain an average body condition class score of 3+.	Observe wild burro body conditions during HMA site visits. Document during gather and population inventory operations. Collect hair samples to gather and develop genetic baseline diversity if needed; otherwise, monitor for physical characteristics such as body condition and deformities.	Conduct emergency removals when needed if animal body condition is less than Henneke condition class score 3 due to drought, wildfire or other unplanned/unforeseen events. Euthanasia is to occur on wild burros that meet such criteria related to acts of mercy, health or safety as provided in Permanent Instruction Memorandum 2021-007.
C. Assure Rangeland Health Maintain or adjust AML to contribute towards achieving rangeland health standards as outlined in the Rangeland Health Standards. Consider AML to achieve a thriving natural ecological balance among wild burros and the Mojave ecosystem they inhabit, to manage a balanced population size capable of ensuring available forage and habitat in harmony with the needs of wildlife.	Continue to monitor and establish trend data at existing key monitoring areas and continue establishing key monitoring areas within the HMA as needed to obtain adequate data. Utilization is to occur bi-annually while trend monitoring (as outlined in the Rangeland Monitoring Handbook) may occur every 3-5 years. Assess rangeland health using procedures outlined in Technical Reference 1734-6 and/or the most recent rangeland health technical reference adopted by the local district office.	Complete the rangeland health assessment for the HMA. Summarize trend, precipitation, riparian conditions, and utilization at least every 10 years as resources allow would be collected. Based upon data results and rangeland health conditions, if rangeland standards are not being met, re-adjust AML if data indicates current animal management level is not appropriate or identify management actions to address/resolve rangeland health issues. Control the spread of invasive or noxious species within the HMA to maintain or increase desirable forage production. Establish additional site-specific resource management objectives for key areas, as needed.
D. Assure Riparian/Wetland Area Health	Continue to monitor and establish trend data at existing riparian and spring sites within the HMA. Drought and spring	Existing water development projects within Bullfrog HMA shall be maintained as needed to ensure water availability and health is adequate to disperse wild burro use.

Improve riparian condition and spring health throughout the HMA.	monitoring is to occur bi-annually, or more frequent if emergency conditions necessitate it, while trend monitoring may occur every 4-6 years. Re-evaluate riparian functionality every 10 years as resources allow would be collected using the Proper Functioning Condition (PFC) method on all riparian areas in the HMA.	If trend conditions remain static or are downward, exclosure fences may be constructed to promote riparian recovery, or additional management measures, including, adjusting AML, or continued development of off-site water for wild horses could be considered where feasible. Monitor use of water sources via wildlife cameras to determine season of use and numbers using the sources.
E. Disperse Wild Burro Use Decrease utilization by wild burros within a 1-3 mile radius of existing water sources within HMA to light by 2028. Ensure adequate water is available throughout the hot summer months Disperse wild burro use throughout the Bullfrog HMA with an emphasis on discouraging use of urban environments.	Measure utilization at key areas/use pattern mapping bi-annually. Monitor water sources continuously through the summer months to ensure adequate water availability.	Annually maintain water developments as needed. Any new water development would follow the following would be required: ✓ Acquisition of the necessary water rights. ✓ Planning and design of the water developments. ✓ Completion of a site-specific environmental analysis. ✓ Completion of a site-specific cultural resource inventory. ✓ Acquisition of necessary funding. Annually maintain developments following construction and/or reconstruction. Where and when practicable, use population inventories, GPS collars, photos, field reports, mapping, and other tracking methods to monitor movements of wild burros within and outside the HMA.

Monitoring Plan:

Monitoring includes wild burro population inventories and habitat monitoring using key areas within the core area. Table 2 lists the methods, responsible parties, frequency, and actions that may be implemented after review of the monitoring data.

HMAP Table 4. Methods, responsible parties, frequency, and actions for managing wild burros.

