UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

ENVIRONMENTAL ASSESSMENT

SINBAD WILD BURRO HERD MANAGEMENT AREA GATHER PLAN

DOI-BLM-UT-G020-2020-0017-EA

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1.0 INTRODUCTION

This Environmental Assessment (EA) has been prepared to disclose and analyze the environmental consequences relative to the Bureau of Land Management (BLM), Price Field Office (PFO) proposal to gather burros and implement fertility control within the Sinbad Herd Management Area (HMA)[1] over a 10-year period.

On July 16th, 2020, the Council on Environmental Quality (CEQ) published in the Federal Register the Final Rule to update its regulations for the implementation of the National Environmental Policy Act (NEPA). The updates are effective for all NEPA reviews begun after September 14, 2020. This EA was initiated prior to September 14, 2020, the format and text conform with those previous requirements in accordance with 40 CFR 1506.13 – Effective date, and therefore the 1978, as amended, NEPA regulations were utilized.

The EA is a site-specific analysis of potential impacts that could result with the implementation of a proposed action or alternatives to the proposed action. The EA assists the BLM in project planning and ensuring compliance with the NEPA, and in making a determination as to whether any "significant" impacts could result from the analyzed actions. "Significance" is defined by NEPA and is found in regulation 40 CFR 1508.27. An EA provides evidence for determining whether to prepare an Environmental Impact Statement (EIS) or a statement of "Finding of No Significant Impact" (FONSI). A FONSI statement documents the reasons why implementation of the selected alternative would not result in "significant" environmental impacts (effects) beyond those already addressed in the PFO Resource Management Plan (RMP)/Final EIS (BLM. 2008). If the decision-maker determines that this project has "significant" impacts following the analysis in the EA, then an EIS would be prepared for the project. If not, a Decision Record (DR) may be signed for the EA approving the selected alternative, whether the proposed action or another alternative.

1.1 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[2] population levels. By law, BLM is

[1] Herd Management Areas (HMAs) are areas that the BLM manages for wild horse and burro populations on federal lands. Herd Areas (HAs) are general areas where feral burro and horse herds existed at the time of the passage of the Wild and Free-Roaming Horses and Burros Act of 1971.
[2] As the WFRHBA was written for both Wild Horses and Burros. In this document if the term wild horse is used it implies that it applies to wild burros as well.

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" (TNEB), which requires identifying the appropriate management level (AML) for individual herds. The AML represents "that 'optimum number' of wild horses which results in a TNEB and avoids a deterioration of the range" (*Animal Protection Institute*. 109 IBLA 119. 1989). The Interior Board of Land Appeals (IBLA) has also held that "Proper range management dictates removal of horses before the herd size causes damage to the rangeland. Thus, the optimum number of horses is somewhere below the number that would cause resource damage" (*Animal Protection Institut*e. 118 IBLA 63, 75. 1991).[3]

At the national level, annual gather and removals are based on national priorities (such as risks to public safety, wild horse health, and resource protection) and budget for gather operations. The national program also needs to consider the costs and budget constraints involving long-term care of excess un-adopted wild horses that have been moved to off-range pastures so long as Congressional appropriations bills prohibit the euthanization or sale without limitation of excess unadopted wild horses removed from the range.[4]

The use of fertility control methods such as immunocontraceptive vaccines, intrauterine devices (IUDs), sex ratio manipulation, and – in some cases – having a non-reproducing segment in the population, can help reduce total wild horse and burro population growth rates in the short term, increase gather intervals, and decrease the number of excess horses and burros that must be removed from the range. Other management efforts include conducting accurate population inventories and genetic monitoring to inform management decisions. Decreasing the numbers of excess wild horses and burros on the range and implementing fertility control measures is consistent with findings and recommendations from the National Academy of Sciences (NAS). BLM's management of wild burros must also be consistent with Standards and Guidelines for Rangeland Health.

1.2 SINBAD HMA

The Sinbad HMA is approximately 99,241[5] acres of Federal and State lands. The HMA is located in Emery County, approximately 30 miles west of Green River, Utah (*Map* 1). The general

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

[4] The WFRHBA allows the Secretary to "destroy [ ] in the most humane and cost efficient manner possible" old, sick, lame, or unadoptable horses. 16 U.S.C. § 1333 (b)(2)(A), (C) However, BLM has not destroyed excess unadoptable horses since January 1982, when a former BLM director issued a moratorium on the destruction of excess unadoptable horses. Additionally, Congress has prohibited the use of appropriated funds for the purpose of euthanizing unadoptable horses between 1987 and 2004, again in 2010, and each year since then. See, e.g.,2019 Further Consolidated Appropriations Act, Pub. L. No. 116-94, 133 Stat.2747 (2019).

[5] Acreage calculated using ARCGIS in 2021.

boundary extends up to 19 miles on both sides of Interstate-70 (I-70) from the San Rafael Reef to Eagle Canyon.

The AML was originally established for the San Rafael Planning unit which includes the Sinbad HMA wild burros in the San Rafael Resource Management Plan (SRRMP) 1989, RMP-33)). The Sinbad HMA does have a Herd Management Area Plan (HMAP) signed in 1993, though the document was titled Habitat Management Area Plan. The 2008 PFO RMP further defined management of the Sinbad HMA, see Section 1.4 below.

The HMA is managed in accordance with the HMAP, current policies and regulations for wild horses and burros, and the Price RMP, with management objectives specific to the HMA. The Sinbad HMAP states that "physical removal will be the primary means of reducing numbers, however, sterilization will be viewed as a possible opportunity to control wild horse or burro numbers. … Both castration and chemical methods will be considered." This EA analyzes available chemical fertility control measures and those expected to be available in the next ten years.

Vegetative data was analyzed in 2008 by the BLM to test the validity and adequacy of the AML in relation to current adjudication levels of forage on the grazing allotments that encompass the Sinbad HMA. The AML was set based on monitoring data and followed a thorough public review, in keeping with NEPA. The current AML is set for the population of not less than 50 and not more than 70 burros. The upper level of the AML established within the HMA represents the maximum population for which TNEB would be maintained. The lower level represents the number of animals to remain in the HMA following a wild horse or burro gather, in order to allow for a periodic gather cycle, and to prevent the population from exceeding the established AML between gathers. The AML is not being reconsidered in this EA.

It was determined that with the current adjudication of 420 Animal Unit Month (AUM)s to wild burros, the AML of 50 to 70 wild burros within the Sinbad HMA is correct (Table 1). The Price RMP calls for maintaining genetic viability in the herd. Viability in this context is part of a broader metapopulation (NAS 2013) of interacting BLM-managed burro herds. The AML of the Sinbad HMA, of itself, is relatively low but the herd's relative geographic isolation can be mitigated by the interchange between this herd and other herds of BLM-managed wild burros. Gaining additional information about genetic diversity, based on analysis of hair follicle samples, will be possible as wild burros in this area can be handled in conjunction with scheduled gather operations. Results of genetic monitoring could be used to inform future management decisions about the herd, including any future considerations of moving burros from other populations into the Sinbad population.

As is true for any estimates of wildlife abundance or herd size, there is always some level of uncertainty about the exact numbers of wild burros in any Herd Area (HA)/HMA or non-HMA area. The estimates shown here reflect the most likely number of burros, based on the best information available to the BLM, and may not account for every animal within the HMA.

Table 1: Herd Management Area, Acres, AML, Estimated Population

HMA	Total Acres	Appropriate Management Level	Estimated Population	% of AML	Removal*
Sinbad HMA (March 01, 2021)	99,241	50-70	269	384 - 538	199-219
Sinbad HMA (January 2022)	99,241	50-70	328	468 - 656	258-278

* Removal numbers calculated by using the estimated population and subtracting the low- and high-end AML. (269-70=199)

Gathers conducted in 1989, 1996, 2001, 2008, 2016 and 2020 gathered and removed a total of approximately 466 wild burros from within and near the Sinbad HMA. The estimated population of wild burros within the Sinbad HMA as of March 01, 2021, is 269 burros. This figure is based upon the gather and release completed in April 2016, and on subsequent information collected by the United States Geological Survey (USGS) and the 36 burros removed in 2020 during an emergency gather outside the HMA. USGS has been conducting ongoing studies of burro demography in the Sinbad HMA from 2016-2020; that study includes ground-based estimates of herd size, resulting from close monitoring of uniquely freeze-branded and other identifiable individuals (USGS, unpublished data). In April 2016, 236 wild burros were gathered, of which 133 were removed and 103 returned. Accounting for returned animals and others that were found to have remained in the HMA, the estimated population in Spring 2016 was 112, this estimate was based on known individuals left after the gather and individually marked/returned animals for the demographic monitoring conducted by USGS. The USGS research since the most recent gather has identified 225 adults with an additional 25 foals being born in 2019 (USGS, unpublished data); this number is taken to be the most informative estimate of current herd size. Based on these well-substantiated estimates of herd size, the herd grew from 112 in 2016 to 250, four years later. This implies that the annual growth rate for this herd of wild burros was 22% per year (i.e., $\sqrt[4]{(250/112)} = 1.22$). The projected herd size by January 2022 will be 328.

Since the 2016 gather, the Sinbad HMA has had an aerial population inventory completed once or twice annually in conjunction with USGS, using the simultaneous-double observer method to develop and improve the BLM's estimation techniques of wild burros. The development of a hybrid double observer sightability model created in part from data collected from Sinbad will help further define and clarify the current estimate. However, the results of those aerial surveys are not yet available, due to ongoing data collection in other burro HMAs. The ground-based estimates of burro herd size from USGS researchers, based on radio-collared, marked, and unmarked individuals, are the most reliable information available.

The BLM conducts aerial population inventories according to policies and regulations as found in BLM Instruction Memorandum No. 2010-057: Wild Horse & Burro Population Inventory and Estimation, using standard operating procedures for flight planning and data collection (Griffin et al. 2020).

The simultaneous double-observer method has passed peer-review in scientific literature (Lubow and Ransom 2016). During surveys, crews make all efforts to avoid counting any group of burros twice, by taking photographs and noting coloration of individual burros as well as group composition of foals and adults; if there is any doubt about a group of horses having been seen before, standard operating procedures (Griffin et al. 2020) call for these groups to be excluded from the population estimate. Indeed, aerial surveys tend to underestimate true wildlife abundance because a proportion of animals go unseen by observers (NAS 2013). Simultaneous double-observer analyses can account for some of those unseen animals, but even that method tends to underestimate actual abundance unless all sources of sighting heterogeneity are accounted for (Griffin et al. 2013).

The flight and gather data have continually shown that direct count flights undercount wild horses and burros on the range. The Government Accountability Office (GAO) concluded through their review (2008) that "research and experience have shown that BLM's on-the-range population estimates are too low" and stated that "regardless of which method is used, counting wild horses and burros can be challenging, particularly when the animals are obscured by trees or when the rangeland is covered with snow" (GAO 2008).

Additional burros may be present in the herd area for several other reasons that include but are not limited to the following: (1) wild burros may have been captured illegally by members of the public in other wild burro areas and moved into this area (this illegal activity has been suspected in past years) and (2) domestic or estray burros may have been released into the HMA. In February of 2014, (3) domestic burros were illegally released just outside of the Sinbad HMA and were reported to the BLM. The Emery County Animal Control Officer removed these burros from public lands with assistance from the BLM. This is only one case within the PFO where domestic horses or burros are known to have been released onto public lands, but it may be indicative of other cases of the same happening, unbeknownst to BLM.

By January 2022, the use by wild burros exceeds the forage allocated (420 AUMs) in the Sinbad HMA by over 400% (1,968 AUMs). Based upon all the information available at this time, the BLM has determined that 199 excess wild burros exist (above high AML) within and adjacent to the HMA as of March 2021. It is expected that the number of excess burros will be 278 by January of 2022. If the next gather takes place after 2022, then the excess number will be higher and will be determined based on the best available information about herd size, whether from aerial surveys or from USGS demographic study.

1.3 PURPOSE AND NEED FOR THE PROPOSED ACTION

The BLM's purposes or objectives are to:

- slow the wild burro population growth rate,
- remove excess wild burros from the range,
- protect multiple use rangeland resources from deterioration associated with an overpopulation of wild burros within and outside the HMA,

- manage wild burro herds to achieve and maintain viable, vigorous, and stable populations and healthy individuals; and
- restore and maintain a thriving natural ecological balance and multiple-use relationship on the public lands.

The need for the Proposed Action is established by the Price RMP management objectives, and the provisions of the Federal Lands Policy and Management Act (FLPMA), Section 1333(a) of the Wild Free Roaming Horses and Burros Act of 1971 (WFRHBA) to restore and maintain populations of wild burros within and outside the HMA.

1.4 CONFORMANCE WITH BLM LAND USE PLAN(S)

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. This EA is in conformance with the Price Field Office Resource Management Plan (RMP), (BLM, 2008.

The Price RMP, which includes the goals to manage wild burros at appropriate management levels (AML) to ensure a TNEB among wild horse populations, wildlife, livestock, vegetation resources, and other resource values; to manage wild burros to achieve and maintain viable, vigorous, and stable populations; and to allow introductions of wild horses and burros from other herd areas to maintain genetic viability. The RMP does not recognize any need to manage the Sinbad herd of wild burros as if they were genetically isolated, unique, or separate from the larger population of wild burros living in other BLM managed herds. The RMP contains the following decisions that specifically apply to the Proposed Action within the Sinbad HMA:

- WHB-1 - Manage populations for appropriate age and sex ratios, genetic viability, adaptability, and adoptability as well as to maintain AMLs on established HMAs.
- WHB-3 - HMA boundaries have been adjusted on the Range Creek, Muddy Creek, and Sinbad HMAs to match the natural and manmade barriers that existed when the Wild Free-Roaming Horse and Burro Act was passed in 1971 that separate or restrict wild horse and burro movement.
- WHB-4 - Wild horses and burros will be managed in three HMAs – Range Creek (horses), Muddy Creek (horses), and Sinbad (burros).
- WHB-5 - The current portion of the Sinbad HMA that supports horses has been combined with the Muddy Creek HMA. The area of the Sinbad HMA that supports burros will remain the Sinbad HMA.
- WHB-10 - Sinbad HMA; 99,210 Acres; 50-70 (burros).
  WHB-12 - 3,000 animal unit months (AUMS) will be allocated for wild horses and 420 AUMs will be allocated for wild burros.

The No Action alternative is considered and analyzed to provide a baseline against which to compare the impacts of the Proposed Action and is not in conformance with the above goals and management objectives.

1.5 RELATIONSHIP TO STATUTES, REGULATIONS, OR OTHER PLANS

The action alternatives are consistent with all applicable BLM policies and regulations.

References to the CEQ regulations throughout this EA are to the regulations in effect prior to September 14, 2020. The revised CEQ regulations effective as of September 14, 2020, are not referred to in this EA because the NEPA process associated with this action began prior to this date.

The action alternatives are also consistent with the WFRHBA at Title 43 CFR 4700, which mandates, among other things, that the Bureau "protect the range from deterioration associated with overpopulation," and remove excess animals "in order to preserve and maintain a TNEB and multiple-use relationship in that area." Additionally, 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)."

Other relevant authorities with which the action alternatives are consistent include, but are not limited to:

- **WFRHBA § 1333(b)(1). Powers and duties of Secretary**

The Secretary shall maintain a current inventory of wild free-roaming horses and burros on given areas of the public lands. 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 of wild free-roaming horses and burros on these areas of the public lands; and determine whether appropriate management levels should be achieved by the removal or destruction of excess animals, or other options (such as sterilization, or natural controls on population levels).

- **43 CFR 4700.0-2 Objectives.**

Management of wild horses and burros as an integral part of the natural system of the public lands under the principle of multiple use.

- **43 CFR 4700.0-6(a-c) Policy.**

Requires that BLM manage wild horses "…as self-sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat … considered comparably with other resource values …" while at the same time "…maintaining free-roaming behavior."

- **43 CFR 4700.06(e) Policy.**

Healthy excess wild horses for which an adoption demand by qualified individuals exists shall be made available at adoption centers for private maintenance and care.

- **43 CFR 4710.3-1 Herd management areas.**

Herd management areas shall be established for the maintenance of wild horse and burro herds. In delineating each herd management area, the Authorized Officer (AO) shall consider the appropriate management level for the herd, the habitat requirements of the animals, the relationships with other uses of the public and adjacent private lands, and the constraints contained

in 4710.4. The AO shall prepare a herd management area plan, which may cover one or more herd management areas.

- **43 CFR 4710.4 Constraints on management.**

Management of wild horses and burros shall be undertaken with 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 Removal of excess animals from public lands.**

Upon examination of current information and a determination by the AO that an excess of wild horses or burros exists, the AO shall remove the excess animals immediately.

- **43 CFR 4740.1 Use of motor vehicles or aircraft.**

(a) Motor vehicles and aircraft may be used by the AO in all phases of the administration of the Act [WFRHBA], 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 AO shall conduct a public hearing in the area where such use is to be made.

The action alternatives are also consistent with the North San Rafael Swell Habitat Management Plan (NSRSHMP), approved in 1997.

The action alternatives are consistent with the Emery County General Plan update signed, 2016, which states: "Emery County supports the wise use, conservation and protection of the nation's public lands and the resources associated with these lands, including prudent and appropriate management prescriptions established to achieve wise use."

1.6 DECISION TO BE MADE

The AO will determine whether to implement management actions to achieve management objectives of maintaining population size within the established AML and protect the range from deterioration resulting from excess burro population. The AO's decision is limited to the need to remove excess wild burros and to implement fertility control to achieve and maintain population size within AML. It would not set or adjust AML, nor would it adjust livestock use, as these were set through previous decisions, as reflected in the PFO RMP/ROD (BLM. 2008).

1.7 IDENTIFICATION OF ISSUES

Identification of issues for this assessment was accomplished by considering the resources that could be affected by implementation of one of the alternatives, through involvement with the public, other agencies, public land users, and the BLM interdisciplinary team.

Public involvement was initiated on this Proposed Action on March 11, 2020, by posting project information on the BLM's ePlanning website. Additional public involvement activities are

described in Chapter 5. No public interest was expressed in this project as a result of the initial ePlanning posting.

BLM consulted and coordinated with the State Historic Preservation Office (SHPO), the Utah Division of Wildlife Resources (UDWR), US Fish & Wildlife Service (USFWS), and Native American Indian tribes. In addition, routine business contacts with livestock operators and others, have underscored the need for the BLM to maintain wild horse and burro populations within the AML.

The alternatives were developed by an interdisciplinary team composed of resource specialists from the PFO. This team identified resources within the Sinbad HMA which might be affected and identified potential impacts using current office records and geographic information system (GIS) data. The result of the review is contained in the Interdisciplinary Team (IDT) Checklist, Appendix A. Rationale for dismissing specific resources from detailed analysis are also contained in Appendix A. Those issues caused by the Proposed Action and/or alternatives are carried forward throughout this analysis and are identified briefly as follows.

1.7.1 LIVESTOCK GRAZING

Impacts to Livestock Grazing. Measurement indicators for this issue include:

- Expected competition for forage and water resources.
- Expected displacement of livestock during gather operations.

1.7.2 VEGETATION

Impacts to vegetation. Measurement indicators for this issue include:

- Expected forage utilization.
- Potential impacts to vegetation resources.

1.7.3 WILD HORSES AND BURROS

1. Impacts to individual wild burros and the herd. Measurement indicators for this issue include:

- Expected impacts to individual wild burros from handling stress.
- Expected impacts to herd social structure.
- Expected effectiveness of proposed fertility control applications.
- Potential effects on genetic diversity.
- Potential impacts on animal health and condition.

2. A need to implement different or additional population control measures to maintain population size within AML over the long-term. Measurement indicators for this issue include:

- Projected population size and annual growth rate.
- Projected gather frequency.

- Projected number of excess animals to be removed and placed in the adoption, sale, and off-range corral (ORC) and off-range pasture (ORP) holding pipelines over the next 10 years.

1.8 SUMMARY

This chapter has presented the purpose and need of the Proposed Action, as well as the relevant issues, i.e., those elements of the human environment that could be affected by the implementation of the proposed project. In order to meet the Purpose and Need of the proposed project in a way that resolves the issues, the BLM has developed a range of alternatives. These alternatives are presented in Chapter 2. The potential environmental impacts or consequences resulting from the implementation of each alternative considered in detail are analyzed in Chapter 4 for each of the identified issues.

2.0 DESCRIPTION OF ALTERNATIVES

2.1 INTRODUCTION

This section of the EA describes the Proposed Action and alternatives, including any that were considered but eliminated from detailed analysis. The Proposed Action, the No Action, and alternative to the Proposed Action analyzed in detail include the following:

The Proposed Action –Utilize periodic gathers and selective removal of excess burros to achieve and maintain the AML range while maintaining a healthy population for a 10-year period after the initial gather. Also implement population growth suppression utilizing approved fertility control vaccines and possible use of IUDs, to reduce the annual population growth and maintain AML, once achieved.

Alternative 2: Gather and Removal Without Fertility Control - Gather and remove excess animals to within AML range without the implementation of population growth suppression techniques (fertility control vaccines, IUDs, or sex ratio adjustment). Use periodic gathers to maintain AML for a 10-year period after the initial gather.

No Action – Continue existing management. Do not gather burros or implement population growth suppression tools.

The Action Alternatives were developed to respond to the Purpose and Need (achieve and maintain the established AML, slow the population growth rate, ensure a thriving natural ecological balance, remove excess wild burros from the range, prevent further deterioration to the range within and outside the HMA, and manage wild burro herds to achieve and maintain viable, vigorous, and stable populations and healthy individuals). The No Action alternative would not achieve the identified Purpose and Need; however, it is analyzed in this EA to provide a basis for comparison with the other action alternatives, and to assess the effects of not conducting a gather at this time.

2.2 GATHER AND REMOVAL MANAGEMENT ACTIONS COMMON TO THE PROPOSED ACTION AND ALTERNATIVE 2

2.2.1 GATHER AND REMOVAL PROCEDURES

- Within the HMA, gathers would target areas with heavy concentrations of wild burros. Outside the HMA, gathers would target all wild burros.
- All removed wild burros would be transported to BLM holding facilities where they would be prepared for: 1) adoption and/or sale to qualified individuals who can provide them with a home; 2) removal to off range pastures; or 3) any other disposition authorized by law.
- Gather operations would be conducted in accordance with BLM Washington Office Instruction Memorandum (IM) 2015-151 and the Comprehensive Animal Welfare Program (CAWP) described in Appendix C. Previously used and authorized capture techniques include helicopter roundup, roping, water and bait trapping, and other methods

as approved by BLM Handbook H-4700-1 and the AO. Selection of capture techniques would be based on several factors including herd health and season of the year to maximize gather success and minimize herd impacts.

- Each gather would include multiple trap, bait, and temporary holding facility sites. Prior to their use, each site would receive a Class III cultural clearance. If during the course of the clearance, it is determined that there are cultural resource concerns, an alternate site would be chosen. To the extent possible, previously used and cleared sites would be selected.
- During gather operations, safety precautions would be taken to protect all personnel, animals, and property involved in the process from injury or damage. Only authorized personnel would be allowed on-site during the removal operations. Included in the "capture and removal" operations would be sorting individual burros as to their age, sex, temperament, and /or physical condition, and eligibility to be returned to the range.
- During gather operations, the Lead Contracting Officers Representative (COR), as delegated by the AO prior to the gather, would authorize the release or euthanasia of any wild burro that they believe would not tolerate the handling stress associated with transportation, adoption preparation, or holding. No wild burro should be released or shipped to a preparation or other facility with a preexisting condition that requires immediate euthanasia as an act of mercy. The Incident Commander or COR should, as an act of mercy and after consultation with the on-site veterinarian, euthanize any animal that meets any of the conditions described in BLM Washington Office IM 2021-007.
- Wild burro herd data which may be collected during the gather operations includes data to determine population characteristics (age/sex/color/etc.), to assess herd health (pregnancy/parasite loading/physical condition/etc.), and to monitor herd genetic diversity (hair sampling, IM 2009-062).
- Best Management Practices would be followed prior to and during gather operations. All vehicles and equipment should be free of mud and debris prior to entering BLM administered lands and weed-free hay would be used in trap sites and temporary holding facilities located on BLM-administered lands.
- Selective removal procedures would prioritize the removal of younger excess wild burros after achieving AML within the HMA and release of older less adoptable wild burros back to the HMA, while maintaining a diverse age structure.
- Additional design features are described in Appendix D. Standards from the CAWP for wild horse and burro gathers are contained in Appendix C.

2.2.1.1 HELICOPTER DRIVE TRAP OPERATIONS

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 1970s. Refer to Appendix C, for information on the methods that are utilized to reduce injury or stress to wild horses and burros during gathers. Since 1989, BLM Utah has gathered and removed 466 excess animals from the Sinbad HMA. Of these, gather related mortality has averaged less than 1%. 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.

If the local conditions require a helicopter drive-trap operation, the BLM would use a contractor or in-house gather team to perform the gather activities in cooperation with BLM and other

appropriate staff. The contractor would be required to conduct all helicopter operations in a safe manner and in compliance with the contract and the CAWP (Appendix C).

Helicopter drive trapping involves the use of a helicopter to herd wild burros into a temporary trap. The CAWP (Appendix C) 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 burros. Traps would be set in an area with a high probability of access by burros using the topography, if possible, to assist with capturing excess wild burros residing within the area. 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 material, not wire, to avoid injury to the burros. The wings form an alleyway 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 burros are gathered, they are removed from the trap and transported to a temporary holding facility where they are sorted.

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

2.2.1.2 BAIT/WATER TRAPPING OPERATIONS

Bait and/or water trapping may be used if circumstances require it or best fits the management action to be taken. 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 burros residing within the area, and at the most effective time periods, time is required for the burros to acclimate to the trap and/or decide to access the water/bait. The high-probability area could be a reservoir that the burros frequent, a salt-lick location, a favored tree, or a trail junction. An effective time period would depend on whether it is a bait trap (acclimation time could be several days to weeks) or a water trap (acclimation time could be several hours to several days depending on if water is limited at that time).

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

When actively trapping wild burros, the trap would be staffed or checked daily by either BLM personnel or authorized contractor staff. Burros would be either removed immediately or fed and

watered for up to several days prior to transport to a holding facility. Existing roads would be used to access the trap sites.

Gathering excess burros using bait/water trapping could occur at any time of the year and traps would remain in place until the target number of animals are removed. Generally, bait/water trapping is most effective when a specific resource is limited, such as water during the summer months. For example, in some areas, a group of wild burros may congregate at a given watering site during the summer because few perennial water resources are available nearby. Under those circumstances, water trapping could be a useful means of reducing the number of burros at a given location, which can also relieve the resource pressure caused by too many burros. As the proposed bait and/or water trapping in this area is a low-stress approach to gathering wild burros, such trapping can continue into the foaling season without harming the jennies or foals.

A few of the previously used bait traps are located near the San Rafael Reef Wilderness Area. The Wilderness boundary will be clearly marked prior to the bait traps being installed. This design feature will ensure that all the ground-disturbing activities occur outside the newly designated Wilderness Area.

2.2.2.3 GATHER RELATED TEMPORARY HOLDING FACILITIES (CORRALS)

Wild burros that are gathered would be transported from the gather sites to a temporary holding corral. See Appendix D, Temporary Holding Facilities During Gathers, for more detail.

2.2.3 TRANSPORT, ORC, AND ADOPTION PREPARATION

Wild burros that are removed from the range as excess would be transported to the receiving short-term holding facility. See Appendix D, Transport, Short-Term Holding, and Adoption Preparation for more detail.

2.2.3.1 AXTELL (ORC/ORP)

Due to its location in relation to the HMA, the removed burros will most likely be transported to Axtell, a contract facility set up for burros. Jennies and sterilized jacks (geldings) are segregated into separate paddocks/pastures. Although the animals are placed in Axtell, they remain available for adoption or sale to qualified individuals; and foals born to pregnant jennies are gathered and weaned when they reach about 8-12 months of age and are also made available for adoption.

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, castration, and de-worming. At ORC facilities, a minimum of 700 square feet of space is provided per animal.

The contract specifies the care that wild burros 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 contractor and periodic counts of the wild burros to ascertain their well-being and safety are conducted by BLM personnel and/or veterinarians.

2.2.3.2 TRANSPORT, ADOPTION OR SALE

When shipping wild burros for adoption, or sale, 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 offloaded 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.

2.2.3.3 ADOPTION

Adoption applicants are required to have at least a 400 square foot corral with panels that are at least 4 ½ feet tall. Applicants are required to provide adequate shelter, feed, and water. The BLM retains title to the burro for one year and inspects the burro and facilities during this period. After one year, the applicant may take title to the burro, at which point the burro becomes the property of the applicant. Adoptions are conducted in accordance with 43 CFR Subpart 4750.

2.2.3.4 SALE WITH LIMITATIONS

Buyers must fill out an application and be pre-approved before they may buy a wild burro. A sale-eligible wild 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 burro to slaughter buyers or anyone who would sell the animals to a commercial processing plant. Sales of wild burros are conducted in accordance with the WFRHBA and congressional limitations.

2.2.3.5 EUTHANASIA OR SALE WITHOUT LIMITATIONS

Under the WFRHBA, healthy excess wild burros can be euthanized or sold without limitation if there is no adoption demand for the animals. However, while euthanasia and sale without limitation are allowed under the statute, these activities have not been permitted under current Congressional appropriations limitations. If Congress were to lift the current appropriations restrictions, then it is possible that excess burros removed from the HMA over the next 10 years could potentially be euthanized or sold without limitation consistent with the provisions of the WFRHBA.

Any old, sick, or lame 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. Decisions to humanely euthanize animals in field situations would be made in conformance with BLM policy (IM-2021-007 or most current edition). Conditions requiring humane euthanasia occur infrequently and are described in more detail in IM-2021-007 Attachment 2.

2.2.3.6 PUBLIC VIEWING OPPORTUNITIES

Opportunities for public observation of the gather activities on public lands would be provided, when and where feasible, and would be consistent with IM-2013-058 and the Visitation Protocol and Ground Rules for Helicopter WH&B Gathers. This protocol is intended to establish observation locations that reduce safety risks to the public during helicopter gathers. Due to the nature of bait and water trapping operations, public viewing opportunities may only be provided at holding corrals.

2.2.3.7 BEST MANAGEMENT PRACTICES

- Any bait/trap locations will be required to have certified weed-free feed.
- Equipment and vehicles would be power washed to remove any mud or debris prior to entering BLM administered lands.
- Horses and other animals will be required to be cleaned and be free of any mud and vegetative materials before entering BLM administered lands.
- Horses are required to be fed certified weed-free hay for a minimum of 72 hours prior to entering BLM administered lands.
- Any hay fed to horses while on BLM administered lands will be required to be certified weed-free.
- Avoidance by helicopters of the cliffs and canyons along the eastern edge, during the lambing period (April 15 to June 15) will ensure no impacts to Desert Big Horn.

2.3 PROPOSED ACTION

The principal management goal for the HMA is to maintain 50 to 70 wild burros (the established AML range) on the HMA and to keep burros within the HMA boundaries. Therefore, the Proposed Action is to gather and remove excess wild burros to achieve the established AML and use periodic gathers to remove excess wild burros to maintain AML over a 10-year period following the initial gather. All wild burros residing outside the Sinbad HMA would be gathered and removed. The Proposed Action implements population growth suppression utilizing approved fertility control vaccines and possible use of IUDs, to reduce the annual population growth and maintain AML, once achieved. BLM does not have an IUD available that is specifically sized for burros at this time, IUDs are therefore included in the analysis in the likelihood of one becoming available in the next 10 years. The expectations for the Proposed Action include both short and long-term outcomes. The short-term results are to achieve AML and bring growth rates to less than 11% annually[6]. The long-term results are to reduce the need for gathers and removals, without jeopardizing the genetic diversity of the population (as measured by observed heterozygosity) and to improve animal and rangeland condition.

[6] PFO objective is to reduce the annual growth rate by half, to begin with, while acknowledging that BLM Manual 4710, suggests treatment of 50-90 percent of all breeding-age females.

2.3.1 INITIAL GATHER TO ACHIEVE THE AML

Based on the projected January 2022 population, the initial gather, if conducted in Spring 2022, would require the capture of approximately 318 wild burros, the removal of up to 278 wild burros, and the fertility treatment and release of the remaining captured burros (it is anticipated that up to 20 jennies would be treated with the first gather). If fewer than 318 wild burros are caught during the initial gather, subsequent gathers would be conducted as necessary to achieve the AML. Subsequent gathers are likely since normal capture success is 70 to 80 percent of a population which equates to approximately 262 burros or less, which is lower than the initial removal need of 278.

2.3.2 MAINTENANCE GATHERS OVER A 10-YEAR PERIOD

The BLM would conduct follow-up gathers over a 10-year period to remove any additional wild burros necessary to maintain the AML as well as to implement the fertility control component of the Proposed Action for wild burros remaining in the HMA. The target removal number for any maintenance gathers would be based o on population inventories for the HMA and the resulting projection of excess animals over AML. Population inventories and routine resource/habitat monitoring would be completed between gather cycles to document current population levels, growth rates, and areas of continued resource concern (burros' concentrations, riparian impacts, over-utilization, etc.) prior to any follow-up gather. The subsequent maintenance gather activities would be conducted in a manner consistent with those described for the initial gather and could be conducted during the following 10-year period, which provides maximum effectiveness for fertility control application. Funding limitations and competing priorities might affect the timing of the initial gather as well as subsequent gathers and fertility control components of the Proposed Action.

2.3.3 FERTILITY CONTROL STANDARD OPERATIONS

Fertility control vaccines are administered only to females. In concert with the proposed gather and removal activities, to control population growth rates and maintain AML, all jennies released back to the HMA would be treated with fertility control vaccine (GonaCon, PZP)[7] or have insertion of an IUD. The procedures to be followed for the implementation of fertility control are discussed below and detailed in Appendix E.

[7] Reference in this text to any specific commercial product, process, or service, or the use of any trade, firm or corporation name is for the information and convenience of the public, and does not constitute endorsement, recommendation, or favoring by the Department of the Interior
The liquid PZP vaccine, known as ZonaStat-H is federally approved by the EPA registration number 86833-1. Training is required by the SCC to receive and/or administer PZP to wild horses. The PFO wild horse specialist received training in August 2018.
The liquid GonaCon (GnRH) vaccine, known as GonaCon Equine, is federally approved by the EPA registration number 56228-41. No specific training is required to administer GonaCon to wild horses and burros, though a certified pesticide handler does need to receive shipments of the drug.

- Fertility control treatment would be conducted in accordance with the approved standard operating and post-treatment monitoring procedures. All breeding age jennies selected for release back to the range would be treated with approved fertility control vaccines, which would slow the reproduction of the treated jennies for one to three breeding seasons.
- Any jennies that would receive fertility control vaccines or IUDs would be individually marked/microchipped and/or be individually recognizable without error. No jenny would be treated unless she has been identified for treatment.
- Flexibility in determining which jennies are selected for treatment is vital to the success of the fertility control program. Adjustments would be made if it is found that there is a severe reaction by an individual; or if it becomes clear that allowing an individual to continue breeding might have a negative effect on the genetic diversity of the herd. This information would be documented on the Data Sheet.
- The annual treatment schedule, database, and Data Sheets would be reviewed/approved by the AO with the PFO wild horse specialist and/or darting specialist. An annual monitoring report would be prepared for the AO and filed with the HMA records. This monitoring report would show PZP/liquid GonaCon (GnRH) orders placed/costs, planned treatment schedule/actual treatments (number/dates of jennies treated), lost darts, negative reactions/BLM action taken for that jenny, number of new/current year foals counted/observed, unique circumstances, off-road vehicular use, general rangeland condition/water availability, volunteer efforts, relevant correspondence between/among PFO and the Science and Conservation Center (SCC) and National Wild Horse and Burro Program (WH&B) Office and other pertinent information.

2.3.4 FERTILITY CONTROL VACCINES

The PFO proposes to apply fertility control vaccines to all released jennies through the use of a primary and booster dose inoculation by hand or dart, depending on the ability to handle the animals. This would be done on the Sinbad HMA for 10 years after the initial gather (i.e., through 2031 if the first gather is in 2021), or as long as it can be reasonably concluded that no new information and no new circumstances have substantially changed in the area of analysis, in order to help maintain adult wild burros within the AML range of 50-70 wild burros.

The preferred method of delivery for the primary vaccine dose would be by hand injection. However, if a jenny is individually identifiable (i.e., because she has a unique hip brand number as a result of the USGS study), then the initial dose could be delivered by dart.

The PFO would work with the National WH&B Office in Reno, Nevada, and the SCC at Zoo Montana to order the PZP vaccine. The SCC then prepares and ships the order to the PFO. Each dose would consist of 100 micrograms of PZP in 0.5cc buffer (a phosphate buffered saline solution). Mixing the vaccine would be accomplished as described in the Wild Horse Contraceptive Training Manual (SCC, mixing procedures in Appendix F). Remote application would be by means of 1.0cc Pneu-dart darts, with either 1.25- or 1.5-inch barbless needles, delivered by either Dan-inject or Pneu-dart CO2 powered, or cartridge fired guns. An attempt would be made to recover all darts (normally about a 98% recovery is expected).

The PFO would work with the National WH&B Office in Reno, Nevada, the United States Department of Agriculture (USDA), and any approved private distributors to order the GnRH

vaccine. The USDA/ Distributor would then prepare and ship the order to the PFO. Each dose of GonaCon (GnRH) would consist of 2 ml of liquid GonaCon, including 0.032% of mammalian GnRH. No mixing of the vaccine is required. Remote application would be by means of 'Slo-inject' TM Pneu-Dart darts, equipped with 3.81 cm 14 gage Tri-Port needles and a gel collar (McCann et al. 2017), delivered by either Dan-inject or Pneu-dart CO2 powered, or cartridge fired projectors. An attempt would be made to recover all darts (normally about a 98% recovery is expected).

Jennies may also receive booster vaccine doses if they are captured in subsequent gather operations. Otherwise, jennies may be targeted for vaccine booster dose delivery via dart. If it is determined that a jenny or jennies cannot be approached within darting range on foot, then baiting would be used to invite the burros to within darting distance for treatment. Baiting would be with water, salt, mineral, or weed-free hay in areas that burros utilize in their normal movements throughout the HMA. Burros may need to be trapped at bait stations, which would enable them to be darted at close range, and then released. The procedures to be followed for facility vaccines are discussed below and detailed in Appendix E.

- Any new fertility control vaccines could be used as directed through the most recent direction of the National WH&B Program. The use of any new fertility control vaccines would use the most current best management practices and humane procedures available for the implementation of the new controls.
- Fertility control vaccine use would follow Standard Operating Procedures (SOPs) listed in Appendix F. The PZP vaccine protocol would be examined annually, in line with any new instructions provided by the SCC (SCC; Billings, MT). The field use of GnRH vaccine does not require mixing of the adjuvant.
- Immunocontraception Data Sheets would be prepared and updated as presented in Appendix G. An individual jenny's previous records would be reviewed prior to any darting activity.
- Fertility control vaccines would be administered upon completion of the first gather and go through the life of the plan. If monitoring shows successful applications, no negative reactions, and reduction in foaling rates, the fertility control treatments would continue beyond the life of the plan as long as it can be reasonably concluded that no new information and no new circumstances arise that need to be considered and those that are analyzed within this document have not substantially changed within the HMA. Fertility control applications would also depend on annual funding and the presence of qualified applicators.
- Following darting protocols, each jenny treated with fertility control vaccine would have an identification sheet with pictures, describing any markings, brands, scars, or other distinguishing marks. At the beginning of each year, a list of jennies identified for re-treatment would be created. That information would be loaded into a format that is easy to use in the field (i.e., book or electronic device).
- New jennies (over the age of 18 months) coming into treatment would be given the booster dose no sooner than 30 days after they have received the primer dose. Estimated age would be based on inspecting the teeth of animals upon capture. Unmarked individuals identified for treatment would be given a freeze mark on the left hip prior to initial treatment.

The field darting treatment protocol would take approximately two to three years after initiation to fully implement. Field darting would be conducted in an opportunistic manner while the specialist (or other authorized personnel) is conducting routine monitoring activities as part of normal duties in the field. Ordinarily, field darting activities would be conducted on foot. Access throughout the HMA would be achieved by the use of 4X4 vehicles and other off-highway vehicles (OHVs). Vehicles would be utilized on existing roads and trails in the HMA. On a case-by-case basis, the use of OHVs off existing roads and trails may be allowed for administrative purposes; however, such use shall be made only with the approval of the AO.

Personnel authorized for field darting of the Sinbad burros must be trained for this task. Additionally, all work would be conducted in accordance with the SOPs (Appendix E) and mixing procedures (Appendix F).

PFO would be applying adaptive management principles. If policies change or the vaccine effects or effectiveness proves undesirable, then the application of the fertility control measures would be stopped or reconsidered based on new scientific information. If a specific adjuvant is dropped from BLM use and is replaced by another drug or immunization for fertility control purposes, that method would be applied by the PFO in future treatments.

2.3.5 INTRAUTERINE DEVICE (IUD)

If IUDs are applied to any jennies in the Sinbad HMA, the jennies would first need to be captured. A qualified veterinarian would examine the pregnancy status of any jenny that is a candidate for IUD application, using rectal palpation or ultrasound. An IUD would only be inserted into non-pregnant ('open') jennies. The specific type of IUD to be used would depend on currently available studies at the time, but would not include marbles, ball bearings, or other *ad hoc* IUDs that are known to cause high rates of injury or risk.

2.3.6 GENETIC DIVERSITY AND HERD VITALITY

The BLM WHB management handbook (2010) suggests non-binding guidelines that should cause the loss of observed heterozygosity to be less than or equal to 1% per generation. At the AML level established for the HMA (50-70) and based on known seasonal movements of the burros within the HMA, sufficient levels of genetic diversity should be maintained to avoid high inbreeding risk, because BLM will periodically introduce burros from other HMAs to maintain genetic diversity in the long term. This recommendation is in keeping with the BLM WHB management handbook (2010), and also was suggested by an earlier analysis of genetic samples (Cothran 2002).

Every 4-5 years, one to three jacks or jennies from a different HMA, with similar or desired characteristics of the burros within the Sinbad HMA would be released to maintain the genetic diversity (observed heterozygosity) in the herd. All burros identified to remain in the HMA population after being gathered would be selected to maintain a diverse age structure, herd characteristics, and body type (conformation).

2.3.7 BURRO IDENTIFICATION

During past treatments, jennies have been freeze branded on the hip and the neck. These brands would help in the identification of the individuals. During any future gathers, new brands would be put on individuals and microchipped prior to being released back to the HMA. Color, leg and face markings, and any other unique markings or scars could identify some individuals without a brand. Once each burro is positively identified, their information would be compiled into a database along with photographs. Individual identification information (photographs and unique characteristics) would be compiled into books or put onto an electronic device that can be taken to the field. Unique numbers would be assigned to all individuals and documented on the Data Sheets. A young burro under 18 months would be tracked on its mother's Data Sheet. A burro over 18 months of age would receive its own number and Data Sheet.

2.3.8 RECORD KEEPING

All darting, foaling, and health data would be recorded as per the Data Sheet (Appendix G). Data Sheets would be prepared and maintained in the PFO. Initially, copies of the data sheets would be sent to the National WH&B Program Office. Thereafter, only treatment updates or new jenny Data Sheets would be sent annually.

2.4 - ALTERNATIVE 2 – GATHER WITHOUT FERTILITY CONTROL

Under this alternative, the initial gather and maintenance gathers would be conducted over the next ten years as described in the Proposed Action with the goal to keep the population within the AML range. This alternative would not include any use of population growth suppression measures on the wild burros remaining in the HMA. All wild burros residing outside the Sinbad HMA would be gathered and removed.

The Sinbad HMA would continue to be managed in accordance with the Price RMP, current policies, and regulations.

2.5 - NO ACTION

Under the No Action alternative, management would continue as follows:

- Existing monitoring including utilization, forage condition, water availability, animal health, and periodic population census would continue.
- Individual nuisance gathers would continue to occur to address nuisance complaints and public safety concerns.
- Gathers to remove excess wild burros would not occur. There would be no active management to control the size of the wild burro population, control growth rates, or manage the wild burro population at AML. The wild burro population would likely continue to increase at an approximate rate of 22% per year. Wild burros residing outside the HMA would remain in areas not designated for management of wild burros and population numbers would continue to increase.

Although the No Action alternative does not comply with the WFRHBA and does not meet the Purpose and Need for the action in this EA, it is included as a basis for comparison with the action alternatives, and to assess the effects of not removing excess burro at this time.

2.6 - ALTERNATIVES CONSIDERED BUT ELIMINATED

Alternatives considered but eliminated from further analysis are included in Appendix H, with discussion as to why each alternative was not carried forward.

3.0 AFFECTED ENVIRONMENT

This chapter presents the potentially affected existing environment (i.e., the physical, biological, social, and economic values and resources) of the impact area as identified in the IDT Checklist found in Appendix A and presented in Chapter 1 of this assessment. This chapter provides the baseline for comparison of impacts/consequences described in Chapter 4.

3.1 - GENERAL SETTING

Access is provided to the Sinbad HMA via I-70 and then by county and BLM roads. Annual precipitation is approximately 8.5 inches, with an average of 5 inches coming during the summer (May through September). Precipitation as of May 2021 was 1.10 inches or 13% of normal at the Ferron weather station, according to data collected since 1948. As of June 8, 2021, the Palmer Drought Severity Index placed the entire PFO in a D4 Exceptional-Drought status. Temperatures in Ferron, Utah ranges from an average monthly high of 75 degrees Fahrenheit in the summer to 24 degrees in the winter (NOAA, 2020). Of the 99,241 acres in the HMA approximately 89,465 are public land acres and 9,776 acres are state lands (Table 2). The topography of the HMA is typical of the San Rafael Swell area, varying from extremely rough to fairly level terrain on limestone benches. The steep sided mesas and deeply incised drainages in the northern and southeastern portions on the HMA could potentially create problems gathering burros.

The wild burros are thought to primarily use the open benches and parks, but aerial surveys and USGS research have confirmed that they do also use wooded areas, and deep canyons occasionally. General distribution of burros shows heavy concentration and utilization of vegetation on the South side of I-70, focused within the flats surrounding Big Pond, Red Draw, Cliff Dweller Flat and Jerrys Flat. Burros have begun moving outside the HMA into the Nielson Draw, Georges Draw and Lone Man Draw. A few burros remain on the north side of I-70.

Table 2. Sinbad HA and HMA Land Status

Surface Management Agency	Herd Area (acres)*	Herd Area (acres, burros only)	Herd Management Area (acres)
Bureau of Land Management	254,850	111,881	89,465
Utah State Trust Land	30,668	12,526	9,776
Total Acreage	285,518	124,407	99,241

*Herd Area acreage includes lands that contain horses that were combined with the Muddy Creek horse HA, (Price RMP, 2008)

The HMA has several undeveloped springs and seeps that are used as water sources by the wild burros, as well as 7 reservoirs, and multiple rock tanks. The San Rafael River, itself, is accessible

in some locations. Most of the developed water sources are in fair condition, with most in need of general maintenance.[8]

3.2 - RESOURCES/ISSUES BROUGHT FORWARD FOR ANALYSIS

3.2.1 LIVESTOCK GRAZING

Impacts to Livestock Grazing. Measurement indicators for this issue include:

- Expected competition for forage and water resources.
- Expected displacement of livestock during gather operations.

The Sinbad Herd Area (HA) lies within the Big Pond, Black Dragon, Box Flat, Iron Wash, Mexican Bend and North Sinbad Allotments. The Big Pond, Black Dragon, Buckmaster, Iron Wash, Mexican Bend, North Sinbad, and Oil Well Flat Allotments encompass the Sinbad HMA (Map 2). The Box Flat grazing allotment occurs outside of the Sinbad HMA. Burros cannot access the Box Flat Allotment due to a 2,000 ft vertical cliff that is impassable. Due to the lack of burros occurring within the Box Flat allotment, it is not carried forward in further analysis. The Iron Wash allotment occurs within the boundary of the HA and HMA. The only reason the HMA is within the Iron Wash allotment is due to a mapping discrepancy, where the allotment boundary is on the west side of the San Rafael Reef and the HMA boundary is on the east side of the reef. When burro numbers are above AML, they are more likely to move into portions of the HA and outside the HMA than they are when numbers are within or near AML. These burros have been known to move back and forth through the reef in several locations.

There are a total of 17 livestock operators who are currently authorized to graze livestock in these allotments annually. The operators are authorized to use 14,487 AUMs of forage each year. An AUM is the amount of forage needed to sustain one cow, five sheep, or five goats for a month. Livestock grazing use on all the affected grazing allotments have averaged less than 50% of permitted use from 2015 till 2020 grazing periods, due to drought conditions that limited forage and water sources. Overlap of areas of use between wild burros and livestock does occur on specific sites (specifically the Black Dragon and Big Pond Allotments) causing competition for forage, water, and space. The Black Dragon Allotment has been held to an average of 33% from 2015 till 2020, Big Pond has been held to 41% of permitted use in the same time period (Table 3). Approximately ninety percent (90%) of the wild burros within the HMA can normally be found in these 2 grazing allotments. Wild burros, wildlife, and livestock compete directly for the same space, water, and forage resources. Year-long wild burro grazing reduces forage availability for livestock. Grazing by excess wild burros during the critical growing season and during drought conditions can reduce forage production, vigor, reproduction, and availability for several years.

[8] "General Maintenance" is a term used when projects are functioning properly. An example would be a reservoir that is holding water, but could be cleaned out when dry, or a fence line that is in working order but could have a wooden post replaced with a steel t-post, a stay replaced, or wire tightened. Maintenance of range improvement projects are typically remanded to the grazing permittee.

The seasons of use and AUMs for the affected allotments are listed below in Table 3.

Table 3. Grazing allotment numbers, season of use, and AUMs

Table 3. Grazing allotment numbers, season of use, and AUMs						% of HMA within allotment	6-year average use (2015-2020)
	Livestock		Season of Use				
Allotment	No.	Kind	From	To	AUMs		
Black Dragon (35004)	521	Cattle	10/16	02/28	3,223	54.8%	33%
54,891 acres	446	Cattle	03/01	04/30		54,404 acres	1,076 AUMs
Big Pond (45002)	329	Cattle	10/01	03/31	2,241	2.3%	41%
42,389 acres	202	Cattle	05/11	06/20		2,288 acres	914 AUMs
Iron Wash (35031) North Pasture	232	Cattle	11/1	4/15	1,266	3.7%	59%
63,394 acres						3,684 acres	750 AUMs
Mexican Bend (35045)	151	Cattle	11/12	05/25	980	2.5%	71%
13,789 acres						2,478 acres	700 AUMs
North Sinbad (35056)	505	Cattle	11/01	05/10	3,204	36.1%	59%
42,631 acres						35,892 acres	1,890 AUMs
Oil Well Flat (25060)*	406	Cattle	10/16	04/30	2,730	0.26%	43%
42,890 acres	12	Horses				259 acres	1,183 AUMs
Buckmaster (34013)*	157	Cattle	12/01	5/15	858	0.49%	91%
55,934 acres						492 acres	780 AUMs
TOTAL	**2,949**	Cattle			**14,487**	**99,241 acres**	**50%**
	12	Horses					**7,293 AUMs**

*Inclusion of the Oil Well Flat and Buckmaster Allotments are considered mapping errors, as the acreage is low, and burros have never been documented in the allotments. These allotments will not be carried any further in the analysis.

For clarification the analysis will be limited to the Big Pond, Black Dragon, Iron Wash (North Pasture), Mexican Bend and North Sinbad Allotments. Utilization levels in the analysis area mainly by burros have been heavy south of the interstate on most of the uplands near reservoirs

and adjacent to trail heads coming out of the canyons where rock tanks are found (BLM 4700 Files). Utilization of primary forage species over the majority of the analysis area was nearly 90% for last year's growth (BLM 4700 Files).

When water and feed become depleted, wildlife and wild burros will move to a new location, while livestock must be removed. Overlap between burros and cattle have been shown to increase at higher stocking density. Large numbers of any two species (cattle or horses) increase the negative interactions (Smith 1986). The State of Utah, Public Lands Policy Coordinating Office (PLPCO) estimates the 7,293 AUMs utilized on average by the livestock producers provide over $700,000 in economic benefits for local communities annually (Appendix J, Comment #62).

Livestock in the allotments depend on reservoirs, snow, and a few springs during the period they are on the allotment. Several small springs, seeps and rock tanks are scattered throughout the analysis area. During normal precipitation years, these small springs, seeps, and rock tanks disperse wild burro use throughout the HMA reducing competition between livestock and wild burros. During drought years, these small springs, seeps, and rock tanks can dry up and wild burros must move to other water sources. This increases competition between wild burros and livestock.

Data showing damage to local fence lines from burros does not exist. It is anticipated that burros could damage fences similar to cattle under certain circumstances, in their natural movement and in their search for water. Most of these fences were in place before the passage of the WFRHBA. These fences inhibit, but do not stop the natural and free roaming nature of the wild burros but are necessary for livestock management. Damage to fence lines within and adjacent to the HMA are most likely due to natural events such as flash flood events, aging wood posts losing staples, or human damage (i.e., gates left open, posts run over by vehicles).

3.2.2 VEGETATION

Impacts to vegetation. Measurement indicators for this issue include:

- Expected forage utilization.
- Potential impacts to vegetation resources.

Similar to the other resources the analysis area for vegetation will include the Big Pond, Black Dragon, Iron Wash (North Pasture), Mexican Bend, and North Sinbad Grazing allotments. The analysis area ranges from 4,400 to 7,000 feet in elevation and supports vegetation types ranging from mixed conifer to salt desert shrub, and grasslands. The salt desert shrub vegetation type dominates the analysis area. Primary forage species are Indian ricegrass (*Achnatherum hymenoides*), Needle and Thread (*Hesperostipa comata*), James galleta *(Pleuraphis jamesii*), sand dropseed (*Sporobolus cryptandrus*), winter fat (*Krascheninnikovia lanata*), and fourwing saltbush (*Atriplex canescens*).

Frequency trend studies were established at several locations within the analysis area in the early 1980s. Data has been collected from these studies as part of the monitoring program for the PFO.

Analysis of the Frequency data for the Black Dragon portion of the analysis area was completed in December 2012; using the Multi-response Block Procedure, for data collected since 1992. The overall long-term trend for the Black Dragon portion of the analysis area is static.

Analysis of the Frequency data for the Big Pond portion of the analysis area was completed in December 2015; using the Multi-response Block Procedure, for data collected since 1985. The overall long-term trend for the Big Pond portion of the analysis area is static.

Analysis of the Frequency data for the Iron Wash portion of the analysis area was completed in 2006; using the Multi-response Block Procedure, for data collected since 1984. The overall long-term trend for the Iron Wash portion of the analysis area is static.

Analysis of the Frequency data for the North Sinbad portion of the analysis area was completed in December 2015; using the Multi-response Block Procedure, for data collected since 1998. The overall long-term trend for the North Sinbad portion of the analysis area is static.

Frequency data for the Mexican Bend portion of the HMA has not been completed due to lack of data.

Starting in 2009, the BLM PFO started converting its trend study locations that collect Frequency Data to the Utah Monitoring Manual for Upland Rangelands (Utah BLM Manual H-4400-1) methodology. Due to the conversion the data collected since that time cannot be statistically analyzed against the data prior to that time. As the data is collected every 3 to 5 years, and a minimum of 3 collection cycles need to occur prior to analysis, enough data has not been collected at this time to analyze.

Rangeland Health Assessments were completed on 4 of the 5 grazing allotments within the HMA area from 2002 through 2008. The Mexican Bend allotment has not been assessed. Nested Frequency, utilization, Rangeland Health Assessments, actual use, climate, etc. were utilized to determine whether the Standards and Guidelines for Healthy Rangelands (BLM 2010; H4400-1) were being achieved. Without exception all four of the allotments were not meeting one standard. All assessments determined that the clean water standard was not being met because the San Rafael River is listed on Utah's 303(d) report to Congress for exceeding state water quality standards for Total Dissolved Solids (TDS), prior to entering the allotments. The other three standards for Upland Soils, Riparian Areas, and Native Species were determined to be meeting standards. Due to the Upland Soils and Riparian Areas meeting standards for Rangeland Health it indicates that they are not contributing to the high level of TDS in the San Rafael River. The final determination points to agricultural returns upstream from the allotments as the major contributor of TDS to the San Rafael River.

Vegetative resources are currently being affected within the analysis area due to lower-than-normal precipitation 5 out of the last 10 years which has reduced vegetative growth and vigor. The southern portion of the HMA is in severe vegetative stress. Utilization of primary forage species over the majority of the HMA was nearly 90% for last year's growth (BLM 4700 Files). Although livestock numbers were reduced from the allotments in the Sinbad HMA during the last 5 years, use by wild burros is exceeding the available forage allocated by over 4 times what was allocated

in the Price RMP. This, along with the reduced vigor of the plants because of drought, may cause mortality of key forage species throughout the HMA. Inadequate residual vegetation (forage) and litter remaining on certain key use areas also allowed soil loss and erosion.

The National Oceanic and Atmospheric Administration (NOAA), Long Term Palmer Drought Index June 8, 2021) and Price Field Office precipitation data all place the HMA in a D4 "Exceptional Drought" condition class.

3.2.3 WILD BURROS

1. Impacts to individual wild burros and the herd. Measurement indicators for this issue include:

- Expected impacts to individual wild burros from handling stress.
- Expected impacts to herd social structure.
- Expected effectiveness of proposed fertility control applications.
- Potential effects on genetic diversity.
- Potential impacts on animal health and condition.

2. A need to implement different or additional population control measures to maintain population size within AML over the long-term. Measurement indicators for this issue include:

- Projected population size and annual growth rate.
- Projected gather frequency.
- Projected number of excess animals to be removed and placed in the adoption, sale, and off-range corral (ORC)and off-range pasture (ORP) holding pipelines over the next 10 years.

BLM wild burros are a variety of the domesticated African wild ass, *Equus africanus asinus*. Domestic burros are believed to have been brought to the American Southwest in the early sixteenth century by Spanish explorers (Abella 2008) and were used by many people in many tasks in the centuries since. Some of these animals escaped or were deliberately turned out, forming herds of wild burros. Wild burros are a long-lived species with documented survival rates that may exceed 90% (Douglas and Hurst 1993), and which do not have the ability to self-regulate their population size (NAS 2013).

There have been 5 gathers conducted in the last 26 years, in 1996, 2001, 2008, 2016 and 2020 in and adjacent to the current Sinbad HMA. Scasta (2019) summarized mortality rates from 70 BLM WH&B gathers across 9 states, from 2010-2019. The total rate of mortalities was 1.2%, but the majority of those deaths were attributable to euthanasia of animals with pre-existing conditions. During the most recent planned gather in 2016, 236 wild burros were gathered, and 133 were removed. The most common burro color phenotype in the HMA is Black.

Since passage of the WFRHBA, BLM experience has grown, and the knowledge of the effects of current and past management on wild horses and burros has increased. For example, wild horses have been shown to be capable of 18 to 25 percent increases in numbers annually (NAS 2013). This can result in a doubling of the wild horse population about every 3-4 years. There is less

published information about wild burros (also known as donkeys), but similar population growth rates have been reported for wild burros in the U.S. (Woodward and Ohmart 1976, Norment and Douglas 1977) and for feral donkeys in Australia (Choquenot 1991), but more information would be needed to determine whether those rates are typical. Burros are both socially and behaviorally different from wild horses (Schoenecker et al. 2015). Burros may have a social system in which males are territorial in some cases or may consort with somewhat stable bands of females in other cases. Group composition and size, dominance relationships, and access to breeding vary considerably among populations (McDonnell 1998). At the same time, nationwide awareness and attention on wild burro management has grown. As these factors have come together, the emphasis of the WH&B program has shifted.

As discussed in Section 1.2, Table 1, the population as of March 1, 2021, is 269 burros. The HMA has an estimated average 22% annual herd growth rate, based on the recent growth rate from April 2016 to March 2020. Due to previous gathers the majority of the burros are anticipated to be less than 10 years of age, with burros as old as 20^{+} years sometimes being found.

The analysis area for wild burros will be the entirety of the allotments which they frequent or can access, which include the Big Pond, Black Dragon, Iron Wash (North Pasture), Mexican Bend and North Sinbad Allotments.

3.2.3.1 SINBAD HERD MANAGEMENT AREA AND HERD LOCATION

The burros have been concentrated on the south side of the HMA for greater than 10 years now, with a few burros moving back and forth to the north side of the HMA. As part of the 2016 gather, half the burros returned were put on the north side of the HMA, but most of those had moved to the south side as of summer 2019. Typically, the burros will move out into the ridgelines, canyons, and breaks of the HMA during the winter where they can utilize snow as their main water source. During the spring, summer, and fall the burros will move back into the open parks and bowls. This is the period of time when the burros are readily seen from I-70.

Rangeland resources and wild burro health have been and are currently being affected within the Sinbad HMA, due to drought and wild burro overpopulation. Excess wild burros above AML have reduced available water and forage, resulting in increased competition for available resources. A general review of burro effects on rangeland ecosystems is included in Appendix I.

As forage within close proximity of water sources is depleted the wild burros will need to range greater distances for forage. The distance the animals must travel over steep rugged terrain can result in body condition decline of the animals.

3.2.3.2 SINBAD HERD GENETICS

Genetic analysis of samples from 30 individuals gathered during the 2001 gather showed that genetic variability of the Sinbad herd is relatively high. “The Sinbad population is the only feral burro herd yet tested where *Ho* (Observed Heterozygosity) is higher than *He* (Expected Heterozygosity) which yields a negative *Fis* (Estimated Inbreeding Level, (=1-Ho/He)) value. This negative *Fis* indicates there is no evidence of inbreeding within this population” (Cothran 2002).

Dr. Cothran (2002) did not identify any unique alleles in the sampled animals from the Sinbad wild burro herd.

BLM does not recognize any need to manage the Sinbad herd of wild burros as genetically isolated, unique, or separate from other wild burro herds. Therefore, maintaining wild burro genetic viability in the Sinbad HMA can be aided by periodic interchange with wild burros in other herds. The NAS (2013) recommended that single HMAs should not be considered isolated genetic populations. Rather, managed herds of wild burros should be considered as components of interacting metapopulations, connected by interchange of individuals and genes due to both natural and human-facilitated movements. In the specific case of burros in Sinbad HMA, the ancestry appears to be of mixed origin. These animals are part of part of a larger metapopulation (NAS 2013) that has demographic and genetic connections with other BLM-managed herds.

Herds in the larger metapopulation of wild burros (i.e., from multiple HMAs) have a background of shared domestic breed heritage and natural and intentional movements of animals between herds. Introductions from other HMAs may augment observed heterozygosity, which is a measure of genetic diversity, the result of which will also be to reduce the risk of inbreeding-related health effects. Introducing fertile animals every generation (about every 8-10 years) is a standard management technique that can alleviate potential inbreeding concerns (BLM 2010).

The 2013 NAS report included evidence that shows that the Sinbad HMA herd is not genetically unusual, with respect to other wild burro herds. Specifically, Appendix F of the 2013 NAS report is a table showing the estimated 'fixation index' (Fst) values between 25 pairs of samples from wild horse herds. Fst is a measure of genetic differentiation, in this case as estimated by the pattern of microsatellite allelic diversity analyzed by Dr. Cothran’s laboratory. Low values of Fst indicate that a given pair of sampled herds has a shared genetic background. The lower the Fst value, the more genetically similar are the two sampled herds. Values of Fst under approximately 0.05 indicate virtually no differentiation. Values of 0.10 indicate very little differentiation. Only if values are above about 0.15 are any two sampled subpopulations considered to have evidence of elevated differentiation (Frankham et al. 2010). Fst values for the Sinbad HMA herd had pairwise Fst values that were less than 0.05 with 1 other sampled herd, and Fst less than 0.10 with 7 additional herds. These results support the interpretation that Sinbad HMA wild burros are components in a highly connected metapopulation that includes herds in many other HMAs.

4.0 ENVIRONMENTAL IMPACTS

4.1 - PROPOSED ACTION

The following are the impacts expected from the implementation of the Proposed Action to the resources of concern.

4.1.1 LIVESTOCK GRAZING

Issue analyzed: Impacts to Livestock Grazing. Measurement Indicators for this issue include:

- Expected competition for forage and water resources.
- Expected displacement of livestock during gather operations.

Under the Proposed Action, competition for forage and water between wild burros and livestock would be directly reduced by gathering and removing burro, as well as by fertility control efforts to slow population growth, which would limit the need for concerted management in the analysis area. Experience has shown that gather operations have few direct impacts to cattle grazing. Livestock located near gather activities during the permitted season of use would be temporarily disturbed or displaced by the helicopter and the increased vehicle traffic during gather operations. Typically, livestock would move back into the area (if pushed out) once gather operations cease.

Bait trapping would not be completed when livestock are in the area, so there would be no direct impact.

Reducing and maintaining the population of wild burros within the Sinbad HMA to levels within AML would reduce wild burro utilization of the forage resource below its present level of approximately 1,968 AUMs, keeping it in line with management objectives and the amount of forage allocated for wild burros (420 AUMs). A balanced demand for forage would help maintain the vigor of vegetation, allow for seedling establishment, maintain ground cover, and thereby maintain a TNEB. This would avoid range deterioration, particularly in future drought years. It would also allow for the use of some of the 7,194 AUMs that have not been used by the livestock producers due to drought and excess burros amounting to approximately $149,000 in economic benefit to the local economy[9]. Under this alternative, it is anticipated that the herd will not reach the upper AML until 2026 or later.

4.1.2 VEGETATION

Issue analyzed: Impacts to Vegetation. Measurement Indicators for this issue include:

- Expected forage utilization.
- Potential impacts to vegetation resources.

[9] Based on PLPCOs evaluation of $96/AUM economic benefit (Appendix J, comment #62) and BLMs estimate of 1,548 AUMs being used by burros in excess of AML. (1,548 x 96= 148,906)

Direct impacts to the vegetation would include disturbance of native vegetation immediately in and around temporary trap sites, and holding, sorting and animal handling facilities. Impacts are created by vehicle traffic, and hoof action of penned burros and can be locally severe in the immediate vicinity of the corrals or holding facilities. Generally, these activity sites would be small (less than one half acre) in size. Since most trap sites and holding facilities are re-used during recurring wild burro gather operations, any impacts would remain site specific and isolated in nature. In addition, most trap sites or holding facilities are selected to enable easy access by transportation vehicles and logistical support equipment and would therefore generally be near or on roads, pullouts, water haul sites or other flat spots which were previously disturbed. Generally, within one to two months of capture operations disturbance within the trap location is not visible.

Indirect impacts would be associated with immediate improvements in range and forage condition from gathering and removal of excess burro and burros outside the HMA, and long-term improvement of habitat quality from slowed population growth through fertility treatments. Achieving and maintaining the established AML, would benefit the vegetation by reducing the grazing pressure on the forage resources. Removal of excess wild burros would reduce the population to levels that would be in balance with the available water sources and forage availability. Maintaining AML within the Sinbad HMA would prevent overgrazing[10], damage by trampling or pawing, and would help promote improved rangeland health, allowing for the TNEB of all uses present. Maintenance of AML would also assist with keeping burros from pushing out into areas adjacent to the HMA as well.

4.1.2.1 MONITORING AND/OR COMPLIANCE

Monitoring procedures to address specific habitat variables have been established in the Bureau's 4400 and 1734 series handbooks. These monitoring protocols are the accepted Bureau methodologies for collecting habitat-based information to determine achievement of habitat-based objectives and the standards for rangeland health as developed by the Utah Resource Advisory Council. Specific habitat monitoring procedures and key area selection has already occurred. These methodologies and sites would continue to be used under this Proposed Action.

4.1.3 WILD BURROS

4.1.3.1 GENERAL IMPACTS TO INDIVIDUAL BURROS

1. Impacts to individual wild burros and the herd. Measurement Indicators for this include:

- Expected impacts to individual wild burros from handling stress.
- Expected impacts to herd social structure.
- Expected effectiveness for proposed fertility control applications.
- Potential effects on genetic diversity.

[10] Current estimates show 1,238,400 pounds of vegetative forage or 1,548 AUMs; that are being utilized by excess burros.

- Potential impacts on animal health and condition.

2. A need to implement different or additional population control measures to maintain population size within AML over the long-term. Measurement indicators for this issue include:

- Projected population size and annual growth rate.
- Projected gather frequency.
- Projected number of excess animals to be removed and placed in adoption, sale, and off-range corral and off-range pasture holding pipelines over the next 10 years.

Direct individual impacts are those impacts which occur to individual burros and are immediately associated with implementation of the Proposed Action. These impacts include handling stress associated with the roundup, capture, sorting, animal handling, fertility control applications, and transportation of the animals. The intensity of these impacts varies by individual and are indicated by behaviors ranging from nervous agitation to physical distress. Mortality of individuals from the effects of capture and handling is infrequent but may be expected to occur in one half to one percent of burros gathered in a given round-up (GAO 2008).

Treatment area selection protocols have been developed with the CAWP (Appendix C) which would minimize impacts associated with handling stress. There are no indications that these direct impacts persist beyond a short time following the stress event.

Indirect individual impacts are those impacts which occur to individual burros after the initial stress event. Indirect individual impacts 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 burro gather operations. An example of an indirect individual impact would be the brief skirmish which occurs with older jacks following sorting and release into the jack pen which lasts less than two minutes and ends when one jack retreats. Traumatic injuries do not occur in most cases; however, they do occur. These injuries typically involve a bite and/or kicking with bruises which do not break the skin. Like direct individual impacts, the frequency of occurrence of these impacts among a population varies with the individuals.

Observations following capture indicate the rate of miscarriage varies but can occur in about 1 to 5 percent of the captured females, particularly if the females are in very thin body condition or in poor health. Spontaneous abortion events among jennies following captures are not common, and if they occur, they very rarely result in complications or adverse effects on the dame's health or wellbeing. Spontaneous abortion is not considered to be an issue for either of the two proposed capture methods.

A few foals may be orphaned during gathers. This may occur due to:

- The jenny rejecting the foal which occurs most often with young mothers or very young foals;
- The foal and mother becoming 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; or

- The mother does not produce enough milk to support the foal.

On occasion, foals are gathered that were previously orphaned on the range (prior to the gather) because the mother rejected it or died. These foals are usually in poor condition. Every effort is made to provide appropriate care to orphan foals. Veterinarians may administer electrolyte solutions or orphan foals may be fed milk replacer as needed to support their nutritional needs. Orphan foals may be placed in a foster home to receive additional care. Despite these efforts, some orphan foals may die or be humanely euthanized as an act of mercy if the prognosis for survival is very poor.

Gathering the wild burros during the fall/winter reduces risk of heat stress, although this can occur during any gather, especially in older or weaker animals. Adherence to the CAWP 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.

4.1.3.2 GENERAL IMPACTS TO BURRO POPULATIONS

Population-wide direct impacts are immediate effects which would occur during or immediately following implementation of the Proposed Action. The social structure of burros, which lacks stable harem breeding units, combined with year-round breeding (BLM SRP 2005); would not be expected to be impacted to the extent normally anticipated with a wild horse gather.

Population-wide indirect impacts would not appear immediately as a tangible effect and are more difficult to quantify.

A reduction of wild burros should increase the availability of forage plants that are preferred by burros, which ought to release the remaining population from pressure due to inadequate food availability. Reduced competition for forage and water between livestock, wildlife, and wild burros would be expected to result in an improved natural ecological balance by avoiding range deterioration. However, “free-ranging horse populations are often limited by removals to levels below food-limited carrying capacity, so population growth rate could be increased by the removals through compensatory population growth related to decreased competition for forage (NAS 2013).”

4.1.3.3 FERTILITY CONTROL VACCINES AND IUDS IMPACTS

Using population growth suppression to slow population growth rates and reduce the number of animals removed from the range and sent to ORPs is a BLM priority. No *finding of excess animals* is required for BLM to pursue contraception-only management activities in wild horses or wild burros. Contraception has been shown to be a cost-effective and humane treatment to slow increases in wild horse populations or, when used with other techniques, to reduce horse population size (Bartholow 2004, de Seve and Boyles-Griffin 2013). All fertility control methods in wild animals are associated with potential risks and benefits, including effects of handling, frequency of handling, physiological effects, behavioral effects, and reduced population growth rates (Hampton et al. 2015). Contraception by itself does not remove excess animals from an HMA’s population, so if a wild horse or burro population is in excess of AML, then contraception alone would result in some continuing environmental effects of overpopulation. Successful

contraception reduces future reproduction. Limiting future population increases of burros could limit environmental damage from higher densities of burros than currently exist. Burros are long-lived, potentially reaching 20 years of age or more in the wild and, if the population is above AML, treated burros returned to the HMA may continue exerting negative environmental effects throughout their life span. In contrast, if burros above AML are removed when they are gathered, that leads to an immediate decrease in the severity of ongoing detrimental environmental effects.

Successful contraception would be expected to reduce the frequency of gather activities on the environment, as well as wild horse and burro management costs to taxpayers. Bartholow (2007) concluded that the application of 2 or 3-year contraceptives to wild mares could reduce operational costs in a project area by 12 to 20 percent, or up to 30% in carefully planned population management programs. He also concluded that contraceptive treatment would likely reduce the number of horses that must be removed in total, with associated cost reductions in the number of adoptions and total holding costs. If applying contraception to horses requires capturing and handling horses, the risks and costs associated with capture and handling of horses may be comparable to those of gathering for removal, but with expectedly lower adoption and long-term holding costs. Population suppression becomes less expensive if fertility control is long-lasting (Hobbs et al. 2000). Selectively applying contraception to older animals and returning them to the HMA could reduce long-term holding costs for such horses, which are difficult to adopt, and could reduce the compensatory reproduction that often follows removals (Kirkpatrick and Turner 1991). On the other hand, selectively applying contraception to younger animals can slow the rate of genetic diversity loss – a process that tends to be slow in a long-lived animal with high levels of genetic diversity – and could reduce growth rates further by delaying the age of first parturition (Gross 2000). Although contraceptive treatments may be associated with several potential physiological, behavioral, demographic, and genetic effects, detailed below, those concerns do not generally outweigh the potential benefits of using contraceptive treatments in situations where it is a management goal to reduce population growth rates (Garrott and Oli 2013).

Table 4. Population Growth Estimate (Proposed Action– Gathers with Fertility Treatments)

Year	Population Estimate	11% Net herd Growth	Estimated Number of Burros Over AML (70)
January 2021	269	59*	199
January 2022	328	66*	268
January 2023	50	6	0
January 2024	56	6	0
January 2025	62	7	0
January 2026	69	8	7
January 2027	77**	8	15

*Expected herd growth rate for 2021-22 is expected to be near 22%.
**Maintenance gather would be planned to occur after 2027, dependent on scheduling with other gathers.

The expected effects use of fertility control vaccines and, potentially, IUDs, are discussed in depth in Appendix I. Most of those effects are based on observations from horses, under the assumption that burro physiology is similar enough to horses those effects will be comparable. Fertility control

vaccines and IUDs do not change the wild, free-roaming nature of treated horses or burros. Several of the most notable effects include the following. Jennies treated with fertility control vaccines (i.e., PZP vaccine or GonaCon vaccine) generally carry any already-developing fetuses to term. Successfully treated jennies are prevented from conceiving by the immune response. PZP vaccine (ZonaStat) effects generally last for one year. A first dose of GonaCon may lead to only marginal (40-60%) efficacy for one year, and lower in the second year, but a booster dose of GonaCon may cause long lasting (4+ year) effects at high rates (85% efficacy). PZP vaccine does not generally prevent treated females from continuing to have estrus cycles, so they may be repeatedly bred over the course of a breeding season. PZP vaccine may cause ovarian disfunction, especially after repeated doses. GonaCon vaccine tends to reduce estrus activity, so a treated female may engage in behaviors more typical of pregnant females. PZP vaccines and GonaCon vaccine can cause injection site reactions, which may include abscesses and granulomas, though these do not generally reduce mobility. IUDs can only be used in open females and prevent pregnancy only so long as the IUD is retained in the uterus. Jennies screened for IUD use would need to be handled briefly in a chute with adequate restraint to allow for pregnancy status examination and IUD placement. Although fertility control vaccines and IUDs may temporarily reduce the number of breeding females in a herd, those animals may return to fertility after the effects of vaccines wear off, or IUDs fall out or are removed. Genetic effects of a reduced number of breeding females can be counteracted by periodic introduction of animals from other herds. Given the numbers of females treated and the frequency of treatment, it is not expected that use of fertility control vaccines would lead to strong evolutionary selection for immunocompromised animals.

Successful implementation of a fertility control program could reduce the annual reproductive rate on Sinbad to 11% from the natural rate of 20%. If implemented when the HMA has reached low end AML it could be expected that it would take between five and ten years for the HMA to reach upper AML of 70 burros.

4.1.3.4 HELICOPTER DRIVE TRAPPING/ ROPING WATER/BAIT TRAPPING IMPACTS

Over the past 35 years, various impacts to wild horses and burros because of gather activities have been observed. Under the action alternatives, potential impacts to wild burros would be both direct and indirect, occurring to both individual burros and the population as a whole.

The BLM has been conducting wild horse and burro gathers since the mid-1970s. During this time, methods and procedures have been identified and refined to minimize stress and impacts to wild horses and burros during gather implementation. The CAWP would be implemented to ensure a safe and humane gather occurs and would minimize potential stress and injury to wild burros.

In any given gather, gather-related mortality averages only about one half of one percent (0.5%), which is very low when handling wild animals. Approximately, another six-tenths of one percent (0.6%) of the captured animals, on average, are humanely euthanized due to pre-existing conditions and in accordance with BLM policy (GAO 2008). Comparable rates were determined recently, by Scasta (2019). This data affirms that the use of helicopters and motorized vehicles has proven to be a safe, humane, effective, and practical means for the gather and removal of excess wild horses (and burros) from the public lands.

When being herded to trap site corrals by the helicopter, injuries sustained by wild burros may include bruises, scrapes, or cuts to feet, legs, face, or body from rocks, brush, or tree limbs. Rarely, wild burros will encounter barbed wire fences and will receive wire cuts. These injuries are very rarely fatal and are treated on-site until a veterinarian can examine the animal and determine if additional treatment is indicated.

Other injuries may occur after a burro has been captured and is either within the trap site corral, the temporary holding corral, during transport between facilities, or during sorting and handling. Occasionally, burros may sustain a spinal injury or a fractured limb but based on prior gather statistics, serious injuries requiring humane euthanasia occur in less than 1 horse/burro per every 100 captured. Similar injuries could be sustained if wild burros were captured through bait and/or water trapping, as the animals still need to be sorted, aged, transported, and otherwise handled following their capture. These injuries can result from kicks and bites, or from collisions with corral panels or gates.

Through the capture and sorting process, wild horses and 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 IM-2015-070 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 or deformed limbs) that cause lameness or prevent the animal from being able to maintain an acceptable body condition (greater than or equal to BCS 3); old animals that have serious dental abnormalities or severely worn teeth and are not expected to maintain an acceptable body condition, and wild horses or burros that have serious physical defects such as club feet, severe limb deformities, or sway back. Some of these conditions have a causal genetic component such that the animals should not be returned to the range; this prevents suffering and avoids amplifying the incidence of the deleterious gene in the wild population.

The wild burros that are gathered would be subject to one or more of several outcomes listed below.

4.1.3.5 TEMPORARY HOLDING FACILITIES IMPACTS

To minimize the potential for injuries from fighting, the animals are transported from the trap site to the temporary (or short-term) holding facility where they are sorted as quickly and safely as possible, then moved into large holding pens where they are provided with hay and water. On many gathers, no wild horses or burros are injured or die. On some gathers, due to the temperament of the animals, they are not as calm, and injuries are more frequent. Overall, direct gather-related mortality averages less than 1%.

4.1.3.6 TRANSPORT, ORCS, AND ADOPTION PREPARATION IMPACTS

Wild burros removed from the range as excess would be transported to the receiving ORC facility in a goose-neck stock trailer or straight-deck semi-tractor trailers (discussed in section 2.2.3.2). 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 at the ORC facility, 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 short-term holding facility, 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 American Veterinary Medical Association (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, microchipping, vaccination against common diseases, 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.

At ORC, a minimum of 700 square feet is provided per animal. Mortality at ORC 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.

4.1.3.7 WILD BURROS REMAINING OR RELEASED INTO THE HMA FOLLOWING GATHER

Under the Proposed Action, the post-gather population of wild burros would be about 50 wild burros, which is the low range of the AML for the Sinbad HMA. Reducing population size would also ensure that the remaining wild burros are healthy and 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.

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 to utilize preferred, quality

habitat. Confrontations between jacks would also become less frequent, as would fighting among wild burro bands at water sources. 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.

Achieving the AML and improving the overall health and fitness of wild burros could also increase foaling and foaling survival rates over the current conditions.

The remaining wild burros not captured would 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.

Spontaneous abortion events among pregnant jennies following capture are also rare, though poor body condition can increase the incidence of such spontaneous abortions.

4.1.3.8 ADOPTION OR SALE WITH LIMITATIONS, AND ORP

Table 5 shows the adoption numbers nationwide from 2012 to 2019 and Table 6 shows the sale with limitation numbers from 2012 to 2019 to qualified individuals as reported on the BLM website.

Table 5: Horses and Burros Adopted from years 2012 to 2019.

Fiscal Year	Horses	Burros	Total
2019	3,774	1,356	5,130
2018	2,459	699	3,158
2017	2,905	612	3,517
2016	2,440	472	2,912
2015	2,331	300	2,631
2014	1,789	346	2,135
2013	2,033	278	2,311
2012	2,232	351	2,583

Table 6: Horses and Burros Sold to Private Homes from years 2012 to 2019.

Fiscal Year	Horses	Burros	Total
2019	1,538	429	1,967
2018	1,201	250	1451
2017	518	64	582
2016	179	32	211
2015	88	180	268
2014	23	64	87
2013	22	43	65
2012	320	82	402

Animals 5 years of age and older are transported to ORPs. The BLM has maintained ORPs in the Midwest for over 30 years. Potential impacts to wild horses from transport to adoption, sale or ORP are similar to those previously described. One difference is that when shipping wild horses for adoption, sale or ORP, animals may be transported for a maximum of 24 hours. Immediately prior to transportation, and after every 18-24 hours of transportation, animals are offloaded 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 2 pounds of good quality hay per 100 pounds of body weight per horse per day with adequate bunk space to allow all animals to eat at one time. Most animals are not shipped more than 18 hours before they are rested. The rest period may be waived in situations where the travel time exceeds the 24-hour limit by just a few hours and the stress of offloading and reloading is likely to be greater than the stress involved in the additional period of uninterrupted travel.

ORPs are designed to provide excess wild horses with humane, life-long care in a natural setting off the public rangelands. There wild horses are maintained in grassland pastures large enough to allow free-roaming behavior and with the forage, water, and shelter necessary to sustain them in good condition. About 36,500 wild horses, that are in excess of the existing adoption or sale demand, are currently located on private land pastures in the mid-west. Located in mid-west and western states of the United States, these ORPs are highly productive grasslands as compared to more arid western rangelands. The majority of these animals are older in age.

At ORP facilities, mares, and sterilized stallions (geldings) are segregated into separate pastures. Although the animals are placed in ORPs, they remain available for adoption or sale to qualified individuals. No reproduction occurs in the ORPs, but foals born to mares (that are pregnant when placed into the ORPs) are gathered and weaned when they reach about 8-12 months of age and are then shipped to ORC facilities where they are made available for adoption. Handling by humans is minimized to the extent possible although regular on-the-ground observation and weekly counts of the wild horses to ascertain their numbers, well-being, and safety are conducted. A very small percentage of the animals may be humanely euthanized if they are in very thin condition and are not expected to improve to a BCS of 3 or greater due to age or other factors. Natural mortality of wild horses in ORPs averages approximately 8% per year but can be higher or lower depending on the average age of the horses pastured there (GAO 2008, page 52). The savings to the American taxpayer which results from contracting for ORPs averages about $4.32 per horse per day as compared with maintaining the animals in ORC facilities. The average daily cost of an ORC is $6.37 versus an ORP which is $2.05 per horse per day.

4.1.3.9 MONITORING AND/OR COMPLIANCE

Monitoring procedures to address specific habitat variables have been established in the Bureau's 4700, 4400, and 1734 series handbooks. These monitoring protocols are the accepted Bureau methodologies for collecting habitat-based information to determine achievement of habitat-based objectives and the standards for rangeland health as developed by the Utah Resource Advisory Council. Specific habitat monitoring procedures and key area selection has already occurred. These methodologies and sites would continue to be used under this Proposed Action.

Species monitoring protocols and data collection methods have been established by equine professionals and researchers who initiated the first round of these studies (animal handling techniques). Bureau practices are based on these procedures which are incorporated into both the Proposed Action and alternatives as animal handling techniques. These animal handling techniques would be sufficient to determine the short- and long-term effects of implementing the Proposed Action or alternatives.

4.2 - ALTERNATIVE 2 – GATHER AND REMOVAL WITHOUT FERTILITY CONTROL

The following are the impacts expected from the implementation of Alternative 2 to the resources of concern.

4.2.1 LIVESTOCK GRAZING

Direct and Indirect impacts to Livestock under Alternative 2 will be similar in nature to those addressed in the Proposed Action. Reducing and maintaining the population of wild burros within the Sinbad HMA to levels within AML would reduce wild burro utilization of the forage resource below its present level of approximately 1,968 AUMs, keeping it in line with management objectives and the amount of forage allocated for wild burros (420 AUMs). A balanced demand for forage would help maintain the vigor of vegetation, allow for seedling establishment, maintain ground cover, and thereby maintain a TNEB. This would avoid range deterioration, particularly in future drought years. It would also allow for the use of some of the 7,194 AUMs that have not been used by the livestock producers due to drought and excess burros amounting to approximately $149,000 in economic benefit to the local economy.

However, wild burro populations would rebound at a faster rate (approximately double the annual population growth rate of the proposed action or 22%) and exceed the high-end AML as soon as 2025. Higher burro levels increase competition between livestock and wild burros sooner and quicker population increases result in a shorter recovery time for the rangeland resources from present burro grazing pressure impacts.

4.2.2 VEGETATION

Impacts of the gather and removal would be similar to the Proposed Action. As stated above, wild burro populations would rebound at a faster rate and exceed the high-end AML as soon as 2025. Higher burro levels increase pressure on natural forage and quicker population increases result in a shorter recovery time for the rangeland resources from present burro grazing pressure impacts.

4.2.3 WILD BURROS

Direct and indirect impacts to Wild Burros under Alternative 2 will be similar in nature to those addressed in the Proposed Action, in regard to gather and handling activities. Fertility control methods would not be utilized so fertility related impacts as disclosed in the Proposed Action would not occur. From USGS unpublished data we can expect anywhere from an 11.4 to 20 percent annual increase in the herd. This faster growth rate as compared to the Proposed Action would cause more resource damage and require more frequent gathers over the period of the Proposed Action, to try and attain AML. The sex ratio would be maintained at approximately 50/50 male to female. Due to the lack of fertility control it is expected that the herd will grow at a faster annual rate (22%) than the Proposed Action so that the herd is projected to return to the upper AML range by 2025 as disclosed in Table 7. At that rate, within 10 years the HMA could contain upwards of 365 burros if additional maintenance gathers are not completed.

Table 7. Population Growth Estimate (Alternative 2 – Gather with No Fertility Treatment)

Year	Population Estimate	22% Net herd Growth	Estimated Number of Burros Over AML (70)
January 2021	269	59	199
January 2022	328	72	258
January 2023	50	11	0
January 2024	61	13	0
January 2025	74	17	4
January 2026	91	20	21*
January 2027	111	24	41*

Maintenance gather would be planned to occur in 2026/2027, dependent on funding and scheduling with other gathers.

4.2.4 MONITORING AND/OR COMPLIANCE

Same as the Proposed Action.

4.3 - NO ACTION

The following are the impacts expected from the implementation of the No Action alternative to the resources of concern.

4.3.1 LIVESTOCK GRAZING

Direct impacts from not managing burros within the Sinbad HMA would have a negative effect on livestock grazing within the identified grazing allotments. Within five years, the wild burro population could exceed 726 (see Table 6), which would be 1,210% above AML. Increased numbers of burros would adversely affect vegetative resources, which burros, livestock and wildlife compete for, as well as an increased competition for water resources and an increasingly negative impact upon the springs and streams. Grazing allotments may be closed to livestock grazing and or permittees would be required to reduce numbers as burro numbers increase and available forage decreases due to excessive burro numbers. Complete closure of the grazing allotments within the analysis area could negatively impact the local economy anywhere from $700,000 to upwards of $1,400,000 annually.

4.3.2 VEGETATION

Currently, the population is 448% above AML, and forage is 90% used despite livestock reductions of 50% over the past 6 years. In 5 years, the population could be at 1,210% above AML, and there would be insufficient forage to support that population so the excess animals would spread into adjacent areas to find resources and reduce competition. The extent and direction of spread would be speculative at this time. However, the Price RMP does not allow for their management in adjacent areas, so this alternative would be out of conformance with the RMP. Direct and indirect impacts would include disturbance of native vegetation immediately around all

water sources, as well as across the entire HMA from an increase in burro use. Impacts would be created by hoof action as the burros travel to and from water as well as disturbance created by the foraging of the burros on individual plants, which would eventually result in a reduced carrying capacity. This is an ongoing impact to vegetation but would be increased exponentially by allowing the burro herd to continue growing until the population density was so great as to cause some reduction in population growth due to starvation and reduced survival of foals as the body condition of jennies' declines (i.e., self-regulation of the population).

4.3.3 WILD BURROS

The IBLA through case No. 118 IBLA 75 (Animal Protection Institute et al.., 1991) has pointed out that in concurrence with The WFRHBA of 1971 (Public Law 92-195) "excess animals" must be removed from an area in order to preserve and maintain a TNEB and multiple-use relationship in that area (16 U.S.C. 1332(t)(1988)).

The No Action alternative is contrary to the WFRHBA which requires the BLM to "prevent the range from deterioration associated with the overpopulation" of wild burros and "preserve and maintain a thriving natural ecological balance and multiple use relationships in that area". It is also inconsistent with the PFO RMP, which directs the PFO BLM to conduct gathers as necessary to achieve and maintain AML. This alternative of using natural controls to achieve a desirable AML has not been shown to be feasible in the past. If the March 1, 2020, herd size (250) grows unabated for 10 years at an annual growth rate of 20%, that would lead to an expected herd size of approximately 1,550 by early 2030. Even if annual growth of the herd slows to 15%, the net herd size by 2030 would be exceed 1,100 burros. There is no mechanism of self-regulation in this species, other than through the action of limited forage availability and, ultimately, starvation (NAS 2013). This alternative would result in a steady increase in numbers which would continually exceed the carrying capacity of the range until severe and unusual conditions that occur periodically – such as large snowstorm events or extreme drought – cause catastrophic mortality of wild burros.

"Literature clearly demonstrates that density dependence due to food limitations will reduce population growth rates in equids and other large herbivores through reduced fecundity and survival. The total annual population increment will decline at higher densities. Some of the reduction in annual population increment at high densities will probably be due to reduced fertility, and much of the reduction can also be expected to be due to increased mortality. The literature and the case studies show that although density dependence can regulate population sizes, responses will probably include increased numbers of animals in poor body condition and high numbers of animals dying from starvation" (NAS 2013).

The HMA is managed under the objectives of the Price RMP, the Sinbad HMAP and current regulations and policies with no additional objectives specific to the management of wild burros within the Sinbad HMA.

If the No Action alternative is selected, excess wild burros would not be removed from within the Sinbad HMA at this time. The animals would not be subject to the individual direct or indirect impacts as a result of a gather operation in 2021 (or the soonest feasible time period). Over the

short-term, individuals in the herd would be subject to increased stress and possible death as a result of increased competition for water and forage as the wild burro population continues to grow. The number of areas experiencing severe utilization by wild burros would increase over time. This would be expected to result in increasing damage to rangeland resources throughout the HMA. Trampling and trailing damage by wild burros in/around riparian areas and water sources would also be expected to increase, resulting in larger, more extensive areas of bare ground. Competition for the available water and forage between wild burros, domestic livestock, and native wildlife would increase.

Predation and disease have not substantially regulated wild burro population levels within the Sinbad HMA. Some mountain lion predations may occur but does not appear to be substantial. Coyotes are not prone to prey on wild burros unless the burros are young or extremely weak. Other predators such as wolf, or bear do not exist within the HMA. As a result, there would be a steady increase in wild burro numbers for the foreseeable future, which would continue to exceed the carrying capacity of the range. Individual burros would be at greater risk of death by starvation and lack of water. The population of wild burros would compete for the available water and forage resources, affecting jennies and foals most severely. Social stress would increase. Fighting among jack burros would increase as they protect their position at scarce water sources, as well as injuries and death to all age classes of animals.

From USGS unpublished data we can expect anywhere from an 11.4 to 20 percent annual increase in the herd. This faster growth rate as compared to the proposed action would cause more resource damage and require more frequent gathers over the period of the proposed action, to try and attain AML. Starting with the 2021 estimate of 269 head, with the above stated annual increase within 4 years the HMA would contain approximately 595 (Table 8) head of burros, which is 850% of AML: within 10 years the HMA and surrounding lands could contain upwards of 1,516 burros.

Table 8. Population Growth Estimate (No Action alternative)

Year	Population Estimate	22% Net herd Growth	Estimated Number of Burros Over AML (70)
January 2021	269	59	209
January 2022	328	72	268
January 2023	400	88	340
January 2024	488	107	428
January 2025	595	131	535
January 2026	726	160	666
January 2027	886	195	816

The No Action alternative would not meet the Purpose and Need for the action and would not be in conformance with existing laws and regulations which require the AO to remove excess animals immediately upon determination that excess wild burros are present and their removal is necessary.

If the burro herd size reaches extremely high levels, substantial loss of the wild burros in the HMA due to starvation or lack of water would have consequences on the ability of the natural environment in the HMA to sustain the herd in the long run. Continued decline of rangeland health and irreparable damage to vegetative, soil and riparian resources, would have impacts to the future

of the HMA and all other users of the resources, which depend upon them for survival. As a result, the No Action Alternative would not ensure healthy rangelands, would not allow for the management of a healthy, self-sustaining wild burro population, and would not promote a TNEB.

As population increases beyond the capacity of the available habitat, more groups of burros would leave the boundaries of the HMA in search of forage and water. This alternative would result in increasing numbers of wild burros in areas not designated for their use, would be contrary to the WFRHBA, and would not achieve the stated objectives for wild horse herd management areas, to "prevent the range from deterioration associated with overpopulation," and "preserve and maintain a thriving natural ecological balance and multiple use relationship in that area."

4.3.4 MONITORING AND/OR COMPLIANCE

See monitoring section for the proposed action for monitoring protocols.

4.4 CUMULATIVE IMPACTS

"Cumulative impacts" are those impacts resulting from the incremental impact of an action when added to other past, present, or reasonably foreseeable actions regardless of what agency or person undertakes such other actions.

Cumulative impacts are impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively sizeable actions taking place over a period of time.

4.4.1 LIVESTOCK GRAZING

Issue analyzed: Impacts to Livestock Grazing. Measurement Indicators for this issue include:

- Expected competition for forage and water resources.
- Expected displacement of livestock during gather operations.

The area of cumulative impact analysis area for livestock and grazing is the boundary of the five affected grazing allotments because that is where burro, livestock, and wildlife grazing will overlap. Past, present, and reasonably foreseeable activities include past wild burro selective removal gather which may have altered the structure and composition of the Sinbad HMA, continuing livestock grazing, continuing wildlife grazing, continuing wildlife management (adjustment of population numbers), and continued development of recreational infrastructure.

The cumulative effects to livestock from the capture and removal of excess wild burros include potential disturbance during the time of helicopter use, temporary displacement from trap and holding facility areas, and decreased competition between domestic and wild herds and increased forage availability. The cumulative effects associated with livestock and wildlife grazing include competition for forage. The cumulative effects from recreational infrastructure include human presence patterns which may result in location becoming no longer available for livestock use.

The Proposed Action would contribute to the cumulative impacts of these past and foreseeable future actions by maintaining the herd at AML and creating a slowed repopulation rate. This would result in improvement of upland and riparian vegetation conditions, which would in turn benefit permitted livestock, native wildlife, and wild burro population as forage (habitat) quality and quantity is improved over the current level. Benefits from a reduced wild burro population would include fewer animals competing for limited forage and water resources. Cumulatively, there should be more stable wild burro populations, healthier rangelands, healthier wild burros, and fewer multiple use conflicts in the area over the short and long-term. Over the next 10 years, continuing to manage wild burros within the established AML range would achieve a TNEB and multiple use relationship on public lands in the area.

Alternative 2 will also result in the cumulative impacts described for the Proposed Action; however, the effects will not be as long lived since the fertility treatments would not occur and a natural growth rate will occur under this alternative. Under Alternative 2, the herd is anticipated to exceed AML within 5 years unless additional gathers occur to keep the herd numbers low.

The No Action alternative will not result in benefits to forage quality and quantity or competition with livestock and wildlife since the excess burros would not be gathered. Under the No Action alternative, the herd will leave the HMA, fewer AUMs would be available for wildlife and livestock, and the burro herd will become more stressed as resources are consumed, and eventually a die-off is anticipated when the number of burros exceed the capacity of the land.

4.4.2 VEGETATION

Issue analyzed: Impacts to Vegetation. Measurement Indicators for this issue include:

- Expected forage utilization.
- Potential impacts to vegetation resources.

The area of cumulative impact analysis area for vegetation is the boundary of the five affected grazing allotments because that is where vegetation is affected by burro, livestock, and wildlife grazing. Past, present, and reasonably foreseeable activities include past wild burro selective removal gather which may have altered the structure and composition of the Sinbad HMA, continuing livestock grazing, continuing wildlife grazing, continuing wildlife management (adjustment of population numbers), ongoing drought, and continued development of recreational infrastructure.

The cumulative effects to vegetation from the capture and removal of excess wild burros include increased forage availability. The cumulative effects associated with livestock and wildlife grazing include competition for forage. Even with the currently reduced livestock numbers, the forage in the cumulative impact area is approximately 90% used. The cumulative effects from recreational infrastructure include human presence patterns which may result in loss of vegetation in areas of recreational development or heavy use.

The Proposed Action would contribute to the cumulative impacts of these past and foreseeable future actions by maintaining the herd at AML and creating a slowed repopulation rate. This would

result in improvement of upland and riparian vegetation conditions, which would in turn benefit permitted livestock, native wildlife, and wild burro population as forage (habitat) quality and quantity is improved over the current level. Benefits from a reduced wild burro population would include fewer animals competing for limited forage. Over the next 10 years, continuing to manage wild burros within the established AML range would achieve a TNEB and multiple use relationship on public lands in the area.

Alternative 2 would also result in the cumulative impacts described for the Proposed Action; however, the effects would not be as long lived since the fertility treatments would not occur and a natural growth rate would occur under this alternative. Under Alternative 2, the herd is anticipated to exceed AML within 5 years unless additional gathers occur to keep the herd numbers low.

The No Action alternative would not result in benefits to vegetation quality and quantity since the excess burros would not be gathered.

4.4.3 WILD BURROS

Issue Analyzed:

1. Impacts to individual wild burros and the herd. Measurement Indicators for this include:

- Expected impacts to individual wild burros from handling stress.
- Expected impacts to herd social structure.
- Expected effectiveness for proposed fertility control applications.
- Potential effects on genetic diversity.
- Potential impacts on animal health and condition.

2. A need to implement different or additional population control measures to maintain population size within AML over the long-term. Measurement indicators for this issue include:

- Projected population size and annual growth rate.
- Projected gather frequency.
- Projected number of excess animals to be removed and placed in adoption, sale, and off-range corral and off-range pasture holding pipelines over the next 10 years.

The area of cumulative impact analysis area for wild burros is the Sinbad HMA and the Big Pond grazing allotment (see Map 2) because it is the area in which burros frequently move within and outside the HMA. Past, present, and reasonably foreseeable activities include past wild burro selective removal gather which may have altered the structure and composition of the Sinbad HMA, continuing livestock grazing in the grazing allotments, continuing wildlife grazing,

continuing wildlife management (adjustment of population numbers), and continued development of recreational infrastructure.

The cumulative effects to wild burros associated with the capture and removal of excess wild burros include 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 (GAO 2008). These rates are comparable to natural mortality on the range ranging from about 5 to 8 percent per year for foals (animals under age 1), about 5% per year for horses ages 1-15, and 5 to 100 percent for animals aged 16 and older (Garrott and Taylor, 1990). In situations where forage and/or water are limited, mortality rates in the wild increase, with the greatest impact to young foals, nursing mares/jennies and older horses/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 jenny, 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. The cumulative effects associated with livestock and wildlife grazing include competition for forage. The cumulative effects from recreational infrastructure include human presence patterns which may result in location avoidance by burros. In total, these past, present, and reasonably foreseeable activities influence the habitat quality, abundance, and continuity for the Sinbad HMA wild burros. These activities have shaped and will continue to shape the current wild burro population's structure, composition, behaviors, and patterns of use found. These impacts occur rather slowly over time. At the same time, the burros in this HMA would be expected to continue to adapt to these small changes to availability and distribution of critical habitat components (food, water, shelter, space).

The Proposed Action would contribute to the cumulative impacts of these past and foreseeable future actions by maintaining the herd at AML, creating a slowed repopulation rate, and allowing for genetic monitoring that would allow for any substantial decrease in observed heterozygosity to become apparent sooner. This would result in improvement of upland and riparian vegetation conditions, which would in turn benefit permitted livestock, native wildlife, and wild burro population as forage (habitat) quality and quantity is improved over the current level. Benefits from a reduced wild burro population would include fewer animals competing for limited forage and water resources. Cumulatively, there should be more stable wild burro populations, healthier rangelands, healthier wild burros, and fewer multiple use conflicts in the area over the short and long-term. Over the next 10 years, continuing to manage wild burros within the established AML range would achieve a TNEB and multiple use relationship on public lands in the area.

Alternative 2 will also result in the cumulative impacts described for the Proposed Action, however the effects will not be as long lived since the fertility treatments would not occur and a natural growth rate will occur under this alternative. Under Alternative 2, the herd is anticipated to exceed AML within 5 years unless additional gathers occur to keep the herd numbers low.

The No Action alternative will not result in benefits to forage quality and quantity or competition with livestock and wildlife since the excess horses would not be gathered. Under the No Action alternative, the herd will leave the HMA, the herd will become more stressed as resources are

consumed, and eventually a die-off is anticipated when the number of burros exceed the capacity of the land.

5.0 CONSULTATION AND COORDINATION

5.1 INTRODUCTION

The issue identification section of Chapter 1 identifies those issues analyzed in detail in Chapter 4. Appendix A provides the rationale for issues that were considered but not analyzed further. The issues were identified through the public and agency involvement process described in below.

5.2 PERSONS, GROUPS, AND AGENCIES CONSULTED/NOTIFIED

Table 9 lists the persons, groups, and agencies that the BLM coordinated with or consulted during the preparation of this project. The table also summarizes the conclusions of those processes.

TABLE 9: COORDINATION, CONSULTATION, AND NOTIFICATION

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
Utah State Historic Preservation Office	National Historic Preservation Action Section 106	SHPO consultation has been completed previously for other gathers. Should a trap location need to be moved the sight would be cleared and any consultation requirements completed.
U.S. Fish and Wildlife Service	Endangered Species Act Section 7	Consultation with USFWS is not needed given that no effects are anticipated to occur to T&E species under any of the alternatives.
Native American Tribes interested in projects within the Price Field Office: Northwestern Band of Shoshoni Nation, Paiute Indian Tribe of Utah, Navajo Nation, Ute Indian Tribe, Hopi Tribe, Southern Ute Tribe, Ute Mountain Ute Tribe, Pueblo of Zuni, Pueblo of Jemez, Shoshone Bannock Tribes, Eastern Shoshone Tribe	Consultation for undertaking, as required by the *Native American Graves Protection and Repatriation Act, the American Indian Religious Freedom Act,* and various executive orders (e.g., Executive Order 13007)	Identified tribes were notified by letter dated June 2, 2021, to describe the proposed action and find out if the tribes have any issues concerning the proposed action. The Paiute Indian Tribe of Utah responded but did not have any concerns. Lack of response is interpreted by BLM to indicate that the tribes have no concerns relative to the proposed action
State of Utah, State and Institutional Trust Lands Administration, Renewable Resource Specialist	Consult with SITLA as the agency in control of state lands within the project area	Consultation is ongoing as part of the NEPA process.
Emery County Commissioners	Consult with County	Consultation is ongoing as part of the NEPA process.
Utah Div. of Wildlife Resources	Consult with UDWR as the agency with expertise on impacts on game species	Consultation is ongoing as part of the NEPA process.
Neda Demayo, Return to Freedom	Consult with identified Interested Publics	Notification of availability for the Draft EA was sent August 5, 2021. Further notification is ongoing as part of the NEPA process.

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
Mathew Dillon, Pryor Mountain Wild Mustang Center	Consult with identified Interested Publics	Notification of availability for the Draft EA was sent August 5, 2021. Further notification is ongoing as part of the NEPA process.
Kathy Greg	Consult with identified Interested Publics	Notification of availability for the Draft EA was sent August 5, 2021. Further notification is ongoing as part of the NEPA process.
D.J. Schubert, Animal Welfare Institute	Consult with identified Interested Publics	Notification of availability for the Draft EA was sent August 5, 2021. Further notification is ongoing as part of the NEPA process.
Ginger Kathrens, Cloud Foundation	Consult with identified Interested Publics	Notification of availability for the Draft EA was sent August 5, 2021. Further notification is ongoing as part of the NEPA process.
Courtney McVean, Friends of Animals	Consult with identified Interested Publics	Notification of availability for the Draft EA was sent August 5, 2021. Further notification is ongoing as part of the NEPA process.
Grazing Permittees	Consult with identified Interested Publics	Notification of availability for the Draft EA was sent August 5, 2021. Further notification is ongoing as part of the NEPA process.

5.3 SUMMARY OF PUBLIC PARTICIPATION

Public involvement was initiated on this Proposed Action on March 11, 2020, by posting on the ePlanning web page and in the public rooms in the Price Field Office and Utah State BLM Office. The Notice described the Proposed Action and solicited public input.

The BLM initiated public involvement at a public hearing about the use of helicopters and motorized vehicles to capture and transport wild horses (or burros) on May 25, 2021, by holding a virtual public hearing using Zoom. This specific gather was not addressed at that public meeting, though other gathers that are planned within the state of Utah and other states over the next 12 months were. This meeting was advertised in papers and radio stations nationwide. During this meeting, the public is given the opportunity to present new information and to voice any concerns regarding the use of these methods to capture wild horses and burros. This process has been in place for over 20 years, and relevant issues associated with these methods have been addressed in the CAWP (Appendix C).

Other public meetings have been held and public comment has been solicited on multiple occasions during the formulation of other documents related to the management of wild horses and burros. This input has been carefully considered and has guided the development of this Proposed Action and alternatives. The following concerns were identified in these past meetings.

The capture methodologies currently employed and proposed for continuation under the Proposed Action and alternatives, have been reviewed in detail. Comments pertaining to this aspect of wild horse and burro management have included concerns over the rate at which horses and burros are herded to the trap site, the timing of the gather, the methods for transporting animals, and the numbers of horses and burros which are captured using various types of capture. BLM developed policy and practices which addressed each of these concerns. These policies/practices have become standard procedure.

The Draft Environmental Assessment (EA) for the Sinbad Wild Burro Gather DOI-BLM-UTG020-2020-0017-EA was made available to the public for a 30-day public comment period at the Price Field Office and on-line at https://www.blm.gov/programs/wild-burro-and-burro/herd-management/gathers-and-removals/utah;

or on the e-Planning web page at: http://bit.ly/SinbadEA.

The comment period was held starting July 21, 2021 and extended through September 3, 2021 (Appendix B). The BLM received approximately 822 submissions during the comment period, and more than 516 of those submissions comprised of form letters. Many of these comments contained overlapping issues/concerns which were consolidated into 176 comments and 26 distinct topics. There were 40 unique yet non-substantive comments not responded to. See Appendix J for comment response.

5.4 LIST OF PREPARERS

The specialists listed in the following table(s) assisted in the preparation of this EA.

TABLE 10: BLM PREPARERS

Name	Title	Responsible for the Following Section(s) of this Document
Mike Tweddell	Natural Resource Specialist: RMS/WH&B	Project Lead and provided information on plan conformance, Livestock Grazing and Rangeland Health, Vegetation, and Wild Burro Issues.
Stephanie Howard	NEPA Coordinator	Reviewed this document for the format and National Environmental Policy Act (NEPA) Conformance.
Molly Hocanson	Planning & Environmental Specialist	Quality Assurance

TABLE 11: OTHER PREPARERS

Name	Title	Responsible for the Following Section(s) of this Document
Stephanie Bauer	Range Management Specialist, (PFO).	Contributed information pertaining to Vegetation.
V. Gus Warr	Wild Horse and Burro Specialist, Utah State Office (USO)	Consult with USO for program conformance and coordination within State and with Washington Office or Headquarters.
Paul Griffin	Wild Horse and Burro Specialist, Washington Office, (WO)	Contributed information on fertility control and genetic diversity.

6.0 REFERENCES, GLOSSARY AND ACRONYMS

6.1 INTRODUCTION

The following sections list the references cited within this document, the terms used and their definitions, and the acronyms used and their meanings.

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6.3 GLOSSARY OF TERMS

ALLOTMENT: An area of land where one or more individuals graze their livestock.

ANIMAL UNIT MONTH: The amount of dry forage required by one animal unit for one month based on a forage allowance of 26 pounds per day.

APPROPRIATE MANAGEMENT LEVEL: The number of adult wild horses or burros that can be sustained within a designated HMA, which achieves and maintains a thriving natural ecological balance in keeping with the multiple-use management concept for the area.

AUTHORIZED OFFICER: The decision maker who has the delegated authority to for that decision.

BEST MANAGEMENT PRACTICES: A suite of techniques that guide, or may be applied to, management actions to aid in achieving desired outcomes.

CONDITIONS OF APPROVAL: Conditions or requirements under which a decision is made.

COMPREHENSIVE ANIMAL WELFARE PROGRAM: Program developed to monitor the health and wellbeing of wild horses and burros during gather operations.

ENVIRONMENTAL ASSESSMENT: A concise public document that analyzes the environmental impacts of a proposed action and provides sufficient evidence to determine the level of significance of the impacts.

ENVIRONMENTAL IMPACT STATEMENT: A detailed written statement of environmental effects of a major federal action significantly affecting the quality of the human environment.

FORAGE: Vegetation eaten by animals, especially grazing and browsing animals.

IMPACT: A modification of the existing environment caused by an action (such as construction or operation of facilities).

INTERDISCIPLINARY TEAM: Representatives of various disciplines designated as members of a team which was created to prepare an environmental document.

INVASIVE PLANTS: Plants that are not part of (if exotic) or are a minor component of (if native), the original plant community or communities that have the potential to become a dominant or co-dominant species on the site if their future establishment and growth is not actively controlled by management interventions.

MINIMIZE: To reduce the adverse impact of an operation to the lowest practical level.

MITIGATION: Steps taken to 1) avoid an impact; 2) minimize an impact; 3) rectify an impact; 4) reduce or eliminate an impact over time; or, 5) compensate for an impact.

MONITORING: The process of collecting and assessing data/information necessary to evaluate the effectiveness of a decision or its conditions of approval.

MULTIPLE USE: The management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people.

NO ACTION ALTERNATIVE: The most likely condition to exist in the future if current management direction were to continue unchanged.

NOXIOUS WEEDS: A plant species designated by Federal of State law as generally possessing one or more of the following characteristics: aggressive and difficult to manage; parasitic; a carrier or host of serious insects or disease; or nonnative, new, or not common to the United States.

PERMIT: A revocable authorization to use public land for a specified purpose for a specified period of time.

PROJECT AREA: The area of land potentially affected by a proposed project.

RANGELAND HEALTH: The degree to which the integrity of the soil, the vegetation, the water, and air as well as the ecological processes of the rangeland ecosystem is balanced and sustained.

SIGNIFICANCE: A determination of the degree or magnitude of importance of an effect, whether beneficial or adverse.

UTILIZATION: The proportion or degree of current year's forage production that is consumed or destroyed by animals (including insects).

6.4 LIST OF ACRONYMS

The below table contains a list of acronyms and their meanings that are frequently used by the BLM and which may have been used in the writing of this document.

TABLE 8-1: ACRONYMS

Acronym	Meaning
AAEP	American Association of Equine Practitioners
AHPA	American Horse Protection Association
AO	Authorized Officer
AML	Appropriate Management Level
AUM	Animal Unit Month
AVMA	American Veterinary Medical Association
BLM	Bureau of Land Management
CAWP	Comprehensive Animal Welfare Program
CFR	Code of Federal Regulations
COR	Contracting Officer Representative
DR	Decision Record
EA	Environmental Assessment
EIS	Environmental Impact Statement
FEIS	Final Environmental Impact Statement
FLPMA	Federal Land Policy and Management Act
FONSI	Finding of No Significant Impact
GIS	Geographic Information System
GnRH	Gonadotropin-Releasing Hormone
HMA	Herd Management Area
HMAP	Herd Management Area Plan
HSUS	Humane Society of the United States
IC	Incident Commander
IDT	Interdisciplinary Team
IM	Instruction Memorandum
IUD	Intrauterine Device
NAS	National Academy of Sciences
NEPA	National Environmental Policy Act
NI	Not Impacted
NP	Not Present

Acronym	Meaning
NRC	National Research Council
ORC	Off Range Corrals
ORP	Off-Range Pastures
PFO	Price Field Office
PRIA	Public Rangeland Improvement Act
PRMP	Price Field Office Resource Management Plan
PZP	Porcine Zona Pellucida
RMP	Resource Management Plan
ROD	Record of Decision
SCC	Science and Conservation Center
SHPO	State Historic Preservation Office
SITLA	School and Institutional Trust Lands Administration
UDWR	Utah Division of Wildlife Resources
USDI	U.S. Department of the Interior
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WFRHBA	Wild Free Roaming Horses and Burros Act
WH&B	National Wild Horse and Burro Program
WO	Washington Office

APPENDICES

APPENDIX A: INTERDISCIPLINARY TEAM CHECKLIST

INTERDISCIPLINARY TEAM CHECKLIST

RESOURCES AND ISSUES CONSIDERED (INCLUDES SUPPLEMENTAL AUTHORITIES APPENDIX 1 H-1790-1)

Project Title: Sinbad Burro Gather and NAS Research

NEPA Log Number: DOI-BLM-UT-G020-2020-0017-EA

File/Serial Number: 4720 / UT-652B

Project Leader: Mike Tweddell

DETERMINATION OF STAFF: *(Choose one of the following abbreviated options for the left column)*

NP = not present in the area impacted by the proposed or alternative actions

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

PI = present with potential for relevant impact that need to be analyzed in detail in the EA

NC = (DNAs only) actions and impacts not changed from those disclosed in the existing NEPA documents cited in Section D of the DNA form. The Rationale column may include NI and NP discussions.

Determination	Resource/Issue	Rationale for Determination	Signature	Date
NI	Air Quality & Greenhouse Gas Emissions	Dust and vehicle emissions would be generated during the project. However, impacts from emissions are expected to be short term (during the project only) and small (vehicles accessing the site and conducting the work) so that they would be indistinguishable from background emissions as measured by monitors or within the margin of error of existing models.	Joseph Rodarme	2/13/2020
NP	BLM natural areas	There are no BLM Natural Areas within the proposed project area as per GIS and RMP review	Jaydon Mead	3/5/2020
NI	Cultural: Archaeological Resources	The Area of Potential Effect for the proposed Sinbad Burro gather includes those areas selected for stationing. If stations are located on previously disturbed areas, do not incorporate sandstone walls or cliff faces, and are less than 50 acres, an intensive cultural resource survey will be waived. As none	William Brant	5/28/2021

Determination	Resource/Issue	Rationale for Determination	Signature	Date
		of these caveats are met and there are no recorded historic properties within the APE, the project is waived from cultural inventory and a determination of "no historic properties affected" is made pursuant to 36 CFR 800.4(d)(1).		
NI	Cultural: Native American Religious Concerns	Previous consultations with tribal authorities during the preparation of DOI-BLM-UT-G020-2015-050-EA did not identify areas of tribal importance within the proposed undertaking's Area of Potential Effect (APE).	William Brant	1/28/2020
NP	Designated Areas: National Historic Trails	There are no National Historic Trails within the proposed project area as per GIS and RMP review	Jaydon Mead	3/5/2020
NI	Designated Areas: Areas of Critical Environmental Concern	After review of GIS records and the Approved RMP, the I-70 and San Rafael Canyon ACECs are within the project area. The proposed action and short-term nature of the activity will have no impacts on the ACEC's because existing disturbance would be used for staging areas.	Jaydon Mead	3/5/2020
NP	Designated Areas: Wild and Scenic Rivers	There are no Wild and Scenic Rivers within the project area as per GIS and RMP review.	Jaydon Mead	3/5/2020
NP	Designated Areas: Wilderness Study Areas	There are no Wilderness Study Areas within the project area as per GIS and RMP review.	Jaydon Mead	3/5/2020
NI	Designated Areas: Wilderness	A few of the bait traps are located near the San Rafael Reef Wilderness Area. The Wilderness boundary will be clearly marked prior to the bait traps being installed. This design feature will ensure that all the ground disturbing activities will only occur outside the newly designated wilderness area. Therefore, there are no impacts to Wilderness.	Jaydon Mead	3/5/2020
NI	Environmental Justice	The BLM reviewed the Headwaters Economics BLM Socioeconomic Profile for Emery County (data source: https://headwaterseconomics.org/tools/blm-profiles/). The percent of the county's populations that are minority does not exceed the percent in the state. The county does have poverty percentages that exceed the percent in the state. However, this project will not disproportionately adversely affect minority or economically disadvantaged	Stephanie Howard	6/17/21

Determination	Resource/Issue	Rationale for Determination	Signature	Date
		communities or populations because there are no populations in the project area.		
NP	Farmlands (prime/unique)	According to the NRCS soils surveys and knowledge of the soils, there are no prime and unique soils mapped within the project area.	Stephanie Bauer	1/16/20
NI	Fuels/Fire Management	Implementation of the proposed action would have no significant impact on Fuels/Fire Management because the project is small in scope and wild burros have minimal impact on fire suppression tactics or fuels projects. Future impacts would be negligible. Follow any seasonal fire restrictions on http://utahfireinfobox.com	Stuart Bedke	14 JAN 2020
NI	Geology / Minerals / Energy Production	The proposed action will not have any direct impact to any locatable, leaseable or salable solid or fluid mineral resources because it will be temporary in nature.	Rebecca Anderson	01/15/20
NI	Invasive Plants / Noxious Weeds	Surface disturbing activities have the potential to introduce/spread invasive species/noxious weeds. There are no known noxious weeds within the project area. Cheatgrass, halogeton and Russian thistle are invasive species that are present within the project area. Negligible impacts to invasive species/noxious weeds are expected because the proposed holding facilities are located in previously disturbed locations. Any bait/trap locations will be required to have certified weed free feed. The project will be required to follow Best Management Practices such as power washing equipment and vehicles to remove any mud or debris prior to entering BLM administered lands. Horses and other animals will be required to be cleaned and be free of any mud and vegetative materials before entering BLM administered lands. Horses are required to be fed certified noxious weed free hay for a minimum of 72 hours prior to entering BLM administered lands and any hay fed to horses while on BLM administered lands will be required to be certified noxious weed free.	Stephanie Bauer	1/16/20

Determination	Resource/Issue	Rationale for Determination	Signature	Date
NI	Lands/Access	A review of LR2000 and the Master Title Plats showed that the proposed action is compatible with the existing land use and authorized right-of-ways	Veronica Kratman	1/17/20
NI	Lands with Wilderness Characteristics	A couple trap locations identified in the proposed action are within the San Rafael Reef LWC Unit. This unit was determined to possess wilderness characteristics of size criteria, naturalness, and opportunities for solitude or unconfined primitive recreation. Although this area was determined to possess wilderness characteristics, the RMP "…does not provide any specific management decisions to protect, preserve, or maintain wilderness characteristics for the [San Rafael Reef Unit]…" (*2008 FEIS pg. 4-173*). These units are to be managed for more purposes than solely preserving wilderness characteristics. Therefore, the proposed action is consistent with management decisions in the RMP. Potential impacts to naturalness and opportunities for solitude are short term. Because this project is short term/temporary, meaning it will be removed when not being used, it has been determined that there are no impacts to Lands with Wilderness Characteristics.	Jaydon Mead	3/5/2020
PI	Livestock Grazing	Livestock compete with wild burros for available forage and water resources. Depending on timing of gather could cause temporary displacement or disturbance of livestock.	Mike Tweddell	1/13/2020
NI	Paleontology	The proposed project will have minimal surface disturbance and is unlikely to uncover any paleontological resources. Operations could uncover vertebrate fossils and if this happens, work should immediately halt in that location and the Price Field Office should be notified	Rebecca Anderson	1/15/20
NI	Plants: BLM Sensitive	After review of BLM records there are no known populations or habitat for BLM sensitive plants within the project area where ground disturbance is expected to occur, which is primarily on the flat ground of limestone benches surrounding the traps. These areas are	Kegen Benson	1/27/20

Determination	Resource/Issue	Rationale for Determination	Signature	Date
		currently frequented by burro herds and exposed to relatively high use by livestock, feral burros, feral horses, and recreation.		
NI	Plants: Threatened, Endangered, Proposed, or Candidate	After review of BLM records there are no known populations or habitat for Threatened, Endangered, or Candidate plants within the project area where ground disturbance is expected occur, which is primarily on the flat ground of limestone benches surrounding the traps. These areas are currently frequented by burro herds and exposed to relatively high use by livestock, feral burros, feral horses, and recreation.	Kegen Benson	1/27/20
NI	Rangeland Health Standards	The components of Rangeland Health Standards; Vegetation, Soils, Water Quality and Riparian areas are addressed individually in other sections of the checklist. The proposed action has been evaluated in light of Utah BLMs Standards for Rangeland Health and the Guidelines for Grazing Management. A Rangeland Health assessment was conducted on the HMA in June of 2008. The management on the HMA was found to be and continues to be consistent with achieving and adhering to the Standards and Guidelines.	Mike Tweddell	1/13/2020
NI	Recreation	The proposed action is located in the San Rafael Special Recreation Management Area (SRMA). The short term gather and minimal use of the area will have no impacts or effects on recreation users in the area.	Jaydon Mead	3/5/2020
NI	Socioeconomics	The BLM reviewed the Headwaters Economics BLM Socioeconomic Profile for Emery County (data source: https://headwaterseconomics.org/tools/blm-profiles/). This project will not affect the social and economic status of the counties to a degree that detailed analysis is required because the project will not create new jobs. Instead, it will bring in a few existing workers from other areas to complete the work which may result in minimal hospitality expenditures however the duration of the project's individual activities are	Stephanie Howard	6/17/21

Determination	Resource/Issue	Rationale for Determination	Signature	Date
		short term and dispersed throughout the project's 10-year lifetime.		
NI	Soils: Physical / Biological	Soils conditions would not be affected by this project because all disturbances would be widely dispersed and proposed holding facilities are located on previously disturbed sites.	Stephanie Bauer	1/16/20
PI	Vegetation	Impacts expected are a result of over utilization of forage species, and potential impacts to vegetation from disturbance associated with proposed gather.	Stephanie Bauer	1/16/20
NI	Visual Resources	The proposed action is located within the VRM I, II and III. The temporary gathering sites are short term in nature and will be removed upon completion of the gather. This will have no impacts to VRM in the long term.	Jaydon Mead	3/5/2020
NI	Wastes (hazardous/solid)	No chemicals subject to reporting under SARA Title III will be used, produced, stored, transported, or disposed of annually in association with the project. Furthermore, no extremely hazardous substances, as defined in 40 CFR 355, in threshold planning quantities, will be used, produced, stored, transported, or disposed of in association with the project. Trash would be confined in a covered container and disposed of in an approved landfill. No burning of any waste will occur due to this project. Human waste will be disposed of in an appropriate manner in an approved sewage treatment center.	Jaydon Mead	3/5/2020
NI	Water: Groundwater Quality	No impact to water quality due to the minimal ground disturbance of this project.	Rebecca Anderson	1/15/20
NI	Water: Hydrologic Conditions (stormwater)	Water: Hydrologic Conditions (stormwater) would not be affected by this project because all disturbances would be minimal.	Rebecca Anderson	1/15/20
NI	Water: Municipal Watershed / Drinking Water Source Protection	There are no Municipal Watershed/Drinking Water Source Protection Zones within or near the project area per GIS review.	Rebecca Anderson	1/15/20
NI	Water: Steams, Riparian Wetlands, Floodplains	The catch points will not be located in streams, riparian areas, wetlands, or floodplains. By removing animals from the area, there will be less pressure on	Rebecca Anderson	1/15/20

Determination	Resource/Issue	Rationale for Determination	Signature	Date
		water resources and the ability to provide drinking water for animals.		
NI	Water: Surface Water Quality	This proposed action will have limited surface disturbance and so is not expected to impact water quality or quantity.	Rebecca Anderson	1/15/20
NI	Water: Water Rights	Changes in water quality or quantity in the watershed can affect the ability to use and develop water rights. This proposed action will have limited surface disturbance and is not expected to impact water quality or quantity, therefore no impact to water rights is expected and further analysis is not required.	Rebecca Anderson	1/15/20
NI	Water: Waters of the U.S.	Waters of the U.S. includes tributaries to navigable waters, there are intermittent streams near the project area that flow into the Green River. Due to the limited surface disturbance, the proposed action is not expected to impact this resource, therefore detailed analysis is not required.	Rebecca Anderson	1/15/20
PI	Wild Horses and Burros	Expected impacts from the proposed action to individual burros and the herd include handling stress, effects to genetic diversity, animal health, and condition.	Mike Tweddell	1/13/2020
NI	Wildlife: Migratory Birds (including raptors)	Migratory Birds: Portions of the project Area are in or within 1 mile from riparian habitat. However, no direct impacts to migratory songbirds or migratory bird breeding habitat are expected within the project footprint as trap and storage areas will avoid riparian habitat. Raptors: Burrowing owl, golden eagle, and ferruginous hawk have potential to forage in the area as the prey species these predatory birds rely upon inhabit the Project Area. The cliff and canyon habitat on the eastern boundary of the HMA is quality nesting habitat. Avoidance of cliffs and canyons by helicopters, as outlined in the EA, is sufficient to mitigate disturbance to these species.	Kegen Benson	1/27/20
NI	Wildlife: Fish (designated or non-designated)	There would be no surface water depletion that would affect federally listed fish species that occur downstream.	Kegen Benson	1/27/20

Determination	Resource/Issue	Rationale for Determination	Signature	Date
		The Project Area does include ephemeral and intermittent streams, but due to the limited surface disturbance and best management practices (i.e., avoiding streambeds and riparian areas) outlined in the proposed action the activity is not expected to have any discernible impact to intermittent or ephemeral streams, or to the perennial streams they drain to, nor to any aquatic wildlife possibly contained therein.		
NI	Wildlife: Non-USFWS Designated	The primary wildlife species of concern in this area are desert bighorn sheep (DBH) and pronghorn antelope. Other wildlife found in the area includes coyotes, mountain lions, cottontails, ravens, and great basin gopher snakes. Removal of the burros would result in a reduction in competition for forage, water, and habitat and incrementally decrease the opportunity for transmission of disease. The eastern portion of the HMA is within critical DBH habitat. Avoidance by helicopters of the cliffs and canyons along the eastern edge, during the lambing period (4/15-6/15) will ensure no impacts to DBH. The level limestone benches surrounding the traps, where disturbance and activities are expected to be highest, is not of outsized importance to area wildlife and the short duration of the projected is not anticipated to have any impacts.	Kegen Benson	1/27/20
NI	Wildlife: BLM Sensitive	There is habitat for several bat species, burrowing owl, kit fox, and great plains toad within the Project Area. However, following the plans outlined in the EA (i.e., mostly avoiding canyons, streams, and riparian areas, situating traps in areas currently frequented by burros and exposed to relatively high use, and performing activities during the day) will mitigate any possible impacts to these species.	Kegen Benson	1/27/20
NP	Wildlife:	After GIS review, there are no known occurrences of federally listed or candidate species in the project area.	Kegen Benson	1/27/20

Determination	Resource/Issue	Rationale for Determination	Signature	Date
	Threatened, Endangered, Proposed or Candidate	There is no designated critical habitat within the HMA boundaries. The area lacks sufficient riparian vegetation to support southwester willow flycatcher or yellow billed cuckoo, and Mexican spotted owl modeled habitat is restricted to canyons.		
NP	Woodlands/Forestry	There are no merchantable woodland/forestry products within the project area per GIS review.	Stephanie Bauer	1/16/20

FINAL REVIEW:

Reviewer Title	Signature	Date
Environmental Coordinator	MOLLY HOCANSON Digitally signed by MOLLY HOCANSON Date: 2022.02.14 15:18:05 -07'00'	
Authorized Officer	KYLE BEAGLEY Digitally signed by KYLE BEAGLEY Date: 2022.02.15 16:08:07 -07'00'	

APPENDIX B: PUBLIC NOTICE

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

News Release

BLM Utah State Office
Media Contact: Kimberly Finch, kfinch@blm.gov
July 21, 2021

BLM seeks input on proposed Sinbad Wild Burro Gathers

PRICE, Utah — The Bureau of Land Management (BLM) Price Field Office is seeking public input on an Environmental Assessment (EA) analyzing proposed wild burro gathers, removal and fertility treatment in the Sinbad Herd Management Area (HMA). The 30-day public comment period will close on Aug. 20, 2021.