Monitoring Item:	How	Who	When	Actions to Take (Adaptive Management)
Population Management Monitoring				
Manage wild burro populations within the established AML range to protect the range from deterioration associated with overpopulation.	Population Inventories through aerial flights following established protocols. Determine population number and annual growth rate.	BLM WH&B Specialist Assistance from State and National WH&B Staff and Field Office Staff	Conduct Population Inventories on the HMA a minimum of every three years. Schedule flights in January and February, when possible, to use winter conditions to better track and complete counts before foaling moratorium.	Schedule gathers to remove excess wild burros when the total population exceeds the AML, or when animals permanently reside outside the Bullfrog HMA (i.e. more than seasonal drift), or when animal health/condition is at risk.
Manage wild burros to achieve an average Henneke body condition class score of 3+.	Visually observe wild burro body condition (Henneke condition class method). Record average body condition and document other health conditions (i.e. lameness, clubfoot etc.) during periodic gather operations.	BLM WH&B Specialist and Field Office Staff	Annually, at key water locations particularly during periods of hot weather/drought. Every gather and population inventory.	Conduct emergency removals when needed if animal body condition is less than Henneke body condition score 3 due to drought, wildlife, or other unplanned/unforeseen event.
Adjust the sex ratio of the breeding population if needed, to maintain an approximately 50:50 ratio.	Document number of jennies/jacks released following each gather. Monitor individual and herd behavior following the gather.	BLM WH&B Specialist	Every gather. Year 2-4 following each gather.	Adjust the sex ratio to 60/40 males/females as needed during future gathers pending monitoring results. Apply fertility control during subsequent gathers whenever

Apply fertility control to jennies released back to the range following future gathers, and possibly via remote darting application.	Conduct post-fertility control monitoring in accordance with established procedures.			population growth exceeds 5% per year.
Habitat Management Monitoring				
Assess rangeland health as resources allow would be collected approximately every 10 years on BLM administered lands with the objective to meet Rangeland Standards and Guidelines. Maintain or improve trend of key forage species within the HMA.	Locate key monitoring areas within the core area. Assess rangeland health using procedures outlined in Technical Reference 1734-6 and/or the most recent rangeland health technical reference adopted by the local district office. Establish baseline trend studies using the frequency sampling procedures as outlined in the Rangeland Monitoring Handbook. Measure utilization at key areas and develop use pattern maps bi-annually.	BLM WH&B Specialist and FO Interdisciplinary Team.	Document indicators of rangeland health and summarize findings.	Establish additional site-specific resource management objectives for key areas, as needed. Based on the above, re-adjust AML or identify additional management actions to address/resolve identified rangeland health issues, as needed/appropriate.
Improve riparian condition on springs within the HMA that are currently being impacted by heavy	Re-evaluate riparian functionality every five years using the Proper Functioning	BLM WH&B Specialist and FO Interdisciplinary Team.	PFC every five years. Riparian conditions and	Consider adding pipeline, trough, water storage and fencing to protect riparian habitat, pending

to severe wild burro use.	Condition (PFC) method on springs within the HMA. Assess utilization.		spring health bi-annually.	evaluation of monitoring results.
Decrease utilization by wild burros within a 1-3 mile radius of the existing water developments within the HMA from heavy/severe to light/moderate.	Measure utilization at key areas/use pattern mapping. Monitor water sources to assure adequate water availability and to determine if/when emergency supplemental water hauling will be needed.	BLM WH&B Specialist	Monitoring bi-annually. Water availability continuously monitored through the summer months.	Adjust AML, as needed, pending evaluation of monitoring results.
Monitor/assess annual maintenance needs.	Site visits at water sources.	BLM WH&B Specialist and FO Interdisciplinary Team.	As needed, throughout the year.	Schedule and complete any necessary maintenance work. Document maintenance activities.

General Description of the Affected Environment:

In October 2024, the BLM published a draft Bullfrog HMA Management Evaluation which analyzed existing management for the Bullfrog HMA, including historic goals and objectives, current conditions, and future management strategies for the HMA. This document was available for public scoping from September 18 to October 18, 2024.

For additional general information on the Bullfrog HMA, please consult the Bullfrog HMA Management Evaluation.

Appendix E. Nevada BLM Rangeland Health Standards and Guidelines

Appendix F. Bullfrog HMA Genetic Report 2014

Appendix G. USGS Statistical Analysis Bullfrog HMA Wild Horse and Burro Abundance: 2024

Appendix H. Wild Horse and Burro Gather Observation Protocol

Appendix I. Literature Cited

Appendix J: Public Comments Received and BLM Responses