The Sinbad HMA includes approximately 99,241 acres of Federal and State lands located 30 miles west of Green River, Utah. It extends up to 19 miles on both sides of I-70 from the San Rafael Reef to Eagle Canyon. Access is provided to the HMA via Interstate 70 and then by county and BLM roads.

The EA analyzes a proposal to gather and remove excess wild burros and implement fertility control to manage herds according to appropriate management levels which are based on established numbers that the landscape can support. The BLM gathers wild burros to protect rangeland resources from deterioration associated with an overpopulation excess wild burros within and outside the HMA, and to restore a thriving natural ecological balance and multiple use relationship on the public lands consistent with the provisions of Section 1333 (a) of the Wild Free-Roaming Horses and Burros Act of 1971. Information about the project, is available on the BLM's website: https://go.usa.gov/xFxCy.

Feedback including useful comments are those that contain technical or scientific information relevant to the proposed action. Substantive comments should be submitted through ePlanning: https://go.usa.gov/xFxCy. The Price Field Office will also accept mailed comments if postmarked by the closing date of the comment period.: Bureau of Land Management, attn: Sinbad Gather, 125 S 600 W, Price, UT 84501.

For more information, please contact Mike Tweddell at (435) 636-3600. Persons who use a telecommunications device for the deaf (TDD) may call the Federal Relay Service (FRS) at 1-800-877-8339 to leave a message or question. The FRS is available 24 hours a day, seven days a week. Replies are provided during normal business hours.

-BLM-

This year, we invite everyone to reimagine your public lands as we celebrate 75 years of the BLM's stewardship and service to the American people. The BLM manages approximately 245 million acres of public land located primarily in 12 Western states, including Alaska. The BLM also administers 700 million acres of sub-surface mineral estate throughout the nation. The agency's mission is to sustain the health, diversity, and productivity of America's public lands for the use and enjoyment of present and future generations.

Follow the BLM Utah on Twitter, Facebook, Flickr @BLMUtah
Follow BLM Utah's Instagram @utahpubliclands

APPENDIX C: CAWP GATHER STANDARDS

COMPREHENSIVE ANIMAL WELFARE PROGRAM

FOR WILD HORSE AND BURRO GATHERS

STANDARDS

Developed by

The Bureau of Land Management

Wild Horse and Burro Program

in collaboration with

Carolyn L. Stull, PhD

Kathryn E. Holcomb, PhD

University of California, Davis

School of Veterinary Medicine

June 30, 2015

WELFARE ASSESSMENT STANDARDS for GATHERS

CONTENTS

STANDARDS

Standard Definitions

Major Standard: Impacts the health or welfare of WH&Bs. Relates to an alterable equipment or facility standard or procedure. Appropriate wording is "must," "unacceptable," "prohibited."

Minor Standard: unlikely to affect WH&Bs health or welfare or involves an uncontrollable situation. Appropriate wording is "should."

Lead COR = Lead Contracting Officer's Representative

COR = Contracting Officer's Representative

PI = Project Inspector

WH&Bs = Wild horses and burros

I. FACILITY DESIGN

A. Trap Site and Temporary Holding Facility

1. The trap site and temporary holding facility must be constructed of stout materials and must be maintained in proper working condition, including gates that swing freely and latch or tie easily. (major)

2. The trap site should be moved close to WH&B locations whenever possible to minimize the distance the animals need to travel. (minor)

3. If jute is hung on the fence posts of an existing wire fence in the trap wing, the wire should be either be rolled up or let down for the entire length of the jute in such a way that minimizes the possibility of entanglement by WH&Bs unless otherwise approved by the Lead COR/COR/PI. (minor)

4. Fence panels in pens and alleys must be not less than 6 feet high for horses, 5 feet high for burros, and the bottom rail must not be more than 12 inches from ground level. (major)

5. The temporary holding facility must have a sufficient number of pens available to sort WH&Bs according to gender, age, number, temperament, or physical condition. (major)

a. All pens must be assembled with capability for expansion. (major)

b. Alternate pens must be made available for the following: (major)

1) WH&Bs that are weak or debilitated

2) Mares/jennies with dependent foals

c. WH&Bs in pens at the temporary holding facility should be maintained at a proper stocking density such that when at rest all WH&Bs occupy no more than half the pen area. (minor)

6. An appropriate chute designed for restraining WH&Bs must be available for necessary procedures at the temporary holding facility. This does not apply to bait trapping operations unless directed by the Lead COR/COR/PI. (major)

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

8. Padding must be installed on the overhead bars of all gates and chutes used in single file alleys. (major)

9. Hinged, self-latching gates must be used in all pens and alleys except for entry gates into the trap, which may be secured with tie ropes. (major)

10. Finger gates (one-way funnel gates) used in bait trapping must be constructed of materials approved by the Lead COR/COR/PI. Finger gates must not be constructed of materials that have sharp ends that may cause injuries to WH&Bs, such as "T" posts, sharpened willows, etc. (major)

11. Water must be provided at a minimum rate of ten gallons per 1000-pound animal per day, adjusted accordingly for larger or smaller horses, burros and foals, and environmental conditions, with each trough placed in a separate location of the pen (i.e., troughs at opposite ends of the pen). Water must be refilled at least every morning and evening. (major)

12. The design of pens at the trap site and temporary holding facility should be constructed with rounded corners. (minor)

13. All gates and panels in the animal holding and handling pens and alleys of the trap site must be covered with materials such as plywood, snow fence, tarps, burlap, etc. approximately 48” in height to provide a visual barrier for the animals. All materials must be secured in place. (major)

These guidelines apply:

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

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

c. The initial capture pen may be left uncovered as necessary to encourage animals to enter the first pen of the trap. (minor)

14. Non-essential personnel and equipment must be located to minimize disturbance of WH&Bs. (major)

15. Trash, debris, and reflective or noisy objects should be eliminated from the trap site and temporary holding facility. (minor)

B. Loading and Unloading Areas

1. Facilities in areas for loading and unloading WH&Bs at the trap site or temporary holding facility must be maintained in a safe and proper working condition, including gates that swing freely and latch or tie easily. (major)

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

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

4. All gates and doors must open and close easily and latch securely. (major)

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

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

7. Stock trailers should be positioned for loading or unloading such that there is no more than 12" clearance between the ground and floor of the trailer for burros and 18" for horses. (minor)

II. CAPTURE TECHNIQUE

A. Capture Techniques

1. WH&Bs gathered on a routine basis for removal or return to range must be captured by the following approved procedures under direction of the Lead COR/COR/PI. (major)

a. Helicopter

b. Bait trapping

2. WH&Bs must not be captured by snares or net gunning. (major)

3. Chemical immobilization must only be used for capture under exceptional circumstances and under the direct supervision of an on-site veterinarian experienced with the technique. (major)

B. Helicopter Drive Trapping

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

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

a. WH&Bs that are weak or debilitated must be identified by BLM staff or the contractors. Appropriate gather and handling methods should be used according to the direction of the Lead COR/COR/PI. (major)

b. The appropriate herding distance and rate of movement must be determined on a case-by-case basis considering the weakest or smallest animal in the group (e.g., foals, pregnant mares, or horses that are

weakened by body condition, age, or poor health) and the range and environmental conditions present. (major)

c. Rate of movement and distance travelled must not result in exhaustion at the trap site, with the exception of animals requiring capture that have an existing severely compromised condition prior to gather. Where compromised animals cannot be left on the range or where doing so would only serve to prolong their suffering, euthanasia will be performed in accordance with BLM policy. (major)

3. WH&Bs must not be pursued repeatedly by the helicopter such that the rate of movement and distance travelled exceeds the limitation set by the Lead COR/COR/PI. Abandoning the pursuit or alternative capture methods may be considered by the Lead COR/COR/PI in these cases. (major)

4. When WH&Bs are herded through a fence line en route to the trap, the Lead COR/COR/PI must be notified by the contractor. The Lead COR/COR/PI must determine the appropriate width of the opening that the fence is let down to allow for safe passage through the opening. The Lead COR/COR/PI must decide if existing fence lines require marking to increase visibility to WH&Bs. (major)

5. The helicopter must not come into physical contact with any WH&B. The physical contact of any WH&B by helicopter must be documented by Lead COR/COR/PI along with the circumstances. (major)

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

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

C. Roping

1. The roping of any WH&B must be approved prior to the procedure by the Lead COR/COR/PI. (major).

2. The roping of any WH&B must be documented by the Lead COR/COR/PI along with the circumstances. WH&Bs may be roped under circumstances which include but are not limited to the following: reunite a mare or jenny and her dependent foal; capture nuisance, injured or sick WH&Bs or those that require euthanasia; environmental reasons such as deep snow or traps that cannot be set up due to location or environmentally sensitive designation; and public and animal safety or legal mandates for removal. (major)

3. Ropers should dally the rope to their saddle horn such that animals can be brought to a stop as slowly as possible and must not tie the rope hard and fast to the saddle so as to intentionally jerk animals off their feet. (major)

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

5. WH&Bs that are roped and tied down in recumbency must be untied within 30 minutes. (major)

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

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

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

9. Animals captured by roping must be evaluated by the on-site/on-call veterinarian within four hours after capture, marked for identification at the trap site, and be re-evaluated periodically as deemed necessary by the on-site/on-call veterinarian. (major)

D. Bait Trapping

1. WH&Bs may be lured into a temporary trap using bait (feed, mineral supplement, water) or sexual attractants (mares/jennies in heat) with the following requirements:

a. The period of time water sources other than in the trap site are inaccessible must not adversely affect the wellbeing of WH&Bs, wildlife or livestock, as determined by the Lead COR/COR/PI. (major)

b. Unattended traps must not be left unobserved for more than 12 hours. (major)

c. Mares/jennies and their dependent foals must not be separated unless for safe transport. (major)

d. WH&Bs held for more than 12 hours must be provided with accessible clean water at a minimum rate of ten gallons per 1000-pound animal per day, adjusted accordingly for larger or smaller horses, burros and foals and environmental conditions. (major)

e. WH&Bs held for more than 12 hours must be provided good quality hay at a minimum rate of 20 pounds per 1000-pound adult animal per day, adjusted accordingly for larger or smaller horses, burros, and foals. (major)

1) Hay must not contain poisonous weeds, debris, or toxic substances. (major)

2) Hay placement must allow all WH&Bs to eat simultaneously. (major)

III. WILD HORSE AND BURRO CARE

A. Veterinarian

1. On-site veterinary support must be provided for all helicopter gathers and on-site or on-call support must be provided for bait trapping. (major)

2. Veterinary support must be under the direction of the Lead COR/COR/PI. The on-site/on-call veterinarian will provide consultation on matters related to WH&B health, handling, welfare, and euthanasia at the request of the Lead COR/COR/PI. All decisions regarding medical treatment or euthanasia will be made by the on-site Lead COR/COR/PI. (major)

B. Care

1. Feeding and Watering

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

b. Water must be provided at a minimum rate of ten gallons per 1000 pound animal per day, adjusted accordingly for larger or smaller horses, burros and foals, and environmental conditions, with each trough placed in a separate location of the pen (i.e., troughs at opposite ends of the pen). (major)

c. Good quality hay must be fed at a minimum rate of 20 pounds per 1000-pound adult animal per day, adjusted accordingly for larger or smaller horses, burros, and foals. (major)

i. Hay must not contain poisonous weeds or toxic substances. (major)

ii. Hay placement must allow all WH&Bs to eat simultaneously. (major)

d. When water or feed deprivation conditions exist on the range prior to the gather, the Lead COR/COR/PI should adjust the watering and feeding arrangements in consultation with the onsite veterinarian as necessary to provide for the needs of the animals. (minor)

2. Dust abatement

a. Dust abatement by spraying the ground with water must be employed when necessary at the trap site and temporary holding facility. (major)

3. Trap Site

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

4. Temporary Holding Facility

a. All WH&Bs in confinement must be observed at least once daily to identify sick or injured WH&Bs and ensure adequate food and water. (major)

b. Foals must be reunited with their mares/jennies at the temporary holding facility within four hours of capture unless the Lead COR/COR/PI authorizes a longer time or foals are old enough to be weaned during the gather. (major)

c. Non-ambulatory WH&Bs must be located in a pen separate from the general population and must be examined by the BLM horse specialist and/or on-call or on-site veterinarian as soon as possible, no more than four hours after recumbency is observed. Unless otherwise directed by a veterinarian, hay and water must be accessible to an animal within six hours after recumbency. (major)

d. Alternate pens must be made available for the following: (major)

1) WH&Bs that are weak or debilitated

2) Mares/jennies with dependent foals

e. Aggressive WH&Bs causing serious injury to other animals should be identified and relocated into alternate pens when possible. (minor)

f. WH&Bs in pens at the temporary holding facility should be maintained at a proper stocking density such that when at rest all WH&Bs occupy no more than half the pen area. (minor)

C. Biosecurity

1. Health records for all saddle and pilot horses used on WH&B gathers must be provided to the Lead COR/COR/PI prior to joining a gather, including: (major)

a. Certificate of Veterinary Inspection (Health Certificate, within 30 days).

b. Proof of:

1) A negative test for equine infectious anemia (Coggins or EIA ELISA test) within 12 months.

2) Vaccination for tetanus, eastern and western equine encephalomyelitis, West Nile virus, equine herpes virus, influenza, Streptococcus equi, and rabies within 12 months.

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

3. WH&Bs, saddle horses, and pilot horses showing signs of infectious disease must be examined by the on-site/on-call veterinarian. (major)

a. Any saddle or pilot horses showing signs of infectious disease (fever, nasal discharge, or illness) must be removed from service and isolated from other animals on the gather until such time as the horse is free from signs of infectious disease and approved by the on-site/on-call veterinarian to return to the gather. (major)

b. Groups of WH&Bs showing signs of infectious disease should not be mixed with groups of healthy WH&Bs at the temporary holding facility, or during transport. (minor)

4. Horses not involved with gather operations should remain at least 300 yards from WH&Bs, saddle horses, and pilot horses being actively used on a gather. (minor)

IV. HANDLING

A. Willful Acts of Abuse

1. Hitting, kicking, striking, or beating any WH&B in an abusive manner is prohibited. (major)

2. Dragging a recumbent WH&B without a sled, slide board or slip sheet is prohibited. Ropes used for moving the recumbent animal must be attached to the sled, slide board or slip sheet unless being loaded as specified in Section II. C. 8. (major)

3. There should be no deliberate driving of WH&Bs into other animals, closed gates, panels, or other equipment. (minor)

4. There should be no deliberate slamming of gates and doors on WH&Bs. (minor)

5. There should be no excessive noise (e.g., constant yelling) or sudden activity causing WH&Bs to become unnecessarily flighty, disturbed or agitated. (minor)

B. General Handling

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

2. WH&Bs should be handled to enter runways or chutes in a forward direction. (minor)

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

4. Equipment except for helicopters should be operated and located in a manner to minimize flighty behavior. (minor)

C. Handling Aids

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

2. Electric prods must not be used routinely as a driving aid or handling tool. Electric prods may be used in limited circumstances only if the following guidelines are followed:

a. Electric prods must only be a commercially available make and model that uses DC battery power and batteries should be fully charged at all times. (major)

b. The electric prod device must never be disguised or concealed. (major)

c. Electric prods must only be used after three attempts using other handling aids (flag, shaker paddle, voice, or body position) have been tried unsuccessfully to move the WH&Bs. (major)

d. Electric prods must only be picked up when intended to deliver a stimulus; these devices must not be constantly carried by the handlers. (major)

e. Space in front of an animal must be available to move the WH&B forward prior to application of the electric prod. (major)

f. Electric prods must never be applied to the face, genitals, anus, or underside of the tail of a WH&B. (major)

g. Electric prods must not be applied to any one WH&B more than three times during a procedure (e.g., sorting, loading) except in extreme cases with approval of the Lead COR/COR/PI. Each exception must be approved at the time by the Lead COR/COR/PI. (major)

h. Any electric prod use that may be necessary must be documented daily by the Lead COR/COR/PI including time of day, circumstances, handler, location (trap site or temporary holding facility), and any injuries (to WH&B or human). (major)

V. TRANSPORTATION

A. General

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

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

a. Shipping delays for animals that are being held for release to range or potential on-site adoption must be approved by the Lead COR/COR/PI. (major)

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

4. Planned

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

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

B. Vehicles

1. Straight-deck trailers and stock trailers must be used for transporting WH&Bs. (major)

a. Two-tiered or double deck trailers are prohibited. (major)

b. Transport vehicles for WH&Bs must have a covered roof or overhead bars containing them such that WH&Bs cannot escape. (major)

2. WH&Bs must have adequate headroom during loading and unloading and must be able to maintain a normal posture with all four feet on the floor during transport without contacting the roof or overhead bars. (major)

3. The width and height of all gates and doors must allow WH&Bs to move through freely. (major)

4. All gates and doors must open and close easily and be able to be secured in a closed position. (major)

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

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

7. Transport vehicles more than 18 feet and less than 40 feet in length must have a minimum of one partition gate providing two compartments; transport vehicles 40 feet or longer must have at least two partition gates to provide a minimum of three compartments. (major)

8. All partitions and panels inside of trailers must be free of sharp edges or holes that could cause injury to WH&Bs. (major)

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

10. Partition gates in transport vehicles should be used to distribute the load into compartments during travel. (minor)

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

C. Care of WH&Bs during Transport Procedures

1. WH&Bs that are loaded and transported from the temporary holding facility to the BLM preparation facility must be fit to endure travel. (major)

a. WH&Bs that are non-ambulatory, blind in both eyes, or severely injured must not be loaded and shipped unless it is to receive immediate veterinary care or euthanasia. (major)

b. WH&Bs that are weak or debilitated must not be transported without approval of the Lead COR/COR/PI in consultation with the on-site veterinarian. Appropriate actions for their care during transport must be taken according to direction of the Lead COR/COR/PI. (major)

2. WH&Bs should be sorted prior to transport to ensure compatibility and minimize aggressive behavior that may cause injury. (minor)

3. Trailers must be loaded using the minimum space allowance in all compartments as follows: (major)

a. 12 square feet per adult horse.

b. 6.0 square feet per dependent horse foal.

c. 8.0 square feet per adult burro.

d. 4.0 square feet per dependent burro foal.

4. The Lead COR/COR/PI in consultation with the receiving Facility Manager must document any WH&B that is recumbent or dead upon arrival at the destination. (major)

a. Non-ambulatory or recumbent WH&Bs must be evaluated on the trailer and either euthanized or removed from the trailers using a sled, slide board or slip sheet. (major)

5. Saddle horses must not be transported in the same compartment with WH&Bs. (major)

VI. EUTHANASIA OR DEATH

A. Euthanasia Procedure during Gather Operations

1. An authorized, properly trained, and experienced person as well as a firearm appropriate for the circumstances must be available at all times during gather operations. When the travel time between the trap site and temporary holding facility exceeds one hour or if radio or cellular communication is not reliable, provisions for euthanasia must be in place at both the trap site and temporary holding facility during the gather operation. (major)

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

3. The decision to euthanize and method of euthanasia must be directed by the Authorized Officer or their Authorized Representative(s) that include but are not limited to the Lead COR/COR/PI who must be on site and may consult with the on-site/on-call veterinarian. (major)

4. Photos needed to document an animal's condition should be taken prior to the animal being euthanized. No photos of animals that have been euthanized should be taken. An exception is when a veterinarian or the Lead COR/COR/PI may want to document certain findings discovered during a postmortem examination or necropsy. (minor)

5. Any WH&B that dies or is euthanized must be documented by the Lead COR/COR/PI including time of day, circumstances, euthanasia method, location, a description of the age, gender, and color of the animal and the reason the animal was euthanized. (major)

6. The on-site/on-call veterinarian should review the history and conduct a postmortem physical examination of any WH&B that dies or is euthanized during the gather operation. A necropsy should be performed whenever feasible if the cause of death is unknown. (minor)

B. Carcass Disposal

1. The Lead COR/COR/PI must ensure that appropriate equipment is available for the timely disposal of carcasses when necessary on the range, at the trap site, and temporary holding facility. (major)

2. Disposal of carcasses must be in accordance with state and local laws. (major)

3. WH&Bs euthanized with a barbiturate euthanasia agent must be buried or otherwise disposed of properly. (major)

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

CAWP

REQUIRED DOCUMENTATION AND RESPONSIBILITIES OF LEAD COR/COR/PI

Required Documentation

Section Documentation

II.B.5 Helicopter contact with any WH&B.

II.C.2 Roping of any WH&B.

III.B.3.a and III.B.4.b

III.C.1 Reason for allowing longer than four hours to reunite foals with mares/jennies. Does not apply if foals are being weaned.

Health status of all saddle and pilot horses.

IV.C.2.h All uses of electric prod.

V.C.4 Any WH&B that is recumbent or dead upon arrival at destination following transport.

VI.A.5 Any WH&B that dies or is euthanized during gather operation.

Responsibilities

Section Responsibility

I.A.10 Approve materials used in construction of finger gates in bait trapping

II.A.1 Direct gather procedures using approved gather technique.

II.B. 2 Determine rate of movement and distance limitations for WH&B helicopter gather.

II.B.2.a Direct appropriate gather/handling methods for weak or debilitated WH&B.

II.B.3 Determine whether to abandon pursuit or use other capture method in order to avoid repeated pursuit of WH&B.

II.B.4 Determine width and need for visibility marking when using opening in fence en route to trap.

II.B.6 Determine number of attempts that can be made to capture the missing half of a mare/foal pair that has become separated.

II.B.7 Determine whether to proceed with gather when ambient temperature is outside the range of 10°F to 95°F for horses or 10°F to 100°F for burros.

II.C.1 Approve roping of any WH&B.

II.D.1.a Determine period of time that water outside a bait trap is inaccessible such that wellbeing of WH&Bs, wildlife, or livestock is not adversely affected.

III.A.2 Direct and consult with on-site/on-call veterinarian on any matters related to WH&B health, handling, welfare, and euthanasia.

III.B.1.e Adjust feed/water as necessary, in consultation with onsite/on call veterinarian, to provide for needs of animals when water or feed deprivation conditions exist on range.

III.B.4.c Determine provision of water and hay to non-ambulatory animals.

IV.C.2.g Approve use of electric prod more than three times, for exceptional cases only.

V.A.1 Approve sorting, loading, or unloading at night with use of supplemental light.

V.A.2.a Approve shipping delays of greater than 48 hours from temporary holding facility to BLM facility.

V.C.1.b Approve of transport and care during transport for weak or debilitated WH&B.

VI.A.3 Direct decision regarding euthanasia and method of euthanasia for any WH&B; may consult with on-site/on-call veterinarian.

VI.B.1 Ensure that appropriate equipment is available for carcass disposal.

APPENDIX D: Additional Design features

NATIONAL SELECTIVE REMOVAL POLICY

- Gather operations will be conducted in accordance with the Comprehensive Animal Welfare Program for Wild Horse and Burro Gathers (CAWP) described in Appendix C and/or the National Wild Horse Gather Contract as adjusted or amended through the National and State wild horse and burro program direction.
- When gather objectives require gather efficiencies of 50-80% or more of the animals to be captured from multiple gather sites (traps) within the HMA, the helicopter drive method and helicopter assisted roping from horseback will be the primary gather methods used. Post- gather, every effort will be made to return released animals (if any) to the same general area from which they were gathered.
- Bait and/or water trapping may be used provided the gather operations timeframe is consistent with current animal and resource conditions. Bait and/or water trapping may also be selected as the primary method to maintain the population within AML and other special circumstances as appropriate.
- An Animal and Plant Inspection Service (APHIS) or other licensed veterinarian may be on-site during gathers, as needed, to examine animals and make recommendations to BLM for care and treatment of wild horses and burros. Decisions to humanely euthanize animals in field situations will be made in conformance with BLM policy.
- Data including sex and age distribution, reproduction, survival, 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 in accordance with current guidance (IM # 2009-062), to determine whether BLMs management is maintaining acceptable genetic diversity (avoiding inbreeding depression).

DATA COLLECTION

Wild burro herd data which may be collected includes data to determine population characteristics (age/sex/color/etc.), assess herd health (pregnancy/parasite loading/physical condition/etc.) and determine herd history and genetic monitoring (hair follicle sampling) (IM # 2009-062).

Wild Horse and Burro Specialists would be responsible for collecting population data. Data collected during the gather and adoption preparation operations may be used to determine which individual wild burros would be selected for return to the HMA and would aid in future analysis in Herd Management Area Plans. The extent to which data is collected would vary to meet specific needs pertaining to the HMA. The following data may be collected:

1. Collecting Blood and Hair Samples:
Unless there is a previously recognized concern regarding low genetic diversity in a particular herd, it is not necessary to collect genetic samples at every gather. Typical herds should be sampled every ten to 15 years (BLM H-4700-1 2010). The Sinbad HMA is due to have genetic information collected.

Hair follicle samples would be collected for genetic monitoring, and analyzed to compare with established genetic baseline data (genetic diversity, historical origins, and checking for any unique markers). The samples would be collected from the animals released back into the HMAs and from some of the animals removed from the HMA.

Minimum sample size is 25 animals or 25% of the post-gather populations, not to exceed 100 animals per HMA or separate breeding population. A sample is defined as 30 hairs with roots (about the diameter of a pencil). Hair samples would be taken from both Jennies and Jacks. Age would not be a defining factor in determining which animals to sample, but sampled individuals would not include mothers and foals, because that could falsely inflate estimates of inbreeding coefficient.

Analysis would be based on 12 microsatellite DNA markers. The data would be compared to similar data from both domestic and other wild burro populations. The primary value of this data is to compare it to baseline samples to identify any loss in genetic diversity (in terms of observed heterozygosity). A sample of DNA would be preserved for each burro tested. Samples are currently sent to Dr. Gus Cothran at the College of Veterinary Medicine at Texas A&M University for analysis. BLM qualified personnel would collect the hair samples.

Hair follicle samples may be taken for the purposes of additional genetic studies and incorporation of such results into the Herd Management Area Plans (HMAPs).

SOPs for genetic sample collection are as follows:
The BLM has been collecting genetic health information about its wild horse and burro populations since the early 1990's. As of 2009, approximately 75% of the 177 HMAs that BLM administers have been tested and many have been retested. Based on this data, inbreeding is apparently rare in wild horse populations. Most wild horse herds that have been sampled exhibit moderate levels of genetic heterozygosity. Based on this analysis, approximately 12.5% of the herds tested have heterozygosity levels (observed heterozygosity (Ho)) below the assumed critical level of .310. These are herds that could begin to show inbreeding effects. Approximately 15% of the herds tested are within just 2% heterozygosity (.330) of the critical level. A population that is maintained at less than 100-120 adult animals may begin to lose variation fairly quickly. The herds that are just above the critical threshold level could drop very quickly. Only a very small number (approximately 5) of the 199 HMAs have exhibited characteristics possibly attributable to inbreeding, such as cataract blindness, dwarfism, parrot-mouth, or club-foot deformities. Thus, there does not appear to be any immediate cause for concern about inbreeding depression in wild horse herds.

The Wild Free-Roaming Horses and Burros Act requires that horses and burros on public lands be managed in a manner that achieves and maintains thriving ecological balance. Maintenance of such a balance frequently requires that wild horse populations be kept small. When population size is too small, it will inevitably lead to decreased genetic variation and possible inbreeding. However, it is possible to manage small populations in a manner that will minimize the loss of variation and inbreeding and if necessary, counteract the loss. The first step in this process is an assessment of the current genetic status of the population that will be followed by periodic monitoring assessments.

Genetic marker analysis can provide information about both the past and the future of a population. Because gene markers are passed from one generation to the next, they can tell us something about the ancestry of a population. Also, because demographics can affect the distribution of genetic markers within a population, these markers can often be used to interpret past populational characteristics. In the same way, current demographic conditions can be used to make predictions about the future level of variability of gene markers.

Prior to 2006, blood samples from wild horses and burros were collected during gather operations and analyzed by Dr. Gus Cothran (University of Kentucky) for establishing baseline genetic data. With Dr. Cothran's move to Texas A&M University, this analysis is now being done using hair samples. A new baseline does not need to be established through hair analysis if blood analysis has already been completed. Unless there is a previously recognized concern regarding low genetic diversity in a particular herd, it is not necessary to collect genetic information at every gather. Typical herds should be sampled every ten to 15 years (two to three gather cycles). Following processing, a sample of DNA will be preserved (frozen) for each horse tested. A report on the analysis of the population will be provided by Dr. Cothran. Reports are to be kept on file at local Field Offices and also at the National Program Office. Attachment 1 contains the instructions for collecting, handling, and shipping of the hair samples.

While it is preferred to collect the hair samples from horses or burros that are released back to the herd management area (HMA), samples may also be collected from removed horses if necessary. In complexes or HMAs where separate breeding populations are thought to exist, each group of animals in a distinct population should be sampled separately. Do not mix samples from different horses or different breeding populations. Mixing samples from non-interbreeding herds can give misleading estimates of genetic variation. Minimum sample size is 25 animals or 25% of the post-gather population, not to exceed 100 animals per HMA or separate breeding population. Samples should be collected from males and females in the same approximate ratio as the population. Animals of any age class may be sampled. Burros should be sampled in the same manner as horses.

The data will be compared to similar data from both domestic and other wild horse/burro populations. The primary value of this initial data is a baseline against which future samples can be compared to identify genetic drift and any narrowing of diversity through inbreeding. In the short term, diversity can be determined, herds may be separated or combined for management based on the data, rare alleles identified and a determination of founders (historical origin of herd).

GENETICS DATA COLLECTION INSTRUCTIONS

Analysis of DNA to determine genetic diversity of wild horse and burro (WH&B) herds is now being done using hair samples rather than blood samples. Unless there is a previously recognized concern regarding low genetic diversity in a particular herd, it is not necessary to collect genetic information at every gather. Typical herds should be sampled every 10-15 years. A new baseline does not need to be established through hair analysis if blood analysis has already been completed. Please follow the instructions below for collecting the hair samples and call Alan Shepherd, WH&B Research Coordinator, if you have any questions.

While it is preferred to sample release horses you may also sample removed horses if necessary. In complexes or HMAs where separate breeding populations are thought to exist, each group of animals in a distinct population should be sampled separately. Do not mix samples from different horses or different breeding populations. Minimum sample size is 25 animals or 25% of the post-gather population, not to exceed 100 animals per population. Samples should be collected from males and females in the same

approximate ratio as the population. Animals of any age class may be sampled. Burros should be sampled in the same manner as horses.

1. You will need one plain white paper envelope, a white #10 business envelope works best, for each horse. Do NOT routinely use plastic or zip-lock bags; do NOT use plastic coated envelopes or envelopes with windows in them.

2. Hair samples must be obtained by pulling the hair NOT cutting or shaving it off the horse. The DNA is in the root follicle not the hair itself. Mane hair will work, but on foals or young horses you may need to obtain tail hair. Please submit about 30 hairs per animal. A bundle of 30 hairs is about the diameter of a pencil.

   The easiest way to pull a good sample is to grasp a bundle of hair and wrap it around a clean mane comb or hoof pick. Holding the bundle close to the neck, pull *straight out* firmly. Foal hair is more brittle and tends to break off. If you are having trouble getting hair with the root attached, try obtaining a tail hair sample instead.

3. Check that you have the hair roots or hair bulbs attached to the hair at the base. They feel like little bumps on the end of each hair.

4. Keep the hair in a loose bundle pointed in one direction or twist it together and place it in an envelope. You can cut off excess hair and leave only a few inches with the hair root attached to put in the envelop if that is easier.

5. Seal the envelope and *write the sample number on the envelope*. Write the sample number along with the horse's color, sex, and age on the data collection sheet. If animals cannot be aged in years, at least record adult, yearling, or foal.

Keep stray hairs out of the comb and off your clothes so they don't contaminate the next sample.

Please NOTE: It is best to sample when the hair is dry. If you need to sample when it is raining or the horses are wet, then DO use zip-lock bags for each sample AND keep the samples cool not frozen (refrigerate then shipped with cold packs) until they arrive at the lab.

2. Herd Health and Viability Data Collection
   Data related to age, sex, color, overall health, pregnancy, or nursing status would be collected from each animal captured. The sex and age of each release animal gathered would be recorded during sorting procedures at the gather holding facility and/or at the preparation facility. An estimate of the number, sex and age of horses evading capture would also be recorded.

Information on reproduction and survival would be collected to the extent possible, through documentation of the wild burros captured during the gather, and the age of those released following the gather. In addition, blood or hair samples may be collected from individuals within the herd for health records and/or viability data collection.

3. Characteristics:
   Color and size of the animals would be recorded. Any characteristics as to type (or similarities to domestic breeds) would be noted if determined. The genetic analysis provided as a result of genetic monitoring would provide a comparison of domestic breeds with the wild burros sampled. Any incidence of negative genetic traits (parrot mouth, club feet etc.) or other abnormalities observed by BLM staff would be noted as well. A representative population of wild burros would be selected for release.

4. Condition Class:
   A body condition class score would be recorded based on the Henneke System.

5. Other Data:
   Other data such as temperament may be collected as determined by the Authorized Officer or Wild Horse Specialist.

TEMPORARY HOLDING FACILITIES DURING GATHERS

Wild burros gathered would be transported from the trap sites to a temporary holding corral near the HMA in goose-neck trailers or straight-deck semi-tractor trailers. At the temporary holding corral, the wild burros will be aged and sorted into different pens based on sex. The horses would be provided an ample supply of good quality hay and water. Jennies and their un-weaned foals would be kept in pens together. All burros identified for retention in the HMA would be penned separately from those animals identified for removal as excess.

At the temporary holding facility, a veterinarian, when present, 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, SHORT TERM HOLDING, AND ADOPTION PREPARATION

Wild burros removed from the range as excess would be transported to the receiving 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 could be safely transported. Wild burros would be segregated by age and sex when possible and loaded into separate compartments. Jennies and their un-weaned foals may be shipped together depending on age and size of foals. Jennies and un-weaned foals would not be separated for longer than 12 hours. Transportation of recently captured wild burros would be limited to a maximum of 10 hours.

Upon arrival, recently captured wild burros would be off-loaded by compartment and placed in holding pens where they would be fed 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 short-term holding facility, a veterinarian

would provide 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) 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 horses and 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. At short-term corral facilities, a minimum of 700 square feet is provided per animal.

After recently captured wild horses and 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, castration, and de-worming.

PUBLIC PARTICIPATION

Prior to conducting a gather, a communication plan or similar document summarizing the procedures to follow when media or interested public request information or viewing opportunities during the gather should be prepared.

The public must adhere to guidance from the agency representative and viewing must be prearranged.

SAFETY

Safety of BLM employees, contractors, members of the public, and the wild horses and burros will be given primary consideration. The following safety measures will be used by the Authorized Officer and all others involved in the operation as the basis for evaluating safety performance and for safety discussions during the daily briefings:

A briefing between all parties involved in the gather will be conducted each morning.

All BLM personnel, contractors and volunteers will wear protective clothing suitable for work of this nature. BLM will alert observers of the requirement to dress properly (see Wild Horse and Burro Operational Hazards, BLM file 4720, UT-067). BLM will assure that members of the public are in safe observation areas. Observation protocols and ground rules will be developed for the public and will be enforced to keep both public and BLM personnel in a safe environment.

The handling of hazardous, or potentially hazardous materials such as liquid nitrogen and vaccination needles will be accomplished in a safe and conscientious manner by BLM personnel or the contract veterinarian.

RESPONSIBILITY AND LINES OF COMMUNICATION

The local WH&B Specialist / Project Manager from the PFO, have the direct responsibility to ensure/make sure that Instruction Memorandum # 2013-060 Wild Horse and Burro Gather: Management by Incident Command System is followed.

Gather Research Coordinator (GCR) from the PFO, will have the direct responsibility to ensure compliance with all data collection and sampling. The GCR will also ensure appropriate communication with Field Office Manager, WO260 National Research Coordinator, College of Veterinary Medicine at Texas A&M University, and Animal Plant Health Inspection Service (APHIS).

The PFO Assistant Manager will take an active role to ensure the appropriate lines of communication are established between the field, Field Office, State Office, and Delta Wild Horse Corrals.

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

APPENDIX E: SOPS FOR FERTILITY CONTROL VACCINES

Standard Operating Procedures for PZP Vaccine Treatments; One-Year Liquid Vaccine

The following implementation and monitoring requirements are part of the Proposed Action:

1. Fertility vaccine would be administered through darting by trained BLM personnel or collaborating partners only. For any darting operation, the designated personnel must have successfully completed a nationally recognized wildlife darting course and who have documented and successful experience darting wildlife under field conditions.
2. All jennies targeted for treatment will be clearly identifiable through photographs to enable darters and HMA managers to positively identify the animals during the project and at the time of removal during subsequent gathers. This will be accomplished by marking each individual with a freeze mark on the hip. Additionally, ear tags may be placed in an ear to assist in positively identifying individuals when they are long haired.
3. Only designated darters would prepare the emulsion. Vaccine-adjuvant emulsion would be loaded into darts at the darting site and delivered by means of a projector gun. Designated darters will follow safety guidance on EPA labeling for all adjuvants.
4. Delivery of the vaccine would be by intramuscular injection into the left or right hip/gluteal muscles while the jenny is standing still.
5. Safety for both humans and the burro is the foremost consideration in deciding to dart a jenny. The Dan Inject® gun would not be used at ranges in excess of 30 m while the Pneu-Dart® gun would not be used over 50 m, and no attempt would be taken when other persons are within a 30-m radius of the target animal.
6. No attempts would be taken in high wind (greater than 15 mph) or when the animal is standing at an angle where the dart could miss the hip/gluteal region and hit the rib cage. The ideal is when the dart would strike the skin of the horse at a perfect 90° angle.
7. If a loaded dart is not used within two hours of the time of loading, the contents would be transferred to a new dart before attempting another horse. If the dart is not used before the end of the day, it would be stored under refrigeration and the contents transferred to another dart the next day. Refrigerated darts would not be used in the field.
8. No more than two people should be present at the time of a darting. The second person is responsible for locating fired darts. The second person should also be responsible for identifying the horse and keeping onlookers at a safe distance.
9. To the extent possible, all darting would be carried out in a discrete manner. However, if darting is to be done within view of non-participants or members of the public, an explanation of the nature of the project would be carried out either immediately before or after the darting.
10. Attempts will be made to recover all darts. To the extent possible, all darts which are discharged and drop from the burro at the darting site would be recovered before another darting occurs. In exceptional situations, the site of a lost dart may be noted and marked, and recovery efforts made at a later time. All discharged darts would be examined after recovery in order to determine if the charge fired and the plunger fully expelled the vaccine. Personnel

conducting darting operations should be equipped with a two-way radio or cell phone to provide a communications link with the Project Veterinarian for advice and/or assistance. In the event of a veterinary emergency, darting personnel would immediately contact the Project Veterinarian, providing all available information concerning the nature and location of the incident.

11. In the event that a dart strikes a bone or imbeds in soft tissue and does not dislodge, the darter would follow the affected horse until the dart falls out or the horse can no longer be found. The darter would be responsible for daily observation of the horse until the situation is resolved.

Monitoring and Tracking of Treatments

1. At a minimum, estimation of population growth rates using helicopter or fixed-wing surveys will be conducted before any subsequent gather. During these surveys it is not necessary to identify which foals were born to which jennies; only an estimate of population growth is needed (i.e. # of foals to # of adults).
2. Population growth rates of herds selected for intensive monitoring will be estimated every year post-treatment using helicopter or fixed-wing surveys. During these surveys it is not necessary to identify which foals were born to which jennies, only an estimate of population growth is needed (i.e. # of foals to # of adults). If, during routine HMA field monitoring (on-the-ground), data describing jenny to foal ratios can be collected, these data should also be shared with the NPO for possible analysis by the USGS.
3. An Application Data sheet will be used by field applicators to record all pertinent data relating to identification of the jenny (including photographs if jennies are not freeze-marked) and date of treatment. Each applicator will submit an Application Report and accompanying narrative and data sheets will be forwarded to the NPO (Reno, Nevada). A copy of the form and data sheets and any photos taken will be maintained at the field office.

Standard Operating Procedures for GonaCon Vaccine Treatments

Administering the GonaCon Vaccine by Hand-Injection

1. For initial and booster treatments, mares would ideally receive 2.0 ml of GonaCon-Equine. However, experience has demonstrated that only 1.8 ml of vaccine can typically be loaded into 2 cc darts, and this dose has proven successful. Calculations below reflect a 1.8 ml dose.
2. With each injection, the vaccine should be injected into the left or right hind quarters of the mare, above the imaginary line that connects the point of the hip (hook bone) and the point of the buttocks (pin bone).
3. Darts should be weighed to the nearest hundredth gram by electronic scale when empty, when loaded with vaccine, and after discharge, to ensure that 90% (1.62 ml) of the vaccine has been injected. Animals receiving <50% should be darted with another full dose; those receiving >50% but <90% should receive a half dose (1 ml). All darts should be weighed to verify a combination of ≥1.62 ml has been administered. Therefore, every effort should be made to recover darts after they have fallen from animals.

4. A booster vaccine may be administered 90 or more days after the first injection to improve efficacy of the product over subsequent years.
5. Free ranging animals may be photographed using a telephoto lens and high-quality digital receiver as a record of treated individuals, and the injection site can be recorded on data sheets to facilitate identification by animal markings and potential injection scars.
6. A tracking system would be maintained by NPO detailing the lot number(s) of the vaccine, quantity of vaccine issued, the quantity used, the date of vaccination, disposition of any unused vaccine, the date disposed, the number of treated mares by HMA, field office, and State along with the freeze-mark(s) applied by HMA and date.

Preparation of Darts for GonaCon Vaccine Remote Delivery:

1. The vaccine is distributed as preloaded doses (2 mL) in labeled syringes. Upon receipt, the vaccine should be kept refrigerated (4° C) until use. Do not freeze. The vaccine has a 6-month shelf-life from the time of production and the expiration date will be noted on each syringe that is provided. Important: label instructions must be followed for this product.
2. Although infrequent, dart injections can result in partial injections of the vaccine, and shots are missed. As a precaution, it is recommended that extra doses of the vaccine be ordered to accommodate failed delivery (~15 %). To determine the amount of vaccine delivered, the dart must be weighed before loading, and before and after delivery in the field.
3. For best results, darts with a gel barb should be used. (i.e. 2 cc Pneu-Dart brand darts configured with Slow-inject technology, 3.81 cm long 14 ga.tri-port needles, and gel collars positioned 1.27 cm ahead of the ferrule)
4. Wearing latex gloves, darts are numbered and filled with vaccine by attaching a loading needle (7.62 cm; provided by dart manufacturer) to the syringe containing vaccine and placing the needle into the cannula of the dart to the fullest depth possible. Slowly depress the syringe plunger and begin filling the dart. Periodically, tap the dart on a hard surface to dislodge air bubbles trapped within the vaccine. Due to the viscous nature of the fluid, air entrapment typically results in a maximum of approximately 1.8 ml of vaccine being loaded in the dart. The dart is filled to max once a small amount of the vaccine can be seen at the tri-ports.
5. Important! Do not load and refrigerate darts the night before application. When exposed to moisture and condensation, the edges of gel barbs soften, begin to dissolve, and will not hold the dart in the muscle tissue long enough for full injection of the vaccine. The dart needs to remain in the muscle tissue for a minimum of 1 minute to achieve dependable full injection. Sharp gel barbs are critical.
6. Darts (configured specifically as described above) can be loaded in the field and stored in a cooler prior to application. Darts loaded, but not used can be maintained in a cooler at about 4° C and used the next day, but do not store in a refrigerator or any other container likely to cause condensation.

APPENDIX F: PZP VACCINE MIXING PROCEDURES

PZP Mixing Vaccine and Adjuvant

Equipment Needed

2 5.0 cc glass syringes

1.5 inch needle

vial of adjuvant

vial of PZP

Luer-Lok connector

1.0 cc C-type or P-type Pneu-Dart dart with 1.5 inch barbless needle

Procedures

1. Place the 1.5 inch needle on a glass syringe
2. Draw out 0.5 cc of adjuvant
3. Using the same syringe, draw up the 0.5 cc of PZP
4. Holding the syringe very carefully (because the plunger can slip out), take off the needle and attach the syringe to the second syringe using the Luer-Lok connector (have the Luer-lok connector already attached to the second syringe).
5. Push the PZP-adjuvant mixture back and forth through the two syringes 100 times. The resulting emulsion will become thick and look white. **THIS PROCEDURE IS VERY IMPORTANT AND IS RELATED TO THE PRESENTATION OF THE ANTIGEN AND THE SUBSEQUENT EFFICACY OF THE VACCINE.**
6. Make sure all the emulsion is in one syringe.
7. Holding the first syringe very carefully (the one with the emulsion), remove the second syringe, leaving the Luer-Lock on the first syringe.

If you are loading a 2.0 or 3.0 mL plastic syringe for hand-delivery, attach the glass syringe to the plastic syringe and inject the PZP emulsion in to the plastic syringe. It is helpful if you move the plunger of the plastic syringe just a bit before pumping the PZP emulsion into it. After loading the plastic syringe, disconnect the glass syringe and connect an 18g. 1.5 inch needle on the plastic syringe.

APPENDIX G: PZP VACCINE DATA SHEETS

HORSE IMMUNOCONTRACEPTION DATA SHEET

HORSE MANAGEMENT AREA: Sinbad HMA

HORSE IDENTIFICATION NUMBER/NAME: _____

HORSE COLOR: _____

OTHER MARKINGS/BRANDS: _____

Inoculation Dates	PZP Dose (µg)[11]	Adjuvant	Delivery System[12]	Injection Site[13]	Vaccine Lot Number

POST-INOCULATION REPRODUCTIVE HISTORY (Diagnosed pregnancies and/or births)
DESCRIBE ANY:

[11] Standard dose is 100 µg with raw vaccine
[12] Pneu-Dart unless otherwise noted
[13] Left or right hip

1. Drugs administered to this horse concurrent with study (name of drug, dose, date):

2. Post-treatment health problems (with particular reference to injection-site abscesses):

3. Additional remarks:

APPENDIX H: ALTERNATIVES CONSIDERED BUT ELIMINATED

ALTERNATIVES CONSIDERED BUT ELIMINATED

The following alternatives were considered but dismissed from detailed analysis for the reasons described below.

PROVIDE SUPPLEMENTAL FEED AND WATER

Providing supplemental feed (hay) or hauling water (other than during a short-term emergency situation) does not meet the definition of minimum feasible management and is inconsistent with current law, regulation, and policy. Refer to 43 CFR 4710.4.

MANAGE THE ENTIRE POPULATION AS A NON-BREEDING POPULATION OF GELDINGS

One possible management alternative which has been suggested is to manage the Sinbad HMA in its entirety as a non-breeding population of geldings. This alternative is out of conformance with the Price RMP which requires the BLM to manage population for genetic viability. Therefore, it was not analyzed in detail.

RETURN A PORTION OF THE POPULATION AS A NON-BREEDING POPULATION

This alternative would involve capturing, gelding, and returning a portion of the population as a non-breeding population, once the population is brought to low AML. This alternative was not brought forward for detailed analysis because it is inconsistent with the Price RMP, the Sinbad HMAP or the 4700 Handbook. The 4700 Handbook suggests use of sex ratio adjustments and releasing geldings in areas where low AML is greater than 150 head.

CHANGE THE HMA TO HERD AREA STATUS WITH ZERO AML

Another alternative which has been suggested is to change the Sinbad HMA to Herd Area status and establish the AML as “0” animals. HMA vs HA status is a land use planning level decision. Since this EA is not a land use plan amendment, this alternative is outside the scope of this document and was not considered in detail.

REMOVE OR REDUCE LIVESTOCK WITHIN THE HMA

This alternative would involve no removal of wild burros and instead address the excess forage use through the removal or reduction of livestock within the HMA. This alternative was not brought forward for detailed analysis because it is inconsistent with the WFRHBA, which directs

the Secretary to immediately remove excess wild horses and burros. Reducing livestock AUMs to increase AMLs would not achieve a thriving natural ecological balance. Horses and burros are present year-round and their impacts to rangeland resources differ from livestock. Grazing permittees have valid and existing rights under their permit and are legally operating under the terms and conditions of their permit.

In addition, livestock grazing allotment numbers can only be reduced following the process outlined in the regulations found at 43 CFR Part 4100. Further, the elimination of livestock grazing in an area would require an amendment to the Price RMP. Since this EA is not a 43 CFR 4100 project, and is not a land use plan amendment, this alternative is outside the scope of this document and was not considered in detail.

GATHER THE HMA TO THE AML UPPER LIMIT

This alternative would be ineffective (not responsive to the purpose and need) for three reasons.

First, a post-gather population size at the upper level of the AML range would result in the AML being exceeded with the next foaling season. Gathering to the upper range of AML would result in the need to follow up with another gather within one year (with resulting stress on the wild burro population) and could result in overutilization of vegetation resources and damage to the rangeland if the BLM is unable to gather the excess horses in the HMA on an annual basis.

Second, the AML represents "that 'optimum number' of wild horses and burros which results in a thriving natural ecological balance and avoids a deterioration of the range" (Animal Protection Institute, 109 Interior Board of Land Appeals (IBLA) 119; 1989). The IBLA has also held that, "Proper range management dictates removal of horses before the herd size causes damage to the rangeland. Thus, the optimum number of horses is somewhere below the number that would cause resource damage" (Animal Protection Institute, 118 IBLA 63, 75; 1991). The upper level of the AML established within the HMA represents the maximum population for which thriving natural ecological balance would be maintained. The lower level represents the number of animals to remain in the HMA following a wild burro gather in order to allow for a periodic gather cycle, and to prevent the population from exceeding the established AML between gathers.

Third, this alternative would not slow the wild burro population growth rate Sinbad HMA.

FERTILITY CONTROL TREATMENT ONLY INCLUDING USING BAIT/WATER TRAPPING TO DART JENNIES WITH PZP OR OTHER CONTRACEPTIVE VACCINE REMOTELY (NO REMOVAL)

Under this alternative, no excess wild burros would be removed. This alternative would be ineffective (not responsive to the purpose and need) because there would still be an existing burro herd in excess of the AML with the potential for future herd size growth. As such, AML would not be achieved and the damage to the range associated with wild burro overpopulation would continue. Peer reviewed modeling (i.e., Garrott, R. 1991, Feral Horse Fertility Control Potential Limitations. Wildlife Society Bulletin 19.52-58) indicates that if herd management were entirely

reliant on vaccination with fertility control vaccine, stabilizing wild horse and burro herds would require that nearly all females (90% or more) be treated. In the Sinbad HMA it is not logistically feasible to dart such a high frequency of females every year, nor is it realistic or feasible to capture 90% of all females every year to administer a vaccine.

This alternative is also contrary to the WFRHBA, which directs the Secretary to immediately remove excess wild horses and burros.

Note: the use of remote darting to administer PZP or other contraceptive vaccines within HMAs where the horses are not accustomed to human activity has been shown to be technically infeasible. In the Cedar Mountain HMA (located 50 miles west from Salt Lake City, Utah) during a two-year study where administration of PZP by remote darting was to occur, not a single horse was successfully darted. This method has been effective in some HMAs where the wild horses and burros are more approachable, but the Sinbad HMA is not such an area, so this method of administering PZP was dismissed from further study.

BAIT OR WATER TRAP ONLY

The use of bait and water trapping exclusively, though effective in specific areas and circumstances, would not be technically or economically feasible as the primary gather method for this HMA because: (1) the project area is too large to effectively use this gather method – the presence of scattered water sources on state, private and public lands inside the HMA would make it impossible to restrict wild burros access to water to the extent necessary to effectively gather and remove the excess animals; and (2) vehicle access to get equipment in/out of potential trapping locations as well as safely transport gathered wild horses and burros is limited.

WILD BURRO NUMBERS CONTROLLED BY NATURAL MEANS

Using natural controls to achieve a desirable AML is technically infeasible. Wild burros in the Sinbad HMA are not substantially regulated by predators (which includes mountain lions and coyotes. This alternative would result in a steady increase in numbers which would continually exceed the carrying capacity of the range until severe and unusual conditions that occur periodically-- such as blizzards or extreme drought-- cause catastrophic mortality of wild burros. This alternative is contrary to the WFRHBA which requires the BLM to prevent the range from deterioration associated with an overpopulation of wild horses and burros. It is also inconsistent with the Price RMP, which directs that Price Field Office BLM conduct gathers as necessary to achieve and maintain the AML.

GATHER AND RELEASE EXCESS WILD BURROS EVERY TWO YEARS AND APPLY TWO YEAR PZP OR OTHER CONTRACEPTIVE VACCINE TO HORSES FOR RELEASE

An alternative to gather a substantial portion of the existing population (90%) and implement fertility control treatment only every two years, without removal of excess burros is ineffective

(not responsive to the purpose and need) for the same reasons as the fertility control only alternative (above).

Note: this alternative also has technical feasibility issues. The more frequently burros in an area are gathered, the more difficult they are to trap. They learn to evade the helicopter by taking cover in treed areas and canyons. Wild burros may also move out of the area when they hear a helicopter, thereby further reducing the overall gather efficiency.

USE ALTERNATIVE CAPTURE TECHNIQUES INSTEAD OF HELICOPTERS

Through the public review process alternative capture methods (other than helicopters) were requested but no specific alternative methods were suggested. The BLM identified chemical immobilization, net gunning, and wrangler/horseback drive trapping as potential methods for gathering horses. Net gunning techniques normally used to capture big game also rely on helicopters, so would not meet the intent of this suggested alternative. Chemical immobilization is a very specialized technique that is strictly regulated, and currently the BLM does not have expertise to implement this method, so it is technically infeasible. Use of wrangler on horseback drive-trapping to remove excess wild burros is technically and economically infeasible for the same reasons described in the bait trapping only alternative(above). Horseback drive-trapping is also very labor intensive and can be very harmful to the domestic horses and the wranglers used to herd the wild burros.

FIELD DARTING FERTILITY TREATMENT ONLY FOR POPULATION SUPPRESSION

BLM would administer PZP vaccine in the one-year dose inoculations, or GonaCon vaccine, by field darting the jennies. This alternative would be ineffective (not responsive to the purpose and need) for the same reasons as the fertility treatment only alternative (above).

APPENDIX I: LITERATURE REVIEW

FERTILITY CONTROL VACCINES, IUDS, AND WHB EFFECTS ON RANGELANDS

PORCINE ZONA PELLUCIDA (PZP) VACCINE

The immune-contraceptive Porcine Zona Pellucida (PZP) vaccine is currently being used on over 75 areas managed for wild horses by the National Park Service, US Forest Service, and the Bureau of Land Management, and its use is appropriate for free-ranging wild horse herds. Taking into consideration available literature on the subject, the National Research Council concluded in their 2013 report that PZP was one of the preferable available methods for contraception in wild horses and burros (NRC 2013). PZP use can reduce or eliminate the need for gathers and removals (Turner et al. 1997). 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 a population of feral burros in territory of the US (Turner et al. 1996). PZP is 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). ZonaStat can easily be remotely administered in the field in cases where mares are relatively approachable. Although PZP-22 pellets have been delivered via darting in trial studies (Rutberg et al 2017, Carey et al. 2019), BLM does not plan to use darting for PZP-22 delivery until there is more demonstration that PZP-22 can be reliably delivered via dart.

Under the Proposed Action, the 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. 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, mares would return to fertility. Once the population is at AML and population growth seems to be stabilized, BLM could use population planning software (WinEquus II, currently in development by USGS Fort Collins Science Center) to determine the required frequency of re-treating mares with PZP.

PZP DIRECT EFFECTS

When injected as an antigen in vaccines, PZP causes the mare's immune system to produce antibodies that are specific to zona pellucida proteins on the surface of that mare's eggs. The antibodies bind to the mare's eggs surface proteins (Liu et al. 1989), and effectively block sperm binding and fertilization (Zoo Montana, 2000). Because treated mares do not become pregnant but other ovarian functions remain generally unchanged, PZP can cause a mare to continue having regular estrus cycles throughout the breeding season. Research has demonstrated that contraceptive efficacy of an injected PZP vaccine is approximately 90% for mares treated twice in

the first year and boostered annually (Kirkpatrick et al. 1992). Approximately 60% to 85% of mares are successfully contracepted for one year when treated simultaneously with a liquid primer and PZP-22 pellets (Rutberg et al. 2017, Carey et al. 2019). In addition, among mares, PZP contraception appears to be reversible, with most treated mares returning to fertility over time. PZP vaccine application at the capture site does not appear to affect normal development of the fetus or foal, hormone health of the mare or behavioral responses to stallions, should the mare already be pregnant when vaccinated (Kirkpatrick et al. 2002). The vaccine has no apparent effect on pregnancies in progress or the health of offspring (Kirkpatrick and Turner 2003).

The NRC (2013) criterion by which PZP is not a good choice for wild horse contraception was duration. The ZonaStat-H formulation of the vaccine tends to confer only one year of efficacy. Some studies have found that a PZP vaccine in long-lasting pellets (PZP-22) can confer multiple years of contraception (Turner et al. 2007), particularly when boostered with subsequent PZP vaccination (Rutberg et al. 2017). Other trial data, though, indicate that the pelleted vaccine may only be effective for one year (J. Turner, University of Toledo, Personal Communication, w/Paul Griffin).

Following a gather, application of PZP for fertility control would reduce fertility in a large percentage of mares for at least one year (Ransom et al. 2011). Recruitment of foals into the population may be reduced over a three- year period. Gather efficiency would likely not exceed 85% via helicopter, and may be less with bait and water trapping, so there would be a portion of the female population uncaptured that is not treated in any given year. Additionally, some mares may not respond to the fertility control vaccine, but instead will continue to foal normally.

In most cases, PZP contraception appears to be temporary and reversible (Kirkpatrick and Turner 2002, Joonè et al. 2017), does not appear to cause out-of-season births (Kirkpatrick and Turner 2003), and has no ill effects on ovarian function if contraception is not repeated for more than five consecutive years on a given mare. Although the rate of long-term or permanent sterility following repeated vaccinations with PZP has not been quantified, it must be acknowledged that this could be a result for some number of wild horses receiving multiple repeat PZP vaccinations. Even though it is not the intent of PZP treatment, the permanent sterility of a fraction of treated mares is a potential result that would be consistent with the contraceptive purpose of applying the vaccine to wild mares.

Although most treatments with PZP will be reversible, repeated treatment with PZP may lead to long-term infertility (Feh 2012) and, perhaps, direct effects on ovaries (Gray and Cameron 2010). Bechert et al. (2013) found that ovarian function was affected by the SpayVac PZP vaccination, but that there were no effects on other organ systems. Mask et al. (2015) demonstrated that equine antibodies that resulted from SpayVac immunization could bind to oocytes, ZP proteins, follicular tissues, and ovarian tissues, but it is possible that result is specific to SpayVac, which may have lower PZP purity than ZonaStat or PZP-22 (Hall et al. 2016). Joonè et al. (2017) found effects on ovaries after SpayVac PZP vaccination in some treated mares, but normal estrus cycling had resumed 10 months after the last treatment. SpayVac is a patented formulation of PZP in liposomes that can lead to multiple years of infertility (Roelle et al. 2017) but which is not reliably available for BLM to use at this time. Kirkpatrick et al. (1992) noted effects on ovaries after three years of treatment with PZP. Observations at Assateague Island National Seashore indicate that the more

times a mare is consecutively treated, the longer the time lag before fertility returns, but that even mares treated 7 consecutive years did return to ovulation (Kirkpatrick and Turner 2002). Other studies have reported that continued applications of PZP may result in decreased estrogen levels (Kirkpatrick et al. 1992) but that decrease was not biologically significant, as ovulation remained similar between treated and untreated mares (Powell and Monfort 2001). Permanent sterility for mares treated consecutively 5-7 years was observed by Nuñez et al. (2010, 2017). In a graduate thesis, Knight (2014) suggested that repeated treatment with as few as three to four years of PZP treatment may lead to longer-term sterility, and that sterility may result from PZP treatment before puberty.

If a mare is already pregnant, the PZP vaccine has not been shown to affect normal development of the fetus or foal, or the hormonal health of the mare with relation to pregnancy. In mice, Sacco et al. (1981) found that antibodies specific to PZP can pass from mother mouse to pup via the placenta or colostrum, but that did not apparently cause any innate immune response in the offspring: the level of those antibodies were undetectable by 116 days after birth. There was no indication in that study that the fertility or ovarian function of those pups was compromised, nor is BLM aware of any such results in horses or burros.

On-range observations from 20 years of application to wild horses indicate that PZP application in wild mares does not generally cause mares to foal out of season or late in the year (Kirkpatrick and Turner 2003). Nuñez's (2010) research showed that a small number of mares that had previously been treated with PZP foaled later than untreated mares and expressed the concern that this late foaling "may" impact foal survivorship and decrease band stability, or that higher levels of attention from stallions on PZP-treated mares might harm those mares. However, that paper provided no evidence that such impacts on foal survival or mare well-being actually occurred. Rubenstein (1981) called attention to a number of unique ecological features of horse herds on Atlantic barrier islands, which calls into question whether inferences drawn from island herds can be applied to western wild horse herds. Ransom et al. (2013), though, identified a potential shift in reproductive timing as a possible drawback to prolonged treatment with PZP, stating that treated mares foaled on average 31 days later than non-treated mares. Those results, however, showed that over 81% of the documented births in this study were between March 1 and June 21, i.e., within the normal spring season. Ransom et al. (2013) advised that managers should consider carefully before using PZP in small refugia or rare species. Wild horses and burros in Utah do not generally occur in isolated refugia, and they are not a rare species. Moreover, an effect of shifting birth phenology was not observed uniformly: in two of three PZP-treated wild horse populations studied by Ransom et al. (2013), foaling season of treated mares extended three weeks and 3.5 months, respectively, beyond that of untreated mares. In the other population, the treated mares foaled within the same time period as the untreated mares. Moreover, Ransom et al. (2013) found no negative impacts on foal survival even with an extended birthing season.

Mares receiving the vaccine would experience slightly increased stress levels associated with handling while being vaccinated and freeze-marked. Newly captured mares that do not have markings associated with previous fertility control treatments would be marked with a new freeze-mark for the purpose of identifying that mare and identifying her PZP vaccine treatment history. This information would also be used to determine the number of mares captured that were not

previously treated and could provide additional insight regarding gather efficiency.

Most mares recover from the stress of capture and handling quickly once released back to the HMA, and none are expected to suffer serious long-term effects from the fertility control injections, other than the direct consequence of becoming temporarily infertile. Injection site reactions associated with fertility control treatments are possible in treated mares (Roelle and Ransom 2009, Bechert et al. 2013), but swelling or local reactions at the injection site are expected to be minor in nature. Roelle and Ransom (2009) found that the most time-efficient method for applying PZP is by hand-delivered injection of 2-year pellets when horses are gathered. They observed only two instances of swelling from that technique. Use of remotely delivered, 1-year PZP is generally limited to populations where individual animals can be accurately identified and repeatedly approached. The dart-delivered formulation produced injection-site reactions of varying intensity, though none of the observed reactions appeared debilitating to the animals (Roelle and Ransom 2009). Joonè et al. (2017) found that injection site reactions had healed in most mares within 3 months after the booster dose, and that they did not affect movement or cause fever. The longer-term nodules observed did not appear to change any animal's range of movement or locomotor patterns and in most cases did not appear to differ in magnitude from naturally occurring injuries or scars.

GONADOTROPIN RELEASING HORMONE (GNRH) VACCINE

The gonadotropin releasing hormone (GnRH) vaccine known as GonaCon is another existing vaccine that has been federally approved for use in wild horses as a contraceptive vaccine. Its use would be possible under the Proposed Action. GonaCon could serve as the contraceptive vaccine for limiting population growth in this population. However, no mares would be treated with both PZP and GonaCon. Potential effects of GonaCon are analyzed below.

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 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 and on wild horses in several BLM-administered HMA (BLM 2015a, BLM 2015b, BLM 2017, BLM 2018, BLM 2019). 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). Use of remotely delivered (dart-delivered) vaccine is generally limited to populations where individual animals can be accurately identified and repeatedly approached within 50 m (BLM 2010).

As with other contraceptives applied to wild horses, 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 pesticide (EPA, 2009a) that is relatively inexpensive, meets BLM requirements for safety to mares and the environment, and is produced in a USDA-APHIS laboratory. Its 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 as a contraceptive. GonaCon is produced as a pharmaceutical-grade vaccine, including aseptic manufacturing technique to deliver a sterile vaccine product. 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). EPA waived a number of tests prior to registering the vaccine, because GonaCon was deemed to pose low risks to the environment, so long as the product label is followed (Wang-Cahill et al. 2017, *in press*).

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. 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, although the average duration of effect after booster doses has not yet been quantified. It is unknown what would be the expected rate for the return to fertility rate in mares boosted more than once with GonaCon-Equine. Once the herd size in the project area is at AML and population growth seems to be stabilized, BLM could make a determination as to the required frequency of new mare treatments and mare re-treatments with GonaCon, to maintain the number of horses within AML.

GNRH VACCINE DIRECT EFFECTS

GonaCon-Equine is one of several vaccines that have been engineered to create an immune response to the gonadotropin releasing hormone peptide (GnRH). GnRH is a small peptide that plays an important role in signaling the production of other hormones involved in reproduction in both sexes. GnRH is highly conserved across mammalian taxa, so some inferences about the mechanism and effects of GonaCon-Equine in horses can be made from studies that used different anti-GnRH vaccines, in horses and other taxa. Other anti-GnRH vaccines include: Improvac (Imboden et al. 2006, Botha et al. 2008, Janett et al. 2009b, Schulman et al. 2013, Dalmau et al. 2015), made in South Africa; Equity (Elhay et al. 2007), made in Australia; Improvest, for use in swine (Bohrer et al. 2014); Repro-BLOC (Boedeker et al. 2012); and Bopriva, for use in cows (Balet et al. 2014). Of these, GonaCon-Equine, Improvac, and Equity are specifically intended for horses. Other anti-GnRH vaccine formulations have also been tested, but did not become trademarked products (e.g., Goodloe 1991, Dalin et al 2002, Stout et al. 2003, Donovan et al. 2013). The effectiveness and side-effects of these various anti-GnRH vaccines may not be the same as would be expected from GonaCon-Equine use in horses. Results could differ as a result of differences in the preparation of the GnRH antigen, and the choice of adjuvant used to stimulate the immune response. While GonaCon-Equine can be administered as a single dose, most other

anti-GnRH vaccines require a primer dose and at least one booster dose to be effective.

GonaCon has been produced by USDA-APHIS (Fort Collins, Colorado) in several different formulations, the history of which is reviewed by Miller et al. (2013). In any vaccine, the antigen is the stimulant to which the body responds by making antigen-specific antibodies. Those antibodies then signal to the body that a foreign molecule is present, initiating an immune response that removes the molecule or cell. GonaCon vaccines present the recipient with hundreds of copies of GnRH as peptides on the surface of a linked protein that is naturally antigenic because it comes from invertebrate hemocyanin (Miller et al 2013). Early GonaCon formulations linked many copies of GnRH to a protein from the keyhole limpet [GonaCon-KHL], but more recently produced formulations where the GnRH antigen is linked to a protein from the blue mussel [GonaCon-B] proved less expensive and more effective (Miller et al. 2008). GonaCon-Equine is in the category of GonaCon-B vaccines.

Adjuvants are included in vaccines to elevate the level of immune response, inciting recruitment of lymphocytes and other immune cells which foster a long-lasting immune response that is specific to the antigen. For some formulations of anti-GnRH vaccines, a booster dose is required to elicit at contraceptive response, though GonaCon can cause short-term contraception in a fraction of treated animals from one dose (Powers et al. 2011, Gionfriddo et al. 2011, Baker et al. 2013, Miller et al 2013). The adjuvant used in GonaCon, Adjuvac, generally leads to a milder reaction than Freunds complete adjuvant (Powers et al. 2011). Adjuvac contains a small number of killed *Mycobacterium avium* cells (Miller et al. 2008, Miller et al. 2013). The antigen and adjuvant are emulsified in mineral oil, such that they are not all presented to the immune system right after injection; it is thought that the mineral oil emulsion leads to a depot effect and longer-lasting immune response (Miller et al. 2013). Miller et al. (2008, 2013) have speculated that, in cases where memory-B leukocytes are protected in immune complexes in the lymphatic system, it can lead to years of immune response. Increased doses of vaccine may lead to stronger immune reactions, but only to a certain point; when Yoder and Miller (2010) tested varying doses of GonaCon in prairie dogs, antibody responses to the 200µg and 400µg doses were equal to each other but were both higher than in response to a 100µg dose.

The most direct result of successful GnRH vaccination is that it has the effect of decreasing the level of GnRH signaling in the body, as evidenced by a drop in leutinizing hormone levels, and a cessation of ovulation. Antibody titer measurements are proximate measures of the antibody concentration in the blood specific to a given antigen. Anti-GnRH titers generally correlate with a suppressed reproduction system (Gionfriddo et al. 2011, Powers et al. 2011). Various studies have attempted to identify a relationship between anti-GnRH titer levels and infertility, but that relationship has not been universally predictable or consistent. The time length that titer levels stay high appears to correlate with the length of suppressed reproduction (Dalin et al. 2002, Levy et al. 2011, Donovan et al. 2013, Powers et al. 2011). For example, Goodloe (1991) noted that mares did produce elevated titers and had suppressed follicular development for 11-13 weeks after treatment, but that all treated mares ovulated after the titer levels declined. Similarly, Elhay (2007) found that high initial titers correlated with longer-lasting ovarian and behavioral anoestrus. However, Powers et al. (2011) did not identify a threshold level of titer that was consistently indicative of suppressed reproduction despite seeing a strong correlation between antibody

concentration and infertility, nor did Schulman et al. (2013) find a clear relationship between titer levels and mare acyclicity.

In many cases, young animals appear to have higher immune responses, and stronger contraceptive effects of anti-GnRH vaccines than older animals (Brown et al. 1994, Curtis et al. 2001, Stout et al. 2003, Schulman et al. 2013). Vaccinating with GonaCon at too young an age, though, may prevent effectiveness; Gionfriddo et al. (2011) observed weak effects in 3–4-month-old fawns. It has not been possible to predict which individuals of a given age class will have long-lasting immune responses to the GonaCon vaccine. Gray (2010) noted that mares in poor body condition tended to have lower contraceptive efficacy in response to GonaCon-B. Miller et al. (2013) suggested that higher parasite loads might have explained a lower immune response in free-roaming horses than had been observed in a captive trial. At this time it is unclear what the most important factors affecting efficacy are.

Females that are successfully contracepted by GnRH vaccination enter a state similar to anestrus, have a lack of or incomplete follicle maturation, and no ovarian cycling (Botha et al. 2008). \A leading hypothesis is that anti-GnRH antibodies bind GnRH in the hypothalamus – pituitary 'portal vessels,' preventing GnRH from binding to GnRH-specific binding sites on gonadotroph cells in the pituitary, thereby limiting the production of gonadotropin hormones, particularly leutinizing hormone [LH] and, to a lesser degree, follicle-stimulating hormone [FSH] (Powers et al. 2011, NRC 2013). This reduction in LH (and FSH), and a corresponding lack of ovulation, has been measured in response to treatment with anti-GnRH vaccines (Boedeker et al. 2012, Garza et al. 1986).

Females successfully treated with anti-GnRH vaccines have reduced progesterone levels (Garza et al 1986, Stout et al. 2003, Imboden et al. 2006, Elhay 2007, Botha et al. 2008, Killian et al. 2008, Miller et al. 2008, Janett et al. 2009a, Schulman et al. 2013, Balet et al 2014, Dalmau et al. 2015) and β-17 estradiol levels (Elhay et al. 2007), but no great decrease in estrogen levels (Balet et al. 2014). Reductions in progesterone do not occur immediately after the primer dose but can take several weeks or months to develop (Elhay et al 2007, Botha et al. 2008, Schulman et al. 2013, Dalmau et al. 2015). This indicates that ovulation is not occurring and corpora lutea, formed from post-ovulation follicular tissue, are not being established.

Changes in hormones associated with anti-GnRH vaccination lead to measurable changes in ovarian structure and function. The volume of ovaries reduced in response to treatment (Garza et al. 1986, Dalin et al. 2002, Imboden et al. 2006, Elhay et al. 2007, Botha et al. 2008, Gionfriddo 2011, Dalmau et al. 2015). Treatment with an anti-GnRH vaccine changes follicle development (Garza et al. 1986, Stout et al. 2003, Imboden et al. 2006, Elhay et al. 2007, Donovan et al. 2013, Powers et al. 2011, Balet et al 2014), with the result that ovulation does not occur. A related result is that the ovaries can exhibit less activity and cycle with less regularity or not at all in anti-GnRH vaccine treated females (Goodloe 1991, Dalin et al. 2002, Imboden et al. 2006, Elhay et al. 2007, Janett et al. 2009a, Donovan et al. 2013, Powers et al. 2011). In studies where the vaccine required a booster, this result was generally observed within several weeks after delivery of the booster dose.

GNRH VACCINE CONTRACEPTIVE EFFECTS

The NRC (2013) review pointed out that single doses of GonaCon-Equine do not lead to high rates of initial effectiveness, or long duration. Initial effectiveness of one dose of GonaCon-Equine vaccine appears to be lower than for a combined primer plus booster dose of the PZP vaccine Zonastat-H (Kirkpatrick et al. 2011), and the initial effect of a single GonaCon dose can be limited to as little as one breeding season. However, preliminary results on the effects of boostered doses of GonaCon-Equine indicate that it can have high efficacy and longer-lasting effects in free-roaming horses (Baker et al. 2017, 2018) than the one-year effect that is generally expected from a single booster of Zonastat-H.

GonaCon and other anti-GnRH vaccines can be injected while a female is pregnant (Miller et al. 2000, Powers et al. 2011, Baker et al. 2013) – in such a case, a successfully contracepted mare would be expected to give birth during the following foaling season, but to be infertile during the same year's breeding season. Thus, a mare injected in November of 2019 would not show the contraceptive effect (i.e., no new foal) until spring of 2021.

Too few studies have reported on the various formulations of anti-GnRH vaccines to make generalizations about differences between products, but GonaCon formulations were consistently good at causing loss of fertility in a statistically significant fraction of treated mares for at least one year (Killian et al. 2009, Gray et al. 2010, Baker et al. 2013, 2017, 2018). With few exceptions (e.g., Goodloe 1991), anti-GnRH treated mares gave birth to fewer foals in the first season when there would be an expected contraceptive effect (Botha et al. 2008, Killian et al. 2009, Gray et al. 2010, Baker et al. 2013). Goodloe (1991) used an anti-GnRH-KHL vaccine with a triple adjuvant, in some cases attempting to deliver the vaccine to horses with a hollow-tipped 'biobullet' but concluded that the vaccine was not an effective immunocontraceptive in that study.

Not all mares should be expected to respond to the GonaCon-equine vaccine; some number should be expected to continue to become pregnant and give birth to foals. In studies where mares were exposed to stallions, the fraction of treated mares that are effectively contracepted in the year after anti-GnRH vaccination varied from study to study, ranging from ~50% (Baker et al. 2017, 2018), to 61% (Gray et al. 2010) to ~90% (Killian et al. 2006, 2008, 2009). Miller et al. (2013) noted lower effectiveness in free-ranging mares (Gray et al. 2010) than captive mares (Killian et al. 2009). Some of these rates are lower than the high rate of effectiveness typically reported for the first year after PZP vaccine treatment (Kirkpatrick et al. 2011). In the one study that tested for a difference, darts and hand-injected GonaCon doses were equally effective in terms of fertility outcome (McCann et al. 2017).

In studies where mares were not exposed to stallions, the duration of effectiveness also varied. A primer and booster dose of Equity led to anoestrus for at least 3 months (Elhay et al 2007). A primer and booster dose of Improvac also led to loss of ovarian cycling for all mares in the short term (Imboden et al. 2006). It is worth repeating that those vaccines do not have the same formulation as GonaCon.

Results from horses (Baker et al. 2017, 2018) and other species (Curtis et al. 2001) suggest that providing a booster dose of GonaCon-Equine would increase the fraction of temporarily infertile

animals to higher levels than would a single vaccine dose alone.

Longer-term infertility has been observed in some mares treated with anti-GnRH vaccines, including GonaCon-Equine. In a single-dose mare captive trial with an initial year effectiveness of 94%, Killian et al. (2008) noted infertility rates of 64%, 57%, and 43% in treated mares during the following three years, while control mares in those years had infertility rates of 25%, 12% and 0% in those years. GonaCon effectiveness in free-roaming populations was lower, with infertility rates consistently near 60% for three years after a single dose in one study (Gray et al. 2010) and annual infertility rates decreasing over time from 55% to 30% to 0% in another study with one dose (Baker et al. 2017). Similarly, gradually increasing fertility rates were observed after single dose treatment with GonaCon in elk (Powers et al. 2011) and deer (Gionfriddo et al. 2011).

Baker et al. (2017, 2018) observed a return to fertility over 4 years in mares treated once with GonaCon, but then noted extremely low fertility rates of 0% and 16% in the two years after the same mares were given a booster dose four years after the primer dose. Four of nine mares treated with primer and booster doses of Improvac did not return to ovulation within 2 years of the primer dose (Imboden et al. 2006), though one should probably not make conclusions about the long-term effects of GonaCon-Equine based on results from Improvac.

It is difficult to predict which females will exhibit strong or long-term immune responses to anti-GnRH vaccines (Killian et al. 2006, Miller et al. 2008, Levy et al. 2011). A number of factors may influence responses to vaccination, including age, body condition, nutrition, prior immune responses, and genetics (Cooper and Herbert 2001, Curtis et al. 2001, Powers et al. 2011). One apparent trend is that animals that are treated at a younger age, especially before puberty, may have stronger and longer-lasting responses (Brown et al. 1994, Curtis et al. 2001, Stout et al. 2003, Schulman et al. 2013). It is plausible that giving ConaGon-Equine to prepubertal mares will lead to long-lasting infertility, but that has not yet been tested.

To date, short term evaluation of anti-GnRH vaccines, show contraception appears to be temporary and reversible. Killian et al. noted long-term effects of GonaCon in some captive mares (2009). However, Baker et al. (2017, 2018) observed horses treated with GonaCon-B return to fertility after they were treated with a single primer dose; after four years, the fertility rate was indistinguishable between treated and control mares. It appears that a single dose of GonaCon results in reversible infertility but it is unknown if long term treatment would result in permanent infertility.

Other anti-GnRH vaccines also have had reversible effects in mares. Elhay (2007) noted a return to ovary functioning over the course of 34 weeks for 10 of 16 mares treated with Equity. That study ended at 34 weeks, so it is not clear when the other six mares would have returned to fertility. Donovan et al. (2013) found that half of mares treated with an anti-GnRH vaccine intended for dogs had returned to fertility after 40 weeks, at which point the study ended. In a study of mares treated with a primer and booster dose of Improvac, 47 of 51 treated mares had returned to ovarian cyclicity within 2 years; younger mares appeared to have longer-lasting effects than older mares (Schulman et al. 2013). In a small study with a non-commercial anti-GnRH vaccine (Stout et al. 2003), three of seven treated mares had returned to cyclicity within 8 weeks after delivery of the primer dose, while four others were still suppressed for 12 or more weeks. In elk, Powers et al.

(2011) noted that contraception after one dose of GonaCon was reversible. In white-tailed deer, single doses of GonaCon appeared to confer two years of contraception (Miller et al. 2000). Ten of 30 domestic cows treated became pregnant within 30 weeks after the first dose of Bopriva (Balet et al. 2014).

Permanent sterility as a result of single-dose or boostered GonaCon-Equine vaccine, or other anti-GnRH vaccines, has not been recorded, but that may be because no long-term studies have tested for that effect. It is conceivable that some fraction of mares could become sterile after receiving one or more booster doses of GonaCon-Equine, but the rate at which that could be expected to occur is currently unknown. If some fraction of mares treated with GonaCon-Equine were to become sterile, though, that result would not be contrary to the WFRHBA of 1971, as amended.

In summary, based on the above results related to fertility effects of GonaCon and other anti-GnRH vaccines, application of a single dose of GonaCon-Equine to gathered wild horses could be expected to prevent pregnancy in perhaps 30%-60% of mares for one year. Some smaller number of wild mares should be expected to have persistent contraception for a second year, and less still for a third year. Applying one booster dose of GonaCon to previously-treated mares should lead to two or more years with relatively high rates (80+%) of additional infertility expected, with the potential that some as-yet-unknown fraction of boostered mares may be infertile for several to many years. There is no data to support speculation regarding efficacy of multiple boosters of GonaCon-Equine; however, given it is formulated as a highly immunogenic long-lasting vaccine, it is reasonable to hypothesize that additional boosters would increase the effectiveness and duration of the vaccine.

GonaCon-Equine only affects the fertility of treated animals; untreated animals will still be expected to give birth. Even under favorable circumstances for population growth suppression, gather efficiency might not exceed 85% via helicopter, and may be less with bait and water trapping. The uncaptured portion of the female population would still be expected to have normally high fertility rates in any given year, though those rates could go up slightly if contraception in other mares increases forage and water availability.

GNRH VACCINE EFFECTS ON OTHER ORGAN SYSTEMS

Mares receiving any vaccine would experience slightly increased stress levels associated with handling while being vaccinated and freeze-marked, and potentially microchipped. Newly captured mares that do not have markings associated with previous fertility control treatments would be marked with a new freeze-mark for the purpose of identifying that mare and identifying her vaccine treatment history. This information would also be used to determine the number of mares captured that were not previously treated and could provide additional insight regarding gather efficiency. Most mares recover from the stress of capture and handling quickly once released back to the HMA, and none are expected to suffer serious long-term effects from the fertility control injections, other than the direct consequence of becoming temporarily infertile.

Injection site reactions associated with immunocontraceptive treatments are possible in treated mares (Roelle and Ransom 2009). Whether injection is by hand or via darting, GonaCon-Equine is associated with some degree of inflammation, swelling, and the potential for abscesses at the

injection site (Baker et al. 2013). Swelling or local reactions at the injection site are generally expected to be minor in nature, but some may develop into draining abscesses. When PZP vaccine was delivered via dart it led to more severe swelling and injection site reactions (Roelle and Ransom 2009), but that was not observed with dart-delivered GonaCon (McCann et al. 2017). Mares treated with one formulation of GnRH-KHL vaccine developed pyogenic abscesses (Goodloe 1991). Miller et al. (2008) noted that the water and oil emulsion in GonaCon will often cause cysts, granulomas, or sterile abscesses at injection sites; in some cases, a sterile abscess may develop into a draining abscess. In elk treated with GonaCon, Powers et al. (2011) noted up to 35% of treated elk had an abscess form, despite the injection sites first being clipped and swabbed with alcohol. Even in studies where swelling and visible abscesses followed GonaCon immunization, the longer-term nodules observed did not appear to change any animal's range of movement or locomotor patterns (Powers et al. 2013, Baker et al. 2017, 2018).

The result that other formulations of anti-GnRH vaccine may be associated with less notable injection site reactions in horses may indicate that the adjuvant formulation in GonaCon leads a single dose to cause a stronger immune reaction than the adjuvants used in other anti-GnRH vaccines. Despite that, a booster dose of GonaCon-Equine appears to be more effective than a primer dose alone (Baker et al. 2017, 2018). Horses injected in the hip with Improvac showed only transient reactions that disappeared within 6 days in one study (Botha et al. 2008), but stiffness and swelling that lasted 5 days were noted in another study where horses received Improvac in the neck (Imboden et al. 2006). Equity led to transient reactions that resolved within a week in some treated animals (Elhay et al. 2007). Donovan et al. noted no reactions to the canine anti-GnRH vaccine (2013). In cows treated with Bopriva there was a mildly elevated body temperature and mild swelling at injection sites that subsided within 2 weeks (Balet et al. 2014).

Several studies have monitored animal health after immunization against GnRH. GonaCon treated mares did not have any measurable difference in uterine edema (Killian 2006, 2008). Powers et al. (2011, 2013) noted no differences in blood chemistry except a mildly elevated fibrinogen level in some GonaCon treated elk. In that study, one sham-treated elk and one GonaCon treated elk each developed leukocytosis, suggesting that there may have been a causal link between the adjuvant and the effect. Curtis et al. (2008) found persistent granulomas at GonaCon-KHL injection sites three years after injection, and reduced ovary weights in treated females. Yoder and Miller (2010) found no difference in blood chemistry between GonaCon treated and control prairie dogs. One of 15 GonaCon treated cats died without explanation, and with no determination about cause of death possible based on necropsy or histology (Levy et al. 2011). Other anti-GnRH vaccine formulations have led to no detectable adverse effects (in elephants; Boedeker et al. 2012), though Imboden et al. (2006) speculated that young, treated animals might conceivably have impaired hypothalamic or pituitary function.

Kirkpatrick et al. (2011) raised concerns that anti-GnRH vaccines could lead to adverse effects in other organ systems outside the reproductive system. GnRH receptors have been identified in tissues outside of the pituitary system, including in the testes and placenta (Khodr and Siler-Khodr 1980), ovary (Hsueh and Erickson 1979), bladder (Coit et al. 2009), heart (Dong et al. 2011), and central nervous system, so it is plausible that reductions in circulating GnRH levels could inhibit physiological processes in those organ systems. Kirkpatrick et al. (2011) noted elevated

cardiological risks to human patients taking GnRH agonists (such as leuprolide), but the National Academy of Sciences (2013) concluded that the mechanism and results of GnRH agonists would be expected to be different from that of anti-GnRH antibodies; the former flood GnRH receptors, while the latter deprive receptors of GnRH.

GNRH VACCINE EFFECTS ON FETUS AND FOAL

Although fetuses are not explicitly protected under the WFRHBA of 1971, as amended, it is prudent to analyze the potential effects of GonaCon-Equine or other anti-GnRH vaccines on developing fetuses and foals. GonaCon had no apparent effect on pregnancies in progress, foaling success, or the health of offspring, in horses that were immunized in October (Baker et al. 2013), elk immunized 80-100 days into gestation (Powers et al. 2011, 2013), or deer immunized in February (Miller et al. 2000). Kirkpatrick et al. (2011) noted that anti-GnRH immunization is not expected to cause hormonal changes that would lead to abortion in the horse, but this may not be true for the first 6 weeks of pregnancy (NRC 2013). Curtis et al. (2001) noted that GonaCon-KHL treated white tailed deer had lower twinning rates than controls but speculated that the difference could be due to poorer sperm quality late in the breeding season, when the treated does did become pregnant. Goodloe (1991) found no difference in foal production between treated and control animals.

Offspring of anti-GnRH vaccine treated mothers could exhibit an immune response to GnRH (Khodr and Siler-Khodr 1980), as antibodies from the mother could pass to the offspring through the placenta or colostrum. In the most extensive study of long-term effects of GonaCon immunization on offspring, Powers et al. (2012) monitored 15 elk fawns born to GonaCon treated cows. Of those, 5 had low titers at birth and 10 had high titer levels at birth. All 15 were of normal weight at birth, and developed normal endocrine profiles, hypothalamic GnRH content, pituitary gonadotropin content, gonad structure, and gametogenesis. All the females became pregnant in their second reproductive season, as is typical. All males showed normal development of secondary sexual characteristics. Powers et al. (2012) concluded that suppressing GnRH in the neonatal period did not alter long-term reproductive function in either male or female offspring. Miller et al. (2013) report elevated anti-GnRH antibody titers in fawns born to treated white tailed deer, but those dropped to normal levels in 11 of 12 of those fawns, which came into breeding condition; the remaining fawn was infertile for three years.

Direct effects on foal survival are equivocal in the literature. Goodloe (1991) reported lower foal survival for a small sample of foals born to anti-GnRH treated mares, but she did not assess other possible explanatory factors such as mare social status, age, body condition, or habitat in her analysis (NRC 2013). Gray et al. (2010) found no difference in foal survival in foals born to free-roaming mares treated with GonaCon.

There is little empirical information available to evaluate the effects of GnRH vaccination on foaling phenology. It is possible that immunocontracepted mares returning to fertility late in the breeding season could give birth to foals at a time that is out of the normal range (Nuñez et al. 2010, Ransom et al 2013). Curtis et al. (2001) did observe a slightly later fawning date for GonaCon treated deer in the second year after treatment, when some does regained fertility late in

the breeding season. In anti-GnRH vaccine trials in free-roaming horses, there were no published differences in mean date of foal production (Goodloe 1991, Gray et al. 2010). Unpublished results from an ongoing study of GonaCon treated free-roaming mares indicate that some degree of aseasonal foaling is possible (D. Baker, Colorado State University, personal communication to Paul Griffin, BLM WH&B Research Coordinator). Because of the concern that contraception could lead to shifts in the timing of parturitions for some treated animals, Ransom et al. (2013) advised that managers should consider carefully before using PZP immunocontraception in small refugia or rare species. Wild horses and burros in most areas do not generally occur in isolated refugia, they are not a rare species at the regional, national, or international level, and genetically they represent descendants of domestic livestock with most populations containing few if any unique alleles (NAS 2013). Moreover, in PZP-treated horses that did have some degree of parturition date shift, Ransom et al. (2013) found no negative impacts on foal survival even with an extended birthing season; however, this may be more related to stochastic, inclement weather events than extended foaling seasons. If there were to be a shift in foaling date for some treated mares, the effect on foal survival may depend on weather severity and local conditions; for example, Ransom et al. (2013) did not find consistent effects across study sites.

INDIRECT EFFECTS OF FERTILITY CONTROL VACCINATIONS

The following sections would be expected to apply to the application of both PZP and GnRH vaccines unless specifically identified.

One expected long-term, indirect effect on wild horses treated with fertility control would be an improvement in their overall health. Many treated mares would not experience the biological stress of reproduction, foaling and lactation as frequently as untreated mares, and their better health is expected to be reflected in higher body condition scores (Nuñez et al. 2010). After a treated mare returns to fertility, her future foals would be expected to be healthier overall and would benefit from improved nutritional quality in the mares' milk. This is particularly to be expected if there is an improvement in rangeland forage quality at the same time, due to reduced wild horse population size. Past application of fertility control has shown that mares' overall health and body condition remains improved even after fertility resumes. PZP treatment may increase mare survival rates, leading to longer potential lifespan (Ransom et al. 2014a). To the extent that this happens, changes in lifespan and decreased foaling rates could combine to cause changes in overall age structure in a treated herd (i.e., Roelle et al. 2010). Observations of mares treated in past gathers showed that many of the treated mares were larger than, maintained higher body condition than, and had larger healthy foals than untreated mares. Following resumption of fertility, the proportion of mares that conceive and foal could be increased due to their increased fitness; this has been called a 'rebound effect.' More research is needed to document and quantify these hypothesized effects; however, it is believed that repeated contraceptive treatment may minimize this rebound effect.

Body condition of anti-GnRH-treated females was equal to or better than that of control females in published studies. Ransom et al. (2014) observed no difference in mean body condition between GonaCon-B treated mares and controls. Goodloe (1991) found that GnRH-KHL treated mares had higher survival rates than untreated controls. In other species, treated cats gained more weight than controls (Levy et al. 2011), as did treated young female pigs (Bohrer et al. 2014).

Following resumption of fertility, the proportion of mares that conceive and foal could be increased due to their increased fitness; this has been called by some a 'rebound effect.' Elevated fertility rates have been observed after horse gathers and removals (Kirkpatrick and Turner 1991). More research is needed to document and quantify these hypothesized effects; however, it is believed that repeated contraceptive treatment may minimize this postulated rebound effect.

Because successful fertility control would reduce foaling rates and population growth rates, another indirect effect would be to reduce the number of wild horses that have to be removed over time to achieve and maintain the established AML. So long as the level of contraceptive treatment is adequate, the lower expected birth rates can compensate for any expected increase in the survival rate of treated mares. Also, reducing the numbers of wild horses that would have to be removed in future gathers could allow for removal of younger, more easily adoptable excess wild horses, and thereby could eliminate the need to send additional excess burros from this area to off range pastures (ORPs). A high level of physical health and future reproductive success of fertile mares within the herd would be sustained, as reduced population sizes would be expected to lead to more availability of water and forage resources per capita.

Reduced population growth rates and smaller population sizes would also allow for continued and increased environmental improvements to range conditions within the project area, which would have long-term benefits to wild burro habitat quality. As the population nears or is maintained at the level necessary to achieve a thriving natural ecological balance, vegetation resources would be expected to recover, improving the forage available to wild burros and wildlife throughout the HMA. With a more optimal distribution of wild burros across the HMA, at levels closer to a thriving ecological balance, there would also be less trailing and concentrated use of water sources, which would have many benefits to the wild burros still on the range. There would be reduced competition among wild burros using the water sources, and less fighting would occur among individual animals to access water sources. Water quality and quantity would continue to improve to the benefit of all rangeland users including wild burros. Wild burros would also have to travel less distance back and forth between water and desirable foraging areas.

Should fertility treatment, including booster doses continue into the future, with treatments given on a schedule to maintain a lowered reproductive rate in the herd, the chronic cycle of overpopulation and large gathers and removals may no longer occur, but instead a consistent abundance of wild burros could be maintained resulting in continued improvement of overall habitat conditions and animal health. While it is conceivable that widespread and continued treatment with fertility control vaccines could reduce the birth rates of the population to such a point that birth is consistently below mortality, that outcome is not likely unless a very high fraction of the mares present are all treated with primer and booster doses, and perhaps repeated booster doses.

BEHAVIORAL EFFECTS OF FERTILITY CONTROL VACCINATIONS

Behavioral differences should be considered as potential consequences of contraception. The NRC report (2013) noted that all successful fertility suppression has effects on mare behavior, mostly

as a result of the lack of pregnancy and foaling and concluded that the use of PZP and GnRH was a good choice for use in the program.

PZP VACCINE

The result that PZP-treated mares may continue estrus cycles throughout the breeding season can lead to behavioral differences, when compared to mares that are fertile. Such behavioral differences should be considered as potential consequences of successful contraception.

Ransom and Cade (2009) delineate behaviors that can be used to test for quantitative differences due to treatments. Ransom et al. (2010) found no differences in how PZP-treated and untreated mares allocated their time between feeding, resting, travel, maintenance, and most social behaviors in three populations of wild horses, which is consistent with Powell's (1999) findings in another population. Likewise, body condition of PZP-treated and control mares did not differ between treatment groups in Ransom et al.'s (2010) study. Nuñez (2010) found that PZP-treated mares had higher body condition than control mares in another population, presumably because energy expenditure was reduced by the absence of pregnancy and lactation. Knight (2014) found that PZP-treated mares had better body condition, lived longer, and switched harems more frequently, while mares that foaled spent more time concentrating on grazing and lactation and had lower overall body condition. Studies on Assateague Island (Kirkpatrick and Turner 2002) showed that once fillies (female foals) that were born to mares treated with PZP during pregnancy eventually breed, they produce healthy, viable foals.

In two studies involving a total of four wild horse populations, both Nuñez et al. (2009) and Ransom et al. (2010) found that PZP-treated mares were involved in reproductive interactions with stallions more often than control mares, which is not surprising given the evidence that PZP-treated females of other mammal species can regularly demonstrate estrus behavior while contracepted (Shumake and Killian 1997, Heilmann et al. 1998, Curtis et al. 2001). There was no evidence, though, that mare welfare was affected by the increased level of herding by stallions noted in Ransom et al. (2010). Nuñez's later analysis (2017) noted no difference in mare reproductive behavior as a function of contraception history.

Ransom et al. (2010) found that control mares were herded by stallions more frequently than PZP-treated mares, and Nuñez et al. (2009, 2014, 2017) found that PZP-treated mares exhibited higher infidelity to their band stallion during the non-breeding season than control mares. Madosky et al. (2010) and Knight (2014) found this infidelity was also evident during the breeding season in the same population that Nuñez et al. (2009, 2010, 2014, 2017) studied; they concluded that PZP-treated mares changing bands more frequently than control mares could lead to band instability. Nuñez et al. (2009), though, cautioned against generalizing from that island population to other herds. Nuñez et al. (2014) found elevated levels of fecal cortisol, a marker of physiological stress, in mares that changed bands. The research is inconclusive as to whether all the mares' movements between bands were related to the PZP treatments themselves or the fact that the mares were not nursing a foal and did not demonstrate any long-term negative consequence of the transiently elevated cortisol levels. The authors (Nuñez et al. 2014) concede that these effects "…may be of limited concern when population reduction is an urgent priority." Nuñez (2017) and Jones et al.

(2019, 2020) noted that band stallions of mares that have received PZP treatment can exhibit changes in behavior and physiology. In contrast to transient stresses, Creel et al (2013) highlight that variation in population density is one of the most well-established causal factors of chronic activation of the hypothalamic-pituitary-adrenal axis, which mediates stress hormones; high population densities and competition for resources can cause chronic stress. Creel also states that "…there is little consistent evidence for a negative association between elevated baseline glucocorticoids and fitness." Band fidelity is not an aspect of wild horse biology that is specifically protected by the WFRHBA of 1971. It is also notable that Ransom et al. (2014b) found higher group fidelity after a herd had been gathered and treated with a contraceptive vaccine; in that case, the researchers postulated that higher fidelity may have been facilitated by the decreased competition for forage after excess horses were removed. At the population level, available research does not provide evidence of the loss of harem structure among any herds treated with PZP. Long-term implications of these changes in social behavior are currently unknown, but no negative impacts on the overall animals or populations welfare or well-being have been noted in these studies.

The National Research Council (2013) found that harem changing was not likely to result in serious adverse effects for treated mares:

> "The studies on Shackleford Banks (Nuñez et al., 2009; Madosky et al., 2010) suggest that there is an interaction between pregnancy and social cohesion. The importance of harem stability to mare well-being is not clear, but considering the relatively large number of free-ranging mares that have been treated with liquid PZP in a variety of ecological settings, the likelihood of serious adverse effects seem low."

Nuñez (2010) stated that not all populations will respond similarly to PZP treatment. Differences in habitat, resource availability, and demography among conspecific populations will undoubtedly affect their physiological and behavioral responses to PZP contraception and need to be considered. Kirkpatrick et al. (2010) concluded that: "the larger question is, even if subtle alterations in behavior may occur, this is still far better than the alternative*,"* and that the "…other victory for horses is that every mare prevented from being removed, by virtue of contraception, is a mare that will only be delaying her reproduction rather than being eliminated permanently from the range. This preserves herd genetics, while gathers and adoption do not."

GNRH VACCINE

The result that GonaCon treated mares may have suppressed estrous cycles throughout the breeding season can lead treated mares to behave in ways that are functionally similar to pregnant mares.

While successful in mares, GonaCon and other anti-GnRH vaccines are expected to induce fewer estrous cycles when compared to non-pregnant control mares. This has been observed in many studies (Garza et al. 1986, Curtis et al. 2001, Dalin et al. 2002, Killian et al. 2006, Dalmau et al. 2015). In contrast, PZP vaccine is generally expected to lead mares to have more estrous cycles per breeding season, as they continue to be receptive to mating while not pregnant. Females treated with GonaCon had less estrous cycles than control or PZP-treated mares (Killian et al. 2006) or

deer (Curtis et al. 2001). Thus, concerns about PZP treated mares receiving more courting and breeding behaviors from stallions (Nuñez et al. 2009, Ransom et al. 2010) are not generally expected to be a concern for mares treated with anti-GnRH vaccines (Botha et al. 2008).

Ransom et al. (2014) found that GonaCon treated mares had similar rates of reproductive behaviors that were similar to those of pregnant mares. Among other potential causes, the reduction in progesterone levels in treated females may lead to a reduction in behaviors associated with reproduction. Despite this, some females treated with GonaCon or other anti-GnRH vaccines did continue to exhibit reproductive behaviors, albeit at irregular intervals and durations (Dalin et al. 2002, Stout et al. 2003, Imboden et al. 2006), which is a result that is similar to spayed (ovariectomized) mares (Asa et al. 1980). Gray et al. (2009) found no difference in sexual behaviors in mares treated with GonaCon and untreated mares. When progesterone levels are low, small changes in estradiol concentration can foster reproductive estrous behaviors (Imboden et al. 2006). Owners of anti-GnRH vaccine treated mares reported a reduced number of estrous-related behaviors under saddle (Donovan et al. 2013). Treated mares may refrain from reproductive behavior even after ovaries return to cyclicity (Elhay et al. 2007). Studies in elk found that GonaCon treated cows had equal levels of precopulatory behaviors as controls (Powers et al. 2011), though bull elk paid more attention to treated cows late in the breeding season, after control cows were already pregnant (Powers et al. 2011).

Stallion herding of mares, and harem switching by mares are two behaviors related to reproduction that might change as a result of contraception. Ransom et al. (2014) observed a 50% decrease in herding behavior by stallions after the free-roaming horse population at Theodore Roosevelt National Park was reduced via a gather, and mares there were treated with GonaCon-B. The increased harem tending behaviors by stallions were directed to both treated and control mares. It is difficult to separate any effect of GonaCon from changes in horse density and forage following horse removals.

Mares in untreated free-roaming populations change bands; some have raised concerns over effects of PZP vaccination on band structure (Nuñez et al. 2009), with rates of band fidelity being suggested as a measure of social stability. With respect to treatment with GonaCon or other anti-GnRH vaccines, it is probably less likely that treated mares will switch harems at higher rates than untreated animals, because treated mares are similar to pregnant mares in their behaviors (Ransom et al. 2014). Indeed, Gray et al. (2009) found no difference in band fidelity in a free-roaming population of horses with GonaCon treated mares, despite differences in foal production between treated and untreated mares. Ransom et al. (2014) found increased levels of band fidelity after treatment, though this may have been partially a result of changes in overall horse density and forage availability.

Even in cases where there may be changes in band fidelity, the National Research Council's 2013 report titled *Using Science to Improve the BLM Wild Horse and Burro Program* ("NRC Report") found that harem changing was not likely to result in serious adverse effects for treated mares:

> "The studies on Shackleford Banks (Nuñez et al., 2009; Madosky et al., 2010) suggest that there is an interaction between pregnancy and social cohesion. The importance of harem stability to mare well-being is not clear, but considering the relatively large number of free-

> ranging mares that have been treated with liquid PZP in a variety of ecological settings, the likelihood of serious adverse effects seem low."

Kirkpatrick et al. (2010) concluded that "the larger question is, even if subtle alterations in behavior may occur, this is still far better than the alternative."

Gray et al. (2009) and Ransom et al. (2014) monitored non-reproductive behaviors in GonaCon treated populations of free-roaming horses. Gray et al. (2009) found no difference between treated and untreated mares in terms of activity budget, sexual behavior, proximity of mares to stallions, or aggression. Ransom et al. (2014) found only minimal differences between treated and untreated mare time budgets, but those differences were consistent with differences in the metabolic demands of pregnancy and lactation in untreated mares, as opposed to non-pregnant treated mares.

The NRC Report (2013) provides a comprehensive review of the literature on the behavioral effects of contraception that puts Dr. Nuñez et al. (2009, 2010) research into the broader context of all of the available scientific literature, and cautions, based on its extensive review of the literature that:

> ". . . in no case can the committee conclude from the published research that the behavior differences observed are due to a particular compound rather than to the fact that treated animals had no offspring during the study. That must be borne in mind particularly in interpreting long-term impacts of contraception (e.g., repeated years of reproductive "failure" due to contraception)."

GENETIC EFFECTS OF FERTILITY CONTROL VACCINATIONS

In HMAs where large numbers of wild horses have recent and / or an ongoing influx of breeding animals from other areas with wild or feral horses and burros, contraception is not expected to cause an unacceptable loss of genetic diversity or an unacceptable increase in the inbreeding coefficient. In any diploid population, the loss of genetic diversity through inbreeding or drift can be prevented by large effective breeding population sizes (Wright 1931) or by introducing new potential breeding animals (Mills and Allendorf 1996). The NRC report recommended that managed herds of wild horses and burros would be better viewed as components of interacting metapopulations, with the potential for interchange of individuals and genes taking place as a result of both natural and human-facilitated movements. In the last 10 years, there has been a high realized growth rate of wild horses and burros in most areas administered by the BLM, such that most alleles that are present in any given mare are likely to already be well represented in her siblings, cousins, and more distant relatives. As a result, in most HMAs, applying fertility control to a subset of jennies is not expected to cause irreparable loss of genetic diversity. Improved longevity and an aging population are expected results of contraceptive treatment that can provide for lengthening generation time; this result which would be expected to slow the rate of genetic diversity loss (Hailer et al., 2006). Based on a population model, Gross (2000) found that an effective way to retain genetic diversity in a population treated with fertility control is to preferentially treat young animals, such that the older animals (which contain all the existing genetic diversity available) continue to have offspring. Conversely, Gross (2000) found that preferentially treating older animals (preferentially allowing young animals to breed) leads to a

more rapid expected loss of genetic diversity over time.

Even if it is the case that repeated treatment with fertility control may lead to prolonged infertility, or even sterility in some mares, most HMAs have only a low risk of loss of genetic diversity if logistically realistic rates of contraception are applied to mares. Wild horses in most herd management areas are descendants of a diverse range of ancestors coming from many breeds of domestic horses. As such, the existing genetic diversity in the majority of HMAs does not contain unique or historically unusual genetic markers. Past interchange between HMAs, either through natural dispersal or through assisted migration (i.e., human movement of horses) means that many HMAs are effectively indistinguishable and interchangeable in terms of their genetic composition. Roelle and Oyler-McCance (2015) used the VORTEX population model to simulate how different rates of mare sterility would influence population persistence and genetic diversity, in populations with high or low starting levels of genetic diversity, various starting population sizes, and various annual population growth rates. Their results show that the risk of the loss of genetic heterozygosity is extremely low except in case where starting levels of genetic diversity are low, initial population size is 100 or less, and the intrinsic population growth rate is low (5% per year), and very large fractions of the female population are permanently sterilized.

Many factors influence the strength of a vaccinated individual's immune response, potentially including genetics, but also nutrition, body condition, and prior immune responses to pathogens or other antigens (Powers et al. 2013). One concern that has been raised with regards to genetic diversity is that treatment with immunocontraceptives could possibly lead to an evolutionary increase in the frequency of individuals whose genetic composition fosters weak immune responses (Cooper and Larsen 2006, Ransom et al. 2014a). This premise is based on an assumption that lack of response to PZP is a heritable trait, and that the frequency of that trait will increase over time in a population of PZP-treated animals. Cooper and Herbert (2001) reviewed the topic, in the context of concerns about the long-term effectiveness of immunocontraceptives as a control agent for exotic species in Australia. They argue that immunocontraception could be a strong selective pressure, and that selecting for reproduction in individuals with poor immune response could lead to a general decline in immune function in populations where such evolution takes place. Other authors have also speculated that differences in antibody titer responses could be partially due to genetic differences between animals (Curtis et al. 2001, Herbert and Trigg 2005). Although this topic may merit further study, lack of clarity should not preclude the use of immunocontraceptives to help stabilize extremely rapidly growing herds.

BLM is not aware of any studies that have quantified the heritability of a lack of response to immunocontraception such as PZP vaccine or GonaCon-Equine in horses. At this point there are no studies available from which one could make conclusions about the long-term effects of sustained and widespread immunocontraception treatments on population-wide immune function. Although a few, generally isolated, feral horse populations have been treated with high fractions of mares receiving PZP immunocontraception for long-term population growth suppression (e.g., Assateague Island and Pryor Mountains), no studies have tested for changes in immune competence in those areas. Relative to the large number of free-roaming feral horses in the western United States, immunocontraception has not been used in the type of widespread or prolonged manner that might be required to cause a detectable evolutionary response at a large scale.

Magiafoglou et al. (2003) clarify that if the variation in immune response is due to environmental factors (i.e., body condition, social rank) and not due to genetic factors, then there will be no expected effect of the immune phenotype on future generations. It is possible that general health, as measured by body condition, can have a causal role in determining immune response, with animals in poor condition demonstrating poor immune reactions (NRC 2013).

Correlations between immune response and physical factors such as age and body condition have been documented; it remains untested whether those factors play a larger role in determining immune response to immunocontraceptives than heritable traits. Several studies discussed above noted a relationship between the strength of individuals' immune responses after treatment with GonaCon or other anti-GnRH vaccines, and factors related to body condition. For example, age at immunization was a primary factor associated with different measures of immune response, with young animals tending to have stronger and longer-lasting responses (Stout et al. 2003, Schulman et al. 2013). It is also possible that general health, as measured by body condition, can have a causal role in determining immune response, with animals in poor condition demonstrating poor immune reactions (Gray 2009, NRC 2013). Miller et al. (2013) speculated that animals with high parasite loads also may have weaker immune reactions to GonaCon.

Correlations between such physical factors and immune response would not preclude, though, that there could also be a heritable response to immunocontraception. In studies not directly related to immunocontraception, immune response has been shown to be heritable (Kean et al. 1994, Sarker et al. 1999). Unfortunately, predictions about the long-term, population-level evolutionary response to immunocontraceptive treatments would be speculative at this point, with results likely to depend on several factors, including: the strength of the genetic predisposition to not respond to GonaCon-Equine; the heritability of that gene or genes; the initial prevalence of that gene or genes; the number of mares treated with a primer dose of GonaCon-Equine (which generally has a short-acting effect, if any); the number of mares treated with a booster dose of GonaCon-Equine (which appears to cause a longer-lasting effect); and the actual size of the genetically-interacting metapopulation of horses (or burros) within which the GonaCon treatment takes place.

INTRA-UTERINE DEVICES (IUDS)

Based on promising results from published, peer-reviewed studies in domestic mares, BLM has begun to use IUDs to control fertility as a wild horse and burro fertility control method on the range. The initial management use was in mares from the Swasey HMA in Utah. BLM has supported and continues to support research into the development and testing of effective and safe IUDs for use in wild horse mares (Baldrighi et al. 2017, Holyoak et al. 2021). However, existing literature on the use of IUDs in horses and burros allows for inferences about expected effects of any management alternatives that might include use of IUDs and support the apparent safety and efficacy of some types of IUDs for use in horses. Overall, as with other methods of population growth suppression, use of IUDs and other fertility control measures are expected to help reduce population growth rates, extend the time interval between gathers, and reduce the total number of excess animals that will need to be removed from the range. Although there is less published literature about IUD effects in burros than there is for horses, the physiological effects may be presumed to be comparable, although the size of the IUD would, presumably, need to be tailored to be appropriate for burros.

The 2013 National Academies of Sciences (NAS) report considered IUDs and suggested that research should test whether IUDs cause uterine inflammation and should also test how well IUDs stay in mares that live and breed with fertile stallions. Since that report, a recent study by Holyoak et al. (2021) indicate that a flexible, inert, y-shaped, medical-grade silicone IUD design prevented pregnancies in all the domestic mares that retained the device, even when exposed to fertile stallions. Domestic mares in that study lived in large pastures, mating with fertile stallions. Biweekly ultrasound examinations showed that IUDs stayed in 75% of treated mares over the course of two breeding seasons. The IUDs were then removed so the researchers could monitor the mares' return to fertility. In that study, uterine health, as measured in terms of inflammation, was not seriously affected by the IUDs, and most mares became pregnant within months after IUD removal. The overall results are consistent with results from an earlier study (Daels and Hughes 1995), which used O-shaped silicone IUDs.

IUDs are considered a temporary fertility control method that does not generally cause future sterility (Daels and Hughes 1995). Use of IUDs is an effective fertility control method in women, and IUDs have historically been used in livestock management, including in domestic horses and burros. IUDs in mares may cause physiological effects including discomfort, infection, perforation of the uterus (by a hard IUD), endometritis, uterine edema (Killian et al. 2008), and pyometra (Klabnik-Bradford et al. 2013). In women, deaths attributable to IUD use may be as low as 1.06 per million (Daels and Hughes 1995). The effects of IUD use on genetic diversity in a given herd should be comparable to those of other temporary fertility control methods; use should reduce the fraction of mares breeding at any one time but does not necessarily preclude treated mares from breeding in the future.

The exact mechanism by which IUDs prevent pregnancy is uncertain but may be related to persistent, low-grade uterine inflammation (Daels and Hughes 1995. The presence of an IUD in the uterus may, like a pregnancy, prevent the mare from coming back into oestrus (Turner et al. 2015). However, some domestic mares did exhibit repeated estrus cycles during the time when they had IUDs (Killian et al. 2008, Gradil et al. 2019). The main cause for an IUD to not be effective at contraception is its failure to stay in the uterus (Daels and Hughes 1995, NAS 2013). As a result, one of the major challenges to using IUDs to control fertility in mares or jennies on the range is preventing the IUD from being dislodged or otherwise ejected over the course of daily activities, which include, at times, frequent breeding.

At this time, it is thought that any IUD inserted into a pregnant mare or jenny may cause the pregnancy to terminate, which may also cause the IUD to be expelled. For that reason, it is expected that IUDs would only be inserted in non-pregnant (open) mares or jennies. Wild mares or jennies receiving IUDs would be checked for pregnancy by a veterinarian prior to insertion of an IUD. This can be accomplished by transrectal palpation and/or ultrasound performed by a veterinarian. Pregnant mares or jennies would not receive an IUD. Only a veterinarian would apply IUDs in any BLM management action. The IUD is inserted into the uterus using a thin, tubular applicator similar to a shielded culture tube, and would be inserted in a manner similar to that routinely used to obtain uterine cultures in domestic mares and jennies. If a mare or jenny has a zygote or very small, early phase embryo, it is possible that it will fail to develop further, but without causing the expulsion of the IUD. Wild mares or jennies with IUDs would be individually marked and identified, so that they can be monitored occasionally and examined, if necessary, in the future, consistent with other BLM management activities.

Hard IUDs, such as metallic or glass marbles, may prevent pregnancy (Nie et al. 2003) but can pose health risks to domestic mares (Turner et al. 2015, Freeman and Lyle 2015). Marbles may break into shards (Turner et al. 2015), and uterine irritation that results from marble IUDs may cause chronic, intermittent colic (Freeman and Lyle 2015). Metallic IUDs may cause severe infection (Klabnik-Bradford et al. 2013).

In domestic ponies, Killian et al. (2008) explored the use of three different IUD configurations, including a silastic polymer O-ring with copper clamps, and the "380 Copper T" and "GyneFix" IUDs designed for women. The longest retention time for the three IUD models was seen in the "T" device, which stayed in the uterus of several mares for 3-5 years. Reported contraception rates for IUD-treated mares were 80%, 29%, 14%, and 0% in years 1-4, respectively. The authors (Killian et al. 2008) surmised that pregnancy resulted after IUD fell out of the uterus. Killian et al. (2008) reported high levels of progesterone in non-pregnant, IUD-treated ponies.

Soft IUDs may cause relatively less discomfort than hard IUDs (Daels and Hughes 1995). Daels and Hughes (1995) tested the use of a flexible O-ring IUD, made of silastic, surgical-grade polymer, measuring 40 mm in diameter; in five of six breeding domestic mares tested, the IUD was reported to have stayed in the mare for at least 10 months. In mares with IUDs, Daels and Hughes (1995) reported some level of uterine irritation but surmised that the level of irritation was not enough to interfere with a return to fertility after IUD removal.

More recently, several types of flexible IUDs have been tested for use in breeding mares. When researchers attempted to replicate the O-ring study (Daels and Hughes 1995) in an USGS / Oklahoma State University (OSU) study with breeding domestic mares, using various configurations of silicone O-ring IUDs, the IUDs fell out at unacceptably high rates over time scales of less than 2 months (Baldrighi et al. 2017). Subsequently, the USGS / OSU researchers have been testing a Y-shaped IUD to determine retention rates and assess effects on uterine health; results are still pending but retention rates were much higher (Holyoak et al., 2021). These Y-shaped silicone IUDs are considered a pesticide device by the EPA, in that they work by physical means (EPA 2020) The University of Massachusetts has developed a magnetic IUD that has been effective at preventing estrus in non-breeding domestic mares (Gradil et al. 2019, Joonè et al. 2021, Gradil et al. 2021). After insertion in the uterus, the three subunits of the device are held together by magnetic forces as a flexible triangle. A metal detector can be used to determine whether the device is still present in the mare. In an early trial, two sizes of those magnetic IUDs were tested in breeding domestic mares, but fell out at high rates (Holyoak et al., unpublished results). The magnetic IUD was used in two subsequent trials where mares were exposed to stallions, and in one where mares were artificially inseminated; in all cases, the IUDs were reported to stay in the mares without any pregnancy (Gradil 2019, Joonè et al. 2021, Gradil et al. 2021).

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EFFECTS OF WILD HORSES AND BURROS ON RANGELAND ECOSYSTEMS

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

In the biological sense, all free-roaming horses and burros in North America are feral, meaning that they are descendants of domesticated animals brought to the Americas by European colonists. Horses went extinct in the Americas by the end of the Pleistocene, about 10,000 years ago (Webb 1989; MacFadden 2005). Burros evolved in Eurasia (Geigl et al. 2016). The published literature refers to free-roaming horses and burros as either feral or wild. In the ecological context the terms are interchangeable, but the terms 'wild horse' and 'wild burro' are associated with a specific legal status. The following literature review on the effects of wild horses and burros on rangeland ecosystems draws on scientific studies of feral horses and burros, some of which also have wild horse or wild burro legal status. The following literature review draws on Parts 1 and 2 of the 'Science framework for conservation and restoration of the sagebrush biome' interagency report (Chambers et al. 2017, Crist et al. 2019).

Because of the known damage that overpopulated wild horse and burro herds can cause in rangeland ecosystems, the presence of wild horses and burros is considered a threat to Greater sage-grouse habitat quality, particularly in the bird species' western range (Beever and Aldridge 2011, USFWS 2013). Wild horse population sizes on federal lands have more than doubled in the five years since the USFWS report (2013) was published (BLM 2018). On lands administered by the BLM, there were over 95,000 BLM-administered wild horses and burros as of March 1, 2020, which does not include foals born in 2020. Lands with wild horses and burros are managed for multiple uses, so it can be difficult to parse out their ecological effects. Despite this, scientific studies designed to separate out those effects, which are summarized below, point to conclusions that landscapes with greater wild horse and burro abundance will tend to have lower resilience to disturbance and lower resistance to invasive plants than similar landscapes with herds at or below target AML levels.

In contrast to managed livestock grazing, neither the seasonal timing nor the intensity of wild horse and burro grazing can be managed, except through efforts to manage their numbers and distribution. Wild horses live on the range year-round, they roam freely, and wild horse populations have the potential to grow 15-20% per year (Wolfe 1980; Eberhardt et al. 1982; Garrott et al 1991; Dawson 2005; Roelle et al. 2010; Scorolli et al. 2010). Although this annual growth rate may be lower in some areas where mountain lions can take foals (Turner and Morrison 2001, Turner 2015), horses tend to favor use of more open habitats (Schoenecker 2016) that are dominated by grasses and shrubs and where ambush is less likely. Horses can compete with managed livestock in forage selected (Scasta et al. 2016). For the majority of wild horse herds, there is little overall evidence that population growth is significantly affected by predation. As a result of the potential for wild horse populations to grow rapidly, impacts from wild horses on water, soil, vegetation, and native wildlife resources (Davies and Boyd 2019) can increase exponentially unless there is active management to limit their population sizes.

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

Many studies corroborate the general conclusion that wild horses can lead to biologically significant changes in rangeland ecosystems, particularly when their populations are overabundant relative to water and forage resources, and other wildlife living on the landscape (Eldridge et al. 2020). The presence of wild horses is associated with a reduced degree of greater sage-grouse lekking behavior (Muñoz et al. 2020). Moreover, increasing densities of wild horses, measured as a percentage above AML, are associated with decreasing greater sage-grouse population sizes, measured by lek counts (Coates et al. 2021). Horses are primarily grazers (Hanley and Hanley 1982), but shrubs – including sagebrush – can represent a large part of a horse's diet, at least in summer in the Great Basin (Nordquist 2011). Grazing by wild horses can have severe impacts on water source quality, aquatic ecosystems, and riparian communities as well (Beever and Brussard 2000; Barnett 2002; Nordquist 2011; USFWS 2008; Earnst et al. 2012; USFWS 2012, Kaweck et al. 2018), sometimes excluding native ungulates from water sources (Ostermann-Kelm et al. 2008; USFWS 2008; Perry et al. 2015; Hall et al. 2016; Gooch et al. 2017; Hall et al. 2018). Impacts to riparian vegetation per individual wild horse can exceed impacts per individual domestic cow (Kaweck et al. 2018). Bird nest survival may be lower in areas with wild horses (Zalba and Cozzani 2004), and bird populations have recovered substantially after livestock and/or wild horses have been removed (Earnst et al. 2005; Earnst et al. 2012; Batchelor et al. 2015). Wild horses can spread nonnative plant species, including cheatgrass, and may limit the effectiveness of habitat restoration projects (Beever et al. 2003; Couvreur et al. 2004; Jessop and Anderson 2007; Loydi and Zalba 2009). Riparian and wildlife habitat improvement projects intended to increase the availability of grasses, forbs, riparian habitats, and water will likely attract and be subject to heavy grazing and trampling by wild horses that live in the vicinity of the project. Even after domestic livestock are removed, continued wild horse grazing can cause ongoing detrimental ecosystem effects (USFWS 2008; Davies et al. 2014) which may require several decades for recovery (e.g., Anderson and Inouye 2001).

Wild horses and burros may have beneficial effects, but those benefits do not typically outweigh damage caused when herd sizes are high, relative to available natural resources. Under some conditions, there may not be observable competition with other ungulate species for water (e.g., Meeker 1979), but recent studies that used remote cameras have found wild horses excluding

native wildlife from water sources under conditions of relative water scarcity (Perry et al. 2015, Hall et al. 2016, Hall et al. 2018). Wild burros (and, less frequently, wild horses) have been observed digging 'wells;' such digging may improve habitat conditions for some vertebrate species and, in one site, may improve tree seedling survival (Lundgren et al. 2021). This behavior has been observed in intermittent stream beds where subsurface water is within 2 meters of the surface (Lundgren et al. 2021). The BLM is not aware of published studies that document wild horses or burros in the western United States causing similar or widespread habitat amelioration on drier upland habitats such as sagebrush, grasslands, or pinyon-juniper woodlands. Lundgren et al. (2021) suggested that, due to well-digging in ephemeral streambeds, wild burros (and horses) could be considered 'ecosystem engineers;' a term for species that modify resource availability for other species (Jones et al. 1994). In HMAs where wild horse and burro biomass is very large relative to the biomass of native ungulates (Boyce and McLoughlin 2021), they should probably also be considered 'dominant species' (Power and Mills 1995) whose ecological influences result from their prevalence on the landscape. Wild horse densities could be maintained at high levels in part because artificial selection for early or extended reproduction may mean that wild horse population dynamics are not constrained in the same way as large herbivores that were never domesticated (Boyce and McLoughlin 2021). Equids redistribute organic matter and nutrients in dung piles (i.e., King and Gurnell 2007), which could disperse and improve germination of undigested seeds. This could be beneficial if the animals spread viable native plant seeds, but could have negative consequences if the animals spread viable seeds of invasive plants such as cheatgrass (i.e,, Loydi and Zalba 2009, King et al. 2019). Increased wild horse and burro density would be expected to increase the spatial extent and frequency of seed dispersal, whether the seeds distributed are desirable or undesirable. As is true of herbivory by any grazing animals, light grazing can increase rates of nutrient cycling (Manley et al. 1995) and foster compensatory growth in grazed plants which may stimulate root growth (Osterheld and McNaughton 1991, Schuman et al. 1999) and, potentially, an increase in carbon sequestration in the soil (i.e., Derner and Schuman 2007, He et al. 2011). However, when grazer density is high relative to available forage resources, overgrazing by any species can lead to long-term reductions in plant productivity, including decreased root biomass (Herbel 1982, Williams et al. 1968) and potential reduction of stored carbon in soil horizons. Recognizing the potential beneficial effects of low-density wild horse and burro herds, but also recognizing the totality of available published studies documented ecological effects of wild horse and burro herds, especially when above AML (see preceding paragraphs), it is prudent to conclude that horse and burro herd sizes above AML may cause levels of disturbance that reduce landscapes' capacity for resilience in the face of further disturbance, such as is posed by extreme weather events and other consequences of climate change.

Most analyses of wild horse effects have contrasted areas with wild horses to areas without, which is a study design that should control for effects of other grazers, but historical or ongoing effects of livestock grazing may be difficult to separate from horse effects in some cases (Davies et al. 2014). Analyses have generally not included horse density as a continuous covariate; therefore, ecosystem effects have not been quantified as a linear function of increasing wild horse density. One exception is an analysis of satellite imagery confirming that varied levels of feral horse biomass were negatively correlated with average plant biomass growth (Ziegenfuss et al. 2014).

Horses require access to large amounts of water; an individual can drink an average of 7.4 gallons of water per day (Groenendyk et al. 1988). Despite a general preference for habitats near water

(e.g., Crane et al. 1997), wild horses will routinely commute long distances (e.g., 10+ miles per day) between water sources and palatable vegetation (Hampson et al. 2010). Wild burros can also substantially affect riparian habitats (e.g., Tiller 1997), native wildlife (e.g., Seegmiller and Ohmart 1981), and have grazing and trampling impacts that are similar to wild horses (Carothers et al. 1976; Hanley and Brady 1977; Douglas and Hurst 1983). Where wild burros and Greater sage-grouse co-occur, burros' year-round use of low-elevation habitats may lead to a high degree of overlap between burros and Greater sage-grouse (Beever and Aldridge 2011).

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APPENDIX J: PUBLIC COMMENTS

Appendix J.

Response to Comments

Sinbad Wild Burro Herd Management Area Gather Plan
DOI-BLM-UT-G020-2020-0017-EA

Bureau of Land Management
Price Field Office
125 South 600 West
Price, UT 84501

I. Introduction

A preliminary Sinbad Wild Burro Herd Management Area Gather Plan Environmental Assessment, DOI-BLM-UT-G020-2020-0017-EA was made available to the public for a 30-day public review and comment period that opened on July 21, 2021, which was then extended and closed on September 3rd, 2021. The EA document was posted to the project's webpage on the BLM's ePlanning website[1] and announced through press releases. The BLM Price Field Office compiled a list of interested publics from previous gather EAs. The BLM sent 23 notifications for the public comment period. The BLM accepted comments submitted via ePlanning at https://go.usa.gov/xFxCy, emailed to blm_ut_pr_comments@blm.gov as well as mailed or hand-delivered to the field office.

The BLM received approximately 822 submissions during the comment period, and more than 516 of those submissions comprised of form letters. Form letters are generated from a singular website from a non-governmental organization, such as an animal advocacy group. Identical form letters were considered along with the rest of the comments received but as one collective comment letter. Form letters are not counted as separate comments due to their duplicative nature. However, where individuals added their own personalized comments, these form letters with variation were considered as separately submitted comments. All comments received prior to the end of the public comment period were reviewed and considered. Substantive comments were used to revise and finalize the EA as appropriate.

An overview of comments received by the Price Field Office are as follows:

- 7 advocacy groups and/or organizations: Friends of Animals, American Wild Horse Campaign, Humane Society of the United States, Front Range Equine Rescue, Cloud Foundation, Citizens Against Equine Slaughter, Return to Freedom
- 2 state and/or local governments
- 809 individual comments
- 409 form letters (107 with some variation or additional comments added)

The BLM Price Field Office's comments response are addressed both by summary and matrix form below. Public comments were reviewed based on the criteria described in BLM NEPA Handbook (H-1790-1, Section 6.9). All comments submitted before the closing date of September 3, 2021, were reviewed, and considered by the BLM. Between September 3, 2021, and September 30, 2021, there were 2 individual comment letters submitted after the comment period closing date, these are not included in the total noted above but were still considered.

Multiple submissions followed the format of a form letter and were considered as one collective comment. However, form letters that included additional comments or deviated from the original form letter are included in the table as "form letter variations." Due to the volume, original comments will be made available upon request, according to appropriate protocols. The matrix part of this appendix includes the full comment/text as submitted by the commenter or is transcribed in part by the BLM. Note: While supporting attachments, reports, charts, photos, and/or

[1] https://blm.gov/programs/planning-and-nepa/eplanning

figures provided in the comment were considered by the BLM, these supporting materials are not included the matrix. Personally identifiable information of individuals will not be made publicly available. Names are shown as "protected" and the commenter was assigned an alphabetical letter and number for organization. The BLM has elected to protect the names of all individual commenters. The names of organizations/advocacy groups and state and local government agencies are fully disclosed.

The matrix is organized by commenter type as follows:

- Organizations and advocacy groups
- State and local government
- Individuals
- Form letter
- Form letter variations (form letter submissions where letter contained additional comments added by the commenter)

II. Summary of Comments by Topic

A brief summary of public comments received by the BLM Price Field Office are described below (organized by topic). This summary is not intended to list and/or respond to every comment the BLM received. However, this summary is intended to provide the reader with a general idea of some common substantive comments received. As noted above, please refer to the matrix following the below summary for additional response to comments.

A. Gather Operations

Comment: *Helicopter roundups are inherently traumatic for the animals, often resulting in injuries and deaths.*

Response: Helicopter operations are described in Section 2.2.1.1 of the EA and analyzed in Section 4.1.3.4 of the EA. As stated in Section 2.2 of the EA, the BLM would follow the Comprehensive Animal Welfare Program (CAWP) for all gather operations, including the use of helicopters. Refer to Appendix C in the EA for Standard Operating Procedures for CAWP. These Standard Operating Procedures were reviewed in response to comments with concerns regarding BLM's use of helicopters as a gather method (see section 5.3 of the EA), and no changes to the procedures were indicated based on this review.

As described in the EA (refer to EA Chapter 4, Sections 4.1.3.1, 4.1.3.3, and 4.1.3.4), the BLM recognizes that wild horses and burros can experience stress from gather operations and the BLM would take every effort to limit stress during gather operations. Published research cited in the EA (Section 3.2.3) indicates that the rate of death associated with BLM's helicopter-based gather operations are far lower than what is recorded for most other large wild animal capture operations (Scasta 2019).

B. Appropriate Management Level

Comment: *The BLM should consider adjustment of AML (increased).*

Response: The AML was analyzed in the Proposed Resource Management Plan and Final Environmental Impact Statement for the Price Field Office (Aug 2008) and adjusted accordingly as reflected in the 2008 RMP. Section 1.2 of the EA states that the AML is not being reconsidered as part of this EA, and such analysis would fall outside the scope of this decision.

C. Livestock

Comment: *Reduce Animal Unit Months (AUMs) for livestock or reduce livestock within the HMA.*

Response: The removal or reduction of livestock in the HMA was an alternative considered but dismissed (refer to reasons specified in EA, Appendix H).

Comment: *The BLM should investigate the range impacts of all of the land users including livestock, not just wild horses and burros, in order to appropriately and ethically manage public lands. It would be extremely difficult to point to any direct damage to the land that could be resolved only by reducing the number of wild horses. It seems that there is no evidence in the EA that shows wild horses and burros are the sole cause of rangeland degradation in the Sinbad HMA, specifically caused by trampling, which could well be caused by livestock too.*

Response: The Price RMP allows for livestock grazing within the Sinbad HMA. Since livestock grazing occurs in the HMA, impacts to livestock were analyzed in the EA in Chapter 4, Section 4.1.1.

D. Impacts to Wild Horses and Burros: Genetic Diversity, Fertility Control

Comment: *In order to maintain genetically viable populations, herds must have 150-200 adult animals at a minimum. This means that each distinct HMA must be managed at the minimum genetically viable number of 150-200 individuals in order to be a "healthy, self-sustaining" herd. Lacking the minimum levels of genetic variability, we are likely to see these herds disappear over time.*

Response: As stated in Section 2.3.6; the BLM WHB management handbook (2010) suggests that the loss of observed heterozygosity should be less than or equal to 1% per generation. Given the AML level established for the Sinbad HMA (50-70) and based on known seasonal movements of the burros within the HMA, sufficient levels of genetic diversity should be maintained. Results of genetic diversity data collected in 2001 are provided in Appendix L of the EA. Results of additional genetic data collected in 2016 is pending. The BLM does not anticipate a reduction in heterozygosity levels relative to 2001.

Comment: *Implement/ Don't Implement birth control darting.*

Response: Darting is a component of the proposed action and is described in Section 2.3.4 of the EA. For the purpose of this management plan, field or remote darting refers to applying the vaccine using a dart. Darting can be implemented when animals are gathered into corrals or opportunistically by applicators near water sources or along main wild horse and burro trails out on the range. In Section 2.3.4 of the EA it is explained that darting could be the method of delivery for the vaccine, but it is not the preferred method. Refer to Appendix H Alternatives Considered but Eliminated (Fertility Control Treatment Only and Bait and Water Trap Only) for a discussion of the feasibility of techniques that would allow consistent darting. The EA states "BLM does not plan to use darting for PZP-22 delivery (in this HMA) until there is more demonstration that PZP-22 can be reliably delivered via dart" (Appendix I). Therefore, wild burros must be gathered for each application of this formulation.

Comment: *Opposition to permanent sterilization.*

Response: The EA does not analyze permanent sterilization because this procedure is not a component of the proposed action or alternatives.

E. Alternatives

Comment: *Instead of unnecessary, large-scale removals, skewed sex ratios, and GonaCon, the BLM should manage this population on the range at the current level, using only PZP fertility control to reduce population growth rates and reduce the population size.*

Response: See Appendix H of the EA. Fertility control treatment only was an alternative considered but dismissed from further analysis.

Comment: *BLM should consider control by natural means. BLM failed to consider an alternative analyzing managing wild burros using natural means.*

Response: The alternative of wild burro numbers controlled by natural means is found in Appendix H of the EA (Alternatives Considered but Eliminated from detailed analysis).

F. Population

Comment: *The population is likely far smaller than the EA suggests. The proposed action (Alternative 1) is based on an assumed population of 269 wild burros that the BLM derives from the release of 103 head of burros in 2016 and information collected by the USGS and on estimates of population growth. From what is described in the document, these numbers give serious room for doubt.*

Response: The BLM in coordination with USGS has conducted several aerial survey flights since 2016 as part of a research plan to improve the accuracy of population estimates. See Section 1.2 of the EA for information regarding the population estimates.

G. National Environmental Policy Act

Comment: *The context and intensity of the proposed action indicates that it may have significant impacts that warrant preparation of an EIS.*

Response: Impacts were analyzed in the EA (Chapter 4) and are known—the action alternatives are not expected to be significant, involve unique or unknown risks, and are not highly controversial. Per 40 CFR 1508.27(b)(4) "Controversy in this context means disagreement about the nature of the effects, not expressions of opposition to the proposed action or preference among the alternatives. There will always be some disagreement about the nature of the effects for land management actions, and the decision-maker must exercise some judgment in evaluating the degree to which the effects are likely to be highly controversial." BLM has not identified any significant impacts that would trigger the need for an EIS. Refer also to "significance" and "context and intensity" as described in BLM NEPA Handbook 1790-1.

III. Response to Comments Matrix

No.	Commenter / ID	Comment	BLM Response
Organizations/Advocacy Groups			
1	American Wild Horse Campaign (65648)	AWHC strongly opposes BLM's proposal to roundup and permanently remove the majority of the federally protected wild burros from the HMA while potentially implementing unproven IUDs on jennies. It is AWHC's position that such a plan is inconsistent with scientific recommendations and should not proceed as currently written.	The removal of excess animals and implementation of fertility control measures is consistent with the findings and recommendations of the National Academy of Sciences (NAS); See EA Section 1.1
2	American Wild Horse Campaign (65648)	As such, the BLM must pursue a proposed action that includes: • Implementation of a comprehensive humane, reversible, and vaccine-based fertility control program immediately; • If removals occur, the BLM should utilize incremental removals through bait and water trapping only, over time and limiting those removed to adoptable animals that do not exceed adoption demand, and while providing burros their fair share of the resource; and • Implement range improvements to ensure adequate water and forage resources are available for wild horses and burros within the HMA. In short, AWHC strongly encourages the BLM to begin immediate implementation of a comprehensive vaccine-based PZP fertility control program for the HMA and to abandon any plan for the use of mass	The use of fertility control only was addressed in Appendix H of the EA. Appendix H also addresses other Alternatives that were dismissed such as Bait or Water Trap only and providing supplemental feed and water. Existing range improvements are adequate to provide water and forage for wild burros within the Sinbad HMA during normal precipitation periods. Implementing range improvements would not meet the Purpose and Need (see section 1.3 of the EA).

		roundup and removal with untested, unproven fertility control. As further articulated below, in the final Environmental Assessment ("EA") BLM should engage in a meaningful analysis of the effects of, and reasonable alternatives to, the permanent removal of wild burros from the Sinbad HMA.	
3	American Wild Horse Campaign (65648)	**Scoping:** Additionally, according to the information provided in the draft EA, it is unclear if the BLM attempted to conduct an external scoping period. None is noted and none was provided to the public for comment. If in fact no scoping period was conducted, the BLM must provide an explanation as to why that process did not occur. The final EA should provide an explanation as to why external scoping was not conducted for this specific action as recommended by Section 8.3.3 of the BLM's NEPA Handbook.	If a formal external scoping period had been conducted the information would be listed in Chapter 5 of the EA. External scoping is not required for EAs, per section 8.3.3 of the BLM NEPA Handbook H-1790-1 Based on the range of comments that the BLM has received on other wild horse and burro EAs that include fertility control methods, the BLM was able to include those concerns in the identification of issues and analysis of anticipated, potential effects in the EA. BLM has reviewed commenter's 2015 comments for DOI-BLM-UT-2015-0050-EA-Sinbad Burro Gather and Research, analyzing the burro gather w/out fertility treatments, and there is not a substantial difference between those comments and the comments submitted in 2020. Therefore, it was determined that external scoping was not required.
4	American Wild Horse Campaign (65648)	**Exclusive Use of PZP:** AWHC supports the BLM's consideration of PZP to manage wild burros in the HMA. However, instead of implementing a proposed action that focuses on roundups and removals, AWHC argues that the BLM must humanely manage wild burros through a focus on the application of PZP. Thus, the focus of BLM's proposed action must pivot to implementing a vigorous PZP program at current population levels utilizing Catch Treat and Release ("CTR") methods for the vaccination of all jennies over 1 year of age with the PZP–22 or native PZP fertility control vaccine. This approach would reduce population growth rates and population numbers over time, ultimately save taxpayers' money, and maintain herd social structures. It is also consistent with the BLM's legal requirement under the WHA to manage wild horse and burro herds for minimal feasible management. The use of PZP fertility control is scientifically established, cost–effective and widely accepted in the	See Appendix H of the EA where fertility control treatment only was an alternative considered but dismissed from further analysis. With regard to the cost-benefit analysis of relying on the available PZP ZonaStat vaccine, the currently available population model for wild horses, WinEquus, does not include economic cost projections, nor does it include population demographic rate, values that would be appropriate for projecting burro populations. At present, there is no BLM policy that requires use of WinEquus or any other software to project the probable outcomes of different scenarios or managed wild burro herds. When BLM contracts for wild horse/burro captures, the agency pays for every animal captured; as a result, the cost to

		mainstream wild horse advocacy and scientific communities. (NAS p. 99-112). Thus, the BLM must analyze PZP in line with the NAS findings that: Removals are likely to keep the population at a size that maximizes population growth rate, which in turn maximizes the number of animals that must be removed and processed through holding facilities. and The most promising fertility-control methods for application to free-ranging horses or burros are [] PZP vaccines, GonaConTM vaccine [for females] and chemical vasectomy [for males]. This conclusion is based on criteria such as delivery method, availability, efficacy, duration of effect, and potential for side effects. Of the recommended fertility control alternatives, the NAS concluded that the only method available for use now, without further research, is the PZP birth control vaccine. (NAS, pgs. 81 and 6). As the agency is aware, the PZP fertility control vaccination has been available for decades, has a 30-year proven history of being safe and effective in managing wild horse populations, and is socially acceptable because it is supported by the vast majority of the public and an overwhelming number of animal welfare organizations. In fact, the pilot program in the Black Mountain HMA (DOI-BLM-AZ-C010-2016-0004-EA) demonstrated the effectiveness of a PZP program for wild burros. Ultimately, the use of PZP is the most economical and humane option for the BLM. It will preserve the natural behaviors that distinguish wild-free roaming burros from domestic and stabilize populations within the HMA. Thus, AWHC urges the BLM to consider the active management of these burros with the implementation of a comprehensive PZP fertility program.	capture one female generally includes the cost to also capture approximately one male and approximately half a foal – as those are the approximate ratios of animals found in the wild. If the capture cost per animal were, for example, $800, then the annual cost of capturing a female would be about $2000; this level of expenditure would not be cost-effective, compared to removals, nor would relying on PZP alone lead to a herd size at AML in the near future or over the next 10 years. The NAS report (2013) also did not conclude that PZP was the only available, proven form of fertility control. It also commended GonaCon and one form of male sterilization (a chemical method that has since proven to be ineffective). In regard to gelding, the report noted that its effects could not be entirely predicted. The NAS Report (2013) states "No method has yet been developed that does not have some effect on physiology or behavior. However, the effects of not intervening to control or manage population numbers are potentially harsher than contraception; … "Three methods (PZP-22 and SpayVac, GonaCon, and chemical vasectomy) are considered the most promising for managing fertility in free-ranging horses and burros because they have the fewest and least serious effects on those parameters. In addition, although their application requires handling the animals' gathering- that process is no more disruptive than the current method for controlling numbers, and it lacks the further disruption of removal and relocation to long-term holding facilities. Considering all the current options, the three methods, either alone or in combination, offer the most acceptable alternative for managing population numbers." Since the publication of the 2013 NAS report, additional scientific studies have been published with further information about the humaneness,

			safety, and effectiveness of methods such as GonaCon vaccine and IUDs.
5	American Wild Horse Campaign (65648)	**GonaCon:** AWHC asks that the BLM expand on its review of GonaCon for potential implementation in the HMA. Currently, GonaCon is an experimental fertility control vaccine that interferes with the production of reproductive hormones, which drive natural behaviors in wild horses and burros. Before the agency moves forward with this method AWHC asks that the BLM add to its analysis and state that not much is known about the long-term safety, efficacy, and impacts to wild horse behaviors and natural social behaviors, which are the differentiating factors for these federally protected animals. In fact, the peer-reviewed article on the ongoing GonaCon study in the Theodore Roosevelt National Park, emphasizes that research on the use of GonaCon as a form of fertility control for wild horses is in its *nascent* stage and therefore limited. The study was only conducted on a handful of mares and even so it showed that the mares still acted like cycling mares–further demonstrating that more research on the effects to wild and free-roaming behaviors of the mares is necessary before this vaccine would be appropriate for broad use as a management tool. Of note, records AWHC received via a Freedom of Information Act request showed that BLM's Research Coordinator, Paul Griffin, reported that the use of GonaCon in the Park was showing "less than favorable results…when compared with hand injection" and that the reasons "were unknown;" further securing how little is actually definitively known about GonaCon. (Attachment 1). The NAS specifically noted that: Preserving natural behaviors is important, so GonaCon **seems** [emphasis] more appropriate for use in females in that some research has **suggested** [emphasis] that female sexual behavior continues. However, further studies on behavioral effects of this product are needed. (NAS, p.7). It is clear that the NAS thought GonaCon required further study. This experimental fertility control drug is not currently appropriate for widespread implementation as a management tool and should be dropped from consideration. AWHC has addressed this issue previously in a September 2015 letter to the BLM regarding the use of GonaCon in the "Water Canyon" project in the Antelope HMA in Nevada. We incorporate by reference all the information contained in that letter, which is included at Attachment 2.	The BLM's analysis included consideration of available scientific evidence with regard to known effects of IUD application, fertility control vaccines, and associated gathers, handling, and marking. Central conclusions of the literature review of these topics are included and alluded to in the main text and are more completely discussed in Appendix I: Literature Review; Fertility Control Vaccines, IUDs, and WHB Effects on Rangelands. These do constitute a hard look into the potential effects of agency actions. Refer to Chapter 4 and Appendix I of the EA for disclosure of impacts of GonaCon and for literature examining what could be reasonably predicted outcomes. The EA includes a detailed review of published scientific literature on GonaCon's mechanism of action and behavioral effects and potential impacts of the prospective use of GonaCon were analyzed in the EA with literature reviews. Since the 2013 NAS report, which was quoted in the commenter's statement, additional studies have been published that assess behavioral effects of GonaCon treatment in wild mares (refer to Appendix I: Literature Review referencing Ransom et al. 2014; Baker et al. 2018). Findings by the Baker et al. research team about the apparent difference between the longevity of GonaCon's effectiveness, as a function of delivery method, do not undermine the conclusion that the vaccine is safe and effective in equids for use as an immunocontraceptive. Those results merely suggest that GonaCon delivered by dart may be expected to have shorter-lasting effects than the same vaccine when delivered by hand.

		In short, because published research on GonaCon in horses is limited, there are remaining questions regarding negative impacts to pregnant mares–let alone jennies–(including association with abortion when given in early stages of pregnancy), long-term physiological effects, and whether the vaccine is a permanent sterilant or reversible. Even the short-term social/behavioral effects are not yet established. Thus, this experimental fertility control drug is not appropriate for field use and should be removed from consideration in this proposed analysis.	
6	American Wild Horse Campaign (65648)	**IUDs:** The inclusion of IUDs in the proposed alternative is experimental and therefore the impacts cannot be properly analyzed in the EA because they are unknown. In fact, the BLM has only implemented IUDs to control fertility of wild horses on the range in *one* HMA, the Swasey HMA in Utah. However, the agency has not released any information about the IUDs implementation, complications, or success in this HMA; let alone what impacts that could mean for jennies instead of mares. Instead, the agency relies on unpublished studies conducted under far different conditions than on range management in order to wrongly justify its approach. Given this, it is clear that the BLM is proposing to continue some sort of research experiment on wild equids rather than an established management program that will safely, humanely, and effectively control their population in the HMA. The BLM has yet to conduct a research project on wild burros in order to study and determine what impacts IUDs will have on burro health and behavior. In the Sinbad HMA the agency cannot gather scientific information on these untested methods in the absence of an affiliation with an academic institution, a scientifically sound and approved research protocol, and approval from an Institutional Animal Care and Use Committee ("IACUC"). Additionally, the BLM must disclose and identify any IACUC it works with in the HMA. Therefore, if the BLM were to implement IUDs in the HMA it would be as an experiment. Thus, the BLM must remove the use of IUDs from the chosen action or follow the guidance of the Federal Office of Research Integrity which states An institutional animal care and use committee (IACUC) is required by federal regulations for most institutions that use animals in research, teaching, and testing. The IACUC must approve protocols utilizing animals to ensure that the "animals selected for a	See Section 2.3 of the EA which states that "BLM does not have an IUD available that is specifically sized for burros at this time, IUDs are therefore included in the analysis in the likelihood of one becoming available in the next 10 years". Refer to Appendix I of the EA, regarding use of IUDs as part of a comprehensive fertility control program. This review includes published results of studies that tested the use of flexible IUDs. The analysis of IUD effects in Appendix I has been updated to include the latest available peer-reviewed literature on IUD effects, including new work by Gradil et al. (2021), Holyoak et al. (2021), Joonè et al. (2021), and Lyman et al. (2021), which do not change fundamental conclusions about potential effects that were drawn in the preliminary EA, based on previously available studies. Central conclusions of the literature review of these topics are included and alluded to in the main text and are more completely discussed in Appendix I: Literature Review; Fertility Control Vaccines, IUDs, and WHB Effects on Rangelands. These do constitute a hard look into the potential effects of agency actions. The BLM is not required to engage with a research institution or to solicit supervision by an institutional animal care and use committee (IACUC) for management actions that it undertakes

		procedure should be of an appropriate species and quality and the minimum number required to obtain valid research results. The IACUC must also ensure the "proper use of animals, including the avoidance or minimization of discomfort, distress, and pain when consistent with sound scientific practices." Because the EA proposes to implement IUDs even though the management method has not yet been studied in wild burros, there is a strong likelihood that an IACUC could impose changes to the proposed action. In fact, the EA lacks any real detail or explicit and detailed protocols for implementation of the IUDs in wild jennies. At the very least, when the BLM abandons this management decision and instead pursues a study, an IACUC will insist on clearly articulated protocols for the implementation and study of IUDs in wild jennies of the HMA. Until BLM acknowledges that by utilizing IUDs the proposed action is simply a thinly disguised, and poorly composed, research experiment, takes action to implement an experiment only as part of a well-designed, rigorously-controlled and documented scientific study conducted in conjunction with a reputable scientific institution, and then receives IACUC approval from that institution, it cannot accurately describe the proposed action or analyze its true impacts. Finally, on July 13, 2020, AWHC sent BLM a letter (Attachment 3) explaining its concerns with the BLM's push to implement IUDs in various HMAs across the West. In short, the letter explained the various issues with the BLM's intentions and requested that the BLM revise its plans in recent and pending NEPA actions to reflect the lack of scientific data on the use of IUDs and their unknown impacts on wild horses, as well as questions raised about those impacts. Further, AWHC asked that any use of IUDs that takes place on herds under the BLM's jurisdiction be implemented only as part of a well-designed, rigorously-controlled and documented scientific study conducted in conjunction with a reputable scientific organization or institution. These same concerns apply to any implementation of IUDs in wild burro populations. For all these reasons, the implementation of IUDs as a management tool must be dropped from consideration for implementation in the HMA. However, if the BLM chooses to move forward with the implementation of IUDs as a management tool in the HMA, then the agency must develop clear and precise protocols	in the course of its management of wild horse and burros. There is no statute or regulation that requires BLM to wait for the results of any study before it utilizes a particular population control method, and the notion cannot be squared with the WHA, which expressly authorizes sterilization and requires BLM to remove excess animals to achieve appropriate management levels "immediately" upon determining that an overpopulation exists, and that action is necessary to remove excess animals.

		similar to those included for PZP and GonaCon. Without clear protocols for use, neither the agency nor the public can begin to properly analyze and consider the use of IUDs on the wild jennies in the HMA, and without these additions, the EA is considered incomplete.	
7	American Wild Horse Campaign (65648)	**Wild Burros Effects on Ecosystems:** As clearly stated above, the WHA requires BLM to manage wild burros "in a manner that is designed to achieve and maintain a thriving natural ecological balance on the public lands." 16 U.S.C. § 1333(a), this should include the most up to date research into how wild burros or the lack of their presence, affects this ecosystem as a whole. Instead of quickly dismissing this recent scientific study of wild burro populations in the West, the BLM must fully analyze this important research on how these megafauna populations can actually boost biodiversity and how their absence could put other species at risk. While the BLM makes mention of the recent research by Dr. Erick Lundgren, University of Arizona, that has found that well digging by wild burros in the Sonoran Desert creates unique water sources that are used by more than 40 other vertebrate species and in some conditions become vegetation nurseries for foundational riparian trees, the EA only notes to one of Dr. Lundgren's important works. (See the other at Attachment 4). Additionally, the EA completely failed to analyze or include the other recent research that shows how the removal of wild burros and other megafauna appears to have led to the extinction of endemic fish populations in desert springs (Kodric-Brown and Brown 2007, Attachment 5). The EA quickly dismissed Dr. Lungren's research as not applicable in the Sinbad HMA due to the differences in habitat and the lack of similar study documenting wild horses or burros "causing similar or widespread habitat amelioration on drier upland habitats such as sagebrush, grasslands, or pinyon-juniper woodlands." (EA p. 133). AWHC reminds the BLM that the simple lack of study in the habitat of this particular HMA does not preclude the studied and documented benefits of the species from being assumed here. In other words, simply because the BLM is not aware of studies in the Sinbad HMA which have documented these same effects, does not mean they are absent. In short, in order to comply with NEPA, which as noted above the Supreme Court has found is "intended to reduce or eliminate environmental damage and to promote 'the understanding of the ecological systems	Lundgren et al. (2021) was discussed in Appendix I in the context of identified, potentially ecologically beneficial effects of wild equids. The EA does dismiss Dr. Lundgren's research in the Sonoran Desert due to differences in habitat. Lundren et al. (2021) documented burro 'well' digging in the sandy or gravelly washes of intermittent streams in which subsurface groundwater was widely available within 1 meter of the surface. In contrast, the soils within the drainages of the Sinbad HMA are too shallow to allow for such well digging. Web Soil Survey shows the drainages within the Sinbad HMA to be Map Unit Symbol 029 which is a Cheeta-Rock outcrop-Strych complex, 25 to 70 percent slope. The Cheeta soils are 5 to 9 inches deep when you strike bedrock. Rock outcrop is just that ….rock. The Strych soils are deeper with bedrock being 72 to 76 inches down. However, the soil profiles from the surface start with extremely stony fine sandy loam, very stony fine sandy loam, very cobbly fine sandy loam and extremely cobbly fine sandy loam. These soils are not conducive to digging and are dramatically different from the soil types in which Lundgren documented such digging. What Lundgren et al (2021) does not discuss, but which is included in the site-specific analysis represented by this EA, is the use of rock tanks which are persistently present within the San Rafael and are discussed within the EA, but not present in the Sonoran Desert. Kodric-Brown and Brown (2007) hypothesized that the complete exclusion of livestock grazing from the Ash Meadows National Wildlife

		and natural resources important to' the United States." *Dep't of Transp. v. Pub. Citizen*, 541 U.S. at 756 (quoting 42 U.S.C. § 4321) (emphasis added) the BLM must properly justify their position for the mass removal of wild burros from this landscape and show how such an action will truly *reduce or eliminate* environmental damage and demonstrates an *understanding of the ecological systems* at issue here. Without this meaningful analysis, the EA is lacking and threatens violation of both NEPA and the WHA.	Refuge in Nevada, and from the Dalhousie Springs in Australia was a causative factor that led to local extirpations of some fish populations. They suggested that some level of disturbance is necessary to keep some springs open, a concept that was recently cited by Lundgren et al (2021). Ash Meadows National Wildlife Refuge (located near Death Valley National Park) is managed by the US Fish and Wildlife Service, and management choices (in this case, complete removal of burros from the refuge) on those lands are the purview of that agency. In contrast, Sinbad HMA is managed by the BLM, and long-term continued presence of wild burros on the Sinbad HMA is a central element of management on the HMA. The BLM understands this public comment to imply that disturbance by wild burros may be necessary for the maintenance of ecological functions at water sources in the Sinbad HMA. However, the point is moot, because the BLM is not at all considering removing all the wild burros from Sinbad HMA; at issue is bringing herd sizes to, and maintaining them within, the established range of AML. Also, none of the action alternatives analyzed in the EA would fence or exclude wild burros from currently available water sources. Wild burro population size in the Sinbad HMA is not expected to ever be lower than the low end of AML. Therefore, it is expected that burro-caused disturbance in and near those water sources would continue, even with wild burro herd sizes that are within the established range of AML.
8	American Wild Horse Campaign (65648)	**Economic and Social Impacts:** According to the Council on Environmental Quality, under NEPA, "agencies are required to determine if their proposed actions have significant environmental effects and to consider the environmental and related social and economic effects of their proposed actions." The BLM is facing an escalating fiscal crisis off-the-range as a result of the mass removal of wild horses and	Comments regarding the annual costs of administering the Bureau-wide wild horse program including off-range facilities, large gathers, federal tax collection, or cost effectiveness of program components or individual budget expenditures are outside the scope of this EA.

		burros from the range and the stockpiling of captured mustangs and burros in government holding facilities. The proposed roundup and removal of the majority of wild burros within the HMA will only add to expensive and overcrowded taxpayer-funded holding facilities unnecessarily. The BLM must disclose these costs to American taxpayers in order for the public to have all information when submitting public comment on the proposed action. Thus, AWHC reminds the BLM that choosing a comprehensive field-darting fertility control program will save the agency, and taxpayers, significant funds and all while managing the burros humanely. For example, AWHC operates the largest humane management program for wild horses in the world by managing 3,000 mustangs on 300,000 acres of land in a cooperative with the state of Nevada. With a team of just over two dozen volunteers and budget of $224,000, the program vaccinated more wild mares with fertility control than the BLM did last year, with its program budget of millions-a-year. Fertility control is feasible and will work to stop population growth if used appropriately. It is also extremely cost-effective compared to roundups, removals and stockpiling. In 2020 alone, 80 percent of the breeding age mares have received both a primer and a booster and 20 percent have received at least one dose. AWHC is also happy to report that our data shows we have cut the foaling rate in half with this program. As of the end of July, when comparing 2020 and 2021, it is estimated that AWHC helped prevent 355 foals from being born. If those 355 foals had been born, the BLM's cost to round them up would have been approximately $355,000. Then, the lifetime holding costs for those 355 horses would have been approximately $17,750,000, or another $355,000 to adopt them through the Adoption Incentive Program. Thus, it is clear that a field darting program can lead to substantial savings. This is a possible future for the burros in this region because, as noted above, the PZP program in the Black Mountain HMA has shown to be effective. Additionally, the EA must consider the social preference of American taxpayers, 80 percent of whom want wild horses and burros protected and managed humanely on public lands. (Attachment 6). Congress has repeatedly instructed the BLM to implement comprehensive fertility control on the range, now and with the tools currently available. Yet, each year the BLM spends less than 1 percent of its program budget on the implementation of fertility	In determining which issues must be addressed in an environmental analysis, the CEQ Regulations state that NEPA documents "… must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail" (40 CFR 1500.1(b)). While many issues may arise during scoping, not all of the issues raised warrant analysis in the EA. Issues were analyzed if: 1) an analysis of the issue is necessary to make a reasoned choice between alternatives, or 2) if the issue is associated with a significant direct, indirect, or cumulative impact, or where analysis is necessary to determine the significance of the impacts. Cost data was not developed for this EA since it is not part of the mandates under the WFRHBA and has no bearing on the action alternatives. These costs are not the basis for making a reasoned choice between alternatives given the Secretary's statutory responsibilities under the WFRHBA and Congressional appropriations for managing wild horse and wild burro populations on public lands. Responses to previous comments refer to the rationale for not relying on a PZP vaccine-only approach to wild burro management in the Sinbad HMA.

		control programs. However, as noted above, in Fiscal Year 2021 BLM received an additional $14.2 million in federal funding to support the management of wild horses on federal public lands; some of which could be used to establish a comprehensive, humane, reversible fertility control program in this region. In fact, there is currently interest among members of Congress to require that BLM spend a portion of its budget on humane, fertility control vaccine programs in areas across the West. Thus, the option to implement vaccine-based fertility control before, and perhaps even in place of a roundup and removal action, is not only cost-effective but also in line with the wishes of the majority of American taxpayers and many members of Congress.	
9	American Wild Horse Campaign (65648)	**Analyze Alternatives:** Pursuant to NEPA, BLM must analyze all reasonable alternatives for management in the HMA. The "heart" of the NEPA process is an agency's duty to consider "alternatives to the proposed action" and to "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." 42 U.S.C. §§ 4332(2)(C)(iii), 4332(2)(E). If the agencies reject an alternative from consideration, they must explain why a particular option is not feasible and was therefore eliminated from further consideration. 40 C.F.R. § 1502.14(a). The courts will scrutinize this explanation to ensure that the reasons given are adequately supported by the record. *See Muckleshoot Indian Tribe v. U.S. Forest Serv*., 177 F.3d 800, 813-15 (9th Cir. 1999), *Idaho Conserv. League*, 956 F.2d at 1522 (while agencies can use criteria to determine which options to fully evaluate, those criteria are subject to judicial review), *Citizens for a Better Henderson v. Hodel*, 768 F.2d 1051, 1057 (9th Cir. 1985).	BLM analyzed three alternatives in this EA. Additionally, there were 12 (twelve) alternatives that were considered, but ultimately dismissed (see Appendix H).
10	American Wild Horse Campaign (65648)	**Bait and Water Trap:** If removals must occur, AWHC vastly prefers an option that would prioritize, or otherwise exclusively utilize, bait and water trapping methods rather than helicopters. Helicopter roundups are known to inflict stress, trauma, injury, and death on wild horses and burros, and collateral damage to sensitive sagebrush, grasslands, and riparian habitat areas and disruption to other wildlife species. Burros do not react to helicopters in a manner similar to horses, i.e. by being driven into a trap in herds. Instead, burros tend to scatter and stand up to helicopters, a behavior that often results in extensive chasing, helicopters coming close	An alternative to exclusively use bait and/or water trapping was considered but dismissed from further analysis in the EA. This information is presented in Appendix H. As stated in EA Chapter 2, the BLM would follow the Comprehensive Animal Welfare Program (CAWP) for all gather operations, including use of helicopters. See Appendix C in the EA for Standard Operating Procedures for CAWP.

		to (and sometimes hazing burros) and roping of burros on horseback. This makes helicopter roundups for burros even more traumatic on the animals than they are on horses. Thus, it is AWHC's position that the EA must further analyze alternative methodologies for wild burro removal including the exclusive use of bait or water trapping. Bait or water trapping, the typical form of roundup for wild burros, will minimize stress to the burros, eliminate collateral environmental damage (as burros will not be stampeded through sensitive habitat), and maintain herd social structures. The BLM has implemented the exclusive use of bait or water trapping within HMAs elsewhere across the West, and thus further analysis and consideration for the implementation of a similar application of bait or water trapping use in the Sinbad HMA should be added to this EA. Such an alternative is ripe for further consideration. If a helicopter roundup is selected as part of the proposed action, as is the current case here, the BLM must analyze and implement humane standards as outlined in the Standard Operating Procedures ("SOP") and Comprehensive Animal Welfare Program ("CAWP"). As such, the EA should have included an analysis of existing information available to determine where improvements could be made to reduce potential stress and harm to the burros during the roundup. Improvements, to minimize stress and injury to burros during roundups must include the following: 1. Limit the distance burros may be chased by a helicopter to no more than five (5) miles; 2. Require that the helicopter *not* chase/move burros at a pace that exceeds the natural rate of movement of the *slowest* animal in the band. Every effort should be made to keep older, sick and young animals together with their bands as they are moved into the trap. If there are compromised, old, weak or young animals in a small band – the helicopter should not move or capture those animals; and, 3. Establish strict parameters for suspending helicopter roundup operations in temperatures below freezing (32 degrees F) or over 95 degrees F. Thus, the BLM must analyze how bait or water trapping *could* be implemented on a large scale, including how water sources *could* be controlled allowing the BLM to turn off water during bait or water trapping efforts. The use of bait or water trapping can be used to greatly reduce the stress of roundup operations and maintain the social structure of bands,	Published research cited in Section 3.2.3of the EA indicates that the rate of death associated with BLM's helicopter-based gather operations are far lower than what is recorded for most other large wild animal capture operations (Scasta 2019).

		thereby reducing stress to the animals and is a minimal feasible management.	
11	American Wild Horse Campaign (65648)	**Predator Protection:** Although the EA notes that "[s]ome mountain lion predation may occur but does not appear to be substantial," (a line lifted verbatim from other wild burro EAs) the EA fails to disclose authorized activities within the HMA that remove predators, including mountain lions, via hunting or the federal predator removal program. All information on the extirpation of predators, including for the purpose of boosting the hunted species like big horn sheep population must be provided in the final EA. Without question, BLM has an obligation to consider the implementation of a program that will restore predator populations and protect predators as a natural population management option for the wild burro herds. There is scientific study related to the occurrence of mountain lion predation of wild horses and burros. (See Attachments 7 and 8) In fact more studies neglected by the BLM from researcher Dr. Erick Lundgren report that in the surveyed areas of Death Valley, burros were the primary recorded prey item and concluded that the removal of burros would likely lead to unexpected consequences for cougars and their alternative prey. (Attachment 9) Thus, the agency must disclose the mountain lion population, the current take of mountain lions, the current predation of mountain lions, and an analysis for re-establishing a viable and robust predator population within the HMA.	The BLM is responsible for managing wildlife habitat on public lands in cooperation with state wildlife agencies. In Utah, the state wildlife agency is the Utah Division of Wildlife Resources. These state wildlife agencies regulate the hunting and trapping of wildlife species. The United States Department of Agriculture Animal and Plant Health Inspection Service Wildlife Services is the agency that engages in any wildlife or predator control activities. All control measures maintain consistency with applicable Federal, State, and local laws, and individual agency policies and regulations. Comments regarding BLM's role in predator populations are outside the scope of the EA. The alternative of wild horse and burro numbers controlled by natural means was added to Appendix H of the EA (Alternatives Considered but Eliminated from detailed analysis). Decades of monitoring on the Sinbad HMA have revealed extremely low kill numbers on burros, or their foals from mountain lions overall. The number of horses and burros taken by mountain lions is so small that it cannot be considered a viable factor in population control.
12	American Wild Horse Campaign (65648)	**Public Observation:** The BLM is well aware of the significant public interest in the agency's management of wild horses and burros and its roundup and bait trap operations. Indeed, NAS specifically recommended to the BLM to improve the transparency of its management of the Wild Horse and Burro Program. The humane treatment of the horses and burros is paramount. Removal of wild burros from public lands negatively impacts the human environment for those who enjoy observing, photographing, and researching these wild burros. Given the tremendous public interest, and in fulfillment of the agency's claims to operate with full transparency, the following actions should be considered, analyzed, and implemented to ensure that the EA is implemented in a	The BLM supports meaningful observation for gather operations, see EA Section 2.2.3.6. The comment supporting cameras on aircrafts has been noted. In accordance with WO IM 2013-058: "The public/media are prohibited from riding or placing equipment in the helicopters contracted for a gather. The National Gather Contract §C.9.d specifies that "under no circumstances will the public or any media or media equipment be allowed in or on the gather helicopter while the helicopter is on a gather operation. The placement of public/media cameras or

		manner that minimizes stress and injuries to wild burros and ensures interested parties have the ability to adequately monitor the BLM's actions once the EA is finalized: • Trap sites should be located on public lands to allow public observation of roundup activities. No trap site shall be located on private lands (or military lands) for which the permission will not be given for public observation of roundup activities. • Observation should be located where the public has a clear line of sight to the trap site and no farther than one half mile away from the trap site. • The BLM should allow for an appointed observer to stand with the public and document the roundup operation in real-time. The purpose of this individual would be specifically to document and enforce any violations to the CAWP standards. The public should be able to report violations to this individual so that the operation can be paused, and the violations can be rectified in real-time. • Real–time cameras with GPS should be installed on all helicopters used in roundup operations and video should be live streamed on the Internet. This will improve the transparency of roundup operations and enable the BLM and public to monitor the direct impact motorized vehicle usage has on wild horses and the environment. • Real–time cameras should be installed on the trap, the corral and the temporary holding pens, again, so that BLM personnel, public and media can monitor the entire roundup operation and treatment of the horses and burros. • Public observation should also be allowed of all BLM bait and water trap operations. The recommendation of real–time cameras is also supported by a report commissioned by Cattoor Livestock Roundup, a long–time roundup contractor hired by the BLM which states, "Video monitoring of animal operations is a good way to ensure humane handling is taking place on a daily basis. Video cameras mounted in helicopters and in the capture and holding pens can also render the activists videos as simply nothing more than proof that your business 'walks the walk' when it comes to upholding animal welfare standards." The report was prepared by Mark J. Deesing, Animal Behavior & Facilities Design consultant for Grandin Livestock Handling System. Deesing, an assistant to the highly–regarded livestock industry consultant Dr. Temple Grandin. (Attachment 10).	recording equipment on panels, gates and loading equipment including trucks and trailers are also prohibited." The BLM and the helicopter pilot must also comply with 14 CFR Part 91 of the Federal Aviation Regulations, which determines the minimum safe altitudes and distance people must be from the aircraft. See also "Public Participation and Safety" under Appendix D of the EA.

		Video cameras will improve the transparency of roundup operations and enable the BLM and public to monitor the direct impact motorized vehicle usage has on wild burros and the environment. In addition, real–time cameras should be installed on the trap, the corral and the temporary holding pens, again, so that BLM personnel, public and media can monitor the entire roundup operation and treatment of the burros. AWHC would be happy to provide technical assistance and financial assistance to establish these real–time cameras as described above. In sum, the BLM must take seriously its obligation to make the NEPA process meaningful by evaluating all reasonable alternatives to the proposed action, rather than using the NEPA process to justify a foregone conclusion–the decision to once again remove wild burros from public lands. For all of these reasons, and in order to satisfy the obligations of NEPA, the BLM must further consider all the alternatives discussed.	
13	The Cloud Foundation (65644)	We would like to make a special note that Ms. Ginger Kathrens, founder of The Cloud Foundation, has not been consulted on issues regarding this EA (outside of receiving the standard notification of the EA availability). Please remove reference to Ms. Kathrens' in the final EA.	Refer to Response to comment #3 regarding scoping, the EA was changed to show that interest groups and members of the public were notified of the EA's availability (Table 9).
14	The Cloud Foundation (65644)	BLM Utah only has only two HMAs where wild burros are still permitted to live: Canyon Lands (77,254 acres of BLM-managed public lands) and Sinbad (254,850 acres of BLM-managed public lands). In 2008 the Sinbad HMA was split and reduced leaving only one-third of the acres for burro usage where they are now confined to just 89,465 acres of BLM-managed public lands (plus 9,776 acres of state lands). The BLM states the burros primarily use the southern portion of the HMA, and apparently has not conducted management actions to better understand why burros fail to utilize the larger northern section of the HMA and distribute the burros throughout the entire HMA. The HMA is divided by Interstate highway 70 and more than half of the acreage is north of Interstate 70 which is, according to the EA, is underutilized by burros.	Prior to 2008 the Sinbad HMA was split, horses and burros never mingled. The 2008 RMP clarified that the two were separate. No acreage was taken away from the burros as that acreage was never available to the burros to begin with. As part of the 2015 gather and USGS research 100 head of burros were returned to the HMA. 50 of those burros were released to the north side and 50 to the south side. The USGS radio collar data (unpublished data in possession of USGS) recorded that a large number of the burros released to the north side of the HMA moved themselves to the south side. We hope that the conclusion of that research will shed light on the burro's preference of the south side of the HMA.
15	The Cloud Foundation (65644)	The EA states, "the initial gather, if conducted in fall **2021, would require the … removal of up to 278 burros**... it is anticipated that up to 20 jennies would be treated with the first" roundup. (EA, page 16) Yet,	The EA Section 2.3.1 titled "Initial Gather to Achieve the AML" has been updated to reflect spring 2022 capture numbers.

		Table 1 on page 4 states the **Proposed Action would remove 199-219 (average of 209) of the estimated 269 burros in 2021** or if the roundup occurs in 2022 the agency would remove 258-278 (average of 268) of the estimated 328 burros. The discrepancy between the projected removal numbers on page 4 and page 16 is presumably the estimated number of foals expected to have been born in 2021 which BLM estimates at a 22% net herd growth rate. However, the BLM Wild Horses and Burros Management Handbook (H-4700-1) defines AML in Section 4.2.1, "AML applies to the number of adult wild horses or burros to be managed within the population and does not include current year's foals. All WH&B one year of age and older are considered adults (a foal is considered one year of age on January 1 of the year following its birth)." It appears the BLM intends to count the current year's foals in the population count and wrongly projects increased removal numbers based on the agency's failure to adhere to the Handbook requirement of not counting that year's foals in the population estimate.	The AML is the number of adult wild horses or burros to be managed within the population. However, when planning a gather, the BLM can not only remove adults and we must plan for and expect foals to be captured during the gather process.
16	The Cloud Foundation (65644)	Under the Wild Free-Roaming Horses and Burros Act, wild burros and horses are an "integral part" of the public lands on which they roamed in 1971. They are "living symbols" that "enrich the lives of the American people." The Act was passed to keep them from "fast disappearing" as a protected national resource. The Proposed Action would violate the very intention of the WFRHBA. The EA fails to consider the cumulative effects that the Proposed Action would have on the national wild burro population. By removing genetically healthy burros from the wild population, given the history of removals that has literally crashed the burro population's genetic health, this Proposed Action will have tremendous cumulative impact to the national burro population.	The Proposed action is in conformance with the WFRHBA. The Sinbad Burro AML is set at 50 -70 head of burros. The proposed action would reduce the current population to be in line with the approved AML and allows for the introduction of burros for genetic purposes as stated in Section 2.3.6 of the EA. Cumulative Effects are included in the EA in Section 4.4. Cumulative effects to the national wild burro population are beyond the scope of this EA. See Background Section 1.1 which describes why the Proposed Action is necessary.
17	The Cloud Foundation (65644)	**Benefits of Burros:** The EA fails to consider the modern understanding of the important role that burros play as a flagship species. They are described as "ecosystem engineers," as they provide hydration for dozens of animal species, from badgers to elf owls to toads in desert environments including Lake Mead as outlined in *Science* magazine (Attachments 2a and 2b). The authors found that the animals use their hooves to dig more than six feet deep to reach groundwater for themselves, in turn creating oases that serve as a boon to wildlife—American badgers, black bears, and an array of birds, including	The EA does discuss the research completed by Lundgren et al (2021) in Appendix I; Effects of Wild Horses and Burros on Rangeland Ecosystems, in the context of potentially beneficial ecological effects of wild equids. The ecological effect of well digging by burros in this specific region was dismissed regarding the Sinbad HMA due to differences in habitat type and as explained in response to comment #7, the soils within the San Rafael and

		some declining species such as elf owls. The *Science* paper (April 2021) state: *"Megafauna play important roles in the biosphere, yet little is known about how they shape dryland ecosystems. We report on an overlooked form of ecosystem engineering by donkeys and horses. In the deserts of North America, digging of ≤2-meter wells to groundwater by feral equids increased the density of water features, reduced distances between waters, and, at times, provided the only water present. Vertebrate richness and activity were higher at equid wells than at adjacent dry sites, and, by mimicking flood disturbance, equid wells became nurseries for riparian trees. Our results suggest that equids, even those that are introduced or feral, are able to buffer water availability, which may increase resilience to ongoing human-caused aridification."* As the National Geographic article states: *Wayne Linklater, a wildlife biologist and chair of the environmental studies department at California State University, Sacramento, agrees that the study invites a new look at such species. "Even though they are introduced, they are performing a really important ecological function," Linklater says, and yet the BLM wants to reduce their numbers. "This paper is very challenging to those traditional conservationists," he says, "who want to see all introduced species as somehow invasive and alien."* The EA fails to consider this modern understanding of the important contributions of burros and wild horses in the desert environment.	specifically the Sinbad HMA are not deep enough or too stony to allow for well digging. However, if it is the case that burros in the Sinbad HMA do, unexpectedly, engage in some degree of well-digging then the continued presence of wild burros in the HMA will allow for that ecological effect to occur. The herd size of burros will not be lower than low AML. It is immaterial for management considerations that wild burros are the descendants of domestic animals, because the legal framework for wild burro management is largely set by the WFRHBA, which makes clear the requirement for BLM to manage populations of these animals in designated areas.
18	The Cloud Foundation (65644)	**Genetic Importance of Herd:** The EA fails to provide sufficient or current genetic variability data on the Sinbad burros. This results in the EA failing to adequately consider the genetic importance of this herd and the cumulative impact the proposed action will have on burros under BLM management. The Proposed Action includes that, "At the AML level established for the HMA (50-70) and based on known seasonal movements of the burros within the HMA, sufficient levels of genetic diversity should be maintained to avoid high inbreeding risk, because BLM will periodically introduce burros from other HMAs to maintain genetic diversity in the long term." However, this assertion is simply not scientifically accurate – introducing burros from other HMAs will not avoid inbreeding risk … inbreeding will continue. Inbreeding will continue despite the proposal to add "every 4-5 years 1-3 jacks or jennies from a different HMA." (Note: this is not in conformance with the	As discussed in Section 2.3.6, Section 3.2.3.1, and Appendix L of EA, it is not expected that genetic health would be impacted by the proposed action alternative. Refer to section 3.2.3.2, In their 2013 report to the BLM, the National Academies of Sciences advocated for BLM to manage herds in the context of metapopulations of interacting herds across multiple HMAs. Moreover, the BLM is not legally obligated to maintain a particular number of animals in any given herd, nor should a given herd be considered as a truly isolated population, given that there can be additional introductions of wild burros from other herds to augment genetic diversity and

		recommendation as outlined in the Genetic Report.) The expectation that genetic variability will increase based on the addition of 1-3 jacks/jennies every 4-5 years is based on a mathematically probability but the reality is the vast majority of the burros will be forced to inbreed – fathers will breed with daughters, brothers with sisters, mothers with sons, etc. This sickening and dire future is created by the BLM unscientific and immoral AML system which is geared to give preference to commercial livestock over America's wild horses and burros. The Proposed Action fails to adequately address the artificially and unhealthy low Allowable Management Level (AML) which causes burros to inbreed and which is the reason most burros under BLM-management currently face a genetic crisis due to low population levels. Instead of addressing the BLM-created genetic crisis, the Proposed Action suggests adding burros from other areas under a false assumption that will prevent inbreeding caused by the low population level. The Proposed Action will compound the bleak situation facing these supposedly "protected" animals. The Sinbad burros are important from a genetic perspective – especially given they are only one of two herds in the entire state. The EA states, "Genetic monitoring results, based on samples collected during gathers, would be used to inform BLM if there is a need to introduce additional fertile animals." Removing burros prior to documenting the genetic variability of the herd is irresponsible given the crisis facing burros under BLM management. Maintaining a larger herd of burros enables a genetically-healthy population. This is necessary to ensure the long-term genetic health of burros nationwide. Dr. Gus Cothran, the BLM's equine geneticist, has presented the genetic data available on all burros managed by the BLM and it is clear from this data that the majority of burros face a genetic crisis. The National Academy of Sciences (NAS) scientific review (Attachment 3) of the BLM Wild Horse and Burro Program states that the genetic viability of the U.S. burro population is in jeopardy due to the aggregated populations and overall low number of burros stating, "removing burros permanently from the range could jeopardize the genetic health of the total population." Clearly, burros should not be removed especially given that this is likely one of the last genetically-healthy burro populations left in the U.S. The EA fails to consider that the BLM's genetic expert, Dr. Cothran, has repeatedly pointed out that the BLM's removal of burros from public lands has already led to	reduce risks of inbreeding. While genetic data would be collected to monitor genetic diversity, as stated above, there is currently no evidence to indicate that the Sinbad HMA wild burros would suffer reduced genetic diversity if managed at the established AML range. See Appendix L of the EA. *4700 Wild Horses and Burros Management Handbook*, Section 4.4.6.4, Management Actions: "If the recommended minimum wild horses herd size cannot be maintained due to habitat limitations (e.g., insufficient forage, water, cover, and/or space) or other resource management considerations (e.g., T&E species), a number of options may be considered as part of an appropriate site-specific NEPA analysis to mitigate genetic concerns: • Maximize the number of breeding age wild horses (6- 10 years) within the herd. • Adjust the sex ratio in favor of males to increase the number of harems and effective breeding males. • Introduce 1-2 young mares every generation (about 10 years), from other herds living in similar environments. If wild horse herd size in small, isolated HMAs is so low that mitigation is not feasible, consideration should be given to managing the HMA for nonreproducing wild horses or to removing the area's designation as an HMA through LUP. Genetic diversity will be monitored with respect to observed heterozygosity (Ho; BLM 2010). Genetic monitoring will inform the BLM as to whether or not genetic diversity, as measured by observed heterozygosity (Ho), is acceptable, or whether any mitigating actions will need to be taken (BLM 2010). If monitoring of observed heterozygosity levels, as measured from genetic monitoring samples, gives indication

		a genetic crisis for the U.S. burro population as a whole. The NAS report notes: • • "removing burros permanently from the range could jeopardize the genetic health of the total population." (NAS page 268) • • BLM "may need to assess whether the AMLs set for burros can sustain a genetically healthy total population." (NAS page 268) • • BLM must utilize "A participatory adaptive-management process for the setting and adjustment of AMLs…" (NAS page 250) • • "Environmental variability and change, changes in social values, and the discovery of new information require that AMLs be adaptable." (NAS pages 12 and 253) • • "…management should engage interested and affected parties and also be responsive to public attitudes and preferences." (NAS page 292) Dr. Cothran stated, "The burros, I think, have in many cases had more severe population contractions [roundups] probably more inbreeding because of the smaller numbers on the land…. And one of things we are seeing is that most of the burro herds show very low [genetic] variability ... I think the burros, in terms of genetic diversity, are a much bigger problem than the horses are. And again, we have tested a fair number of burros..." Source: www.youtube.com/watch?v=f5HTuKtVMVg Dr. Cothran said that many burro populations have only a 20 percent (20%) genetic variability factor compared to a healthy genetic variability of 70%. At 50% variability, a population is considered "challenged." The final EA makes passing reference to genetic analysis dated 20 YEARS ago. At that time the report quoted in the EA stated, "This negative *Fis* indicates there is no evidence of inbreeding within this population" dated 2002. But the EA failed to consider the full context of that quote: *This negative Fis indicates there is no evidence of inbreeding within this population. However, Fis calculated from microsatellite data can be misleading as the Poutou donkey also shows a negative Fis and this rare breed is known to be highly inbred.* The 2002 Sinbad genetics report goes on to state: *Allelic diversity in the Sinbad herd is relatively low. Ae and TNV values are below the feral mean…* *Population size of the Sinbad herd is quite low as is the maximum AML. Both are below the minimum number of individuals required to maintain genetic variability. Even though the estimates of variation in this herd are*	that measure of genetic diversity should be increased, the BLM may consider introducing animals to the herd to increase local genetic diversity." The commenter implies that there is little evidence to support the adequacy of periodic introductions to preserve adequate levels of genetic diversity. On the contrary, there is extensive theoretical and empirical evidence that as little as one effective migrant per generation can prevent a loss of observed heterozygosity (i.e., preserve genetic diversity), as has been shown as far back as a reference cited in the EA, by Mills and Allendorf (1996).

		among the highest for a feral her they are low compared to e domestic populations, including the inbred Poutou breed. … *RECOMMENDATIONS* *Little is known about genetic variation in donkey populations. Genetic variation in the Sinbad burros is lower than that of the Poutou donkey which is a breed that has experienced a drastic population reduction and therefore has relatively high inbreeding and low genetic variation. Population size of this herd is well below the minimum viable population level. Based upon population size and variability level it is recommended that this herd be closely monitored.* Dr. Cothran's 2002 report on Sinbad burros states that by adding one female from a different population every two years for the next 10 year "should be sufficient" to prevent "severe inbreeding." However, no data is provided to support this theory. This type of recommendation is based on statistical calculations and not real-life data. In fact, this recommendation has been given to BLM for decades and yet genetic health of the burro populations continue to decline giving credence that this recommendation is ineffective in preventing inbreeding and this mismanagement of burros must be addressed through increasing AML. Genetic testing should occur prior to the removal. If a current genetic sampling shows the Sinbad burros to continue to have healthy genetic variability it is imperative that the BLM revise the Proposed Action and take emergency action to eliminate livestock grazing in order to revise AML. If, on the other hand, a current genetic analysis shows a decline in variability since the 2001 testing this highlights the need to avoid reducing the population which would further accelerate inbreeding creating a genetic crash which would jeopardize the well-being of this herd.	Genetic testing of hair and fecal samples was completed as part of the USGS research done from 2016 to 2020. The results of which are still pending.
19	The Cloud Foundation (65644)	**Reduce or Eliminate Livestock:** The EA failed to consider the alternative action to temporarily or permanently reduce or eliminate livestock grazing from the HMA to 43 C.F.R. 4710.5(a). This regulation allows the BLM to temporarily or permanently close a public land area to livestock grazing "If necessary to provide habitat for wild horses or burros, to implement herd management actions, or to protect wild horses or burros, to implement herd management actions, or to protect wild horses or burros from disease, harassment or injury." The BLM has the discretion to implement this either temporarily or permanently and this action is available whether or not there is an emergency.	Reducing livestock or increasing AML were alternatives considered but dismissed from analysis (see EA Appendix H). Refer to response to comment B. The history of the planning efforts that established current AMLs is discussed in Chapter 1 of the EA. The current AML is based on established biological and cultural resource monitoring protocols and land health

		The North Sinbad allotment (35056) and the Black Dragon (35004) overlap with a majority of the HMA – approximately 90% of the North Sinbad allotment overlaps the HMA representing approximately 2,880 AUMs permitted and the entire Black Dragon allotment overlaps the HMA representing 3,223 AUMs permitted; combined only these two HMAs represent at least 6,100 AUMs compared to the AML of just 300 to 420 AUMs allocated for burros. (Attachment 19) The EA reports the commercial livestock North Sinbad allotment actual use for each of the last six years was 59% or 1,699 AUMs and the Black Dragon actual use was 33% or 1,064 AUMs – totaling more than 2,763 AUMs of actual use for each of the last 6 years or the annual equivalent of 460 burros. This does not include portions of the other allotments which overlap with the HMA (which is estimated to represent approximately 10% of the HMA). The EA must consider implementing 43 CFR 4710 because (1) burros face a genetic crisis based on the BLM's low AML and forcing animals to inbreed, (2) drought conditions mandate the removal of livestock to provide habitat for burros and (3) eliminating the current actual usage by commercial livestock would accommodate the entire Sinbad herd. The BLM's Adaptive Management mandate and the agency's discretion under 43 C.F.R. 4710.3-2 and 43 C.F.R. 4710.5(a), which allows for the reduction or elimination of commercial grazing to improve conditions and forage availability for wild horses or burros, coupled with the WFRHBA directive to "principally devote" the HMA to the welfare of the burros highlights the necessity for the BLM to take a hard look at this option which would mitigate the purported need for the Proposed Action. The Proposed Action could be postponed until the RMP amendment can be finalized.	assessments, as described in the 2008 Price Resource Management Plan (2008). Multiple use allocations between livestock, wild horses and wildlife are at the land-use planning level. This comment is therefore outside the scope of the wild burro gather EA and does not provide specific information to assist the BLM in refining its analysis in the EA.
20	The Cloud Foundation (65644)	**FLPMA:** FLPMA requires that BLM "balance wild horse and burro use with other resources" which equates at minimum to a 50-50 allocation of available forage between horses and livestock on WHTs. But given the other applicable laws and regulations, it is clear that livestock should be removed completely from the HAs/HMAs. FLPMA addresses the importance of the non-market value within its definition of the term "multiple-use." FLPMA requires that: *"(c) . . . consideration being given to the relative values of the resources and not necessarily to the combination*	The Federal Land Management and Policy Act (FLPMA) mandates that the BLM administered land be managed for multiple uses. Livestock grazing and WH&B are both uses authorized to occur on BLM administered land Authorized grazing in the area has undergone a site specific NEPA analysis. The permittees are legally operating under the terms and conditions of their granted permit. Refer to Appendix H in regard to removing livestock from the HMA.

		of uses that will give the greatest economic return or the greatest unit output." The intrinsic value of wild horses and burros falls under the non-market definition specified by both laws. Sec. 302 of FLPMA states: *"(a) The Secretary shall manage the public lands under principles of multiple use and sustained yield, in accordance with the land use plans developed by him under section 202 of this Act when they are available, except that where a tract of such public land has been dedicated to specific uses according to any other provisions of law it shall be managed in accordance with such law,"* [43 U.S.C. 1732] and Sec. 102 *"(b) The policies of this Act shall become effective only as specific statutory authority for their implementation is enacted by this Act or by subsequent legislation and shall then be construed as supplemental to and not in derogation of the purposes for which public lands are administered under other provisions of law"* [43 U.S.C. 1701] In addition, FLPMA requires the public lands to be administered for "multiple-use," which Congress defined as: *"the management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people . . . with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output."* [43 U.S.C. § 1702(c)]. While commercial livestock grazing is permitted on public lands it is not a requirement under the agency's multiple use mandate as outlined in the Federal Land Policy and Management Act of 1976 (FLPMA). Indeed, public land grazing is a privilege and not a right and the USFS is mandated by law to protect wild horses and burros. Therefore, the agency's management and Draft EA should reflect these priorities and legal requirements.	There is no mandate in FLPMA to provide 50% of available AUMs to wild burros, and the other 50% of available AUMs to livestock. The Sinbad HMA has not been designated as a wild burro 'range.' The term nonmarket values refers to the benefits individuals attribute to experiences of the environment or uses of natural and cultural resources that do not involve market transactions and therefore lack prices. Examples include the benefits received from wildlife viewing, hiking in a wilderness, or hunting for recreation. In examining nonmarket values, economists often distinguish between "use values" and "non-use" values. One resource with a potential nonmarket value that could be affected by the proposed action is the ability to view wild burros in large numbers. Although there could be some increase in recreation visitation to view wild burros, most of the economic value is likely nonmarket in nature (essentially a "non-use" value). Estimating non-use values for specific resources is difficult and often controversial. BLM guidance (Instruction Memorandum No. 2010-061, Guidance on Estimating Nonmarket Environmental Values, February 16, 2010) recommends that use values be emphasized rather than non-use values.
21	The Cloud Foundation (65644)	**Taylor Grazing Act:** Grazing on public lands is a privilege, and not a right See 43 U.S.C. § 315b & 16 (1943 Taylor Grazing Act, stating that grazing preferences "shall not create any right, title, interest, or estate in or to the lands" belonging to the U.S. Government); 43 U.S.C. § 580l (FLPMA similar provision); Omaechevarria v. Idaho, 246 U.S. 343, 352 (1918) ("Congress has not conferred upon citizens the right to graze stock upon the public lands. The government has merely suffered the lands to be so used"); U.S. v. Fuller, 409 U.S. 488, 494 (1973)	The Taylor Grazing Act authorizes the use of rangelands for livestock grazing, the Wild Horse & Burro Act established HMAs and provided protection for WH&B in conjunction with multiple use (such as for livestock grazing). Authorized grazing in the area has undergone a site specific NEPA analysis. The permittees are legally operating under the terms and conditions of their granted permit.

		(grazing permittee does not acquire a property interest in grazing permit); Swim v. Bergland, 696 F.2d 712, 719 (9th Cir. 1983) ("license to graze on public lands has always been a revocable privilege"); Osborne v. United States, 145 F.2d 892, 896 (9th Cir. 1944) ("it has always been the intention and policy of the government to regard the use of its public lands for stock grazing. . . as a privilege which is withdrawable at any time for any use by the sovereign without the payment of compensation"); Diamond Bar Cattle Co. v. U.S.A., 168 F.3d 1209, 1217 (10th Cir. 1998) (permittees "do not now hold and have never held a vested private property right to graze cattle on federal public lands"); Alves v. U.S., 133 F.3d 1454 (Fed. Cir. 1998) (holding that neither grazing permit nor preference is a compensable property interest). The TGA provides the government broad discretion to decide whether to allow livestock owners to use the public lands i.e., *the issuance of a grazing permit does not confer any entitlement or right to use the public lands; rather, it is a privilege that can be taken away if necessary to protect the health of the range and even if necessary to protect the wild horses. See* 43 U.S.C. § 315b (BLM, is "authorized" to issue permits for the grazing of livestock on public lands "upon the payment . . .of reasonable fees"); *id*. ("the creation of a grazing district or the issuance of a [grazing] permit . . . *shall not create any right, title, interest, or estate* in or to" these public lands. *Id*. (emphasis added). Indeed, the TGA also provides that the Secretary "is authorized, in his discretion, to . . . classify any lands within a grazing district, which are . . . more valuable or suitable for any other use," 43 U.S.C. § 315f, including use by wild horses that are required to be protected under the WHA (Wild Horse Act). *See* 16 U.S.C. § 1333(a); *see also* 43 C.F.R. § 4710.5(a). Livestock grazing on public lands is a privilege that can be taken away if necessary, to protect the health of the range and even, if necessary, to protect wild burros.	
22	The Cloud Foundation (65644)	**GonaCon:** The EA fails to adequately analyze the effects of Gonacon, which is causes the ovaries to shrink or malfunction, effectively destroying the ovary and/or ovary function. Behavioral endocrinology is the scientific study of the interaction between hormones and behavior. Biologically speaking, hormones change cellular function and affect behaviors. Hormones achieve this by affecting individuals' sensory systems, central integrators, and/or peripheral effectors. Hormones are chemical messengers that influence the nervous system	Refer to response to comment #5 and Appendix I of the EA, regarding use of GonaCon as part of a comprehensive fertility control program. The impacts of GonaCon use are also discussed in Section 4.1 of the EA.

		to regulate the physiology and behavior of individuals. (Attachment 4a) Just as ovariectomy removes the ovaries, thereby destroying natural hormone production (Attachment 4b), Gonacon act as a "chemical" ovariectomy because it has a similar effect through the reduced functionality or destruction of the ovaries and/or the function of the ovaries. Gonacon causes the destruction of the ovaries, which in turn destroys natural hormone production necessary for the natural "wild" behaviors. Gonacon is designed to permanently sterilize mares with a few applications; the EA must disclose or analyze any scientific data that shows whether horses or burros return to fertility after 2 or more applications of Gonacon before using Gonacon more than once. The EA must provide and analyze whether there is sufficient data that demonstrate Gonacon's short- and long-term efficacy, safety and the ability to preserve natural wild and social behaviors which are valued attributes of wild horses. The EA states "It appears that a single dose of GonaCon results in reversible infertility but it is unknown if long term treatment would result in permanent infertility." However, the EA must analyze the most up-to-date data resulting from BLM-funded research conducted by Dr. Dan Baker on the impacts of a second application of Gonacon to mares. Given this research was funded by BLM, it should be included in BLM's decision-making process for the usage of Gonacon; specifically, the agency's decision-making process of when and where to utilize PZP versus Gonacon. As BLM is aware, Dr. Baker's data shows that 75% of the mares who were given a second application of Gonacon did **not** return to fertility for at least 8 years after the second application. Because BLM ended funding for this research last year, we will never know if these mares would ever have returned to fertility. These mares may be permanently sterilized and their ovaries destroyed with the second injection of Gonacon. Dr. Baker's data highlights that BLM's assertion that Gonacon is reversible is not based on a second application; therefore, differentiation between the impacts of one and two applications should be addressed in the EA that for allows public input. Additionally, there is no data on the use of Gonacon in Burros or the effects that three applications of Gonacon may have. The EA should clarify the number of Gonacon applications that are included in the Proposed Action. It is critical to ensure management actions are based on science, provide transparency on government actions and allow the public to provide meaningful comments.	

		If more than one application of Gonacon is intended in the Proposed Action – the lack of scientific data or impacts to the animals must be analyzed. We urge BLM to exclude Gonacon from its population management. Short of that, we urge BLM to either state that only one application of Gonacon will be administered to mares (and continue to cite the reversibility claim) or acknowledge that current data shows Gonacon may not be reversible after just two applications. For transparency, and it would be helpful to the commenting public, we urge BLM to clarify if it plans to administer two applications of Gonacon to mares and if more than two applications are intended (over the life of the DR/EA) include clarification that there is no scientific data to support such usage. If the BLM plans to use Gonacon - beyond an initial application - we urge the agency to outline how the agency will not permanently sterilize mares (and destroy their ovaries) after two applications. We request the BLM outline the criteria utilized by the agency to determine usage of Gonacon versus PZP. Also, it is of public interest to understand any criteria the agency utilizes when determining when/where to utilize Gonacon (location, age, number of mares and how they were chosen). We remain adamantly opposed to the application of Gonacon on wild horses. Data shows that one application of Gonacon does not come close to providing the same high efficacy as PZP. Therefore, it seems the BLM utilization of Gonacon is only done with the intention of a second application (or more) which is why we ask the agency to address the issues raised above in the Final EA. The EA must acknowledge the experimental nature of Gonacon given that there is no data that suggests the reversibility of Gonacon after repeated application or that Gonacon intentionally destroys the ovaries. The USGS researcher, Dr. Holyoak, highlights the effect of Gonacon and its potential use, noting a significant difference in responsibility between managing feral horses and managing wild horses. "The IUD, if administered to the original mustang pools, will maintain their genetic line while a product like Gonacon EQ can be used to shut down the reproductive cycle of abandoned feral horses." (Attachment 5) This makes clear the permanent sterilization impacts intended by the use of Gonacon. Due to the lack of research or data on the use of Gonacon in jennies, our discussion focuses on the limited data available about mares. Gonacon literally shuts down a mare's estrus cycle, destroying the natural production of hormones which	See Appendix I, Registration and Safety of GonaCon-Equine for expected rate for return to fertility. See Appendix I of the EA (Registration and Safety of GonaCon-Equine) "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). Use of remotely delivered (dart-delivered) vaccine is generally limited to populations where individual animals can be accurately identified and repeatedly approached within 50 m (BLM 2010). Refer to Section 4.1.3.3 of the final EA which discusses the use of an initial dose and a booster dose. Refer to Section 2.3.3, "The liquid GonaCon (GnRH) vaccine, known as GonaCon-Equine, is federally approved by the EPA registration number 56228-41." The possibility that some treated females may become immunocontracepted up to the point at which they die as a result of repeated doses of GonaCon vaccine was discussed in Appendix I. Most likely, this would be a function of the duration of vaccine effectiveness, and the lifespan of the jenny in question.

		are known to have behavioral consequences; with repeated application, Gonacon is akin to a chemical ovariectomy. The EA fails to provide scientific data that shows that Gonacon is reversible after repeated application. In fact, the data shows that after two, three or more applications, it is likely not reversible. Sufficient studies have not been undertaken to determine how many applications results in permanent sterilization. Based on the BLM's mandate to implement actions based on science and data, Gonacon should not be included in the final Proposed Action Gonacon shuts down the natural production of hormones causing physiological disruption of hormones that play a vital role in survival ability in the harsh and rugged wild environments. Gonacon research in other species highlights, "there are potentially large ecological effects—such as changes to natural selection, effects on social structures and reproductive behavior, timing of mating and birthing seasons, changes to longevity, and effects on migratory or movement patterns—that still need to be examined in free-ranging populations prior to use as a management tool." (Attachments 6a-b) It appears from the limited studies of the application of Gonacon to wild mares (Theodore Roosevelt National Park) that social behaviors were defined as "herding, reproduction, agonism, harem-tending, and harem-social behavior" and "harem-social (e.g., allogrooming, pair-bonding, female-female urine marking), harem-tending (e.g. stallion defense of a band female or recruitment of a new female into the band), herding (e.g., driving or snaking behavior by the stallion), interaction-with-humans" (Attachment 7) These identified social behavior categories are inadequate to determining the behavioral impacts that relate to inter-horse bonds, individual bonds with the band, social status within the band, survivability behaviors necessary to thrive during inclement weather, etc. These studies did not identify lead mares or distinguish whether individual horse behaviors and/or personalities were altered due to the treatment. Gonacon shuts down estrus cycles in mares and impacts production of various natural hormones. Gonadotropin-releasing hormone (GnRH) suppression, whether by agonist, antagonist or vaccine has been based on the disruption of regulatory feedback between gonads and the pituitary, which, in turn, disrupts reproductive function (Dawson et al. 2006). The hypothalamus secretes GnRH, which, in turn, stimulates the release of the gonadotropin follicle	

		stimulating hormone (FSH) and luteinizing hormone (LH) from the anterior pituitary. FSH causes follicular growth and elevated estrogen secretion from the ovary, and LH causes ovulation, luteinization and elevated progesterone levels. Both estrogen and progesterone have far-reaching biological actions not only for successful reproduction but also provide feedback upon behavioral platforms in the brain, causing important reproductive behaviors to occur. In most mammals, the pituitary gland secretes factors into the blood that act on the endocrine glands to either increase or decrease hormone production. This is referred to as a feedback loop, and it involves communication from the brain to the pituitary to an endocrine gland and back to the brain. This system is very important for the activation and control of basic behavioral activities, such as sex; emotion; responses to stress; and eating, drinking, and the regulation of body functions, including growth, reproduction, energy use, and metabolism. [Society for Neuroscience, Hormones: Communication between the Brain and the Body, 2012]. While not specific to wild burros, Hall (2017) outlined the destruction of ovarian function and accompanying destruction of natural behaviors – how Gonacon destroys natural wild behaviors of burros or the ability to adjust to the extreme environmental conditions they face is unknown. "In the US, these vaccines are not commercially available, leading Donovan et al. (2013) to instead test a commercially available canine GnRH in mares. The findings of that study revealed the vaccine inhibited ovarian function, but also altered reproductive behaviours that are integral to the maintenance of the complex social structure of herd animals such as horses." (Attachment 8) Commercial vaccines that have been tested in mares include Equity, Improvac and Gonacon. The inhibition of GnRH will cause an absence of FSH and failure of follicular development (Checura et al. 2009), and ovulation failure. Ibid. Unfortunately, the Baker, DL 2018 study (Attachment 7) is not straightforward regarding Gonacon's safety issues when administered to pregnant mares. In one instance Baker, DL (2018) claims, "We found this vaccine to be safe for pregnant females and neonates." Yet, it is documented that Gonacon use in pregnant mares in the first trimester (and may extend further) may cause abortion. Baker, DL (2018) also states, "inoculation with Gonacon-Equine vaccine, *during approximately the second trimester of pregnancy*, does not affect the existing pregnancy of treated females or neonatal health and survival" and "revaccination could	

		be applied to pregnant mares, during mid-gestation, without risk to the existing pregnancy." However, the key is "during mid-gestation," supporting other data that Gonacon causes abortions if administered prior to "mid-gestation." Again, Baker (2018) can only summarize its data on neonate safety "when applied at approximately mid-gestation." Gonacon remains an experimental drug that should not be used outside a tightly controlled study and as Baker (2018) states, "additional research is needed to complete the objectives of this study including: 1) to define the duration of effective contraception post re-vaccination, 2) to determine if long-term or permanent infertility is a possible outcome, and 3) to assess if return to fertility (if it occurs) results in altered birth phenology of treated mares." Other findings have revealed that Gonacon "altered reproductive behaviours that are integral to the maintenance of the complex social structure of herd animals such as horses." (Attachment 6a-b)	
23	The Cloud Foundation (65644)	**IUDs:** The EA states, "Up through the present time (June 2019)1, BLM has not used IUDs to control 1 Note other EAs state IUDs have not been used on the range up through October 2020. fertility as a wild horse and burro fertility control method on the range." This true and accurate statement. In fact, the BLM has not conducted sufficient in situ research trials with IUDs. Data is needed to determine at what point in time should the IUD be removed from the mares. BLM cannot rationally believe implanting a device with no plan for retrieval of the device is a humane policy. IUDs must be taken out at some point. The EA fails to outline the re-capture process of jennies, the monitoring of jennies with IUDs, etc. This lack of protocol for in situ application of this experimental device in wild animals highlights the need for a robust research protocol on a small group of jennies who are easy to monitor and access for medical assessment and care. The EA fails to provide scientific data that shows IUDs have been scientifically proven to be safe or effective for a longer period than PZP-22. The EA has not considered what may happen to mares inserted with an IUD after 5 years or 10 years. The EA must fully disclose and analyze the BLM application of IUDs in wild, free-roaming mares in the Swasey HMA; such disclosure must include the limitations of the study, frequency of mare monitoring, long-term success rate (beyond PZP-22 capabilities), deleterious impacts to the mares, behavioral impacts, ability to capture all mares to remove the IUDs, etc.	Refer to response to comment #5 & #6 and Appendix I in the EA regarding use of IUDs as part of a comprehensive fertility control program. The devices have been studied in domestic equids and used in a management context in wild horses. The management application of IUDs in Swasey HMA was not structured as an experimental study. There is no statute or regulation that requires BLM to wait for the results of any study before it utilizes a particular population control method, and the notion cannot be squared with the WFRHBA, which expressly authorizes sterilization and requires BLM to remove excess animals to achieve appropriate management levels "immediately" upon determining that an overpopulation exists, and that action is necessary to remove excess animals.

		While IUDs may be a useful fertility control method, current scientific data does not support the on-range application outside of another highly controlled research project that would entail a thorough protocol. Should such a research project be initiated, it should be on jennies easily tracked and monitored on a daily/weekly basis. Only soft IUDs should be used in free-roaming jennies. Implementation of IUDs in domestic animals is not applicable to wild, free-roaming mares because, unlike domestic animals, wild free-roaming horses are not in a domestic setting whereby they are afforded medical observation and treatment as needed. There is no data that provides adequate length of monitoring a jennie/mare after insertion of an IUD. Additionally, there is currently insufficient data available on the best type of IUD to be utilized in wild jennies/mares or if IUDs in wild jennies/mares create complications, discomfort, short- or long-term health issues, etc. Therefore, an EIS is necessary before implementing the administration of IUDs in wild jennies/mares living on the range. Due to the lack of research/data of the use of IUDs in jennies, the research below refers primarily to mares. A previous BLM EA DOI-BLM-NV-S030-2020-0003-EA states, "…O-ring IUDs, the IUDs fell out at unacceptably high rates over time scales of less than 2 months (Baldrighi et al. 2017). Subsequently, the USGS / OSU researchers tested a Y-shaped IUD to determine retention rates and assess effects on uterine health; retention rates were greater than 75% for an 18-month period..." However, there is no data or documentation that demonstrates IUDs have long-term safety in wild jennies/ mares (this is due to the lack of available science supporting the usage of IUDs in wild free-roaming mares). IUDs are known to fall out of jennies/mares and may cause complications which would never be detected, given that wild horses are free-roaming and cannot be regularly monitored. If implemented on the range, it would be impossible to determine whether an IUD fell out of position, causing the horse pain, infection and health concerns. Before subjecting free-roaming jennies to the potentially painful and dangerous condition of a partially-ejected IUD – the complications of which could be serious – further limited on-range study is need and an EIS is required. This is precisely the type of situation that calls for an EIS to ensure the safety and efficacy of implementing this precedent-setting government action.	

		"For IUD-treated mares, 80% (12/15) were infertile after Year 1, but only 29% (4/14) and 14% (2/14) were infertile after Years 2 and 3, respectively. For IUD mares that were infertile, it was possible to visualize the IUD by ultrasonography, leading us to conclude that mares that became pregnant had lost their IUDs." (Attachment 9) This shows that there is no scientific justification to utilize IUDs over PZP-22. In fact, PZP-22 is proven more effective and safer. More recent studies, which were not on free-roaming horses, only tracked horses for a short time period report, "The study resulted in a 75% retention rate" for the Y design IUD conducted by Oklahoma State University." (Attachment 10) Questions regarding negative impacts to wild horses resulting from IUDs (including but not limited to scar tissue, physical damage, infertility, etc.) remain unanswered and further study is needed prior to implementation in situ. However, pen trials are not sufficient because they (a) did not follow the mares for living in "pasture" settings with multiple stallions for an extended period of time – a minimum of three to five years is minimal given the BLM has no plan to remove the IUDs from free-roaming mares who are subjected to this experiment. The BLM has failed to conduct in situ trials with jennies/mares who are known by either BLM or BLM volunteers and are monitored on a daily/weekly basis for the duration of the implant. This is necessary so that the horses can be monitored in the wild over a period of years to determine the short- and long-term deleterious psychological and physiological effects of this new and relatively untested surgical sterilization. The EA must disclose that IUDs are not commonly used in domestic mares who have their movement confined and are regularly administered medical care and provided feed and water. Subjecting jennies who are living in harsh and rugged environments – with no access to medical care – to this experimental surgical implant is inhumane and irresponsible. At minimum, BLM must conduct additional pen trials which must be followed by limited in situ trials. Trials of these IUDs should be undertaken first in well-known free-roaming jennies/mares who are easily monitored for a minimum of five years. Such in situ trials must be conducted with sufficient protocols in order to record behavioral, physiological effects before proceeding with implementation on mares outside of a well-controlled in situ study. IUDs (o-ring) cause "mild chronic endometritis" or inflammation of the inner lining of the uterus	

		(endometrium). (Attachment 11). Endometritis is an inflammation of the inner lining of the uterus (endometrium). Symptoms may include fever, lower abdominal pain, and abnormal vaginal bleeding or discharge and has been found to be related to infertility. Currently, there is insufficient scientific data available to support the use of IUDs in free-roaming horses or burros without the necessary scientific study with acceptable protocols. The NAS, citing the NRC 1980, noted that, "IUDs often dislodged and surgery was impractical in field conditions…" (Attachment 2, page 109) This is supported by the studies on IUDs in mares. "20 percent of the IUD-treated mares were pregnant" because "the pregnancies of the IUD-treated mares were due to loss of the relatively small IUDs, not to failure of efficacy, because no IUDs were found on ultrasound examination of the pregnant treated mares." (Attachment 2, page 122) Further study is needed to determine whether different types of IUDs suppress estrus (Attachment 12), which would in turn destroy natural hormone production which are necessary for natural wild behaviors (as discussed in these comments). The above are just a few examples of the medical issues that must be thoroughly analyzed in an EIS which includes: 1. identify the specific type of IUD that would be utilized. 2. conduct adequate pen trials and then to conduct limited on-range trials with mares that are known and easily monitored prior to implementation in wild, free-roaming mares who cannot be monitored or administered follow up medical care. 3. determine the short- and long-term affects to mares. 4. determine whether the specific IUD model proposed for use would destroy estrus cycles. 5. determine how IUDs would be removed from mares and when removal would occur. If IUDs are found to be safe, effective and preserve natural behaviors, they may be an added form of fertility control. However, removal of IUDs would remain a challenge for horses in the wild and would need to be adequately analyzed in an EIS. To summarize, the BLM must conduct extensive pen trials prior to implementing on a limited number of in-situ studies involving easy-to-monitor free-roaming mares; such monitoring should continue for a number of years until the IUD is to be removed. Such in situ studies, after the pen trials, should adhere to a rigorous	

		protocol in order to extract usable data that addresses concerns expressed in these comments. Future studies and data are needed before IUDs can be humanely and effectively implemented in situ.	
24	The Cloud Foundation (65644)	**Adaptive Management:** The EA fails to consider utilizing Adaptive Management to adjust the AML through an LUP amendment. BLM Adaptive Management document states, "The RMP will be implemented using adaptive management processes. Under adaptive management, decisions, plans and proposed activities are treated as working hypotheses rather than final solutions to management of resources and uses. For the purposes of this plan, adaptive management represents a process that tests, evaluates and adjusts the assumptions, objectives, actions, and subsequent on-the ground results from the implementation of RMP decisions." (Attachment 13) The *Adaptive Management: U.S. DOI Technical Guide* states, "…the use of adaptive management in resource management almost always requires a fundamental shift from the status quo…" and goes on to state, "adaptive management requires a much more open process of decision making, in which stakeholders are directly engaged and decision-making authority is shared among them. It also requires that objectives, assumptions, and the other elements of the decision-making process be explicit, and therefore amenable to analysis and debate…" (Attachment 14)	A Land Use Plan (LUP) amendment would be outside the scope of the EA and also would not meet the purpose and need for the action.
25	The Cloud Foundation (65644)	**Alternatives:** The EA states, "The burros have been concentrated on the south side of the HMA for greater than 10 years now, with a few burros moving back and forth to the North side of the HMA. As part of the 2016 gather, half the burros returned were put on the north side of the HMA, but most of those had moved to the south side as of summer 2019. Typically, the burros will move out." Yet, the EA fails to provide any data or explanation why burros leave the northern portion (which is the majority of the HMA range) and it appears the BLM has not taken appropriate actions to ensure burros are distributed throughout the HMA to mitigate the need for removals due to "reduced available water and forage." The EA specifically acknowledges the agency's failure to take minimal actions that could reduce the need for the removal as outlined in the Proposed Action: EA, page 23, "Most of the developed water sources are in fair condition, with most in need of general maintenance."	Refer to response to comment #14 regarding burro's preference of the south side of the HMA. "General Maintenance" has been clarified in section 3.2.1 of the final EA.

		"Competition for forage and water between wild burros and livestock" is an objective of the Proposed Action. The EA (page 30) states that no mitigating measures were considered to address this competition for forage. Removing livestock would also eliminate the competition for forage and water; commercial livestock grazing on public lands is a privilege not a right as addressed previously. The EA fails to take a hard look at alternatives to the Proposed Action in order to accommodate most, if not all, burros currently on the range and reduce or eliminate the projected removal number. Adaptive management eliminates the BLM's authority to claim that this is outside the scope of the EA because a land use plan amendment could be initiated at the time a revised EA is created to address in inadequacy. (Attachment 13)	Refer to response to comment #19 regarding reducing livestock as well as Appendix H of the EA. Refer to response to comment #24 regarding adaptive management.
26	The Cloud Foundation (65644)	The EA fails to provide maps of where the burros are in (or outside) of the HMA. The EA must disclose mapping of all burros inside and outside of the HMA, fence lines and water sources (preferably on one map) and an analysis of how burros are moving outside of the HMA (given livestock fencing in the area). The EA must consider an alternative that includes returning burros who have moved outside the HMA back within the HMA. If fencing is in need of repair or gates need to be kept closed, those issues should be outlined and addressed in the EA rather than simply moving to remove the animals from the range.	Requested use of mapping data showing distribution of collared burros, that was collected as part of the USGS research was not responded too, as it would most likely be released early to the rest of the research. The USGS typically does not release data from research until the time of peer reviewed publication. The BLM expected a non-response or a denial of request. An updated map has been included with the final EA. Which includes the range improvement projects and inventory distribution data from 2014. Even though livestock fencing exists, BLM staff have witnessed burros by passing fence lines by traversing natural barriers like small cliff faces or walking around the ends of fences, which has occurred when burros made their way onto Interstate 70 and the Highway Patrol hazed them off the highway prior to BLMs arrival. Maintenance of projects is assigned to the livestock permittees and as such would be analyzed as part of the permit renewal, which is outside the scope of this EA. Returning burros who have moved outside the HMA back within the HMA would not meet the purpose and need of the proposed action and as such is not analyzed.

27	The Cloud Foundation (65644)	The EA fails to analyze (a) adjusting the current AML in light of the fact that wild burros are thriving in the HMA, (b) BLM continues to allow commercial livestock grazing to occur in the HMA – even during the drought and (c) the Proposed Action violates existing laws and regulations that protect wild horses on these public lands. AML must be in conformance with the 1971 Wild Free-Roaming Horses and Burros Act. The majority of AUMs or forage allocation within the HMA must be "principally but not necessarily exclusively to wild horses and burros" as outlined in the 1971 Wild, Free-Roaming Horses and Burros Act (WFRHBA). The EA must analyze the facts that AUMs continue to be permitted and utilized by livestock within the HMA, and in conformance with WFRHBA which requires the HMA is managed principally for wild burros, AML should be increased for wild burros and the current population should be accommodated and humanely managed with PZP or PZP-22.	Refer to response to comment #9 and Appendix H of the EA for Alternatives Considered but Eliminated, as well as response to comment B, #15, #16, #19, and #20 concerning AML and violation of existing laws.
28	The Cloud Foundation (65644)	The EA fails to adequately address the protection of wild horses during the proposed roundup. The BLM's "Comprehensive Animal Welfare Program (CAWP)" is woefully inadequate in establishing humane standards for the treatment of wild horses and during a roundup. If helicopters are to be used as a part of any management, the plan must consider, analyze and implement humane standards as outlined in the below recommendations. These recommendations are necessary to reduce potential stress and harm to the wild horses during a roundup. The EA must consider the following information to minimize trauma and injury to wild horses during a roundup: a) Limit the distance wild horses may be chased by a helicopter to no more than five (5) miles. b) Require that the helicopter not chase/move wild horses at a pace that exceeds the natural rate of movement of the slowest animal. This means that if an animal begins to lag behind, the helicopter must lift pressure off the band so as to bring them in together. Keep older, sick and young animals together with their companions, bands or mothers as they are moved to the trap. The helicopter should not move or capture compromised, old, weak or young animals. c) Establish strict requirements for suspending helicopter roundup operations in temperatures below 32 degrees F (freezing) or over 90 degrees F. Roundups outside of this temperature range would be blatantly inhumane. (Attachments 15, 16, 17)	Refer to response to comment A as well as comment response #10 in regard to the use of Helicopters.

		The EA must consider and analyze the welfare standards attached in the Addendum.	
29	The Cloud Foundation (65644)	The EA must consider and implement the following with regards to ensuring transparency, First Amendment rights and public observation: • Improved public observation of all agency actions. There is significant public interest in the agency's management of wild horses and its management of these protected animals. The NAS specifically recommended to the BLM to improve the transparency of its management of the Wild Horse and Burro Program (Attachment 2). The treatment of the wild horses and agency transparency are paramount. • Ensure members of the public are able to clearly see the trap site; are able to clearly view wild horses in temporary holding; observe from a vantage point the handling of the animals at the trap, being loaded into trailers, sorted at temporary holding and all aspects of the removal and handling of the animals. • All removal operations must be located on public lands to allow public observation of all activities. No government operations should be located on private lands for which the owners will not give permission for public observation of activities. • Real-time cameras with GPS should be installed on all aircraft and/or helicopters used in operations and video should be live streamed on the Internet. This will improve the transparency and accountability of roundup operations and enable the BLM and public to monitor the direct impact motorized vehicle usage has on wild horses and the environment. • Real-time cameras should be installed on any traps, corrals and temporary holding pens, again, so that BLM personnel, public and media can monitor the entire roundup operation and treatment of the horses. The recommendation of real-time cameras is also supported by a report commissioned by Cattoor Livestock Roundup, a long-time roundup contractor hired by the BLM which states: "*Video monitoring of animal operations is a good way to ensure humane handling is taking place on a daily basis. Video cameras mounted in helicopters and in the capture and holding pens can also render the activists' videos as simply nothing more than proof that your business 'walks the walk' when it comes to upholding animal welfare standards*." The report was prepared by Mark J. Deesing, Animal Behavior & Facilities Design consultant for Grandin Livestock Handling System. Deesing was an assistant to the highly regarded livestock industry consultant Dr. Temple Grandin. (Attachment 18)	Refer to response to comment #12 in regard to Public Observation.

		Video cameras will improve the transparency of the operations and enable the BLM and public to monitor the direct impact motorized vehicle usage has on wild horses and the environment. TCF would be happy to provide technical assistance and financial assistance to establish these real-time cameras as described above.	
30	The Cloud Foundation (65644)	As stated by the NAS, NRC and CEQ the BLM must consider the *prevailing public preference* which, in this case, is to humanely manage wild horses on the range using PZP, a method of fertility control that has been successfully and safely used for decades. BLM must also develop year-round water sources to accommodate the wild horses on the range, just as is regularly done for privately-owned livestock on public lands. An amendment to the RMP increasing AML for horses. Adaptive management could and should be used to postpone the removal of horses until the RMP is amended. While there is no current crisis on the range, the agency is facing an escalating fiscal crisis off-the-range as a result of the mass removal of wild horses from the range and the stockpiling of captured wild horses in government holding facilities. The EA currently fails to adequately consider the interests of those who cherish the opportunity to observe, photograph, and otherwise enjoy wild horses and their natural behaviors in the Sand Wash Basin HMA … these are the very horses which Congress declared to be "*national esthetic treasure*[s]" when it enacted the Wild Free-Roaming Horses and Burros Act of 1971. According to the White House Council on Environmental Quality (CEQ), under National Environmental Policy Act (NEPA), "agencies are required to determine if their proposed actions have significant environmental effects and to consider the environmental and **related social and economic effects of their proposed actions**." As stated by the NAS, NRC and CEQ the BLM must consider the ***prevailing public preference*** which in this case is TCF and our supporters. We strongly oppose the Proposed Action and sufficient Alternatives were not considered as discussed herein.	Refer to response to comment #4 regarding exclusive use of PZP as a fertility control. Refer to response to comment #2 regarding range improvements. RMP revision is outside the scope of this EA see response to comment #24. Management of the Sand Wash Basin HMA is outside the scope of this EA. Statements that are in opposition to or in support of the BLM's wild horse program activities were reviewed but did not warrant a change to the content of the EA (H-1790-1, section 6.9.2.1 substantive comments). Wild horses and burros have long been managed by the BLM, and the EA does not propose to change the public viewing or study of wild burros in the Sinbad HMA. The BLM encourages the viewing and enjoyment of America's wild horses and burros.it. Public observation of gather activities is discussed in the EA in section 2.2.3.6. The purpose and need of the Proposed Action would bring the populations of wild burros to within the established AML ranges; the BLM would not remove all burros from the HMA. For this reason, the opportunities for wild burro viewing would continue.
31	Humane Society (65641)	***Clarification on HSUS and HSLF policies on "decreasing…excess wild burros"*** On pages 2 and 8, the EA states that "decreasing the numbers of excess wild burros on the range is consistent with the findings and recommendation from…Humane Society of the United States (HSUS)." This is a mischaracterization of what the HSUS and	The Humane Society's four-pronged approach as stated is limited removal, use of fertility, adoption of removed animals and use of large pasture facilities for those animals that are taken off the range and not adopted or adoptable. All of which are discussed

		HSLF are advocating for as it singles out one of four prongs that are simultaneously required to reform the BLM's Wild Horse and Burro Program's management regime. On its own we do not support removing excess wild burros. For these reasons, we respectfully request that references to the "Humane Society of the United States (HSUS)" in this context be omitted from the final EA.	in the EA as part of the Proposed Action. The initiating point of this approach is a removal so that fertility can be implemented on a large portion of the remaining females. The animals removed will either go to adoption facilities or long-term holding, the logistics of which are touched on within the EA. Any additional information than what has been disclosed in the EA are beyond the scope of the EA. However, in deference to the commenter's request, the reference has been omitted from the Final EA.
32	Humane Society (65641)	***"Frontload" implementation of the wild burro management plan*** According to the EA (page 4), as of March 2021, the BLM estimates that the Sinbad HMA wild burro population was approximately 269, and that given current population growth trends, that the population is projected to increase to 328 by January 2022. To achieve and maintain AML, under Alternative 1 (Proposed Action), in the fall of 2021, the BLM proposes to capture approximately 300 wild burros, remove up to 278, and then treat up to 20 female wild burros and release them back onto the range. Since normal gather efficiency is 70 to 80% of the population (i.e. 262 burros or less for the initial gather in fall 2021), the BLM assumes that over a 10-year period, subsequent gathers will be necessary to achieve and maintain AML and apply fertility control treatments to female burros to reduce the population growth rate (page 16). As currently written, it is unclear whether the BLM intends to implement fertility control measures until AML is achieved through the initial fall 2021 gather and subsequent gathers. According to the National Academy of Sciences (NAS)1, removal of excess horses can facilitate a higher growth rate in wild herds due to decreased competition for forage. Unless the BLM implements fertility control while working towards achieving AML, the proposed management action is likely to increase wild burro population growth rates. As stated in the EA (page 2), equine herds are capable of increasing by 18%–25% annually, but studies have shown that growth rates are higher in herds where removals have been conducted. Any significant reduction in burro numbers, even if such a reduction is short of AML, may increase foaling rates and foal survival rates which will, in turn, increase	EA Section 2.3.1 titled "Initial Gather to Achieve the AML" has been updated to reflect January 2022 population numbers. To the extent possible, while still remaining consistent with the goal of reducing population size to a level close to or below high AML, the BLM may include some preliminary vaccine treatments of jennies that are returned to the range, as early as the first gather. The specific number of jennies treated and returned to the range will depend on logistical constraints such as holding corral capacity and allowable gather contract budgets. Jennies that are treated with initial doses of fertility control vaccine will likely have stronger contraceptive response when

		the population growth rate, and as a result, the number of foals born per year could meet or exceed the number of burros removed. This is the least efficient way to curb population growth, and simply perpetuates the management cycle the BLM has been pursuing for decades that has led to increasing populations on and off range, as well as increasing program costs. Instead, a strategy must be developed to incorporate fertility control methods from the beginning of the program. In short, fertility control must be used *while* working towards AML rather than waiting until AML has been achieved. BLM's own assertion that the amount of time to get the population at or near AML is difficult to predict which makes it imperative to implement fertility control as part of the management approach from the beginning in anticipation of the challenges that exist and that have hampered population management goals from being achieved for decades. Otherwise, the BLM may never achieve AML, and as such, will never be able to implement any fertility control methods to slow the population growth rate of the herd. Alternatively, a dual approach that includes removals with extensive fertility control would be more effective in lowering and maintaining a stable wild burro population in the long-term. Thus, we request that the BLM modify its Alternative 1 to clarify that fertility control agents will be used upfront and coupled with removals. BLM must develop a strategy to frontload the implementation of this 10-year plan (i.e. allocate resources with the greatest proportion applied to the beginning of the plan). Gather numbers need to be higher initially to allow fertility control to catch up with the population (in other words, to implement fertility control alone, alongside current average removal numbers, or not at all until AML is achieved, would not lead to population balance and control because the number of foals born per year may still exceed the number of burros removed).	they are treated for a second time, so there could be some benefit to early treatment and return of some jennies. The EA states that fertility will be implemented once AML is achieved (see section 2.3, Proposed Action) of final EA.
33	Humane Society (65641)	***Treat a high proportion of the remaining jenny population with fertility control*** According to the proposed EA, under Alternative 1 (Proposed Action), starting with an estimated population of 328 wild burros, the BLM proposes to capture between 262 and 300 wild burros in the initial gather conducted in the fall of 2021 (page 16). Then, of those captured, the BLM would remove up to 278 wild burros and treat with fertility control vaccines and release up to 20 jennies. Assuming the estimated starting population is accurate and capture success is 70-80% (i.e. 262), only 46% of the remaining female burros would be treated with fertility control agents. All	Refer to response to comment #32 regarding gather and removal numbers. Due to the consistent color marking of the Sinbad Burros and burros in general. The BLM must find a way to individually identify jennies that have been treated with a fertility control agent. As stated in Section 2.3.3, "Any jennies that would receive fertility control vaccines or IUDs would be

		gathers must be coordinated with ongoing, on-range fertility control programs to prevent subsequent population growth within the wild burro herd, and as a general rule, to avoid the need for future large-scale removals, 90% of the remaining jennies should be treated with fertility control agents and returned to the range. The agency must also commit to continue to treat jennies in successive years to ensure that a sufficient number of jennies remain treated – either by opportunistic darting or, if that is not possible in all locations, then gathers without removals must take place in subsequent years to ensure repeated treatments. As currently written, it is not clear why the BLM would only treat 50% of the remaining jenny population rather than 90% in order to minimize the amount of time required and the number of animals that would need to be removed to achieve and maintain AML over the next 10 years. For that reason, the final EA should either adequately justify treating a relatively small proportion of the remaining jenny population or the plan should be revised so that the stated goal is to capture, treat and release 90% of the remaining jenny population.	individually marked/microchipped and/or be individually recognizable without error." Maintenance gathers for the purpose of fertility control distribution and removal of young animals are discussed in Chapter 2. As stated in the initial gather to achieve AML (Section 2.3.1); "Subsequent gathers are likely since normal capture success is 70 to 80 percent of a population…". Treatment of 90% of the remaining females could be a goal but is not likely on the initial gather, and until fertility treatment is initiated it may or may not be attainable. At this point in time BLMs objective as outlined in the Proposed action is to reach low end AML (50 head and treat 20 females), which would be 80 percent of the remaining females.
34	Humane Society (65641)	***Fertility Control Vaccine Formulations & Dosing Considerations.*** On page 18 of the EA, the Price Field Office (PFO) proposes using two different fertility control vaccines to suppress the Sinbad HMA wild burro herd's population growth rate – the Porcine Zona Pellucida vaccine (PZP or ZonaStat-H) or the GnRH vaccine (GonaCon). First, to avoid confusion and inefficiency, we highly recommend that the PFO decide which vaccine they intend to use, utilize that vaccine exclusively, and then work with investigators that have experience conducting field trials with these vaccines on wild horse and burro herds to develop, optimize and implement an effective, efficient fertility control plan for the Sinbad HMA over the next 10 years. For example, if the PFO decides to use ZonaStat-H, rather than capturing, treating and releasing jennies immediately and then locating, identifying and administering annual boosters to previously treated jennies via remote darting, for several reasons, it may be more efficient and cost-beneficial for the BLM to hold jennies and administer both the initial primer and booster doses of the ZonaStat-H vaccine via hand-injection and then administer annual boosters via opportunistic darting, seasonal baiting trapping, or a combination of these two methods:	PZP, GonaCon and IUDs are all discussed and reviewed as part of the proposed action to allow for a side-by-side analysis of available fertility control methods. This allows for the decision maker to review all the available options and decide based on that review. Deciding on which fertility control agent, the PFO is going to use beforehand and analyzing it as the main option could be viewed as pre-decisional in the view of NEPA. The BLM recognizes and appreciates the Humane Society's experience with PZP vaccine treatment and darting in the Black Mountain HMA pilot project (Arizona). Refer to response to comment #33 regarding individually identifying jennies treated with fertility. At least for initial treatment jennies are going to have to be captured, treated, and individually identified at a temporary facility or hauled to a facility such as

		1) Aside from the need to feed, water, and exercise treated jennies daily between administrations of the primer and first booster doses (to prevent temporary range of motion limitations), we are not aware of any other animal welfare issues that would preclude the BLM from holding jennies for two weeks to administer the initial primer dose and first booster dose of ZonaStat-H via hand-injection before releasing them. 2) The costs associated with holding the jennies for two weeks may be comparable, if not lower, than releasing them and locating them later to administer the first booster via darting. Another option that BLM should explore that could be even more efficient and cost-beneficial than holding the jennies for two weeks would be to hand-inject captured jennies with PZP-22, release them immediately, conduct ground observations for two to three years to monitor movements and spatial use, and then retreat them with booster doses of ZonaStat-H via opportunistic darting, baiting trapping, or a combination of methods. Wild horse data show that a PZP-22 primer followed by a ZonaStat-H booster two to three years later offers at least 5-6 years of effective contraception.2 If wild burros show a similar pattern, this application of PZP-22 would eliminate any costs and potential animal welfare concerns associated with holding jennies in temporary corrals for two weeks and costs associated with locating the jennies for one or more years following their release after receiving their initial dose of PZP-22. It would also enhance future darting efficiency by increasing the interval between the time the jennies are released after receiving their initial primers and when they would have to be located to administer their first boosters, reducing costs associated with locating and administering annual boosters. In wild horses, mare fertility remains at a low level at least 4 years following the administration of a PZP booster.	Axtel, which is discussed in the EA, Chapter 2.
35	Humane Society (65641)	***Avoid unnecessary risks to wild burro welfare when conducting gather and transport activities*** Every year, the BLM conducts wild horse and burro gathers (often referred to as "roundups") to remove "excess" animals, apply fertility control, conduct approved research projects, relocate animals to other HMAs, introduce animals from other HMAs, adjust sex ratios, manage non-reproducing herds, treat sick or injured animals, conduct diagnostic testing, mark animals for identification, manage herd characteristics, and/or respond to life-threatening or emergency situations.	Refer to response to comment A as well as #10; regarding the CAWP, bait and water trapping and the use of helicopters.

		As with most wild animals, any effort to capture, handle, restrain, and transport wild horses and burros, no matter how carefully planned and executed, will inevitably cause a certain amount of stress and discomfort for the animals involved, and in under some circumstances, injuries, illnesses and deaths may be unavoidable. Nevertheless, this fact in no way reduces or minimizes the ethical obligation of those charged with managing wild horses and burros to reduce, to the greatest extent possible, the physical and emotional distress these wild animals endure during gathers operations. For these reasons, we strongly recommend that the BLM focus primarily on the use of water and bait trapping for gathering wild burros – especially in the warm summer months when helicopter gathers pose inherent risks and water and bait traps may be most attractive to wild burros. The BLM should also restrict the use of helicopter-drive gathers to situations where water or bait trapping is not possible, and only conduct helicopter drive gathers in the winter and spring months when temperatures are cooler, wild burros are less susceptible to heat stress and dust exposure, and maximum effectiveness for fertility control vaccine application in equines can be achieved. Additionally, the BLM must strictly comply to its Comprehensive Animal Welfare Protocol (CAWP) Wild Horse and Burro Gathers Standards (page 70) to help ensure the humane treatment of these animals.	
36	Friends of Animals (61319)	**WFRHBA:** In 1971, a bipartisan Congress passed the WFHBA because it was "concerned that wild horses were vanishing from the West."3 Congress declared that "wild free-roaming horses and burros are living symbols of the historic and pioneer spirit of the West; that they contribute to the diversity of life forms within the Nation and enrich the lives of the American people."4 Congress stated, "wild free-roaming horses and burros shall be protected from capture, branding, harassment, or death, and to accomplish this they are to be considered in the area where presently found as an integral part of the natural system of public lands."5 The Act obliges BLM to "protect and manage wild free-roaming horses and burros as components of the public lands . . . in a manner that is designed to achieve and maintain a thriving, natural ecological balance on the public lands."6 Additionally, the Act mandates that all management activities "be at the minimal feasible level."7 According to the Senate Committee report accompanying the bill:	Refer to response to comment #16 in regard to the WFRHBA.

		The committee wishes to emphasize that the management of the wild free roaming horses and burros be kept to a minimum both from the aspect of reducing costs of such a program as well as to deter the possibility of "zoolike" developments. An intensive management program of breeding, branding, and physical care would destroy the very concept that this legislation seeks to preserve . . . leaving the animals alone to fend for themselves and placing primary emphasis on protecting the animals from continued slaughter and harassment by man.8 BLM's regulations specify that there should be self-sustaining populations of healthy wild horses and burros in balance with other uses and productive capacity of the habitat.9 The regulations also state that management activities affecting wild horses and burros shall be undertaken with the goal of maintaining free-roaming behavior of wild horses and burros on public lands.10 The WFHBA mandates that Secretary maintain a current inventory of wild free-roaming horses and burros on given areas of the public lands to determine AMLs and make determinations as to whether and where an overpopulation exits and whether action should be taken to remove excess animals.11 The WFHBA only authorizes BLM to remove "excess" wild burros in limited circumstances.12 In making such a management decision, BLM must make a determination that: (1) "an overpopulation [of wild burros] exists on a given area of the public lands," and (2) "action is necessary to remove excess animals."13 In addition, a determination to remove wild burros must be based on, among other things, "the current inventory of lands within his jurisdiction."14 In interpreting these statutory requirements, BLM has issued guidance that in making an excess determination the authorized officer must first analyze: (1) grazing utilization and distribution; (2) trend in range ecological condition; (3) actual use; (4) climate (weather) data; (5) current population inventory; (6) wild horses and burros located outside the HMA in areas not designated for their long-term maintenance; and (7) other factors such as the results of land health assessments which demonstrate removal is needed to restore or maintain the range in a thriving, natural ecological balance. Such determination should be made prior to **every** removal. BLM's proposed action would subject a protected wild burro population to multiple roundups, and, in most cases, a life of captivity. BLM has not made a proper determination that there are excess wild burros or that action is necessary to remove them as required by the	No excess horses removed from the range are "slaughtered." It is likely that the Senate Committee report language cited by the commenter refers to the capture and sale for slaughter of wild horses and burros, which has been illegal since passage of the Act. Furthermore, Congress in past years and in current appropriations language prohibits the use of appropriated funds for the purpose of sale without limitation, even though amendments to the WFRHB Act allow for such sales.

		WFHBA at its own guidance documents. Instead, BLM bases the proposed action on an outdated AML and land use plan. In the EA, BLM fails to consider what qualifies as a self-sustaining, healthy population of wild burros and how its proposed action would impact the health and sustainability of wild burros. BLM also fails to adequately analyze any plans or alternatives that protect the wild burros in the Sinbad HMA. Instead, BLM based its proposed action on uninformed and incomplete analyses about the effect of wild horses and burros on the range, an imbalanced preference to other uses, such as authorizing private ranchers to graze cattle in the Sinbad HMA. Moreover, BLM's proposed actions violate its regulations and land use plans that mandate BLM "manage wild horses and burros to achieve and maintain viable, vigorous, and stable populations."15 The Price RMP also requires that BLM "to the degree possible, maintain, enhance, and perpetuate respective viable herds' distinguishing characteristics (by HMA) that were typical at the time of the passage of the Wild Free-Roaming Horse and Burro Act or that are identified in a management plan."16 The proposal to initially remove the majority of wild burros in and around the Sinbad HMA and continue with removals and fertility control for the next ten years places the herds' health, viability and stability at risk and would create an unstable population. As such, it is inconsistent with the WFHBA, Federal Land Policy and Management Act, and applicable land use plans. Before issuing a decision, BLM must correct these deficiencies, as well as other violations of the law. Finally, the Price RMP also directs BLM to update the Herd Management Area Plan for the Sinbad HMA by 2020. 17 BLM failed to do so. BLM cannot proceed with the proposed action until it updates the HMAP for the Sinbad HMA.	See EA section 1.2, 3.2.3 and Appendix I in regard to metapopulations. The Proposed Action and Alternative 2 are in conformance with 43 CFR 4700 and the required management of the herd under the WFRHBA. The RMP is the guiding document, with reference to the existing HMAP.
37	Friends of Animals (61319)	**10 Year Plan:** BLM's proposed action and alternatives—to continue removals and fertility control ten years into the future—conflict with the WFHBA, applicable land use plans, and BLM's own regulations and guidance. The WFHBA mandates that decisions to remove wild horses and burros be based on currently available information and that they be implemented immediately. 18 Current inventories and site-specific removal decisions are also necessary to ensure that BLM manages wild horses and burros at the "minimal feasible level."19 BLM does not have, and cannot have, information that removal is necessary throughout the next decade.	As noted under the description of the Proposed Action (Chapter 2), the purpose of returning to conduct additional gathers and fertility control would be to reach and maintain AML. Multiple gathers will be necessary over the next 10 years to accomplish the objectives of the proposed action, which includes achieving and maintaining AML over the next 10 years through a combination of gathers and application of fertility controls. Refer to the proposed action and Chapter 4 of the EA, which includes

		Range conditions, the number of wild horses and burros on the range, and the AML can change each year. As such, the WFHBA, BLM's implementing regulations, and its own guidelines require site specific analysis and continued monitoring prior to removing excess wild burros. There is no authority for BLM to authorize removal and harassment in such a vast area for ten years, as it proposes to do in the EA at issue here. Similarly, BLM cannot merely rely on an outdated AML to continually remove wild burros for the next decade. BLM's own guidelines also state that removing wild horses or burros based solely on the AML is not acceptable.20 However, that is precisely what is happening in the proposed plan. Rather than consider whether wild burros need to be removed to create a thriving, natural, ecological balance, BLM is merely relying on outdated AMLs for administrative convenience. BLM presents no evidence demonstrating that the previously established AML is still valid or appropriate.21 Thus, BLM cannot continue to remove wild burros based on its outdated. The Interior Board of Land Appeals found that BLM erred in relying on the AMLs established in older land use plans because "there is no evidence that BLM [ ] has made any effort to reassess the current validity of the AML prior to ordering the current removal of wild horses. This does not comport with the directive of 43 C.F.R. 4720.1 that the removal of wild horses from the public range be based '[u]pon examination of current information.'"22 Here, BLM is also relying on an outdated AML without making any effort to reassess the current validity of the AML before authorizing the removal of wild horses. To the extent that BLM looks at more recent monitoring reports, it fails to distinguish the impacts of wild horses from other uses, such as current and historical cattle grazing in the Sinbad HMA. Without this information, BLM cannot determine if there is an overpopulation of wild burros that needs to be removed. Here, BLM has not conducted the necessary monitoring and evaluations or made a proper excess determination for the initial roundup and removal of wild burros, let alone the continued removal and harassment of wild burros for the next ten years. Moreover, BLM's plan to continually remove burros to "maintain" the outdated AML for the next ten years violates the WFHBA because BLM needs to make specific determinations about the need to remove wild horses and burros and implement that decision immediately.	analyses of direct, indirect, and cumulative impacts of alternatives. (1) Refer to Chapter 3.2.2 for utilization. (2) Refer to section 3.2.2 (Vegetation) for Vegetative Trend. (3) Refer to Chapter 3, Table 3 for Actual Use. (4) Refer to Chapter 3 for description of affected environment. (5) Refer to Section 1.2 for population inventory. (6) Refer to Section 1.2 and Appendix K for HMA boundaries and wild burros outside HMA. (7) Refer to Section 3.2.2 for land health assessment information. Appendix I of the EA includes a review of literature focusing on the impacts from wild horses and burros to rangeland resources. BLM does not propose managing the Sinbad HMA over the next ten years according to a single population survey. The record demonstrates that BLM intends to continue updating the information at its disposal through ongoing monitoring of rangeland resources and herd populations, as appropriate and as funding allows (Section 2.3.2 of the EA). Updated population inventories will not change the need to achieve AML but will inform the need and scale of future operations.

38	Friends of Animals (61319)	**NEPA:** The National Environmental Policy Act (NEPA) requires an acting agency to prepare a detailed environmental impact statement (EIS) for federal actions that significantly affect the quality of the human environment. The EIS should include "(i) the environmental impact of the proposed action, (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented, [and] (iii) alternatives to the proposed action."23 The proposed action and alternatives in the EA would result in major environmental impacts and warrant preparation of an EIS. In particular, the proposed action would have a significant effect on the local area and Sinbad HMA because it would remove the majority of wild burros from the area. It would have both short-term and long-term significant effects. In the short term, most of the wild burros would be removed, drastically altering the ecology of the area and making it difficult for people to observe or view wild burros in the area. It would also have severe long-term consequences, including undermining the social structure, stability, and viability of the wild burro populations in the Sinbad HMA. In addition, the act of chasing the burros with helicopters would significantly disrupt those areas and the animals that live there. Finally, BLM must issue a separate site-specific NEPA analysis for each roundup and does not have authority to issue one decision that covers multiple roundups over the course of ten years. BLM specifies in its handbook and manuals that such analysis is required and has not provided any explanation for departing from that policy.	Per 40 CFR 1508.27(b)(4) "Controversy in this context means disagreement about the nature of the effects, not expressions of opposition to the proposed action or preference among the alternatives. There will always be some disagreement about the nature of the effects for land management actions, and the decision-maker must exercise some judgment in evaluating the degree to which the effects are likely to be highly controversial." . Impacts were analyzed in the EA (Chapter 4) and are known—the action alternatives are not expected to be significant, involve unique or unknown risks, and are not highly controversial. When there is a determination that the actions presented in an EA are not significant, that is presented in a FONSI. BLM has not identified any significant impacts that would trigger the need for an EIS. Refer to "significance" and "context and intensity" as described in BLM NEPA Handbook 1790-1. [1] Wild horses and burros have long been managed by the BLM, and the EA does not propose to change the public viewing or study of wild burros in the Sinbad HMA. The BLM encourages the viewing and enjoyment of America's wild horses and burros and notes in the EA that wild horse viewing is a recreational activity in the Sinbad HMA. The Proposed Action would bring the populations of wild burros to within the established AML ranges; the BLM would not remove all burros from the HMA. For this reason, the opportunities for wild horse or burro viewing would continue. It should also be noted that the WHB Act does not include a right to view and study, since the statute specifically directs BLM to manage wild horse populations through removal of excess animals, sterilization, or other appropriate means.

			[2] BLM has determined that there will be no significant impacts from the proposed action. [3] Chapter 4 of the EA discloses the environmental impacts of the proposed action and alternatives and addresses the issues brought forward in this comment. The proposal for a ten-year gather plan is consistent with other BLM gather decisions in other states where BLM manages wild horses and burros. The proposed actions are consistent with management at the minimum feasible level under the WFRHBA, as supported by various legal rulings. BLM's use of a single gather plan and a single environmental assessment to cover a period of years and a series of individual gather operations is not a departure from the agency's past practice, as determined by a panel of appeals court judges in a recent case: Friends of Animals vs. Silvey, 353 F. Supp. 3d 991 (D. Nev. 2018), aff'd, No. 18-17415 (9th Cir., July 2, 2020).
39	Friends of Animals (61319)	**Genetic Diversity:** BLM must consider the impacts of its proposed actions on the genetic viability of the wild burros in and around Sinbad HMA. The Price RMP mandates that BLM maintain the genetic viability of the herd. BLM proposes to remove the majority of wild burros, but it fails to take into account that the proposed action places the health and viability of the burros at risk. BLM claims that the herds low target population and geographic isolation can be mitigated by interchange between this herd and other herds. However, this is not consistent with the RMP that directs BLM to "maintain, enhance, and perpetuate respective viable herds' distinguishing characteristics (by HMA) that were typical at the time of the passage of the Wild Free-Roaming Horse and Burro Act or that are identified in a management plan."26 The genetic report noted that the AML is "below the minimum number of individuals required to maintain genetic variability." Gus Cothran, *Genetic Analysis of the Sinbad, UT Burro Herd*, Dept. of Veterinary Science of Kentucky Lexington, KY (July 3, 2002). It also noted that "[p]opulation size of this herd is well below the minimum viable population level." Based on	Refer to response to comment D and #18 regarding Genetic Diversity.

		the population size and variability level the report recommended that herd be closely monitored and that a female burro be introduced every two years. It appears that BLM has not followed these recommendations. Notably, this analysis was done from samples that were received in 2001 — over twenty years ago. BLM conducted roundups in 2008, 2016, and 2020, but has not disclosed updated genetic reports. BLM essentially ignored the recommendation of the Genetic Report and failed to consider the baseline genetic health of this herd or the impact of the proposed action. This is not the hard look required by NEPA. Not only did BLM fail to take a hard look at how the proposed action would impact the wild burros, but it also failed to disclose any enforceable plan to protect the health, viability and sustainability of these wild burros. Instead, BLM merely punted decisions about what to do if the health of the herd is at risk to some later date, likely without any public input. This is concerning, especially given the small population size of the Sinbad burro population. A BLM sponsored report by the National Research Council suggests that a population closer to 5,000 may be necessary to avoid inbreeding, depression, and other diseases.27 BLM's written policies also state that minimal effective population of 50 effective breeding animals (i.e. a total population size of at least 150-200 animals, and more if fertility controls are being used) is recommend to maintain acceptable level of genetic diversity. Reducing the Sinbad HMA population to a total of 50-70 wild burros, as proposed, is not sufficient to maintain a healthy and sustainable population. Thus, BLM's proposal puts the health and future of these wild burros at serious risk. The use of fertility control only compounds the problem. BLM's own handbook states that genetic samples of all HMAs should be collected every 6-10 years, and that HMAs should be assessed more frequently if initial testing indicates diversity is less than desired. However, BLM has failed to conduct necessary monitoring. NEPA mandates the BLM consider the baseline health of these wild burros before approving a ten-year management plan. This is necessary to analyze how proposed actions will impact the wild burros in the Sinbad HMA. Moreover, BLM cannot avoid its duty with vague claims that it could monitor the herd and release burros from other HMAs to maintain genetic diversity. As an initial matter, importing burros from other HMAs to coverup BLM's mismanagement of the wild burros is	

		precisely the zoo-like conditions that Congress sought to avoid when it passed the WFHBA to protect wild and free-roaming horses and burros. In addition, as explained in BLM's NEPA handbook, if BLM is going to rely on mitigation measures such as introducing wild burros, then it must include sufficient detail about how this will be implemented to constitute an enforceable commitment. The EA merely includes vague language about what it may do if needed. It fails to provide any detail sufficient to constitute an enforceable commitment. If an agency could "paper over flaws" in its analysis with assurance that its "mitigation team will implement, monitor, and adjust mitigation techniques" it would "effectively gut the environmental safeguards that Congress enacted in . . . NEPA."28 Finally, as BLM has admitted, releasing animals into areas that they are not familiar with carries risks to the animals.29 Wild horses or burros often wander great distances if released in an unfamiliar area, and if they do not find water they will succumb to dehydration and death. BLM did not disclose of analyze this impact in its EA. The EA also completely fails to consider how the proposed action and alternatives in combination with past and foreseeable future removals/fertility controls will have cumulative impacts on the genetic health, diversity, and sustainability of wild burros in and around the Sinbad HMA. BLM must disclose and analyze this information before taking approving any action impacting the wild burros.	Impacts to release animals are discussed in section 4.1.3.7 of the final EA. Cumulative Impacts are discussed in section 4.4.3 of the final EA.
40	Friends of Animals (61319)	Friends of Animals, concerned members of the public, and the scientific community have repeatedly provided BLM with scientific studies regarding the permanent and even fatal impacts of various wild horse and burro population control methods. Friends of Animals urges BLM to review and consider recent scientific research and disclose the actual impacts of population control on wild horses and burros. Specifically, the EA does not take a hard look at the impacts of altering the natural sex ratio of mares to stallions, inserting IUDs into wild mares, injecting fertility control drugs, and returning to the HMA periodically to repeat these actions. Altering the natural sex ratio of wild horses or burros has significant negative consequences that BLM failed to analyze in the EA, including disrupting wild burros' free-roaming behavior. There is no evidence that altering the natural sex ration would meaningfully reduce growth rates. For example, as BLM already acknowledged in the 2015 Cold Springs HMA and	The BLM's analysis included consideration of available scientific evidence with regard to known effects of IUD application, fertility control vaccines, and associated gathers, handling, and marking. Central conclusions of the literature review of these topics are included and alluded to in the main text and are more completely discussed in Appendix I: Literature Review: Fertility Control. These do constitute a hard look into the potential effects of agency actions. The 4700 Handbook suggests use of sex ratio adjustments and releasing geldings in areas where low AML is greater than 150 head. As the AML for Sinbad is 50-70 sex ratio skewing and releasing geldings was eliminated

		2017 Stinkingwater HMA Population Management Plans: In the Pryor Mountain Wild Horse Range, Singer and Schoeneker (2000) found that increases in the number of males on this HMA lowered the breeding male age but did not alter the birth rate. In addition, bachelor males will likely continue to seek matings, thus increasing the overall level of male-male aggression (Rubenstein, 1986).30 BLM also stated the following: Skewing the sex ratio of stallions v. mares would result in a destabilization of the band (stallion, mare and foal) structure . . . Social band structure will be lost resulting in combative turmoil as surplus stallions attack a band stallion trying to capture his mare. This could result in the foal being either killed or lost. The mare and foal will not be allowed to feed or water naturally as the stallion tries to keep them away from the bachelor bands of stallions, resulting in stress to the mare during her lactation condition.31 According to BLM's own guidelines this method should not be considered where the low end of the AML is below 150. Here, the low AML of all HMAs is below 150. In the EA, BLM failed to take a hard look at this information. Similarly, BLM failed to take a hard look at the use of IUDs in wild burros and the impacts of fertility control, such as PZP and GonaCon. Inserting IUDs to wild burros involves a highly invasive procedure and the impacts are unknown. BLM admits that it has not used IUDs to control fertility as a wild horse and burro fertility control method on the range. In addition, Gonacon disrupts wild burros' normal production of hormones that are important to their natural behaviors and survival on the range. Given the controversial, unknown, and potentially adverse impacts of these methods, BLM must conduct further analysis before proceeding with any action.	from the proposed action and alternatives. Sex Ratio Skewing and Release of geldings was looked at in Appendix H as an alternative considered but eliminated from further review. As such, the comment will not be responded to with specific analyses here. However, the commenter may refer to the BLM responses to their similar concerns in analyses such as DOI-BLM-CA-N020-2021-009-EA. Refer to response to comment D, E, #2 and #4 in regard to the use of PZP. Refer to response to comment #5 and #6 in regard to IUDs. Refer to response to comment #4 and #5 in regard to the use of GonaCon.
41	Friends of Animals (61319)	**Range Condition:** The EA assumes that wild burros are causing harm to the range and that the population needs to be reduced. However, BLM fails to take a hard look at how wild burros are impacting the range. BLM does not analyze grazing utilization and distribution, trends in ecological conditions, climate data, or any other evidence that deterioration from wild burros is occurring in the Sinbad HMA. Nor does the EA provide an explanation of how BLM determined the impact of burros, as compared to other uses, on the condition of the range. BLM cannot genuinely dispute that leasing the land for ranchers to graze their domestic cattle has, and	Refer to section 1.3 Purpose and Need for the Proposed Action. Refer to response to comment #37 in regard to data analyzed in the EA. Chapter 3, page 27 of the EA states "All assessments determined that the Clean Water standard was not being met due to the San Rafael River being listed on Utah's 303(d) report to Congress as exceeding water quality standards for Total Dissolved Solids

		continues to, negatively impact the range. In fact, BLM admits that cattle are the causal or contributing factor for not meeting rangeland health standards. Cattle far outnumber wild horses and burros in and around the Sinbad HMA. However, BLM never determines what degradation is likely from wild horses or burros as compared to other uses. Without this baseline information, the public cannot meaningfully comment on, or compare, proposed alternatives. Moreover, BLM itself cannot make an informed decision without first taking a hard look at how various uses impact the range. BLM's failure to quantify how much other uses are contributing to range deterioration is a serious flaw particularly as more studies demonstrate that wild burros can have a positive impact on the range, and thus, BLM is likely erroneously attributing damage caused by other uses to wild burros.32 Additionally, the EA does not indicate what portions of the range were monitored, trends in the range, or its current condition. Instead, BLM simply indicates that wild burros are having negative impacts on rangeland health and conditions without providing data to support its statements. BLM's failure to adequately monitor the range, along with its failure to distinguish the impact due to wild burros and cattle is inconsistent with the requirements of the WFHBA, the applicable land use plans, and its own guidance documents. BLM also fails to meet its obligations under NEPA to take a hard look at the impacts of proposed action and alternatives.	(TDS), prior to entering the allotments. The other three standards for Upland Soils, Riparian Areas, and Native Species were determined to be meeting standards. Due to the Upland Soils and Riparian Areas meeting standards for Rangeland Health it indicates that they are not contributing to the high level of TDS in the San Rafael River. The final determination points to agricultural returns upstream from the allotments as the major contributor of TDS to the San Rafael River." BLM is not required to wait for Rangeland Health to not meet Standards before taking action. Monitoring data, trend, utilization, etc… are discussed in section 3.2.2
42	Friends of Animals (61319)	**Positive Impacts from Burros:** The EA provides an incomplete and misleading analysis of the impact of wild burros on the range and the no action alternative because it ignores evidence the wild horses and burros are native to North America,33 cherry picks statements from studies, and glosses over scientific information about the positive impact of wild horses and burros. Studies demonstrate that wild burros support healthy ecosystems on public land if given sufficient habitat and left alone.34 For example, wild horses and burros help spread plant seeds over large areas where they roam. Wild horses and burros do not decompose the vegetation they ingest as thoroughly as ruminant grazers, such as cattle or sheep, which allows the seeds of many plant species to pass through their digestive tract intact into the soil that the wild horses and burros fertilize by their droppings. Wild horses and burros also help to prevent catastrophic fires and help to build more moisture-retaining soils. Soil moisture dampens out incipient fires and makes the air coating the earth	When the population is over AML such as the case with the Sinbad HMA, the landscape is negatively impacted as documented in the EA (see chapter 3 and section 4.3). There may be beneficial impacts to the landscape if wild horses and burros were managed at AML, as described in section 4.1 of the EA, and discussed at length in Appendix I. The population size of wild burros, relative to available natural resources, is a central determining factor as to whether their collective effects will be negative or positive for the environments they inhabit. The BLM is not aware of credible studies that have concluded that wild burros are native to North America. But that evolutionary and geographic

		moister.35 Wild horses and burros refill a significant empty niche within the North American ecosystem."36 Wild horses and burros select preferred grasses, sedges and herbs, including coarse, highly abrasive grasses, creating a mosaic of high and low vegetation that creates a more diverse habitat for invertebrates, small vertebrates and herbaceous plants.37 Unlike cattle, wild horses and burros do not stay at water sources, but rather move after drinking and will travel long distances from water. 38 The EA indicates that there will be an ever-increasing wild burro population if it does not conduct the roundup. However, such concerns are misguided. Contrary to BLM's unsupported conclusions, wild burros are self-regulated, and the population would likely come into balance with the ecosystem if left alone. In contrast, removing wild horses and burros to artificially low numbers not only negatively impact the individual horses and burros and the genetic viability of the herd, but it is also short-sighted and ineffective because it prompts short-term population growth. The National Academy of Sciences Report concluded that BLM's "management practices are facilitating high horse population growth rates."39 It explained that, "[r]emovals are likely to keep the population at a size that maximizes population growth rate, which in turn maximizes the number of animals that must be removed and processed through holding facilities."40 This directly conflicts with the WFHBA's mandate that "all management activities shall be at the minimal feasible level."41	history is immaterial to the BLM's legal management, which is largely determined by the WFRHBA and other applicable laws. The year-long grazing and inability to control where wild horses and burros graze makes use of these herds for targeted grazing unviable. Moreover, the use of these animals for targeted grazing is outside the scope of the EA and inconsistent with the Wild Free-Roaming Horses and Burros Act of 1971. The BLM also already manages for wildfire prevention and the control of invasive plants within the Sinbad HMA. An overpopulation of wild horses and burros can encourage the spread of invasive species, which can increase fire risk. As the EA states, "decline of rangeland health and irreparable damage to vegetation, soil, and riparian resources, would have impacts to the future of the HMA and all other users of the resources" (See section 4.3.3 of the final EA). Once these soils are damaged, they can become unproductive and are vulnerable to invasion from annual invasive species. Commentor misconstrues Ganskopp and Vavra (1986) to mean that horses spend much less time watering than cattle when, in fact Ganskopp and Vavra (1986) do not even mention one comparison with cattle in their paper. Additionally, there is high variability among individuals about how much time is spent watering. Contrary to commentor's assertion, not removing horses to achieve TNEB in accordance with WFHBA is in direct conflict with the Act.
43	Friends of Animals (61319)	**Use of Helicopters:** For decades, BLM has used helicopters to roundup and remove "excess" wild horses and burros from public lands. Flying at low altitudes, federal agents or	Refer to response to comment A as well as #10, regarding the use of helicopters.

		contractors drive a herd, sometimes for miles, to an area where individual animals can be trapped, loaded onto trucks, and taken to a holding center. Depending on its size, a roundup can last for several days or several weeks. BLM maintains that helicopters are a humane way of driving wild horses across the land to traps where they can be removed by land-based vehicles. Increasingly, biologists, wild horse and burro advocates, and other experts disagree. Every indication is that an approaching helicopter produces an equally wide range of emotional and physical responses in a wild horse and burro as it would in a human. Wild horse behavioral specialist, Dr. Bruce Nock, studied and described the intricate physiological events that take place within a wild horse subjected to these roundups.42 As described by Dr. Nock, horses initially experience what is known as the fight-or-flight reaction—bodily changes that enhance horses' chances of surviving a frightening situation by increasing their alertness, capacity for physical exertion, and ability to withstand injury.43 In Dr. Nock's professional opinion, while this reaction might enhance a wild horse's chance of surviving the roundup itself, it is not "an exaggeration to say, as gathers are routinely done in the USA, if a wild horse doesn't die straight off from the immediate devastation and commotion, it compromises him/her physically and mentally, putting him on a path of accelerated deterioration."44 Indeed, stress from the actual roundup only begins for wild horses targeted for removal when the helicopters arrive. Again, Dr. Nock explains: But these overt consequences are just the tip of the iceberg . . . . The body doesn't distinguish between a fight-or-flight situation, like being chased by a helicopter, and [other] psychological stressor[s]. That means the bad news for wild horses only begins with the gather. . . . To these wild horses, the sources of stress must seem endless. Everything is foreign . . . truly disturbing for a species that depends on familiarity for safety and comfort. [ ] Everything about captivity is probably stressful to one degree or another to wild horses, especially when it begins with the traumatic experience of a gather. It is extremely detrimental to their long-term health and soundness.45 Essentially, the stress of capture and captivity can put the horse "on a path of accelerated deterioration," leading to long-term physical and mental health problems and a shortened life expectancy.46 Impact would be similar on burros as well. Likewise, the ongoing trauma experienced by wild horses and burros	Impacts to wild horse and burros from the proposed action and alternatives are described in Chapter 4 and Appendix I of the EA. Although Dr. Nock compiled a detailed account of what he believes is the physiology of a "wild" horse during a gather, it is not based on an actual study, or systematically collected and reviewed data, and was not a peer reviewed study, nor does he reference actual peer-reviewed work in the field completed by other researchers. The peer-reviewed finding by Creel et al (2013, noted in Appendix I) highlights that variation in population density is one of the most well-established causal factors of chronic activation of the hypothalamic pituitary-adrenal axis, which mediates stress hormones; high population densities and competition for resources can cause chronic stress." This finding also points to the importance of reducing excess wild horses and burros, even with the known stress from gather operations, to avoid potentially far greater long-term stress to horses and burros from continued population growth over AML and resource availability. The BLM recognizes that wild horses and burros experience stress and the BLM would take every effort to limit stress during gather operations. Through methods and experience learned through 30 years of gathering wild horses from public lands, the BLM implements the most effective and humane methods in order to reduce stress and injury to wild horses and follows the Comprehensive Animal Welfare Program (CAWP) for all gather operations, including use of helicopters. While opinion articles like Dr. Nock's may elicit concern, in BLM's experience wild horses do not exhibit the widespread signs of chronic health problems during capture or in holding facilities.

		after the initial roundup extends to both the captured wild horses and burros and those (if any) that were left on the range. BLM can longer sweep these impacts under the rug.	
44	Friends of Animals (61319)	**Remove Livestock:** The EA fails to analyze an alternative in detail that includes reducing the number of cattle and sheep allowed to graze in the Sinbad HMA. The EA claims this alternative was not considered in detail because it is inconsistent with the WFRHBA and because livestock grazing allotment numbers can only be reduced following a separate process that would require an RMP amendment. These claims are without merit. First, nothing in the WFRHBA mandates that BLM remove wild burros instead of cattle. To the contrary, as explained above, BLM has not made a proper excess determination and thus has no duty to remove wild burros. Moreover, BLM has an obligation to protect wild burros and manage them at the minimal feasible level. Reducing cattle, rather than reducing the burro population to a sub viable level is not only consistent with the WFRBHA but required. In addition, nothing in the existing land use plans restricts BLM from recalculating AML or reducing the amount of forage allocated for cattle and sheep. To the contrary, the land use plans indicate BLM should consider an alternative that considers the impact of cattle and sheep on the environment and adjusts the forage allocated for them in an equitable manner. Thus, if cattle and sheep are causing damage to the range, BLM should reduce the grazing for those animals rather than wild burros. BLM's regulations explicitly state that it can close public lands to grazing use by all or a particular kind of livestock "if necessary to provide habitat for wild horses or burros, to implement herd management actions, or to protect wild horses or burros from disease, harassment or injury."47 BLM allows significant grazing of domestic cattle in the Sinbad HMA. Reducing the amount of private grazing for cattle and sheep would be more likely to achieve a thriving natural ecological balance. Therefore, BLM must consider reducing or eliminating the forage allotted to cattle and sheep so that wild burros can thrive and be an integral part of the natural system of public lands. Reducing forage for cattle and sheep in wild burro ranges is not just consistent with BLM's legal duties, it is also required. The proposed action, to remove wild burros while refusing to reduce forage for private ranchers blatantly violates the WFHBA, which states	Refer to response to comment C and #19 in relation to removal of livestock. Livestock grazing is part of the BLM's multiple-use and sustained yield mandate under FLPMA. Under a separate process, the BLM continues to review and manage livestock grazing permits on a routine/rotating basis. If land health is shown to be in decline due to livestock grazing, appropriate corrective action will be analyzed in the permit renewal NEPA analysis. As per the grazing regulations 43 CFR §4130.3-3, the authorized officer may modify grazing permits when grazing does not meet management objectives or if it does not conform to rangeland health standards. The rangeland health assessments previously completed for some of these allotments concluded that livestock grazing was not a causal factor for not meeting the rangeland health standards. Livestock grazing continues under the terms and conditions of the existing grazing permits.

		that the range should be principally devoted to wild horses and burros. The multiple use principles of the Federal Land Policy and Management Act do not preclude BLM from reducing forage allotments to private ranchers. BLM still authorizes private grazing on the majority of BLM land. Of the 245 million acres of public land managed by the BLM, 155 million is open to livestock grazing (virtually all BLM land outside of Alaska). By contrast, wild horses and burros are restricted to just 26.9 million acres, which they must share with cattle and sheep. Reducing private grazing on the small fraction of public lands where wild horses and burros are found is consistent with multiple use principles. Thus, Friends of Animals requests that BLM analyze an alternative to the proposed Sinbad HMA	
45	Friends of Animals (61319)	**Other Means of Control:** BLM should consider managing wild burros by natural means. There is no reliable science showing removing wild burros is necessary to maintain a thriving ecological balance in the area. However, BLM eliminated from further consideration an alternative that would manage wild horses using natural means. The EA claims that horses are not a self-regulating species and that this "would result in a steady increase in numbers which would continually exceed the carrying capacity of the range until severe and unusual conditions that occur periodically-- such as blizzards or extreme drought-- cause catastrophic mortality of wild burros." There is no evidence to support this statement. In addition, the 2013 National Academy of Sciences Report found that "although, wild horses will affect vegetation abundance and composition . . . no case study has reported that the changed vegetation cannot persist over a long period of time or that complete loss of vegetation cover is an inevitable outcome."48 The report continues to conclude that if BLM stops managing and gathering wild horses and burros on public lands then "vegetation production may decline, but it may stabilize at lower levels as herbivore populations come into quasi-equilibrium with the altered vegetation."49 The EA's failure to consider that vegetation "may stabilize" and its unsupported conclusions regarding "catastrophic mortality" are not the hard look required by NEPA. Moreover, studies have found that mountain lions can limit wild horse and burro populations in the United States.50 Indeed, there are valleys in the West where wild horse herds do not increase because they are kept in check by mountain lions.51 Managing wild horses and burros naturally is not only free and sustainable,	The alternative of wild horse and burro numbers controlled by natural means was reviewed in Chapter 2 and Appendix H of the EA (Alternatives Considered but Eliminated - from detailed analysis). Refer to response to comments E and #11 in regard to predators.

		but also ensures that wild horses and burros remain as they should—wild. Mountain lions hunted wild horses in North America for millions of years, and they still do. For example, a study in Nevada found that in several mountain ranges of the state, horses made up a majority of the diet of mountain lions.52 Biologists have documented valleys where just a few lions keep a herd in check.53 "That kind of balance could be a boon not just for the wild horse program but for the entire Western ecosystem."54 Therefore, BLM should consider a natural control alternative, that includes protection of native predators, such as mountain lions. BLM's failure to consider this alternative in detail ignores its obligation to manage wild burros at the minimal feasible level, and its obligation under NEPA to consider reasonable alternatives.	
46	Friends of Animals (61319)	**AML:** Finally, BLM failed to consider reevaluating the AML. Not only is this a reasonable and feasible alternative, but it is also required. Especially if this alternative is combined with the reduction or elimination of cattle on the Sinbad HMA. Re-evaluating the AML and taking into consideration the true impact of cattle, who vastly outnumber wild burros, could lead to a more sustainable program and a thriving natural ecological balance. Re-evaluating the AML is also necessary to ensure that wild burros are healthy, viable, self-sustaining, and an integral part of the public lands. Finally, the Price RMP directs BLM to periodically evaluate the AML and states that is can be adjusted in HMA plans and Environmental Assessments for gathers based on monitoring data and best science methods.	Refer to response to comments B and #9, #15, #16 in regard to AML and alternatives.
47	Front Range Equine Rescue (61275)	**Use of IUDs:** Under the Wild Horse and Burro Act, BLM is charged with the "protection, management, and control of wild free-roaming horses and burros on public lands." (P.L. 92-195) (Dec. 15, 1971). In enacting the Wild Horse and Burro Act, Congress declared that "wild free-roaming horses and burros are living symbols of the historic and pioneer spirit of the West; that they contribute to the diversity of life forms within the Nation and enrich the lives of the American people; and that these horses and burros are fast disappearing from the American scene." 16 U.S.C. § 1331. Congress explicitly expressed that BLM shall protect wild horses and burros "from capture, branding, harassment or death." *Id*. This legislative intent illustrates that	Refer to response to comment #6 and Appendix I in the EA regarding use of IUDs as part of a comprehensive fertility control program.

		preservation of the *natural* state of the herds and the individual animals and ensuring that the horses and burros are not subject to harassment or other unnecessary mistreatment are the core responsibilities of BLM under the Wild Horse and Burro Act. In Alternative 1, BLM proposes the implementation of the unnecessary, risky fertility suppression method of IUD use, which FRER opposes. Very little is known about how IUDs work in animals, especially in the context of a wild population. As the BLM acknowledges, research concerning IUDs in wild burros is particularly scant. (Draft EA, Appendix 1, at 121 of EA PDF). What is known is that IUDs "may cause physiological effects including discomfort, infection, perforation of the uterus (by a hard IUD), endometritis, uterine edema, and pyometra (*id*., citing Killian, G., D. et al. 2008. *Four-year contraception rates of mares treated with single-injection porcine zona pellucida and GnRH vaccines and intrauterine devices.* Wildlife Research 35:531–539; Klabnik-Bradford, J. et al. 2013. *Marble-induced pyometra in an Appaloosa mare*. Clinical Theriogenology 5: 410). As BLM concedes, certain IUD configurations, such as those made of metallic or glass marbles, pose a heightened risk of breaking into shards and causing uterine irritation that could cause chronic, intermittent colic or even severe infection. (*Id*., internal citations omitted). In addition to the physical risks that IUDs may cause once inside the body, there are many other reasons why they are more dangerous for wild burros. Placement of an IUD requires restraint, pre-screening (because IUDs could cause abortion for a pregnant jenny), sedation, and internal manipulation. These are all risky undertakings with a wild jenny, increasing the hazards of the experiment. Additionally, BLM has no ability to monitor a jenny into which an IUD has been inserted to ensure that it is working effectively and has not migrated to another part of the body, which could have lethal consequences for the animal. The risk of harm from using IUDs is substantial, and their effectiveness is speculative. BLM acknowledges how "[t]he exact mechanism by which IUDs prevent pregnancy is uncertain," and while IUDs may prevent some jennies from coming back into estrus, it has not worked for certain domestic	

		mares who have still had estrus cycles while having an IUD insert. (*Id*., internal August 20, 2021 Page 4 citation omitted)). Additionally, IUDs cease to function as a contraceptive when they fail to stay in the uterus, an outcome that is more likely with a wild population whose daily activities are considerably more energetic and uncontrolled as compared to domestic horses, burros, or other livestock. The potential for pain, suffering, and death of wild burros resulting from the use of IUDs as a contraceptive method is too significant of a risk and would constitute a breach of the BLM's obligations with respect to wild burros. The Wild Horse and Burro Act does not provide the BLM with authority to engage in this kind of experimentation on the animals it is entrusted to protect. The use of IUDs does not constitute the required "minimum feasible level" of management for the Sinbad herd and contravenes the BLM's congressional mandate. 16 U.S.C. § 1333(a). The BLM must engage in the minimum feasible level management under the Wild Horse and Burro Act, and therefore, this action cannot proceed unless there is no less invasive means to accomplish BLM's purpose (assuming that its purpose is legitimate). But as BLM acknowledges, there are safer alternatives, such as the PZP and GonaCon vaccinations contemplated elsewhere under Alternative 1. BLM must manage comprehensively and adaptively, and always at the minimum feasible level, to maintain a healthy and thriving free-roaming wild burro herd.	
48	Front Range Equine Rescue (61275)	**NEPA** The National Environmental Policy Act ("NEPA") places upon an agency such as BLM "the obligation to consider *every* significant aspect of the environmental impact of a proposed action." *Baltimore Gas & Elec. Co. v. Natural. Res. Def. Council, Inc.*, 462 U.S. 87, 97 (1983) (emphasis added; internal quotation omitted). NEPA operates to "ensure that the agency, in reaching its decision, will have available, and will *carefully consider*, *detailed information* concerning significant environmental impacts." *Winter v. Natural Res. Def. Council, Inc.*, 555 U.S. 7, 23 (2008) (internal citation omitted, emphasis added). Here, the Draft EA fails to meet the agency's NEPA obligations because it does not sufficiently detail BLM's understanding of	Refer to response to comments #9 and #38

		the risks from IUD contraception procedures proposed partially under Alternative 1. NEPA requires detailed information on these potential significant impacts of the proposed action – before the action takes place, and before any potential harm occurs. BLM does not meet the NEPA analysis requirements - it proposes to use an environmentally impactful set of actions to determine the answers it must have *before* going forward with its program. It cannot comply with NEPA without this information.	
49	Front Range Equine Rescue (61275)	Non-surgical, vaccination fertility controls (PZP and GonaCona) that also are contemplated for jennies in Alternative 1 present a more benign method of population management that better align with BLM's mandate to manage burros "at the minimum feasible level." 16 U.S.C. § 1333(a). Non-surgical, vaccination fertility control also represents a lower cost population control alternative when compared to off-range maintenance for tens of thousands of wild horses and burros, and it is widely accepted as a more humane treatment. As the BLM acknowledges, PZP and GonaCon can reduce and eliminate the need for gathers and removals and are considered preferable contraception methods based on delivery method, availability, efficacy, and side effects. (Draft EA at 17-19, Appendix 1 at 103-121 of EA PDF) Additionally, Alternative 2's more conservative approach of gathering and removing animals to the low range of the AML without introducing any fertility control components still would satisfy the Proposed Action's essential purpose of removing wild burros and reducing the wild burro population growth rates in the Sinbad HMA. BLM has many options at its disposal that align with its obligations under the Wild Horse and Burro Act. The use of IUDs is not such an option, and any contemplation of inserting IUDs in wild burros should be abandoned.	Refer to response to comment #6 and Appendix I in the EA regarding the potential use of IUDs as part of a comprehensive fertility control program.
50	Return to Freedom	Decision to be Made • "By law, BLM is required to control any overpopulation, by removing excess animals, once a determination has been made that excess animals are present. In addition, decreasing the numbers of excess wild burros on the range 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), Humane	Refer to response to comment #31 in regard to four management techniques.

		Society of the United States (HSUS), Government Accountability Office (GAO), Office of Inspector General (OIG) and current BLM and Utah Policy." (EA, p. 8) This is a rather simplified and misleading statement. These various organizations have all made statements, and do all have concerns, about wild horse and burro management on public lands. Each of these organizations, however, is coming at the issue from a slightly different angle, and with slightly different degrees of experience and knowledge. RTF, along with the Humane Society of the United States and other stakeholder groups, have submitted a strategy that is based upon four management techniques being utilized simultaneously to stabilize and reduce, where necessary, wild horse and burro populations. One of the four management techniques is, in the short-term, conducting targeted removals coupled with fertility control vaccines that are, ideally, administered to 90% of the mares or jennies remaining on the range. This would allow for slower gather-and-removal scenarios in the future. Nuances like this are not captured with sweeping statements about how all manner of organizations support a singular idea that wild horses or burros must be removed. Removal-only is not a solution, either, as overpopulated horses or burros are not the only problems that exist on public lands. We suggest a more comprehensive approach, outlined in comments that follow.	
51	Return to Freedom	• "Selective removal procedures would prioritize removal of younger excess wild burros after achieving AML within the HMA and release of older less adoptable wild burros back to the HMA." (EA, p. 10) While we appreciate the perception that younger burros may be more adoptable, selecting younger animals for removal and older animals for return to the range will skew age demographics on-range (there will be a larger proportion of older animals than is normal in a healthy, age-diverse population). Further, selection solely based on age and adoptability does not take into account important cultural adaptation that a herd may have and that are, frankly, little understood, such as relative kinship (and whether kinship theory holds for burros), or the relationships between animals functioning as "aunts" or "friends," etc. Selecting only for adoptability could be a short-sighted practice in terms of burro relationships on the range which could be important behaviorally.	The EA also states in Chapter 2, Section 2.3.6: "All burros identified to remain in the HMA population after being gathered would be selected to maintain a diverse age structure, herd characteristics, and body type (conformation)."
52	Return to Freedom	"Gather operations would be conducted in accordance with BLM Washington Office Instruction Memorandum (IM) 2015-151 and the Comprehensive Animal Welfare Program (CAWP) described in	Refer to response to comment A as well as #10; regarding the CAWP, bait and water trapping and the use of helicopters.

		Appendix C. Previously used and authorized capture techniques include helicopter round up, roping, water and bait trapping, and other methods as approved by BLM Handbook H-4700-1 and the authorized officer. Selection of capture techniques would be based on several factors including herd health and season of the year to maximize gather success and minimize herd impacts." (EA, p. 10) We suggest reliance on bait- or water-trapping. The National Park Service (NPS) does not use helicopters for wild horse gathers because they have determined that using helicopters to gather wild horses is neither safe nor humane (8th Annual Wildlife Fertility Control Conference, July 18-24, 2017, Washington D.C.). Though it is outside of the scope of this EA, we would like it stated that, when other options exist, we are opposed to the use of helicopters during roundups for the following reasons: (1) Though standard operating procedures (SOPs) for gathering animals with the use of helicopters have been established, there are numerous instances where those SOPs are not followed, with little to no consequence to the BLM district offices or the contractor (more on this, below); (2) Horses and burros are extremely stressed and fearful during helicopter round ups; and (3) Mares / jennies and their foals are easily separated during the fast-paced helicopter roundups. If helicopters must be used, careful adherence to CAWP, and appropriate BLM oversight of contractors, is essential. While the agency maintains that CAWP is always followed, incidences of SOPs not properly being followed are routinely documented by wild horse advocacy groups. It is important that BLM take complaints and perceptions of CAWP not being properly followed seriously. CORs must maintain rigorous standards for contractors and BLM staff during gather operations. Strict following of CAWP and zero tolerance for practices or incidences that fall outside of CAWP will go a long way towards beginning the slow process of re-establishing trust between agencies, contractors, and stakeholders.	
53	Return to Freedom	Page 12 of the EA states: "Transportation of recently captured wild burros is limited to a maximum of 10 hours." But page 14 says: "When shipping wild burros for adoption, or sale, the animals may be transported for up to a maximum of 24 hours." (EA, p. 14) What is the justification for 14 additional hours of transportation time for a burro who is not recently captured? This seems like an unnecessarily long period of time for any large animal standing in a trailer to travel without rest. If the CAWP allows for such travel	Under BLM policy (Permanent IM 2021-002) there are 2 CAWP standards, the first is the CAWP for Wild Horse and Burro Gathers, the other is the CAWP for Off-Range Corral Facilities, Transportation, and Adoption Events. The animals that fall under page 14 of the EA are not recently captured. They will have gone through a quarantine period in a

		times, this should be adjusted. Burros are not modified horses, so protocol developed for appropriate distances horses can be hauled is not necessarily translatable to burros. For example, burros are more sensitive to hauling stress, and can more quickly develop founder because of trailering (in some instances, in as little as four hours). As well, when burros are highly stressed, either from hauling, or from separation from other burros they are tightly bonded to, they are prone to development of hyperlipemia, which shuts down their liver (A. McLean, personal communication, August 2021).	holding facility, been vaccinated, microchipped, aged, freeze marked and given any booster shots prior to being shipped to an adoption, sale, or long-term holding facility. These animals fall under the CAWP for Off-Range Corral Facilities, Transportation and Adoption Events. The other requirements in the CAWP such as loading and unloading only during daylight hours, minimum 8 hours rest during transport with access to hay and water, all factor into the amount of time an animal may spend in transport. Changes to either CAWP are beyond the scope of this EA.
54	Return to Freedom	"…the Proposed Action implements population growth suppression utilizing approved fertility control vaccines and possible use of IUDs, to reduce the annual population growth and maintain AML, once achieved." (EA, p. 15) We suggest immediate implementation of fertility control instead of waiting for AML to be achieved. The BLM WHB Advisory Board also recommended as such in the September 2020 meeting: "The Board recommends that the agency expand fertility control implementation and develop measurable objectives outlining a targeted reproductive growth rate reduction and multi-year plans, on an HMA-by-HMA basis. The effort should include fertility control treatments combined with gather operations, including HMAs where AML will not immediately be achieved. The Board recognizes that reproductive growth rates on the range must be reduced immediately so that overall numbers of horses or burros, as well as overall numbers of gathers, begins downward trending." Diverse stakeholder groups have arrived at similar conclusions via modeling and peer-review research analysis: a slower and multi-faceted approach to wild horse and burro management must include some removals, some on-range fertility control (via remote darting), and/or some gather-administer-release fertility control (fertility control administered to an appropriate proportion of females in a livestock chute, ideally followed by holding for a booster, and then released). These modalities should not be implemented only when AML is achieved, but as a way to begin stabilizing the population immediately and work towards lowering populations, where applicable, more	Refer to response to comment #32; regarding immediate implementation of fertility control.

		slowly. This is more effective at creating and maintaining sustainable wild horse and burro management (with less dependence on transportation and short-term holding, where a majority of the program budget is spent). To reduce stress on holding facilities, contractor availability, and budget, the application of immuno-contraceptive vaccine alongside gather-removals allows for stabilization and then reduction, where necessary, of wild horse or burro numbers, and is more economically and logistically viable: population growth rates on the range are reduced, and time between gathers can be extended. At the time of another gather, fertility control vaccines can be reapplied to mares or jennies that have received initial doses, new mares or jennies can receive treatment, and some animals can be gathered and removed, in effect scaling up fertility control at every opportunity.	
55	Return to Freedom	• "All burros identified to remain in the HMA population after being gathered would be selected to maintain a diverse age structure, herd characteristics and body type (conformation)." (EA, p. 20) This is desirable, but contradicts what is stated on p. 14 of the EA: that animals returned to the range would be older, as younger animals are more desirable for adoption. We are hopeful that the first-listed action is the one the Green River District will take.	It is BLM's position that a diverse age structure will remain after the initial gather and then the younger animals will be removed as part of follow up gathers over the next 10 years. Recognizing that we will not remove all of the younger animals so that we maintain a diverse age structure. (Clarified in section 2.2.1 of the final EA).
56	Return to Freedom	• "The social structure of burros, which lacks stable harem breeding units, combined with year-round breeding (BLM SRP, 2005); would not be expected to be impacted to the extent normally anticipated with a wild horse gather." (EA, p. 33) While it is true that burros do not establish themselves into stable harems, they do form intense bonds. The social structure of burros may be different from that of horses, but that does not mean that the social structure would not or could not be affected by a gather. It's difficult to quantify how much more or less any animal is affected, especially by comparison to other, similar animals, when general knowledge and research into that animal (burros) in western public landscapes is limited, certainly by comparison to the research and knowledge we collectively have about horses. As such, it is a mistake to make – and act upon – blanket statements about burros without further research.	Comment Noted. A recently published study confirms that mother-foal bonds are the primary social structure in burro social behaviors (De Santis, M., S. Seganfreddo, M. Galardi, F. Mutinelli, S. Normando and L. Contalbrigo. 2021. Donkey behaviour and cognition: a literature review. Applied Animal Behaviour Science doi: https://doi.org/10.1016/j.applanim.2021.105485).
57	Citizens Against Equine	**Summary Statement**: This EA does no cost analysis of alternatives or even the proposed plan. After 50 years we must manage these sentient beings on the range.	Refer to response to comment #8 in regard to Cost.

	Slaughter (65650)	These Donkeys should be managed just like the wild horses at Assateague. That is the Gold standard. They in fact do not need a round up, they need the BLM to stop allowing irrigation projects for cattle hay to steal perennial waters from the San Rafael and the Muddy Creek. They also need the BLM to take down fences making it easier for Donkeys to roam for both forage and water.	Management of the Assateague Island ponies is beyond the scope of this EA. The issue commentor has with the use of water in the Muddy Creek and San Rafael River are beyond BLM's control. BLM does not manage water rights, the State of Utah does through the State Division of Water Rights. As such comments in regard to use of irrigation, shutting off of the flow of the streams, etc… are beyond the control of the BLM and beyond the scope of this EA.
		Helicopters are inhumane and therefore illegal, families should be respected. Donkeys are gregarious and have relationships and should be managed with lure traps for darting contraceptives. Ranchers should be paid well, similar to cow/calf to handle this issue in remote areas per the WHOA National Plan.	Refer to response to comment A as well as comment #10 in regard to the use of Helicopters. Their use in wild horse and burro gathers is explicitly permitted under federal law.
		The AML of this herd is unthinkable. 2949 cattle and 50 to 70 Donkeys. I hope I read that wrong! At this rate, no Donkey will live out its life in is wild home with its relationships. This is a joke w.r.t. equal protection under the law. I have watched Donkeys without water be extremely kind to their young and have noted that generally Donkeys are very sociable. We have to start thinking of these Donkeys as sentient beings and not livestock.	Refer to Appendix H of the EA, as well as response to comment B, #9, #15, #16, #19, and #20, in regard to AML.
		We have to start transitioning away from cattle due to climate change and that should be done rapidly and creatively such that the public lands rancher is paid for improving the land and darting wildlife and etc. as well as re-instating natural predators.	This comment is beyond the scope of this EA.
		IUD's and Spay are unacceptable due to the need to palpitate a tiny Donkey and the associated need to cause an terrifying and EXPENSIVE round up that will disrupt the Donkey's family and friends.	Refer to response to comment #6 regarding the use of IUDs. The EA does not identify Spaying of jennies as an alternative.
		Gonacon is currently unacceptable until it is done being studied and we know the mare tending behaviors, the number of boosters to sterilization for mare and stallion. In the meantime, the HSUS and the BLM must stop playing politics with science and allow PZP to be darted in the chest end when darted with thw automatic darting unit. Gonacon is dangerous to at least women and also wild horses because everyone already has a hard time documenting horses and that will be critical with Gonacon as it will be too dangerous to be sure and only dart once, especially with mostly black Donkeys.	Refer to response to comment #5 regarding use of GonaCon as part of a comprehensive fertility control program.

		Moreover: "Treated mares may refrain from reproductive behavior even after ovaries return to cyclicity (Elhay et al. 2007)." We have to start recognizing that the cow is polluting the air, land and water as well as using up the water due to irrigation for hay. This irrigation use is stealing from our streams and therefore from our wildlife. We have a crisis of lost bio-diversity due to this and the cheat grass and non-native wheat grass and the inherent carpet fires which wipe out more native flora and fauna. It is time to make a change. Urgently Read the IPCC Report for Policy Makers we have included in this comment. See IPCC for Policy Makers. https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf Any missing documentation is assumed to be known to the BLM and is also available upon request. BLM MANDATE/S? COLORADO SURVEY done at a university showed that then Nation prefers use of contraception versus euthanasia. However, every wild equine removed from public lands is at risk for slaughter and equine slaughter is illegally inhumane and a waste. The BLM is also tasked with making money as well, however, the BLM MUST SHIFT to long-term thinking due to the advent of climate change, start posting rather than hiding cattle numbers, start phasing public lands ranchers into environmental jobs right away… This because there is the requirement for future uses and we need to end Methane and Co2 production immediately. See IPCC for Policy Makers. https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf I So, CAES and WHOA categorically disagree with a ten-year plan, utilizing no real ON RANGE management with removals with a small percent returned with a minor window dressing of contraception re-released after unnecessary harassment. (See Alternative tables below.) This is treating these wild animals as if they are nothing more than livestock, meat. Moreover, this EA declares the Sinbad Donkeys are domestic, the EA also then calls them wild. Wow, really? Which is it? Are they meat or are they protected? Are we managing them or are we just culling off the top, like they are a layer of unwanted scum? DOMESTICATED? There is no proof given as to these animals being domesticated. Domestication is a genetic change which	No excess horses removed from the range are "slaughtered." Furthermore, Congress in past years and in current appropriations language prohibits the use of appropriated funds for the purpose of sale without limitation, even though amendments to the WFRHBA allow for such sales. Refer to response to comment #37 regarding the 10-year plan.

		takes many generations if it ever actually and even Temple Grandin admits this. Moreover, horses and burros evolved here in North America for over 55 million years. The EA also states: "Gaining additional information about genetic diversity, based on analysis of hair follicle samples, will be possible as wild burros in this area can be handled in conjunction with scheduled gather operations." However, after 50 years…… Next to nothing? The BLM has still not studied Burros/Donkeys. What are the genetics of the Sinbad heard? Not mentioned here! Where is the ethnographic studies? Nope, none here just some "all knowing statements" without basis. Where are the contraceptive studies? Collaring (we disagree with this one) studies that have supposedly been done on these Sinbad Donkeys? No one even closed the gate or fixed the fences for the collaring experiment… There are none done by the BLM or the DOI even mentioned here. Just that genetic studies COULD be done and studies from other countries mentioned. The results regarding contraception and collaring at this very HMA by this Field Office have not even been shared with the public though we have seen the collars and we have seen the branding on Donkeys who have been given contraception. The public in fact owns these Sinbad Donkeys as a natural resource and owns these results! Yes? We really think so. Moreover, this office has not answered FOIA requests of the writer regarding these studies written at a time that they should have been received by now. **AML & Round ups** Oddly on one hand, this office stated that the 39 Donkeys humanely water trapped from State Pond in 2020 by the BLM, would not have needed to be rounded up if they had wandered BACK (through the open gate and down fence which CAES pointed out and offered to fix at no cost to the BLM which the BLM declined only to see the Donkeys back out shortly there-after. However, in this contradictory Environmental Assessment, this office now states that there are approximately 300 Donkeys with an AML of 50 to 70 and that ~ 300 need to be round up and maybe 20 or so will be put back contracepted. Hence contraception only during round up years, hence more round ups. The Sinbad Donkey round up in 2016 previous to that done in 2020, was horrendous with tiny Donkeys being	It is widely recognized that wild burros present in the United States today are the descendants of domesticated donkeys brought here within the last 530 years. Refer to response to comment #18, Chapter 3 and Appendix L of the EA for information pertaining to genetics of the Sinbad herd. The USGS studies completed between 2016 and 2020 are still pending. Fences are part of the grazing program and have nothing to do with the USGS study. The Sinbad burros that have hip brands as part of the USGS study were branded so that the individuals studying them could individually identify them. All 103 head of burros that were returned as part of that study have neck freeze marks and a 3-digit hip brand (freeze mark) that coincides with the neck freeze mark. No contraception has been given to burros on the Sinbad HMA. Commentor and an associate submitted close to 20 FOIA requests. Each request said, "I will pay for the information." The costs associated with these requests have never been paid, thus commentor and associate have not received any of the documents requested. Though several requests were made for forms and those requests were sent via certified mail and were either rejected or never picked up and returned to the BLM.

		harassed by both Helicopter and multiple wranglers on horse-back after one tiny Donkey! One could posit that this office is both schizophrenic in its first statement regarding the 39 Donkeys that had wandered off their "HMA" not needing a round up, but now needing a 300 Donkey round up one year later, and sadistic given the SMALL AML and the desire not to have to be bothered with a water trap or ***on range*** contraception and leaving helicopters as a possibility…and an unspoken likelihood. Moreover, to round up routinely versus on range darting (which darting could also be easily accomplished by lure trapping in mobile panels) of such a small herd of Donkeys, is embarrassingly flippant, cruel, unnecessary, arbitrary and capricious, as well as technically inhumane puppy mill treatment as livestock and the probability is that no Donkey will get to live out his or her life in the wild. After 50 years of willful disrespect of both these Donkeys and the overwhelming desire of fellow Americans, (even including most customers of the livestock industry) while taking a salary from these tax payers, that this glorified "Puppy Mill and Meat Market" management in no way, fulfills the intent or the law of the 1971 Act. People who take tax payer monies to manage sentient beings should be psychologically tested to ensure they are in good mental health with healthy human emotions including being within 4 sigma on empathy and have the maturity and civic respect, to follow the rule of all the laws, rather than just those they agree with. NOTE: While the BLM states it has the mandate to remove excess animals, it does not have the mandate to run these herds as puppy mills to irresponsibly and capriciously create the excess for the adoption market or the global slaughter market in Mexico where it then sends them ALL OVER THE WORLD with NO FOLLOW-UP. International Proof available from the United Nations. From EA page 33 "No finding of excess animals is required for BLM to pursue contraception only management activities in wild horses or wild burros. Contraception has been shown to be a cost-effective and humane treatment to slow increases in wild horse populations or, when used with other techniques, to reduce horse population size (Bartholow 2004, de Seve and Boyles-Griffin 2013)." DARTING PZP : ZONA STAT-H With 2949 Cattle and 50 to 70 Donkeys this is clearly not scientific and this AML should actually be 300. The San Rafael and Muddy Creek rivers should be left ON	The gather of the 36 head of burros outside the HMA in 2020 was completed due to an unnamed entity not heeding warnings by law enforcement to leave them alone, and the likelihood of the animals not returning to natural water sources when the individuals left. Refer to response to comment E and #4 in regard to use of fertility control only.

		for the wildlife and or NEPA evaluation prior to lowering flow again after cattle are off and also out of the San Rafael River after being documented caught there. With 1 year off every 5 years, so as not to sterilize the mares. Excell CHARTS Comparison On range darting is immeasurably MORE humane. 2000 supposed excess Donkeys versus 277 in 10 years with darting only 238 Donkeys in 10 years and rounding up 200 only once and not again. Wow! Why does every Wild Horse and Burro EA get away without an actual cost analysis? This is unacceptable. We hardly even have any Donkeys left in this country and this AML is incredibly small to the point of being ridiculous given all the cattle we see out there and also IN the river curing off season even! There is no point to rounding up, transporting, vetting, holding, transferring, torturing feeding, watering, and taking to adoptions and trimming their hooves and PAYING AXTEL etc. for over 2000 CAUSED EXCESS DONKEYS. The Ranchers could do this PZP non-hormonal darting utilizing the WHOA National Plan and get paid for it. And/or, the HSUS could APPROVE PZP darting in the chest area of the wild horse so that the automated darter can be utilized with PZP rather tan what the government wants, Gonacon a hormonal barely tested contraceptive that can sterilize the women darting with it among many other issues raised at the Teddy Roosevelt National Park testing currently. The expense of on range management should be paid by the government, NOT donations. It is time we the 80% have equal protection under the law and that Ranchers become trained environmental heroes, learning new wildlife management etc., have rural jobs and still be paid equal to cow/calf without the cow/calf. Wilderness and/or Wilderness Study Areas Hideaway for illegal cattle usage off season. (Donkeys are not responsible for over-use here, illegal use by cattle is.) Also, PEER Report shows the BLM has refused to separate out by specie their effect on forage etc. Meaning, the cows are hiding behind the few horses. Wilderness Study Areas/Wilderness Areas (including here at San Rafeal) are a false front to hurt equines and assist non-native bovines. We recently found out that Wilderness Areas were designed by a Wilderness Group which is clearly biased against wild equines and continually posts a "film" made by a man who also disrespects science, has	Wilderness designations are beyond the control of the BLM. Wilderness is designated by Congress. In the case of the San Rafael Wilderness Areas, they

		no degree in Biology though feigns some kind of expertise. That "film" is called "Horse Rich Dirt Poor". This film does not mention cattle numbers, climate change, cattle outweighing Americans and none of it's solid, liquid, or greenhouse gasses, its waste being treated or cattle's contribution to wild fires due to cheat grass and crested wheat grass. Cattle roam in the best areas but gates are not opened so that Donkeys can roam there. Cattle are kept in at Swasey's Leap (WSA) and Donkeys are kept out. Donkeys and equines are often required to escape their HMA in order to survive or die due to thirst. They are touted as wild in order to ensure they get the opportunity to die of thirst but are not given the opportunity to have sufficient natural predators. Etc etc. "Some mountain lion predation may occur but does not appear to be substantial. Coyotes are not prone to prey on wild burros unless the burros are young or extremely weak. Other predators such as wolf, or bear do not exist within the HMA." People who offer to collaborate with this field office and are instead kept in the dark and later retaliated against rather than cross pollinate and move forward for the Donkeys and the ranchers and everyone else on this globe together. "Wilderness Areas" are approved apparently in order to block adding water improvements for equines and to block people from seeing that cattle are illegally allowed to wallow in the San Rafeal River out of season, in an area advertised as Swazey's Leap Wilderness Study Area. Pictorial Proof available from 2020 regarding tagged cows and calves living IN the San Rafael River. Wilderness Areas do not provide protection to the environment, they remove it. They also remove water rights from Equines. The 1971 Act is a Land Use plan and as such comes with water rights. Given climate change caused undeniably in part by cattle/ruminants, (Methane, Nitrous Oxide) it is clearly unequal protection to call an area a Wilderness Area, allow cattle but to deny wild horses water improvements while cattle are allowed water improvements they already have or not. All the while even when off the range half the year are further causing climate change, drought the entire year. 1) 70% of what we grow is fed to livestock. 2) Annual tilling causes sequestered carbon to be sent into the atmosphere. 3) Causes top soil to go into the atmosphere.	were designated as Wilderness as part of the John D. Dingell, Jr. Conservation, Management, and Recreation Act, Public Law No.116-9 Signed 03/12/2019. Refer to response to comment E, # 11 and #45 regarding predators. Many of the following comments are speculation and beyond the scope of the EA.

		4) Almost 50% of our fresh waters is utilized on Agriculture and 70 % is fed to livestock. 5) Sending cattle over-seas then sends more carbon fuels into the atmosphere and mines our fresh water. 6) Cattle emit 55% of the Methane in this nation due to enteric fermentation. 7) Methane is 84 times more heat trapping than CO2 but Methane later oxidizes to CO2 after about 10 or 12 years. Not to mention Nitrous Oxide. Fences are utilized to keep the Donkeys away from the best areas where water and forage are both readily available here at the Sinbad Donkey HMA. Population Management No Donkey population charts which give differing possible alternatives and cost analysis. The alternatives were also not give a cost analysis. There are unsupported Statements abound through-out this EA Here is one of many: "WILD BURRO NUMBERS CONTROLLED BY NATURAL MEANS Using natural controls to achieve a desirable AML is technically infeasible. Wild burros in the Sinbad HMA are not substantially regulated by predators (which includes mountain lions and bears)." Really Why? Due to wipe out of natural predators for cattle? While there, we saw and heard some but few coyotes. We saw a baby coyote that was apparently POISONED. There is no information given on predator control in this area in this EA. Totally Lacking on predator data and cost or other benefits. Cattle numbers also not included. Can we see the Count information from the last actual count? Can we see the assumptions? Can we see the collaring data and the movements of the Donkeys? (Donkeys have a longer gestation period than horses.) This field office has not planned to dart many Donkeys. Looking at the herd, few have been darted in any proactive amount. This is exhibited by the less than ~10% brands on Donkeys as this field office brands Donkeys that it darts with PZP per this EA. Studies of population control via PZP and otherwise are hidden and FOIAS are not answered. The best areas are utilized for cattle (In the San Rafeal River). The San Rafael is over utilized as well as keeping the flow low and affecting water quality. The state then has spent big monies on the water quality. However, it is swiped for irrigation to grow hay for cattle for the other 6 months they are off the BLM. Sounds way too familiar and	Information on Inventories, collaring data, movement, collected since 2016 are in the hands of USGS. Once the results of those studies are complete, they will be released to the public via the USGS.

		detrimental to Donkey's Beavers, Birds, crawdads, fish… on and on! BLM Policy Instruction Memorandum /Predators unsupported: Given the excuses stated against water trapping and against on range darting, why is there no mention of use of natural predators? Again, no real cost analysis in this EA, no EIS and no real cost analysis done regarding alternatives that is visible to the public, rather just empty statements using the words not feasible etc. here and there. The WHOA National Plan (Wipes out conflict of interest, sustainably.) The WHOA National Plan has given a positive alternative for public Lands ranchers, and cattle. Many ranchers actually like this. See attached or here: https://whoanm.org/wordpress/?p=422 With this plan, rural or remote darting is not an issue nor is it an excuse not to do this. Helicopter Round Ups versus Water trapping This is what may happen during a helicopter round up. ". . .foals may be orphaned (left behind) if they cannot keep up with their jenny, or animals may become too weak to travel. After suffering, often for an extended period, the animals may die. " page 43 EA bottom of page. 11 It is stated that bait or water trapping would not be feasible, again however no cost analysis is given. Really? There is no proof given of this statement. Certainly cheaper than the $2K/horse for a Helicopter. If not, please prove it. Moreover, water trapping does not require the Donkeys to be single sourced on water areas. Donkeys hang out together at any large mud tank that has water through time. This can be seen across the HMA. Donkeys like horses, can easily be water trapped as CAES personally witnessed in 2020. These were Donkeys that were already off the territory and had already stopped roaming by the way. Multiple sites could utilize water traps to get the "job" of Donkey wipeout done humanely relative to the severely inhumane Helicopter Round ups and wrangler. Yep, sadly it looks like a fun social event for the wranglers, CAES is quite sure the Donkeys experience this as extreme harassment and malicious management. Studies of Donkey Behavior: These are required by the 1971 Act. If these had been done, we would be managing these Donkeys with natural predators and some contraception administered on the range and very feasibly. But no, we don't even know the genetics here or how they will be impacted at such a SMALL AML.	Refer to response to comment A as well as #10, regarding bait and water trapping and the use of helicopters.

		Instead, what "studies" there are at Sinbad regarding PZP have not been shared with the public or in this EA. And instead, the "studies" at Sinbad regarding collaring have not been shared with the public or in this EA. CAES has no concerns regarding ". . . concerns about PZP treated mares receiving more courting and breeding behaviors from stallions". . . from EA CAES is concerned about GnRH . . . "Treated mares may refrain from reproductive behavior even after ovaries return to cyclicity (Elhay et al. 2007)." From EA pg 118 See Affidavits by Dr. Lester Friedlander regarding why helicopter round ups are illegal. This field office has seen these in our brief regarding the Muddy Creek Wild horses in the IBLA case of 2018 which is still waiting for a ruling. https://whoanm.org/wordpress/?p=494 https://whoanm.org/wordpress/?p=509 12 Please refer to all information CAES submitted to you in that pending IBLA case. _____ PEER Complaint v DOI. Please read this complaint and address the resultant issues here affecting the Price Field Office and the Sinbad Donkeys: Complaint of Scientific and Scholarly Misconduct This is a huge problem which continues and is affecting the BLM's work to protect our public and public lands and natural resources from impending climate change issues specifically CAUSED by cattle. This also largely affects the determination of AML. https://www.peer.org/grazing-punted-from-federal-study-of-land-changes-in-west/ See full complaint at link above. Summary below. November 30, 2011 Office of the Executive Secretariat and Regulatory Affairs U.S. Department of Interior 1849 C Street, NW Washington, DC 20240 Complaint of Scientific and Scholarly Misconduct Intentional Exclusion of Livestock Grazing as a Disturbance Factor from the Rapid Ecoregional Assessments by the Bureau of Land Management Complainant: Filed by Public Employees for Environmental Responsibility (PEER), a nonprofit service organization representing public employees, including scientists working within the Department of Interior (DOI), generally, and within the U.S. Bureau of Land Management (BLM), specifically. Complaint Summary: BLM is conducting a series of Rapid Ecoregional Assessments (REAs) to establish a baseline condition and future vulnerability of resources	BLM disagrees that helicopter gathers are illegal. Ecoregional assessment data is essentially extensive modeling for multiple topics such as targeted

		of conservation concern vis-à-vis regionally important ecological and environmental disturbance factors. The Bureau intends to conduct REAs for all ecoregions which contain lands and resources under their administration. The REAs are intended to understand ecological conditions and trends of resources of conservation concern, such as fish and wildlife habitats, species of concern, soils, and water at the regional level as affected by natural and human disturbance factors such as wildfire, invasive species, development (including energy development activities), climate change, and other factors of regional importance. These REAs are intended to establish both baseline ecological condition data and predict future vulnerabilities, providing science-based information for use in future resource planning and decision making within an adaptive management framework. Livestock grazing as a causal agent was excluded from further consideration in all six ecoregions and management questions relevant to condition assessments were stricken from the record. The intentional exclusion of livestock grazing as a causal factor from the REAs will slant the resultant findings and interpretations of the causes responsible for the status and vulnerability of resources of conservation concern and ecological processes, including watershed function, nutrient cycling and energy flow, water quality, habitat quality for endangered, threatened, proposed, candidate, and other special status species, and the habitat quality for native plant and animal populations and communities (43 CFR 4180.2). The implications are important, for BLM plans to use these REAs to inform resource management from the field office to the Ecoregional level, aid in the development of broad-level resource management strategies for public lands, and for land-use planning and environmental analyses at the field office level. CAES also refers you to BLM Resource Notes regarding Genetics with Linda Coates Markel. The AML of 50 to 70 has in no way been validated. Better to take down some of the allotment fences at least in the summer and stop removing all the water for irrigation of hay for cattle. The last analysis of genetic samples was analysis of genetic samples was quite awhile ago and some round ups past (Cothran 2002). These are not included in the EA. Moving Jennies around is hard on these Jennies as well. If not please state why not.	species habitat, natural ecological systems, invasive species, and wildfire. The data is used to identify potential habitat for projects such as Mexican Spotted owl. Then staff specialist or contractors are hired to go out and do surveys within a project area to verify if it is habitat and if it is occupied or not and then make recommendations based on their findings. Cothran 2002 is discussed in section 3.2.3.2 of the EA, as well as attached as Appendix L.

		CAES opposes use and experimentation of IUD's intrauterine devices in these Donkeys! Last we looked, Donkeys are small! They are also wild, and they do not want a rectal palpitation. Nor do they want an IUD inserted into them…. Again Donkeys are small. Moreover, PZP has been working at Assateague for over 30 years. It has been since 1995 or so that the Joint Report to Congress of the BLM and the USDA FS admitted that Native PZP was the was to do. CAES opposes "nuisance gathers. People should just fence out who they do not want on their own land. This is unequal protection relative to cattle CAES also asserts that this EA does not prove that removal of these Donkeys is necessary and the AML does not appear to be meaningful. With 2949 Cattle and 50 to 70 Donkeys this is clearly not scientific and this AML should actually be a minimum of 300. We saw no lack of forage in 2020 on the north or the south side of I70 and have documentation. Also Donkeys looked fine. After CAES outed the cattle at Swazey's Leap/Mexican Mountain in July of 2020, the BLM allowed the San Rafael River to be turned off. Leaving as little as possible for the Donkeys (AFTER the illegal cattle were removed from the whatever it was WSA or Wilderness (anyone's guess come to find out versus the signage there!) at Swazy's Leap in the San Rafael River, during non-permitted timeframe. When the BLM wants to disperse Donkeys they can do this by adding water elsewhere and taking down a fence/s. It does not matter if the fences were up before the 1971 Act. The act was passed to IMPROVE things for Equines. The BLM Handbook expects that portions of fences will be taken down. When the BLM wants to disperse cattle they move water sources they don't remove water sources and keep fences closed, they add water sources. As this EA admits. These fences "Inhibit" their (Donkey's) free roaming ability and within their legal boundaries. Is Big Pond part of the Donkey Territory or is it not. This seems to be a change from what was stated in 2020…. River FLOW The BLM cannot legally allow this without a diligent public analysis of how that will affect the Sinbad Donkeys and the Muddy Creek wild horses as well as Beavers, Antelope, Big Horn Sheep, bats bees, etc. which CAES documented. Spontaneous abortion events among pregnant jennies following capture is also rare, though poor body condition can increase the incidence of such	

		spontaneous abortions. Mitigation Measures should be no Helicopter round ups. This is likely due to Capture myopathy/white muscle disease. Gonacon: This is hormonal, there is a 50% foal mortality at the Teddy Roosevelt current testing. It is unknown what are the mare tending behavioral changes. This drug is dangerous for humans to handle. It may sterilize stallions in one shot. Teddy Roosevelt National Park, still to determine booster requirements, how many boosters will cause infertility in a mare, how many shot will cause infertility in a stallion? Can affect human females and cause sterility issues. Shackleford mares and Native PZP: There was not a sufficient control as the mares had been having their babies taken from them…. (I) AMERICAN CULTURE This country, our United States, is divided on many an-issue. However, it is not in fact, significantly divided regarding wild horses. The United States is a nation of people who *do not eat all, and any, meat sources* available to it, as it seems others cultures do around the globe. This may even be a source of superiority and pride on our part. Many countries literally love rat meat (a bit like pork) and some cannot celebrate an occasion without it though they have other ungulates and goats available. https://www.bbc.com/future/article/20151207-the-countries-where-rats-are-on-the-menu In fact 80% of Americans are strongly opposed to horse slaughter by the Lake research Poll of 2012: https://www.aspca.org/about-us/press-releases/aspca-research-confirms-americans-strongly-oppose-slaughter-horses-human This peculiar cultural result, is documented in this anti-horse slaughter poll which exhibits the American Culture of almost 10 years ago, still remains culturally intact and further translates to a strong ~ 80% contraception preference once again versus "death" as shown by the current poll taken by Fort Collins University Department of Natural Resources in 2020 see below: Excerpt: *MESSAGE FRAMES AND WILDLIFE VALUES INFLUENCE PUBLIC ACCEPTANCE OF WILD HORSE MANAGEMENT STRATEGIES Submitted by Jeffrey Rodriguez Department of Human* *Dimensions of Natural Resources In partial fulfillment of the requirements For the Degree of*	

		Master of Science Colorado State University Fort Collins, Colorado Spring 2020 Unfortunately, our government works hard to both change our culture through cruel intentional events and through incorrect media propaganda which is literally proliferated by those from the meat industry. (shown below in this paper). Our government has done it's best to color the wild horse topic with intent, into a biased, unequal, divisive issue on the range, through its own biased, unequal and divisive expenditure of monies for only cruel, expensive, non-scientific, and even illegal wild horse population management methods that perpetuate more wild horses, and the "idea" that wild horses cannot be feasibly managed, all while dumping the so called over-population (for the meat market) into the currently, all but ruined, but previously lucrative, horse industry. Only horse racing and gambling remain standing and some Quarter horses bred and used in the livestock industry. Much of both of these industries are pro-horse slaughter. Thanks to the behemoth Farm Bill, both political parties receive political "kick backs" or campaign finance, through the heavily incentivized & subsidized Livestock Industry. Hence, our government has successfully destroyed our American horse industry, (Why? Because the 93 million cattle in the U.S. compete with the 9 million domestically owned horses for the available hay. Despite all this, and due to education, Americans have continued to become more educated and less cruel across the board toward all animals. From: Understanding the Link between Animal Cruelty and Family Violence: The Bioecological Systems Model @ 25 [6] To reward and proliferate this, our government has so far refused transparent cost analysis through NEPA regarding wild horses. It has also hidden the fact that: There is no legal intentional inhumane act towards a protected wild horse. That includes Helicopter roundups or killing them accidentally on purpose for lack of water though our government has been working fervently without transparency to wipe out our nation's wild horses due to faux drought/cause. See also Affidavits by Dr. Lester Friedlander on Helicopter round- ups from CAES et al.	Comment is beyond the scope of the EA.

		in our Scoping Comments which were turned in timely but have yet to be incorporated into this process timely. (See also third Affidavit by Dr. Friedlander regarding Helicopter Roundups submitted in the Muddy Creek IBLA case of 2018. 6. None of this is detailed in any cost analysis however all of it must be. It is incumbent upon this NEPA process to do a cost analysis and to do a proper list of Alternatives which it has not yet accomplished.	
State and Local Governments			
58	PLPCO	the State commends the BLM's actions in actively managing population levels on the Sinbad HMA, but the State also has concerns regarding this allocation of available forage between livestock grazing and free-roaming burros. As such, the State encourages the BLM to continue working with livestock operators on the affected allotments to achieve the County's policy that the public land plant communities be managed for the benefit of not just burros, but wildlife and livestock as well. With urbanization continually swallowing available agricultural land within the state, livestock grazing on federally administered lands becomes even more important to agriculture in the State. Of the 45 million acres of grazing lands within the State of Utah, 73 percent is federally owned, 9 percent is state owned, and 18 percent is privately owned. Of the federal land that permits grazing, 67 percent is managed by the BLM."13 In short, the BLM plays an oversized role in ensuring the continued success of livestock grazing in Utah. However, the State is concerned given the fact that in Utah, "grazing has declined on BLM lands by more than 66 percent"14 over the course of the past century. While reducing livestock numbers and Animal Unit Months (AUMs) to a level consistent with the range's carrying capacity is a worthy goal in some situations (like drought), experience shows that temporary reductions in AUMs have a way of becoming permanent reductions. As such, the State has adopted a "no-net-loss" policy regarding livestock AUMs on federal grazing allotments.15 Here, "No Net Loss" means, "AUMs within the state remain at or above current levels unless a scientific need for temporary reduction is demonstrated to the satisfaction of state officials…in the case that AUMs are temporarily reduced, these reductions are reinstated at the earliest possible moment once vegetative health has been restored to its previous levels."16 While it is certainly necessary to	

		temporarily reduce AUMs in certain situations, such as during extreme drought, it is imperative that temporary reductions do not become permanent. In keeping with the State's "no-net-loss" policy, the State supports active burro herd management, but the State is concerned with the fact that the seven grazing allotments affected by the Sinbad HMA are operating at less than 50 percent of permitted use over the course of the past five years and encourages the BLM to continue working towards restoring any lost or reduced AUMs as soon as practicably possible. While Emery County has not adopted a specific "no-net-loss" grazing policy, the Emery CRMP does note that "a viable rangeland livestock industry must be protected as an essential component of Emery County's economy, history, culture, customs, and traditions, and is vital to the economy of affected communities. Good grazing practices are a necessary part of maintaining rangeland health…"17 Addressing rangeland health, the Record of Decision and Approved Resource Management Plan (RD-RMP) for the Price Field Office (FO), states that livestock grazing within the Price FO (including the Sinbad HMA) must follow the regulations at 43 CFR 4130.3, which "require that the terms and conditions under which livestock are authorized 'ensure conformance with the provisions of subpart 4180' (Standards for Rangeland Health) and further that 'livestock grazing use shall not exceed the livestock carrying capacity of the allotment.'"18 Yet, while livestock grazing is regulated according to Standards for Rangeland Health, it appears that often free-roaming horse and burro herds are not held to a similar rangeland health standards, aside from what is necessary to "achieve a thriving natural ecological balance."19 Because of this disparity in management of forage available for livestock and free-roaming burros, it is entirely possible that livestock AUMs can become unavailable to livestock through reallocation to burros, or worse, that livestock producer's AUMs are cut back, while burro herds are allowed to grow. Not only does this situation deteriorate the health of the rangelands, but it threatens the livelihood of Utah's ranchers. As such, "the State of Utah supports restoring AUMs to domestic livestock as Wild Horse populations [are] brought back to AML and rangeland conditions improve."20	Actions affecting Livestock grazing use on an annual temporary basis or a long-term permanent basis are beyond the scope of this document. Refer to response to comment #44 regarding livestock grazing.
59	PLPCO	**The Proposed Action** While the State supports removal of excess horses to maintain proper AML, simply removing excess horses does not permanently solve the overpopulation problem. As noted in the EA, "wild horses are capable	Comment is noted

		of increasing numbers 15 - 20 percent annually, resulting in the doubling of wild horse populations about every three years." Because of this rapid repopulation ability, simply removing horses is not a long-term sustainable solution. As such, the State "supports the use of long-term fertility control as a means to reduce growth rate. However, this will only be effective and supported once AML is achieved."[21] Accordingly, the State supports Alternative 1, the Proposed Action, which recommends that the BLM "utilize periodic gathers and selective removal of excess burros to achieve and maintain the AML range while maintaining a healthy population for a 10-year period after the initial gather. Also implement population growth suppression utilizing approved fertility control vaccines and possible use of IUDs, to reduce the annual population growth and maintain AML, once achieved."[22] Although the State supports the Proposed Action, one short coming is Alternative1 does not distinguish which contraceptive would be used. Instead, the EA simply states that "all jennies released back to the HMA would be treated with fertility control vaccine (GonaCon, PZP) or have insertion of an intrauterine device (IUD)."[23] Although the State commends and supports the use of immunocontraceptive vaccines and IUDs, as outlined in the EA, it would be beneficial to outline exactly which contraceptive is intended to be used. In this regard, the State supports both the use of PZP-22 and GonaCon contraceptives in herd management, however, the State takes the position that when comparing the two, GonaCon would likely be a more effective plan to manage the HMA to proper AML. As noted in a similar Environmental Assessment recently completed for the Sulphur HMA, GonaCon is EPA-approved, is inexpensive, and meets BLM requirements for safety to mares and the environment. One downside to using GonaCon, according to the BLM's *Standard Operating Procedures for Population-level Growth Control Treatments*, is that "horses would need to receive a booster shot" requiring BLM to hold the animals for 30 to 45 days until the second shot can be administered.[24] Although it would be burdensome to feed and water mares/jennies in pens for 30 to45 days, it would likely save the BLM money in the long run.PZP-22 is a two-year contraceptive at best, with other sources claiming that a single treatment of PZP may have an effectiveness period of as little as one year.25 In other words, PZP is only effective for one	Refer to response to comment #34 regarding deciding which contraceptive to use. The Proposed action discusses shipping all captured burros to a holding facility such as Axtel where they can be sorted, aged, given an initial dose of vaccine, boostered and returned to the HMA as selected.

		breeding season. On the other hand, the effective length of GonaCon is potentially much longer, although this point is not analyzed in the EA. As such, the State provides the following supplementary analysis. "GonaCon is an immunocontraceptive vaccine that was developed and is used by the U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Wildlife Services (WS) in the management of certain wildlife and feral vertebrate animal populations."26 The active ingredient found in GonaCon is the Gonadotropin releasing hormone (GnRH), which is a naturally occurring hormone that "when injected into a target animal…induces the body to make antibodies…causing infertility."27 As it applies to wild horses, "GonaCon…is approved for fertility control in female wild or feral horses and burros" and can induce infertility for multiple years in equids."28 The multiple year effectiveness of GonaCon has been substantiated in multiple studies. For example, a three-year study conducted in Nevada found that after applying one treatment of GonaCon to a group of subject wild horses, ninety-four (94) percent were infertile during the first breeding season.29 The same study observed that during Year 2, sixty (60) percent were infertile, and in Year 3 fifty-three (53) percent were infertile.30 Another study conducted in North Dakota took a long-term approach to determine not only the effect of a single treatment, but also the effectiveness of later follow-up treatments. 31 At the beginning of the eight-year study, the mares were given a dose of GonaCon, and studied for four years, with a follow-up dose administered during the fourth year, and again studied for four more years. The North Dakota study found that during the second and third foaling seasons following treatment "the proportion of treated mares that foaled following a single vaccination was lower than that for control mares" but similar to untreated mares during the fourth year "demonstrating the reversibility of the primary vaccine treatment.32 However, following the follow-up dose administered during the fourth year, the amount of mares giving birth was lower than the control group for three consecutive years.33 It's important to note that during the study, "none of these mares displayed any evidence of lameness, altered gait or abnormal range of movement throughout the 8 years they were observed in this study."34 In short, the North Dakota study substantiated the Nevada study in that GonaCon is effective for approximately three breeding seasons, with a	Chapter 2 page 17 of the EA discusses the preferred method for delivering the primary dose by hand injection. BLM agrees that holding the animals for 30 to 45 days makes sense to be able to apply the booster. But that also comes down to available space within a facility to do so. The Range Creek mares gathered in 2020 and returned to the range, were treated as PLPCO discusses. BLM discusses Killian et al (2006) within Appendix I. Comment is referring to Baker (2018) "Reimmunization increases contraceptive effectiveness of gonadotropin-releasing hormone vaccine (GonaCon-Equine) in free-ranging horses (Equus caballus): Limitations and side effects. BLM discusses Baker et al (2017), thoroughly in Appendix I. Which touches on many of the same point as Baker (2018). Baker (2018) has been added to the final analysis.

		reimmunization required in the fourth year to maintain effectiveness. Even without the booster, GonaCon provides three to four years of effectiveness compared to the PZP treatment which is effective for only one to two years. Although the added logistics involved in securing necessary holding facilities, along with the added costs of feeding/watering the jennies for the added duration would add significant initial costs, BLM would greatly reduce the frequency at which they would need to return to the Sinbad HMA to engage in population control measures. The State encourages BLM to utilize GonaCon as it provides the best option to stretch chronically underfunded wild horse and burro management budgets. In sum, the State supports the implementation of Alternative 1 and urges the adoption of the above suggestions.	
60	PLPCO	**Support for Alternative 2** As stated in the EA, Alternative 2 directs the BLM to "gather and remove excess animals to within AML range without the implementation of population growth suppression techniques (fertility control vaccines, IUDs, or sex ratio adjustment). Use periodic gathers to maintain AML for a 10-year period after the initial gather."[35] In short, Alternative 2 is the same as Alternative 1, except that no contraceptives would be used after gathering and removing excess wild burros. Although the gather and removal components of Alternative 1 are critical to healthy rangelands *and* healthy herds, contraception measures are essential to the success and sustainability of the federal wild horse and burro program. The underlying problem of unsustainable growth at rates of up to 20 percent can only be resolved through the proper use of fertility control. Alternative 2 simply applies a metaphorical Band-Aid without providing long-term management solutions. Again, while the State supports removal of excess burros to maintain proper AML, simply removing excess burros does not permanently solve the overpopulation problem, and thus the State has concerns with Alternative 2.	Comment is noted
61	PLPCO	**Opposition to Alternative 3** Alternative 3, the "no action" alternative, simply kicks the can down the road causing harm to burros, wildlife, and livestock. Doing nothing will also exacerbate the harm to rancher livelihoods who utilize the grazing	Comment is noted

		allotments within the Sinbad HMA. As such, the State is adamantly opposed to Alternative 3.	
62	PLPCO	**Utah Department of Agriculture and Food** The State applauds the active management of wild horse and burro herds and encourages the BLM to perform similar gathers for herds throughout the state. This gather will substantially benefit public, state, and private property in surrounding counties. The Wild Free-Roaming Horses and Burros Act of 1971 established Herd Management Areas (HMA) that were to be managed to "maintain a thriving natural ecological balance among wild horse (and burro) populations, wildlife, livestock, and vegetation and to protect the range from the deterioration associated with overpopulation." Each HMA has an appropriate management level (AML), which is the population range that will allow the area to maintain its necessary balance between multiple uses. Currently, the Sinbad HMA has an AML of 50-70 burros. However, the current population is estimated to be 269 burros as of March 2021, and the projected herd size will be 328 by January 2022. This drastic overpopulation of burros has severe negative impacts on other multiple uses within the HMA. In addition to the Wild Horse and Burro Act, wild horses and burros have been identified as a threat to sage-grouse, Conservation Plan for Greater Sage-grouse in Utah 2013.36 Under the Utah conservation plan, proper domestic livestock grazing is identified as a benefit by maintaining sage-grouse habitat and invigorating beneficial plant growth. Livestock grazing can be controlled and managed to effectively benefit sage-grouse habitat while wild horse and burro herds are much harder to control. Proper grazing is controlled through the principles of time, timing, and intensity. Under current population levels in the Sinbad HMA, wild burros are having negative grazing impacts under all three grazing principles. The burros are present year-round (time), they graze new growth during critical growing periods for plant growth and health (timing), and they overpopulate, which increases the intensity of grazing in the area. Burros severely impact rangeland ecosystems through trampling vegetation, compacting soil, and overgrazing forage plants. These negative impacts on vegetation and soils threatens habitat for greater sage-grouse,37 bighorn sheep,38 and small mammals. Additionally, wild horse and burro overpopulation have negative effects on ant populations, resulting in less aerated soils and slower decomposition.39 Areas with wild burro overpopulation have fewer plant species, less	Comment is noted

		vegetative cover, lower occurrences of native grasses, and higher presences of invasive species.40 Areas that exclude wild horses and burros from grazing have been shown to have higher plant density and diversity.41 Alongside the damage that wild burros can cause to wildlife and plant ecosystems, horse and burro overpopulation leads to unhealthy herds due to a lack of adequate forage and water. Overpopulated wild burros have severe negative impacts on wildlife, plant communities, and their own health when they are not properly managed to maintain certain population levels. Beyond the ecological damage that wild burro herds cause to rangelands, they also inflict economic losses on landowners, grazing permittees, and public land managers.42 The affected area currently supports 7,293 active animal unit months (AUM), which provide over $700,000 in economic benefits for local communities each year. Additionally, suspended AUMs cause a significant economic loss to local communities. AUMs are suspended due to poor land health conditions, to which the overpopulated Sinbad wild burro herd contributes significantly. If the herd is allowed to continue growing without population control, more cattle AUMs could face suspension and the local economy would face economic losses from the degradation of multiple uses on public land. Fertility control and other uses of contraceptives only slow the rate of growth and are insufficient to remove the need for wild horse and burro removals.43 Overall, the Sinbad HMA faces several severe issues that require the removal of overpopulated wild burros. Wild burro populations have severe negative impacts on rangeland health. The continued growth of the herd threatens the ability of this land to sustain multiple uses including wildlife habitat, recreation and tourism, and domestic livestock grazing. The proposed wild burro gather is the most effective way to return the Sinbad herd to the desired AML, take steps toward meeting rangeland health standards, avoid future economic losses, and protect the health of the Sinbad herd and all multiple uses in the area.	
63	Emery County Public Lands (42155)	Removal of excess animals is consistent with the 2008 Resource Management Plan; it is essential for proper management and well-being of the Burros; it is essential for the proper management of other resources and resource users.	Comment Noted
Individual			
64		Current management practices are actually facilitating high rates of population growth. BLM's removals hold horse populations below levels affected by food	As commenter notes, that is a potential outcome if fertility control methods are not implemented. That is

		limits. If population density were to increase to the point that there was not enough forage available, it could result in fewer pregnancies and lower young-to-female ratios and survival rates. Decreased competition for forage through removals may instead allow population growth, which then drives the need to remove more animals.	why implementation of fertility treatment in females after the initial gather is the proposed action to counter that potential. See section 4.1.3 discussing compensatory reproduction
65		The AIP — which pays people $1,000 per animal to adopt up to four wild, unhandled wild horses or burros — was exposed by an AWHC investigation as a pipeline to slaughter. The investigation prompted an explosive New York Times report documenting that "truckloads" of wild horses and burros were being sent to slaughter auctions after adopters pocketed the federal incentive payments, which come in two installments: $500 when the horse or burro was adopted and $500 twelve months after the adoption when the title is transferred.In response to the growing public and Congressional concern, the BLM recently announced additional steps it will take to "secure the health and safety of adopted wild horses and burros through the Wild Horse and Burro AIP"	Implementation and administration of the AIP is beyond the scope of this EA BLM does not slaughter horses or knowingly sell them for slaughter, refer to response to comment #57.
66		I note you reference the potential use of PZP contraceptive, and that it purportedly has a "30-year history" of use. That is *not* a 30-year history of safety, and there is valid controversy over its long-term side-effects. It *should not be used.* Wolves, coyotes, bears, mountain lions and other wild carnivores share the same land the herbivores exist on. It's the way it should be. It's called the "balance of nature" and provides for a healthy ecosystem.	Refer to response to comments D, E, #2 and #4 for information pertaining to the use of PZP. The alternative of wild horse and burro numbers controlled by natural means was added to Appendix H of the EA (Alternatives Considered but Eliminated from Detailed Analysis).
67		Please revise this plan to conform with the true intent and spirit of the law. Greatly reduce livestock in the burros legal area and do not use PZP or any other fertility treatment on these wild burros! Rather employ Reserve Design as the true and right way to preserve and conserve these wonderful National Heritage and returned native species!	Refer to response to comment C and #19 relating to livestock. Refer to response to comment D, E, #2 and #4 for information pertaining to the use PZP.
68		I understand that the BLM is concerned with ensuring that the land in the United States of America is not over-grazed by feral horses and donkeys, and that is completely understandable. However, I would like for the organization to reconsider their stance on the matter and their methodology on how they keep these feral equines from over-grazing our natural landscapes. You see, although feral horses and donkeys may not be historically native species, they do have ecological	Comment is beyond the scope of the EA.

		affinities with the American landscape. You may ask how is that if they are not historically native to North America. The answer to that is that feral horses and donkeys had very close relatives of the same genus (Equus) that lived in North America through the Miocene, Pliocene, and Pleistocene epochs spanning from approximately 5 million years ago up to as recently as 10,000 years ago. In fact, the ansector of the modern domestic horse (Equus ferus) has been confirmed to have existed in North America during the Pleistocene epoch (the Pleistocene epoch spanned from approximately 2.5 million years ago, to 10,000 years ago). Furthermore, the ansectors of the genus Equus started their evolution in North America approximately 50 million years ago. Given all of this information, the continent of North America has had a long evolutionary history with equines in it's ecology. Also, given the fact that equines became extinct relatively recently in North America at the end of the Pleistocene epoch (approximately 10,000 years ago), the feral horses should be considered a reintroduction of a native species. So, given the fact that equines became extinct relatively recently in North America at the end of the Pleistocene epoch (approximately 10,000 years ago), the feral horses should be considered a re-introduction of a native species. There where also several other species of equines that lived in North America up until the end of the Pleistocene epoch that had different ecological niches, allowing them to coexist in the landscape. Given that fact, the feral donkeys should be considered a suitable proxy for some of these extinct species as they fill similar ecological niches as some of the extinct equines of the North American Continent. The feral equines of North America fill ecological niches that have been vacant since the end of the Pleistocene epoch until their (re)introduction approximately 500 years ago by the Spanish explorers that came to the New World. The feral equines of North America simply fill important ecological niches that the bison, elk, moose, deer, and other historically native species of North America simply cannot fill.	
69		Before removing large numbers of wild burros please consider how research shows the beneficial role wild burros play in promoting biodiversity in their environment. As an example, Danish Aarhus University or three years monitored four stream in Arizona's Sonoran Desert. The burros dug for water in dried up summer streams to reach ground water. Researchers observed over fifty	The research by Lundgren et al. (2021) was analyzed in the EA in Appendix I, in the section that addressed ecological effects of wild horses and burros. In particular, the literature review there acknowledged that wild horses and burros can have some ecologically beneficial effects. However, those

		different vertebrates species at these sites. These area had more biodiversity than nearby dry areas. They also assist with the germination of plants especially riparian pioneer trees. These plants assist with erosion control and clean water. This is just one example of how wild burros benefit their environment. Please consider keeping more than approximately 60 keep Sinbad wild burros so they can help increase the biodiversity of the area.	positive effects tend to be outweighed by the negative consequences of extremely high burro density, when populations are well over established AML.
70		I am writing to you about the plan to remove all but about 70 of the Sinbad wild burros. Specifically I am opposed to the current roundup plan that will see these wild animals from the range that they currently occupy. Using a helicopter roundup on burros is not cost effective nor is it a humane way to remove these animals from the range lands. It is well known that helicopter roundups of burros result in a high rate of these animals getting injured and then having to be euthanised. The plan to sterilize the mares is cruel and will cause pain, shock and death. The AIP is ineffective and most of the burros and horses put up for adoption end up at slaughter houses outside of the borders of the U.S.. The fact that the BLM does not follow up to insure the adopted animals are alive and being well treated is disturbing to say the least. Last of this is that I obtained a copy of the PEER letter sent to secretary Haaland that states that wild horses and burros are not what is destroying the grasslands at this time. That blame falls to cattle and sheep grazing and specifically what is referred to as 'welfare grazing' that refers to cattle ranchers that run their animals on the land without a grazing permit. I don't see the BLM removing any of those animals! There is a proven method of fertility control that is cost effective called the PZP vaccine. It's literally millions of dollars less than the round-ups and very effective. Take a look at the Salt River herd that is being managed by a combination of volunteers, managers and overseers from the area councils. They have been using the PZP exclusively and this year they only had one foal born to the mares of the herds in the area. This method reduces live births to a level that manages the herds effectively for the land allocated to them and does not create a situation where you have animals going into shock and dying due to the method being used to sterilize mares.	Refer to response to comment A as well as comment response #10 in regard to the use of Helicopters. This EA does not analyze or plan to utilize sterilization of mares or jennies. Implementation and administration of the AIP is beyond the scope of this EA BLM does not slaughter horses or knowingly sell them for slaughter. BLM does follow up on adopted animals to make sure they are alive and being treated well, until they are Titled. The BLM is not entirely sure what letter from PEER to Secretary Haaland the commenter is referring to, though it may be a recent press release in which PEER accuses the USGS of mistakenly attributing Sage-grouse declines in Nevada and California to wild horses, without explicitly including livestock in the analysis (https://www.peer.org/interior-wild-horse-focus-ignores-cattle-impacts/). If that is the case, the comment is outside the scope of this decision, which does not concern either wild horses or Sage-grouse. The 2016 GAO Report (GAO-16-559); states that "unauthorized grazing…could lead to degradation of public rangelands, among other things." BLM is actively engaged in removal of livestock on public lands

			without a grazing permit. Those incidents normally go unnoticed because they are not advertised or put out for public review. Refer to response to comment E and #4 in regard to the exclusive use of PZP. Surgical sterilization is not under consideration in this decision.
71		The Rangeland Health Standards (N1) uses data from the Rangeland Health assessment conducted in 2008 which does not account for climate change data and other environmental impacts from the last 13 years of use. Fuels and Fire management (N1) states wild burros have minimal impact on fire suppression when it is well known their grazing habits help reduce fire fuel loads. Livestock Grazing (P1) mentions competition with wild burros. Moreover, cattle ranching is much more lucrative to the BLM then wild burros. The EA has no comparative data on the impacts of cattle grazing in comparison to wild burro grazing. Migratory Birds and Threats to Wildlife (N1) the EA states no threats to migratory birds and wildlife. However, any time a helicopter and holding pens are used there is always a threat and disturbance to birds, and wildlife, especially the wild burros. Socio-Economics (N1) has no mention or comparisons on eco-tourism for tax payers to visit and enjoy the wild burros. BLM land is often used for recreation and I believe one of the attractions to the Western States is the ability to see wild horses and burros run free, and we have an obligation to protect that right. Therefore, I am in favor of seeing a thorough EIS using newer data than the Rangeland Health assessment from 2008, and comparative data on impacts from burro and cattle grazing. As well as greater protections to ensure these wild burros do not end up in slaughter houses for monetary gain, and more support and data regarding the use of (PZP) birth control instead of round ups for population control.	Rangeland Health Standards were developed in regard to livestock grazing. Use of them here is for comparative data analysis. Wild burros have minimal impact on fire suppression since there has not been a peer reviewed document stating they reduce fire fuel loading which reduces catastrophic fire potential. Refer to response to comment C and #19 in regard to Livestock grazing as well as Appendix I (Effects of Wild Horses and Burros on Rangeland Ecosystems). BMPs for Migratory Birds, including raptors, are integrated into the Gather Plan including the avoidance of cliff/canyon habitat and minimum flight. The danger posed to migratory birds by the temporary presence of a helicopter flying over predominantly grassland habitat does not rise to the level requiring detailed analysis. See response to comment #20 concerning socioeconomics. Refer to response to comment G, and #38 in regard to the preparation of an EIS. BLM does not slaughter horses or knowingly sell them for slaughter. Refer to response to comment E, and #2, #4 in regard to the exclusive use of PZP

72		Data is a powerful tool and can be and should be used in order to make informed decisions. However, the reality is that data, any data including statistics can be and is often manipulated to support a targeted agenda. Decisions made based on these inaccuracies lack both clarity and legitimacy. Rather the decision is jaded and skewed. For this reason, providing statistical data in this case I believe is fruitless, because the BLM presents a picture to bolster their end game. The BLM has and still continues to decrease the number of wild horses and burros on federal land that is paid for by the public. The ongoing decline is intentional providing for grazing opportunities for ranchers. Period, end of story. For example, the BLM services these ranchers and aids in supplying water, yet they do not extend that same courtesy to the wild horses and burros. In fact, the BLM uses that reason as justification to remove these animals. "BLM Prepares for Emergency Action to Save Drought- Sticken Wild Horses and Burros on Public Land. BLM's bar of expectation and acceptance of wild horses and burros is dropping lower and lower with the passage of time. It is now getting to a level where sustainability of the breed and their genetic diversity is at stake. Additionally, alternatives such as PZP are not being exercised and these wild horses and burros are subjected to horrific roundups leading to injuries and death. Adoption programs in place are poorly managed and rampant with loopholes ultimately sending many of these animals to slaughterhouses. The BLM continues to ignore science that these animals actually benefit the ecosystem because it does not align with their goals and objectives. The BLM is looking to remove 81% of the burros in UT, leaving 60 burros on 99,000 acres of land, translating to 1 burro for every 1,650 acres of land. For perspective, 1.5 - 2 acres of managed land is recommended per horse living off the sustenance of that grazing land. If those numbers don't reflect the hypocrisy of the BLM and their moral and ethical responsibility to help these animals, I don't know what will. The Bureau of Land Management mission statement: The Bureau of Land Management's mission is to sustain the health, diversity and productivity of public lands for the use and enjoyment of present and future generations. I guess that mission statement is a matter of interpretation, because the primary benefactors are the ranchers and not the public and certainly not the	The BLM acted in accordance with 40 CFR § 1502.23 Methodology and scientific accuracy. Agencies shall ensure the professional integrity, including scientific integrity, of the discussions and analyses in environmental documents. Agencies shall make use of reliable existing data and resources. Agencies may make use of any reliable data sources, such as remotely gathered information or statistical models. They shall identify any methodologies used and shall make explicit reference to the scientific and other sources relied upon for conclusions in the statement. Agencies may place discussion of methodology in an appendix. Agencies are not required to undertake new scientific and technical research to inform their analyses. Nothing in this section is intended to prohibit agencies from compliance with the requirements of other statutes pertaining to scientific and technical research. Refer to response to comment D and #18 regarding Genetic Diversity. Refer to response to comment D, E, and #2 & #4 in regard to use of PZP. Refer to response to comment #31 in regard to adoption. BLM does not slaughter horses or knowingly sell them for slaughter, see response to comment #57. Refer to response to comment #7 in regard to burros benefitting the ecosystem.

		wildlife. Their numbers are dwindling and the BLM is the real predator. Please leave these burros alone. Provide water if it is needed. I hope BLM reconsiders their objectives and do better by these wild animals who live on this land.	Refer to response to comment B, in regard to AML.
73		The EA fails to evaluate realistic, credible alternatives that would implement humane management practices to achieve the stated objectives. It does not seriously consider the negative impacts of capturing nearly the entire Sinbad wild burro population. It ignores or downplays the likely harm and loss of life to individual burros, to burro families and the viability of the entire herd by the proposed action of helicopter roundup and radical removal of 278 wild burros in the HMA. The proposed action is predicated on a definition of excess that has nothing to do with rangeland protection or ecological balance, but rather on an arbitrary population quota (AML) that is rigid, unscientific and not open to public input. Showing its cards, the EA evaluates the impacts of this action as they affect livestock in a manner that demonstrates favoritism for commercial cattle grazing. Specifically, my objections and recommendations for change are the following: 1) The Proposed Action would cover 10 years. This would shut concerned citizens out of any opportunity to participate in, contribute to, or otherwise have input into BLM measures affecting the Sinbad wild burros. In itself, this violates NEPA norms and principles. 2) The EA fails to analyze the effects or to provide scientific justification for removing over 80 percent of the Sinbad burro herd. Likewise, it addresses only bogus alternatives — the same as the proposed alternative minus fertility control, and no action — without considering realistic, humane management alternatives that would protect both the burros and the range ecology and uphold the spirit and letter of the 1971 Wild Free-Ranging Horses and Burros Act. Such alternatives have been proposed for years by some of the very organizations with which the Price BLM purports to be consulting, and by multiple conservation and animal advocacy stakeholders. Instead, the EA relies on a management system of roundup and removal that is exorbitantly costly and unproductive, one that denies burros their freedom to live on their federally designated lands while creating a revolving door of infinite roundups, animal suffering and fiscal waste. 3) The EA posits a population estimate of 269 wild burros, yet it cannot cite a current census. This estimate is based on the 2016 roundup, and emergency	Refer to response to comment E and #9 in regard to alternatives. Refer to response to comment #37 regarding the 10-year plan. Refer to response to comment F and #32 in regard to population.

		roundup in 2020, and on unpublished date from the US Geological Survey (USGS). It acknowledges that the results of recent aerial surveys are not available yet. Despite the lack of solid information, the EA states on page 5 that its estimate indicates there were 199 excess wild burros (above high AML) as of March 2021, and that it "expects" the excess will be 328 by the summer of 2021, that is now. Moreover, using these as yet invalidated numbers, the EA calculates an annual growth rate of 22 percent. Something is wrong here. Before even considering such a huge intervention in the natural life of a federally protected wildlife species, the BLM should have a solid, defensible head count. Not having one, to me, speaks to a lack of respect for wild burros. 4) The proposed action is based on a misleading premise, i.e.the Appropriate Management Level (AML). The AML for this herd was established in 2008 when the Price RMP was drawn up. The Sinbad HMAP is even older, dating from 1993. Before embarking on any large-scale plan, the RMP should be updated and the AML brought into line with current conditions, fair forage allotment, and the intent and purpose of the 1971 Wild Free-Roaming Horses and Burros Act (i.e. the 1971 Act). As it is, the outdated AML assigns the lion's share of real estate and forage to commercial, taxpayer-subsidized livestock, and a pittance to the wild burros. The National Academy of Sciences, in its 2013 report on the BLM's wild horse and burro program, determined that "how AMLs are established, monitored, and adjusted is not transparent to stakeholders, supported by scientific information, or amenable to adaptation with new information and environmental and social change." Yet in this EA, the BLM declares nearly the ENTIRE Sinbad herd to be in "excess" because the numbers, however foggy, are "over AML." This is absurd to its face and unacceptable as a legal standard. 5) The document states there are 2,949 cattle in the Sinbad HMA, whereas the AML allows 60-90 burros, and the plan is to remove the majority of the wild burro population leaving only 60. Yet the 1971 Act, unanimously passed by Congress, assigns all lands where wild horses and burros were found in 1971 to the "principle" use of those free-roaming equines, with priority given to their well-being. Multiple use does not negate this prioritization. The standard, is being violated in the Sinbad HMA, which clearly discriminates against the burros in terms of stocking ratios and measures that affect their welfare. It would	Refer to response to comment F and #32 in regard to the estimated gather and removal numbers. Refer to response to comment B, #15, and #18 in regard to AML. Refer to response to comment C, and #19 in regard to Livestock.

		leave one burro per 1,654 acres, essentially transforming the HMA into a burro-less but cattle-rich range. 6) The EA extensively cites the 2013 report by the National Academy of Sciences, yet leaves out critical findings of that study, including, as mentioned above, the finding that the BLM's AMLs are arbitrary, outdated, not science-based or open to public input and new information. Just as important, the NAS warned that large-scale removals of burros from public lands would harm their populations: a) Because of the relatively low numbers of burros in the wild, "removing burros permanently from the range could jeopardize the genetic health of the total population." (NAS 2013, p. 304) b) "The BLM may also need to assess whether the AMLs set for burros can sustain a genetically healthy total population." (NAS 2013, p. 304) c) The Bureau's removal of wild horses and burros from the wild leads to population growth "at high rates because their numbers are held below levels affected by food limitation and density dependence" and triggers "compensatory population growth." (NAS 2013, p. 5) 7) Thankfully, the EA cites equine geneticist Gus Cothran's finding that the Sinbad burro population size — and the maximum AML for the herd — to be below a minimally viable level for genetic sustainability. To maintain a viable herd, the standard recommended by Dr. Cothran and incorporated in the BLM's own manual specifies a minimum population of 150-200 adults. Yet the proposed action outlines a plan to capture 300 wild burros and permanently remove up to 278 out of an estimated population of 269 and a guesstimate that the herd will have grown to over 300 by summer 2021. This is reckless planning without any real regard for the welfare of the Sinbad wild burro herd or for the strong advice of science. It amounts to managed destruction. 8) The Proposed Action would use a potpourri of fertility control methods including PZP, Gonacon and IUDs on captured jennets, or, in the case of PZP, contraceptive darting after release of those jennets to the wild. PZP has strong scientific backing, including from the National Research Council, and has proved effective and protective of natural behaviors in numerous wild equine herds. Gonacon and IUDs have no place in a humane birth control program. Gonacon shrivels and destroys ovaries and shuts down the estrus cycle, which is critical to natural equine behaviors in the wild. IUDs can lead to inflammation	Refer to response to comment #18 in regard to Meta-populations. Refer to response to comment D and #18 in regard to Genetic Diversity. Refer to response to comment D, E, #2, and #4 regarding the use of PZP. Refer to response to comment #4 and #5 in regard to the use of GonaCon. Refer to the response to comment #5 and #6 in regard to the use of IUDs.

		and other harmful conditions which, given the remote and inaccessible nature of some of the Sinbad burro territory, could lead to great suffering. Neither is acceptable. 9) Alarmingly, the EA does not even make an attempt to evaluate the impacts of its proposed action, an invasive and large-scale capture of 300 wild burros (possibly more than now exist in the HMA) and removal of up to 278 using helicopters, bait trapping and transport to holding. Helicopter roundups are devastating for wild horses, but even more so for burros. They don't always run in groups, but freeze in place to study the situation or scatter when clearly faced with an unbeatable force. Many die or suffer long-term physical and behavioral consequences from the trauma of being hunted down one by one. The aftermath of rounding up 225 burros from the Sinbad herd in Utah in the spring of 2016 left 37 dead. Those captured, if they survive, lose their freedom, their family bonds and their purpose in life. 10) The EA does not analyze the risks to captive burros of falling prey to the international trade in ejiao (donkey hide gel), which is consuming millions of donkeys annually. BLM adopts out untrained younger burros for a fee of $125 without serious vetting or follow-on monitoring. (The Trainer Incentive Program that pays volunteers to train burros and facilitate their being adopted to solid homes is a good thing, but funding is short.) Burros over 10 years of age, or those passed up for adoption, are sold for $25 or less under "sale authority." The cheap price gives new owners no financial incentive to care for the animals. Many live miserable lives or enter the kill pen pipeline. With the price of ejiao booming to $200/donkey, many unscrupulous buyers or "adopters" trade BLM burros to be killed in Mexico and Canada. The BLM's adoption practices and their's many flaws were recently exposed, and minuscule changes made to the notorious Adoption Incentive Program have not lowered the risks. 11) Likewise, the EA pays no attention to the welfare of those few burros left in the wild. Reading the EA, one would have no notion that these are sentient beings. As the guardian of formerly wild burros, I know how deeply they suffer grief and loneliness when one of their kin is separated or dies. 12) The EA claims it must effectively decimate the Sinbad wild burro herd in order to ensure a "Thriving Natural Ecological Balance" and to prevent further deterioration of rangeland resources. This is misleading and baseless. The document provides no	Refer to response to comment #34 regarding why PZP, GonaCon and IUDs were all analyzed as part of the proposed action. Comment is speculative in nature. The death loss of burros in 2016 was not from the gather process. It was an outbreak of Assinine Herpes within the herd. Comment is speculative in nature, and beyond the scope of the EA.

		evidence that wild burros are responsible for degradation of the range. It cites numerous scientific articles, most of which are outdated and which refer only to horses, not burros. Not one addresses the conditions of the Sinbad EA or the relationship of Sinbad burros to the range ecology. At no point does the EA attempt to differentiate the impacts of massive livestock grazing to those of the Sinbad burros. The only impacts noted in the EA are numerous references to wild burros "competing with livestock" for forage. If the BLM followed the 1971 Act, it would be analyzing the impacts of livestock on wild burros and the range ecology, not worrying about the impacts of minuscule numbers of burros on taxpayer-subsidized cattle. A 2015 GAO report found that the degradation of public lands was primarily caused by livestock overgrazing, not by wild horse or burro herds. Why is this finding consistently ignored? 13) With few exceptions, the EA treats the Sinbad burros not as the living legends to be protected in accord with the 1971 Act, but as pests carrying the unproved onus of environmental damage. In one exception, it cites biologist Erick Lundgren's groundbreaking research on wild burros as "eco-engineers" that dig deep water holes in arid land. Yet the EA basically dismisses this finding as insignificant, without mentioning that the burro wells produce vegetation nurseries that are utilized by many other wildlife species. In a similar fashion, it downplays earlier research by Dr. John Turner proving that predation has effectively managed wild burro population in certain herd areas. In studying the wild burros of Death Valley, Lundgren found evidence of widespread mountain lion predation. Yet the myth of no predation remains. "Only three of 10 peer-reviewed demography studies on horses and burros mention if there are predators in the system or not," Lundgren has noted. "The lack of predation is an assumption that's carried around without anyone explicitly testing it." 14) On page 45, the EA lists "persons, groups and agencies" consulted in an "ongoing" way "as part of the NEPA process." With the exception of grazing permittees, the individuals and groups are named. I have two issues with this listing. One, it's unclear whether the individuals and groups named were actually consulted about the Sinbad wild burros. If they were, more information including dates should be provided. Second, the grazing permittees should be identified. Why keep them anonymous when they are	The 2016 GAO Report (GAO-16-559); states that "unauthorized grazing…could lead to degradation of public rangelands, among other things." This report only touches on wild horses in passing due to an interview with a wild horse advocate and focuses on unauthorized grazing impacts and not authorized grazing use. Refer to response to comment #7 in regard to Lundgren's research. Refer to response to comment E and #11 in regard to predators. Refer to response to comment #13 in regard to consultation. This section will be finalized with the completion of the EA.

		arguably the main beneficiaries of the proposed action? To address many of these flaws, I recommend the following: —The final decision should cover only actions for 2022 and abandon the 10-year time frame, which violates NEPA and infringes upon the public's right to participate in decision-making affecting their public lands and federally protected species; — Conduct a current census and adjust the AML to at least double the current population target. Adjust stocking ratios in keeping with the understanding that HMAs may be managed for multiple use, but always for principle use by federally protected wild equids. — Remove any helicopter roundup from consideration. — To address drought and climate change challenges, the EA must examine the fiscally responsible and humane alternative of managing wild burros on their designated HMA, and removing livestock instead. Federal regulations specifically provide for this option: https://www.law.cornell.edu/cfr/text/43/4710.5 — Only PZP should be considered for fertility control. Halting the issuance of permits to hunt predators should be incorporated in any proposed action as an important element of natural population control. — If wild burro off-range roaming is an issue, invest in fencing and special lighting to address the problem. — Examine the cumulative impacts of a management system which favors public land ranchers over federally protected wild equids. Grazing permittees are charged only $1.35 an AUM to graze our public lands, compared to $23.40/AUM on private ranch lands. This means taxpayers pay for helicopter roundups to remove wild burros from range valued at $1.35/AUM and to transport them to long-term holding, which costs $2/burro/day (or $60/AUM). —The economic, environmental and social costs of the roundup and removal system must be addressed. The BLM's management program results in shipping wild burros to distant Midwestern states to which they are ill suited, while moving cattle from fertile private lands, thereby increasing livestock numbers on arid Western lands which they degrade. The EA must consider how any proposed action will impact the Administration's 30x30 climate protection initiative and the public's overwhelming support for wildness, for at-risk and endangered species protection, and for cultural	Refer to response to comment #37 in regard to the 10-year plan. BLM conducts inventories regularly on its HMAs. It is unclear if BLM will be able to complete a census and have results back prior to a gather of the HMA. Refer to response to comment A and #10 in regard to Helicopters. Refer to response to comment C and #19 in regard to removal of livestock. Refer to response to comment #25 and #26 in regard to fencing. A cost analysis of the grazing fees collected as compared to holding costs of wild horses is beyond the scope of the EA. Comment is beyond the scope of the EA.

		resource protection. Since the 1971 Act defines wild free-roaming equids as a vital historical and cultural treasure, this aspect must not be ignored. — Develop research to study the impacts and benefits of wild burro presence in the Sinbad HMA. Couple this with community and tourist education about the history of wild burros and their role in the range ecosystem and in developing the West.	Comment noted
74		The burros preserve the range, they dig holes for water, benefitting other wild animals (and unfortunately the hundreds of thousands of privately owned sheep and cattle the BLM has allowed on our federal land, decimating the important wild horses population. The MARS plan will work- use it and stop your war on these animals for greed and corruption	Refer to response to comment #7 in regard to the benefits of burros. The "Marr Plan" appears to rely on the notion of placing wild horses and burros that are currently in off-range pastures into public lands that are not currently designated Herd Areas. If that interpretation is correct, then it would require an act of Congress to change existing laws. The BLM is not in a position to analyze management proposals that are contrary to existing laws.
75	58032	Also the burros are known to promote biodiversity on the land. The low number of burros being proposed to remain would not be sufficient to maintain and sustain a viable population.	Refer to response to comment #7 in regard to the benefits of burros.
76	59710	Please reconsider removing an excessive amount off wild burros from their habitat and consider new evidence from recent scientific studies documenting the benefits of wild burros.	Refer to response to comment #7 in regard to the benefits of burros.
77	59723	Leave the wild burros alone and don't remove the hundreds you are planning on removing. These animals benefit the ecosystem in which they live.	Refer to response to comment #7 in regard to the benefits of burros.
78	59725	Can't the BLM do their mandated job and PROTECT BURROS AND WILD HORSES ? It is an ugly business you do to capture, warehouse and on a regular basis allow and facilitate sending these animals to slaughter. (New Your Times article).	Refer to response to comment #65 in regard to the AIP. BLM does not slaughter horses or knowingly sell them for slaughter, see response to comment #57. .
79	59726	"So sad that you cannot see that wild burros are needed to support a healthy ecosystem. Removing all these burros is so unnecessary!"	Refer to response to comment #7 in regard to the benefits of burros.
80	59729	Please protect Sinbad burros. They are good for the environment.	Refer to response to comment #7 in regard to the benefits of burros.
81	59743	Please listen to America Wild Horse Committee. Use medication to control the population not an invasive procedure.	See Appendix H of the EA for Alternatives Considered but Eliminated for Fertility Treatment Only.

82	59783	It has come to my attention the Sinbad Wild Burro Gathering will leave 50 to 70 wild burros on the range after the roundup. With all due respect, I submit my objection to this number of wild burros. These numbers will not leave enough burros to maintain a genetically viable population. Please release the HMA study before the gathering takes place. Furthermore, I maintain birth control, PZP, has been proven effective in reducing and controlling the animal population. Please consider this fact and use PZP with the Sinbad burro herd. Also, I assert livestock populations need to be limited to maintain viable land for all the animals to live. Large numbers of cattle can destroy the natural vegetation and effect all life in this landscape. In the Gathering of these burros, it is advisable to employ bait traps since burros act with pandemonium during helicopter roundups. Ultimately, many burros would die.	Refer to response to comment D, and #18 in regard to Genetic Diversity. Refer to response to comment D, E, 2 and #4 in regard to the use of PZP. Refer to response to comment C and #19 in regard to Livestock. Refer to response to comment A and #10 in regard to the use of Bait Traps and Helicopters.
83	59802	Research has shown that wild burros play an important and beneficial role in the ecosystem and the diversity of wildlife in the area. Reducing their numbers to 60 is way too low. Especially compared to the 3000 cattle allowed to graze in the area. Cattle do much more harm by overgrazing the area.please increase the number of burros to a more reasonable and healthy population	Refer to response to comment #7 in regard to benefits of burros.
84	59860	The overriding reason used for removal is drought. If this is even true, then cattle should not be there either. These roundups are cruel from start to finish, knocking over animals, separating young from their mothers, not even reuniting them when there is an opportunity, killing them only after running them to exhaustion suffering from fear and horror.	Refer to response to comment #10 in regard to the CAWP.
85	59907	Adoption isn't working. These animal souls are sold for meat by the worst of humanity. This is ethically wrong, by ignoring this, makes you complicit.	Refer to response to comment #31 in regard to adoption.
86	59909	The number of burros (and wild horses for that matter) is insignificant in comparison with the number of cattle roaming free on government land. I propose removal of the privately owned cattle once and for all and leaving the burros and wild horses which are an important and most significant example of our American heritage and the expansion of the West. Without them we would all still be living on the East Coast. Shame on anyone who considers the expulsion of either the burros or wild horses under the lie of preserving the natural environment. Burros and wild	Refer to response to comment C and #19 in regard to Livestock. Refer to response to comment #7 in regard to benefits of burros.

		horses are a very important part of that environment and necessary for its continued health.	
87	59910	They deserve to be left where they are and have the freedom they now enjoy. It is not our place to remove them or to slaughter them. Leave them alone.	BLM does not slaughter horses or knowingly sell them for slaughter, see response to comment #57. .
88	59971	I am outraged that the BLM continues to round-up wild horses and burrows!! Especially from Herd Management Areas! The job of the Bureau of Land Management should not be to clear room for more cattle to feed. This is outrages! I am especially outraged to learn that federally protected wild horses and burrows that the BLM are rounding up are ending up in the slaughter pipeline.	Refer to response to comment #65 in regard to the AIP. BLM does not slaughter horses or knowingly sell them for slaughter, see response to comment #57. .
89	60055	suspend all roundups until the AIP mess is cleared up by congress.	Refer to response to comment #65 in regard to the AIP.
90	60399	When are you going to stop abusing and sending to slaughter the wild horses and burros that are Protected under federal law?	BLM does not slaughter horses or knowingly sell them for slaughter, see response to comment #57. .
91	60440	I find the rationale for this project faulty and would like to see more scientific rigor applied before removing burros seen as excess. I would like to see justification for the metics - how the BLM came to the conclusion that only a fraction of burros should remain on public land. These are a finite resource. The biological diversity of these animals should be taken more seriously - they are a naturalized, species rather than an invasive one as intimated in the language of multiuse talking points. And these animals have federally recognized cultural and historical value which is not in any way addressed by the current EA.	Refer to response to comment B, 15 and #18 in regard to AML. Refer to response to comment D and #18 in regard to genetic diversity.
92	60556	this entire culling/slaughter and poor treatment of these wild animals appears to be soley driven by cattle rancher ignorance and entitlement. Cattle ranchers have no greater right and the idea that hey demand to pay little to nothing, is offensive and without merit.	BLM does not slaughter horses or knowingly sell them for slaughter, see response to comment #57. Refer to response to comment C and #19 in regard to Livestock.
93	60634	I am also concerned, particularly with the management plans for the Sinbad Wild burros. Your plans project an enormous reduction of the herd, with no. scientific backing to improve your numbers relate to the land in question. In fact, cattle seem to be the priority, with not enough regard of provisions for the wild animals SHARING THE LAND. I would like to see adjustment to this. I ask you to wait until the U.S Geological survey gives you accurate information about burro populations.. You need these results before taking action. The current land allowed to the 50 t0 70 animals you recommend gives each burro over 1000 acres. Clearly, your numbers need adjustment.	BLM does not slaughter horses or knowingly sell them for slaughter, see response comment #57. There is no statute or regulation that requires BLM to wait for the results of any study before it utilizes a particular population control method. Refer to response to comment B, #15 and 18 in regard to AML.

		If reduction is deemed neccessary and fertility needs to be curtailed, then the proven method of PZP should be used.Its efficiency has been proven. A more even distribution of land for cattle and wild burros and horses needs to be established as well. The grazing in early spring is preventing grasses to grow and providing the necessary food. I after this is studied with the best data, and capture is deemed a necessity, no helicopter should be used. Bait trapping is the method most humane and effective. As a citizen, I am concerned with the BLMs practices and want to see more humane methods used , and land use that was distributed equally among all the animals on the land, both wild and domestic.	Refer to response to comment D, E, #2 and #4 in regard to PZP. Refer to response to comment A and 10 in regard to the use of Helicopters. Refer to response to comment #10 in regard to bait and water trapping.
94	60662	the removal should be contemplated in accordance with adoption of these beings aka the donkeys.	Refer to response to comment #31 in regard to adoption.
95	60745	The BLM is again trying to move ahead without a base of scientific information. There are humane proven methods to control animal populations instead BLM wants to use unproven IUD devices. BLM wants to remove far too many wild burros to cause a possible extinction event. BLM has a failed adoption process now without adding any more wild burros. The Sinbad wild burros should be left as is.	Refer to response to comment 35 and #6 in regard to the use of IUDs. Refer to response to comment #31 in regard to adoption.
96	60854	I believe that it is vital to have full scientific reports and information before arriving at the random number of 60 wild burros permitted to live on such a large piece of land. It seems to me that corners are being cut in order to remove (cruelly and inhumanely) the wild herds of horses and burros that have lived on these lands for longer than humans have. It is unconscionable to treat these living creatures in this way. If baiting and trapping were used instead of these cruel roundups, the animals could be adopted out to homes and ranches with large amounts of space for these creatures to roam. The rounding up and treatment of the animals in the aftermath is not being regulated properly and immense suffering is the result. The welfare of these animals needs to be put ahead of all other considerations. The best way to do that is to do halt your current actions and do complete, independent scientific studies regarding the impact of your actions on these wild, gentle creatures who have as much right to life as you do. Please do the right thing. The past destruction and cruelty cannot be changed, but the future is in your hands to handle this situation in a morally upright, humane fashion. Please take this opportunity to atone for your prior actions regarding wild horses and burros.	There is no statute or regulation that requires BLM to wait for the results of any study before it utilizes a particular population control method. Refer to response to comment #10 in regard to the CAWP, use of helicopters and bait and water trapping.

97	60911	FACT: Helicopter round ups are inhumane, resulting in injury and death. There are better ways to handle roundups. WHY would you not use them? Whats the big deal about using something that is less stressful on the animal? FACT: Your release numbers do not allow for a proper genetically viable population.	Refer to response to comment #10 in regard to the CAWP, use of helicopters and bait and water trapping. Refer to response to comment D and #18 in regard to genetic diversity.
98	61216	Your agency disregards the fact that burros and wild horses can dig for their own water. Your agency is being paid to allow cattle and for removing horses and burros. On federal land. This is not cattle ranchers' land' this is the peoples' land. Your agency is allowing and perhaps even encouraging cruel and sadistic tactics to be used during the roundups and afterward. You've knocked down animals, you've run them in dangerous heat and smoke, you've made pregnant mares abort, you've separated foals from their mothers, you've done nothing carefully or thoughtfully or kindly. You are using barbed wire. How are you not aware barbed wire is not compatible with horses? I know you are aware, and yet you seem to enjoy just another bit of cruelty to add to the list. And you think it's OK to sterilize animals without anesthesia which is, frankly, pure torture.	Refer to response to comment #7 in regard to research completed by Lundgren. Refer to response to comment #10 in regard to the CAWP. Refer to response to comment D in regard to sterilization.
99	61257	Please remember that wildlife needs protection for the sustainability of a species. You seem to have plenty of land for wild burros so why would you put them in peril? Please work with environmental groups to find ways to make life work for the wild animals on planet Earth as well as just for humans. Maybe you need to plant more trees. It is our duty since we are the animals destroying the environment. There has to be a better way or a compromise that can be found rather than terrorizing the burros and reducing their numbers so dramatically. It is your responsibility to look after not just dirt, but all of the diverse plants and animals that live on the land. Planting native trees is the best way to combat climate change and desertification. Please protect the environment of our public lands.	Comment Noted
100	61288	Please be humane to wild burros and horses! Killing them is NOT the answer. As a taxpayer I resent the fact that my taxes go toward murdering animals who have been in our country longer than we have.	Refer to response to comment A in regard to Euthanasia. As well as response to comment #57 in regard to slaughter.
101	61298	While it is true that overpopulation can have effects on the public land, instead of focusing on the effects of wildlife, the effects of the cattle and sheep grazing should be studied. Cattle and sheep grazing degrades far more land than a single herd of burros. The grazing of these animals pollutes the water, destroys the	Refer to response to comment C, and #19 regarding Livestock.

		landscape due to it be trampled, and pushes out native wildlife in place of industrial grazing. There is no place for privately owned cattle or sheep on our public lands.	
102	61407	Stop rounding up our wild horses and burros while allowing livestock in mass number to graze on our public lands. There are better alternatives and you know that. This is a violation of the Wild Horse and Burro act.	Refer to response to comment C, and #19 in regard to Livestock. Refer to response to comment #16 in regard to the WFRHBA.
103	61419	I co not support the Utah Sinbad Wild Burro Gather. The Bureau of Land Management (BLM) still needs to get pending scientific and substantive facts gathered in a completed and compliled status for public review and response. This includes the United States Geological Survey's (uSGS) study on wild burro population growth. Also, the new scientific finding that wild burros are digging species- saving water oases (Erick Lundgren's research in Sonoran and Mohave deserts) must be made part of the EA. Since the BLM wanrs to cut the Sinbad AML from 268 to 60, proof of genetic viability and health in such a low number must be given Both equine geneticist, Gus Cothran, and the 2013 Nationsl Academy of Sciences ' 2023 report to BLM warn of removing and zeroing out too many wild burros leaving small, isolated, fragmened burro numbers that would result in in-breeding or loss of genetic viability and vigor. I support reversible PZP dartable contraceptive vaccinations for burros, if handled as an on range project that the BLM gives sufficient time and effort . I do not support the use of IUDs for wild equines due to safety and humane treatment concerns. I oppose helicopter roundups, especially during fire season. Operating helcopters in low visibility, smoke choked areas should be stopped. Running wild burros is inhumane. The use of barbed wire in trap areas should be a violation of the CAWP. Removal of livestock should occur before any wild burros are taken from the Sinbad HMA. No expansions of livestock taxpayer funded public land subsidies should be granted. Water sources should remain clear and open to burros in their HMA.	There is no statute or regulation that requires BLM to wait for the results of any study before it utilizes a particular population control method. Refer to response to comment #7 in regard to research completed by Lundgren. The proposed action is not cutting the AML from 268 to 60 it is reducing the population by 268 individuals to reach the AML of 60. Refer to response to comment D and #18 in regard to genetic diversity. Refer to response to comment D, E, #2 and #4 in regard to the use of PZP. Refer to response to comment #5 and #6 in regard to the use of IUDs. Refer to response to comment #10 in regard to the CAWP, use of helicopters and bait and water trapping. Refer to response to comment C and #19 in regard to Livestock.
104	61434	Wild burros are beneficial in promoting biodiversity in their environment. They should be protected not removed from their habitat. Please do not use helicopter roundups! It's inhumane! As a tax paying citizen I urge you to consider a genetically viable population and if necessary use fertility control to limit the herd size. I object to livestock grazing within the HMA.	Refer to response to comment #7 in regard to benefits of burros. Refer to response to comment #10 in regard to the use of helicopters. Refer to response to comment D and #18 in regard to genetic diversity. Refer to response to comment C, #19 and #44 in regard to Livestock.

105	61460	Burros are diffferent than horses. The herd is very small genetically, it would make more sense to use PZP darting, or if some must be removed, to do so gradually using baited traps as adoptive homes become available.	Refer to response to comment D, E, #2 and #4 in regard to the use of PZP. Refer to response to comment #10 in regard to bait and water traps.
106	61506	I have been monitoring the work the BLM has been doing regarding America's wild horses and burros on our federal lands for several years and I have found it to be severely lacking. Numerous animals have died as a result of corralling by helicopters. This inhumane method of corralling is known to cause great stress and death for horses and burros and yet it continues to this day. The BLM's program for reducing the number of horses and burros on our federal lands, the AIP (Adoption Incentive Program), promotes adopting them out to private citizens for cash incentives of $1000 per animal and has resulted in many of them ending up being sold to slaughter auctions. Clearly the BLM is not enforcing the terms of these AIP agreements. In fact, some adopters have been found to be unqualified to properly care for their adopted horses or burros.	Death loss during any gather operation is unfortunate. The BLM strives for less than a 1% loss during gather operations. This level is far lower than comparable capture operations for other large wild animals (Scasta 2019). Refer to response to comment #65 in regard to the AIP. Refer to response to comment #57 in regard to slaughter.
107	62181	Please do NOT remove the Sinbad wild burros from their native lands. They have evolved in this area and are an integral part of the ecosystem.	Comment Noted
108	63368	The EA determined an AML for wild Burros to be 50-70 individual Burros on 99,241 Acres for an average of 1Burro for every 1654 Acres or 2.58 sq Miles which is extremely unfair & is so absurdly low that it is incorrect to state that current number of wild Burros represents an overpopulation! Further the AML would bring Wild Burro populations levels well-below genetic viability in their legal area's(of minimum no. Adults of 250-500) leading to inbreeding and illness. According to PRIA the AML's are to be adjusted according to habitat resources in order to safeguard wild horses & burros. With the Wild Burro AML set at 50-70 their Avg. AUM=420 while the Livestock AUM=14,487 significantly and disproportionately favoring habitat resources for livestock over "principal" & "protected" wild burros. Further the BLMWHP is not implementing it's multi-use mandate but virtually monopolizing our public land for private livestock use practically exclusively. This further supports the need for the BLM to follow Federal Codes, 43 CFR 4710.5 & 43 CFR 4710.6 in order to provide a balanced Multi-use HMA otherwise you are providing preference to ranchers not prioritizing wild horses & burros as stated in the WFHBA. The comments regarding removal of wild burros to ensure rangeland health & reduce grazing impacts is	Refer to response to comment B, #15 and #18 in regard to AML. Refer to response to comment C, #19 and #44 in regard to Livestock.

		again incorrect as bovine are the species that negatively impact rangeland health by tearing plants out of the ground completely when foraging not allowing plants to continue to grow unlike equine who only cut the tops of the plants when foraging, leaving the roots & plants intact so that they can continue to grow. Additionally give that bovine have multiple stomachs they cannot reseed which equine can and do. Equine add moisture to nutrients to the soil such as the necessary plant life-Nitrogen to the soil which again bovine do not provide. Equine also forage on tinder which reduces risk of fire and bovine do not. Equine naturally till the soil with their unique hoof design & maintain clean aquifers by not deficating where they drink! So basically the complete opposite of what you write about the effects of rangeland health on equine is true; that is that it's the livestock unnatural to equine habitat that are the species that do significant & lasting damage to rangelands and aquifers by desertification via overgrazing, pounding soil & water contamination. Livestock also therefore cause widespread and extensive lasting damage to the biodiversity of the HMAs habitat though destruction & death of vegetation and aquifers leading to unsustainable habitats which cause death and illness in water fowl, fish and other wildlife. So for the above reasons based on scientific facts it is the livestock that should be removed according to the Fed Regulations mentioned above: 43 CFR 47010.5 & 43 CFR 4710.6. With respect to the terrorizing roundups you underestimate and understate the significant short and long term effects they have on these complex, sensitive and social beings. They should remain on their protected public land where they CAN thrive 7 live free from injury, trauma and death or as the WFHBA states protected by the BLM from Capture, Branding, Harassment and Death as outlined in the WFHBA of 1971. Given this data the BLM is required by Federal Law under 43 CFR 4710.5 & 43 CFR 4710.6 to remove livestock from the Sinbad HMA in order to provide a thriving population & adequate habitat for wild horses & burros. Generally it is incorrect to state in the EA that you are conforming to the WFHBA which clearly & legally states in Section 2c that Wild Burros are to be treated as the "principal" presence & hence abandoning your public service duty of "Protection" under the WFHBA of 1971. I would like to know what the BLMWHP is actually & practically doing to "protect" our wild horse and burros, and their habitat. Our climate emergency	Refer to response to comment #16 in regard to WFRHBA.

		dictates that rewinding habitats, maintaining & improving land & aquifers is a necessary step for the health of our planet. Animal Agriculture is the leading cause of deforestation & the BLM is continuing down this destructive path. The public land provided to wild horses and burros has been carved away for decades & I respectfully implore the BLM as public servants to reconsider the BLMWHB program by rewilding & relocating our Equine throughout their HMAs, use scientists, scientific facts & data to guide the BLMWHB program in a direction away from paying close to $1Billion/yr to those contributing to the Equine slaughter pipeline to real wildlife & land conservancy as is your true mission.	Refer to response to comment #57 in regard to slaughter.
109	63530	Stop it. Just stop it. You'd save more taxpayer money to just leave things alone than all you are spending to chase/gather, house/store/warehouse/feed for the rest of their lives. Use PZP darting to cut down on population. Nature will take care of the rest. Save $$.	Comment Noted Refer to response to comment D, E, #2 and #4 in regard to the use of PZP.
110	63602	• I oppose all helicopter roundup/gathers; the BLM should be creating HMAPs (Herd Management Area Plans); if a gather is absolutely necessary then bait-trapping should be used, exclusively, over time; • I oppose the use of IUDs for fertility control; they are proven to be unsafe, cause undue bleeding; too risky ; • No burros (or horses) should enter the BLMs AIP (Adoption Incentive Program); the program has been exposed that wild horses and burros have been dumped at auctions and into the slaughter pipeline by their adopters; • Wild burros (and horses) should not have to compete with livestock for forage and water resources within their federally designated HA/HMAs on our public lands. • The AMLs (Appropriate Management Level) are set too low; • No livestock grazing allotments should be allowed within or overlapping of wild burro/horses federally designated HA/HMAs. Extreme high levels of livestock use on public lands result in: o Soil erosion; o Water contamination and depletion; o Deterioration of vegetation; As cattle tend to congregate and settle in riparian areas. Wild burros and horses are highly mobile – they visit watering resources for short periods of time. Benefits to the landscape provided by burros: • Burros are “ecosystem engineers” by using their hooves to dig into the earth (~6 ft. deep) providing hydration for dozens of animal species (Douglas Main-	Refer to response to comment A and #10 in regard to the use of Helicopters. Refer to response to comment A in regard to the creation of an HMAP. Refer to response to comment #10 in regard to bait and water trapping. Refer to response to comment #5 and #6 in regard to the use of IUDs. Refer to response to comment #65 in regard to the AIP. Refer to response to comment C, #19 and #44 in regard to Livestock. Refer to response to comment B, #15 and #18 in regard to AML. Refer to response to comment #7 in regard to the benefits of burros.

		National Geographic; Lake Mead National Recreation Area; published 4/29/21); • Burros blaze trails during heavy snowfall and break ice at watering holes – helping weaker animals to survive; • Burros benefit ecological role by dispersing seeds through elimination, which helps reseed the landscape. H-4700-1 □ WILD HORSES AND BURROS MANAGEMENT HANDBOOK (Public) 2.2 GRAZING AUTHORIZATIONS WITHIN HMAs If necessary to provide habitat for WH&B, to implement herd management actions, or to protect WH&B from disease, harassment or injury, the authorized officer may close areas of the public lands to grazing use by all or a particular kind of livestock (43 CFR 4710.5(a)). The BLM refuses to follow their own federal mandate to create and implement HMAPs (Herd Management Area Plans). HMAPs are prepared under 43 C.F.R. 4710.3-1. HMAPs establish short and long term management and monitoring objectives for a specific wild horse and burro herd and its habitat. They also identify the actions to be taken to accomplish herd and habitat management objectives. Using inhumane helicopter roundups/gathers and writing an EA (Environmental Assessment) about it isn't managing our wild herds of burros or horses. An EA is not a management plan.	
111	63858	The appropriate level of wild burros being sought after is far too low for acreage involved and to maintain a genetically viable population of wild burros. This action appears to be focused on saving the acreage for livestock to graze, not for our wild burros to live and thrive. It seems to be a direct violation of the Wild Horse and Burro Act. Better management of the livestock grazing is a necessity and far more burros should be allowed to stay and live free.	Refer to response to comment B, 315 and #18 in regard to AML. Refer to response to comment #16 in regard to the WFRHBA. Refer to response to comment C, #19 and #44 in regard to livestock.
112	64019	Drought is an convenient excuse to round up burros. You prove you are working purely for ranchers, not an indépendant agency,...more a servant for ranchers really, Joined at the hip to do their bidding. Very sad for a government agency. Does this drought only effect wild horses? Not other wildlife? Not the millions of cattle and sheep? I'd like an answer please.	Drought is discussed in section 3.1 of the EA, how drought has affected livestock is discussed in section 3.2.1, and vegetation is discussed in 3.2.2.
113	65293	I WOULD LIKE TO SEE ALL FEMALE SINBAD DONKEYS DARTED AND RETURNED TO HMA;	Refer to response to comment E in regard to fertility treatment only.

		THREEFORE NO ROUNDUP OF DONKEY STALLIONS AT SINBAD HMA IS NEEDED;	
114	65571	Please leave our burro and wild horses wild and free. Enough slaughter of them to please the ranching industry. It will be a very ugly world when only humans remain.	Refer to response to comment #57 in regard to slaughter.
115	65664	please reconsider the roundup of the sinbad burros... burros are a vital contribution to the wild landscape. they are very sure footed and help with fire abatement as they keep the underbrush and lower tree limbs eaten down so they dont catch fire. they are also very ecologically important as they are a diverse species that we need here in america. they enhance the landscape. they are resilient and very beautiful creatures and they do not like coyotes which are a natural predator of small sheep and other livestock. I have seen a burro carrying a dead coyote in its mouth before. this could be very beneficial for the range as the coyotes will not be able to prey upon the livestock with the burros around. there are also not that many of them left on the range so i believe it would be very beneficial to keep them around. they are more sure footed than horses and can endure the weather changes better than horses can. and i promise you they will kill coyotes. I've seen them do it. they may also be useful in a state park.. they can carry small children on their backs and they are very friendly creatures. please consider this and i pray you decide to leave them on the range where they will prove useful rather than round them up. they deserve better than that, please leave them on the range to maintain ecological balance and public enjoyment for many years to come. they are truly playful animals to watch. please dont round them up we need them. thank you so much	Refer to response to comment #7 in regard to benefits of burros. BLM recognizes the protective nature of burros when it comes to protecting their young and other animals from predators such as coyotes. This characteristic is one of the leading reasons people adopt wild burros as part of the BLM adoption program. We also agree they can make great pack animals and can become very friendly when treated well.
Form Letters			
116	AWHC form letter	The plan seeks to achieve the unscientific "Appropriate" Management Level of just 50-70 wild burros on over 99,200 acres. Even at the goal of 60 burros, that's one burro for every 1,654 acres! This range is far too low to maintain a self-sustaining, genetically viable population of wild burros in the Herd Management Area (HMA). The plan provides for fertility control to be used to control the population growth rate of the burros in the HMA. However, the BLM admits that it does not yet fully understand the population growth rate, including mortality rates, of the burros. A U.S. Geological Survey (USGS) study on the herd's population growth rate is still pending in the HMA. Those results must be	In their 2013 report to the BLM, the National Academies of Sciences advocated for BLM to manage herds in the context of metapopulations of interacting herds across multiple HMAs. The wild burros in the Sinbad HMA are descendants of domestic animals from mixed breeds and do not represent a unique genetic stock (see EA, Appendix L for the Genetic Reports). Wild burros are not the descendants of a unique population from just one place, rather they have a very mixed set or origins, coming from a large number of domestic breeds.

		released to the public for review and comment in relation to this plan before the BLM takes an action in the HMA. Therefore, in relation to fertility control, if it is chosen for implementation – even after the release and review of the USGS study - BLM must consider how: (1) the use of these options will impact the health of the herd when the population is maintained at such a small population; (2) PZP has over 30 years of proven efficacy, and proven efficacy in burros, and should be the preferred tool for use in the HMA; (3) IUDs have not been proven humane or effective in wild, free-roaming herds, horses or burros, and should be eliminated from further analysis. At a population of 60, within the AML, wild burros are provided just 720 Animal Unit Months (AUMs) while livestock are permitted over 3,000 AUMs to graze within the HMA. Importantly, livestock are permitted to graze in spring, a sensitive growing season. The livestock thus are grazing down all potential new growth and then removed, leaving the burros nothing but the blame for the harm to the HMA. Thus, the BLM must adjust livestock use in the HMA in order to give wild burros their fair share of the resource. Research shows the beneficial role wild burros play in promoting biodiversity in their environment, and how the removal of burros has been associated with species extinction in the ecosystem. The BLM has failed to address this information and new research in this Plan and failed to consider the impacts of wild burro removal on the environment. Before the BLM moves forward with its plan for the Sinbad burros, it must properly analyze this scientific research. Chances are that once the agency does, the BLM will find ample reasons for the Plan to significantly change. If removals must occur within the HMA, they should be done exclusively through bait-trapping and over time, to meet adoption demand. Burros react differently than horses to helicopter removals, causing higher risk of injury and harm to the animals. BLM must only remove burros with bait trapping if removals are chosen in this plan.	Moreover, the BLM is not legally obligated to maintain a particular number of animals in any given herd, nor should a given herd be considered as a truly isolated population, given that there can be additional introductions of wild horses or burros from other herds to augment genetic diversity and reduce risks of inbreeding. While genetic data would be collected to monitor genetic diversity, as stated above, there is currently no evidence to indicate that the Sinbad HMA wild burros would suffer reduced genetic diversity if managed at the established AML range. The flight and gather data has continually shown that direct count flights undercount wild horses and burros on the range. The Government Accountability Office (GAO) concluded through their review that "research and experience have shown that BLM's on -the -range population estimates are too low" and stated that "regardless of which method is used, counting wild horses and burros can be challenging, particularly when the animals are obscured by trees or when the rangeland is covered with snow" (GAO 09 -77). In order to improve inventory methods and results, the USGS has been working with BLM for many years to study existing and potential methods that could be implemented. The BLM has implemented methods developed by USGS. Specifically, the PFO in 2014 began using the Simultaneous double observer technique, which is considered among the most accurate methodologies currently available. Refer to response to comment D and #18 regarding genetic diversity; comment D, E, #2 and #4 regarding PZP: and comment #5 and #6 regarding use of IUDs.

			Refer to response to comment F, and #32 regarding population, and comment C and #19 regarding livestock. Refer to response to comment #7 in regard to research completed by Lundgren. Refer to response to comment #10 in regard to bait and water trapping.
117	AWHC Form letter 2	NO ROUNDUPS - REMOVE THE CATTLE! You have released an Environmental Assessment and "Gather Plan" that will result in the removal of hundreds of the Sinbad wild burros to remove approximately 268 wild burros — leaving just 60 burros on over 99,000 acres of Utah's public lands! BLM continues to ignore scientific evidence that shows wild burros actually benefit the ecosystems in which they live, not the outdated and unscientific notion that wild burros are "invasive" species harmful to their environments. Research shows the beneficial role wild burros play in promoting biodiversity in their environment, and how the removal of burros has been associated with species extinction in the ecosystem. BLM has failed to address this information and new research in this Plan and failed to consider the impacts of wild burro removal on the environment. Before the BLM moves forward with its plan for the Sinbad burros, it must properly analyze this scientific research. Chances are that once the agency does, the BLM will find ample reasons for the Plan to significantly change. At a population of 60, wild burros are provided just 720 Animal Unit Months while livestock are permitted over 3,000 AUMs to graze within the HMA. Importantly, livestock are permitted to graze in spring, a sensitive growing season. The livestock thus are grazing down all potential new growth and then removed, leaving the burros nothing but the blame for the harm to the HMA. Thus, the BLM must adjust livestock use in the HMA in order to give wild burros their fair share of the resource. Americans are sick at tried of paying your agency's salaries when you favor private industry- why are you doing that? Hmmm... In relation to fertility control, if it is chosen for implementation - even after the release and review of	Refer to response to comment B in regard to AML. BLM does not consider wild burros "invasive" that is a term that Lundgren (2021) utilized, and interest groups have used. Refer to response to comment #7 in regard to benefits of burros. Refer to response to comment C and #19 in regard to Livestock.

		the USGS study - BLM must consider how the use of these options will impact the health of the herd when the population is maintained at such a small population. PZP has over 30 years of proven efficacy, and proven efficacy in burros, and should be the preferred tool for use in the HMA. IUDs have not been proven humane or effective in wild, free-roaming herds, horses or burros, and should be eliminated from further analysis. If removals must occur within the HMA, they should be done exclusively through bait-trapping and over time, to meet adoption demand. Burros react differently than horses to helicopter removals, causing higher risk of injury and harm to the animals. BLM must only remove burros with bait trapping if removals are chosen in this plan."	Refer to response to comment D, E, #2 and #4 in regard to PZP. Refer to response to comment #5 and #6 in regard to use of IUDs. Refer to response to comment A and #10 in regard to the use of Bait Traps and Helicopters.
Form Letter Variations			
118		The BLM mendaciously claims that wild burros are damaging the range, yet while livestock is permitted over 3,000 Animal Unit Months (AUMs) to graze within the HMA, the wild burros, who are supposed to be the PRINCIPAL users of their own legal habitat by law, are allowed a scant 720 AUMs. Considering that livestock overwhelmingly outnumber the wild burros in the Sinbad HMA, clearly the blame for any rangeland degradation must be placed of the true culprits -- invasive, destructive, excess livestock! In fact, livestock are permitted to graze in the spring, which is a sensitive growing season. Whereupon they graze down any and all potential new growth before they are removed, leaving the wild burros with no forage, a situation caused by livestock overgrazing, as well as BLM mismanagement, which the agency seems more than eager to place full blame of range degradation in the HMA on the shoulders of the wild burros. Yet the BLM, who persistently favors livestock and other commercial industries on our public lands, continues to label wild burros as an “invasive” species that harms the environment, accusations that are outdated, arbitrary and have no scientific basis. The BLM has the authority to reduce or eliminate livestock for the benefit of PROTECTED wild equines, and it must do so instead of demonizing the wild burros. The BLM must also acknowledge the SCIENTIFIC EVIDENCE that, despite claims to the contrary, wild burros, in reality, enhance the ecosystem and promote biodiversity, which, in turn, benefits ALL wildlife in the area. In fact, there is a direct correlation between the eradication of wild burros and species extinction in the	Refer to response to comment C and #19 relating to livestock. Refer to response to comment #7 in regard to research by Lundgren (2021).

		ecosystems where they both occurred. Yet, BLM fails to address such information or the results of any new research in the EA, nor the negative impacts to the environment following wild burro removals. Such relevant scientific research cannot be dismissed and must be sufficiently analyzed and included in any plan affecting the wild burros in the Sinbad HMA. Moreover, despite talk of using fertility control to suppress population growth, the agency confesses it does not have full understanding of wild burro growth and mortality rates, not to mention the USGS study on this subject is still pending. How can this Proposed Action proceed without these results? The public has a right to review such results, once released, so they may send meaningful comments relating to this plan before the agency even thinks of conducting such a massive roundup and removal operation. Furthermore, regarding the proposal to use dangerous IUDs on wild burros, these devices have in no way been proven humane or effective in wild, free-roaming equine herds and, therefore, must be eliminated from any further analysis as they would harm the animals. Of course, with over 60,000 wild horses and burros imprisoned in holding facilities, at taxpayer expense, any permanent removals of wild equines exposes these iconic animals to the very real threat of slaughter, which, due to the BLM's notorious Adoption Incentive Program (AIP), is resulting in myriad wild horses and burros being unceremoniously dumped at kill pens for gruesome slaughter over our borders as would-be "adopters" choose to pocket the $1000 fee they receive for the "care" of these animals while also pocketing the money from selling them off to kill buyers. This "adoption" scam MUST CEASE AT ONCE before any more of these federally protected and highly cherished animals are sent on a one way trip to the abattoir! BLM's betrayal of our wild horses and burros is a disgrace and, although the agency claims it does not send these animals to slaughter, the perpetuation of the AIP makes them complicit in the slaughter of our wild equines, which is ILLEGAL and violates the Wild Free-Roaming Horses and Burros Act of 1971. Across the western landscape, there are a mere 4,000 or so wild burros left on the western range -- not the outrageous guesstimated numbers claimed by the BLM to justify removals. Shockingly, the AMLs of at least 90% of wild burro herds are being managed at levels below genetic viability, contrary to the minimum-viable population (MVP) guidelines deemed necessary by genetic experts for the survival of the species. Wild	Refer to response to comment #7 in regard to research completed by Lundgren. Refer to response to comment #24 in regard to population growth rate. Refer to response to comment # 5 and #6 in regard to the use of IUDs. Refer to response to comment #57 in regard to slaughter. Refer to response to comment #65 in regard to the AIP.

		equines are allocated less than 16% of forage on less than 12% of public lands. The BLM dismisses the very real Genetic Crisis caused by its current policy of drastically reducing or illegally zeroing out wild burro herds. Dr. Gus Cothran, the BLM's own equine geneticist, has clearly stated in no uncertain terms that, due to the small number of wild burros the agency permits on public lands, BLM-managed wild burros are facing a GENETIC CRISIS of epic proportions. Decimating this wild burro would contribute to this escalating crisis. Dr. Cothran warns that massive BLM roundups have already diminished the U.S. wild burro population to tiny, potentially inbred groups, creating a serious genetic crisis for the population as a whole. The precariously low AML (arbitrary management level) of 50-70 wild burros is a grave threat to the future survival of the Sinbad HMA herd. The EA blatantly ignores the results of the BLM-sponsored National Academy of Science Report which found no science-based rationale for the AMLs for wild burros set at either zero or too low to promote genetically healthy herds. The NAS Report recommended a reassessment of AMLs for wild burros to ensure self-sustaining, genetically healthy populations. The NAS noted: -- "removing burros permanently from the range could jeopardize the genetic health of the total population." -- BLM "may need to assess whether the AMLs set for burros can sustain a genetically healthy total population." -- "CHANGES IN SOCIAL VALUES, and the discovery of new information REQUIRE that AMLS BE ADAPTABLE." -- "…MANAGEMENT SHOULD engage interested and affected parties and also BE RESPONSIVE TO PUBLIC	Refer to response to comment D and #18 in regard to genetic diversity. Cothran 2002 is discussed thoroughly in the EA, Chapter 3 (Sinbad Herd Genetics), as well as attached as Appendix L. Refer to response to comment B, #15, and #18 in regard to AML Refer to response to comment #18 in regard to the NAS report.
119		I write today to urge the BLM, in the very strongest terms possible, to CALL OFF its plans to round up and remove approximately 268 burros from the already small Sinbad herd of burros in the Sinbad Herd Management Area (HMA) in Utah. Under the proposed action, the Bureau proposes leaving a dangerously low population of 60 burros in this enormous HMA of nearly 100,000 acres, or just one burro per 1,654 acres. This is well below genetic viability for this herd, and the Bureau has utterly failed to provide a scientific justification for its proposed action or indeed for its	Refer to response to comment B, #15, and #18 in regard to AML.

		determination of "Appropriate Management Levels" (AML) for this herd. This is far from the only time that BLM offices have made AML determinations based on little more than agency fiat and without adequate - or even any - sound scientific justification. This systemic problem has been noted by the members of the National Academy of Sciences and many other qualified scientists in the fields of equine population biology, range management and environmental science, who have found the Bureau's methods for determining AMLs to be consistently opaque not based in science. Indeed, the BLM's formulation of AMLs for wild equines appears to meet the legal arbitrary and capricious standard. To be clear, agency fiat, based not on science but on an opaque process which is not accountable to the constituencies the BLM is required to serve, is NOT an adequate justification for determining AMLs. Simply because the Bureau determines a population of wild equines as "appropriate" does not make that number appropriate or even safe. In this case, the Bureau admits that it does not yet fully understand the population dynamics, including both growth and mortality rates, for this herd, and a U.S. Geological Survey (USGS) study on the herd's population growth rate is still pending for this HMA. Given these facts, the instant plan to drastically reduce herd size is premature and demonstrably unjustified, as the data required to promulgate credible, scientifically supported AML numbers simply are not there. There is no point commissioning a government agency to study population dynamics if the Bureau has no intention of using the results to formulate policy. This is common sense and basic fiscal responsibility. The USGS population study results must be released to the public for review and comment in relation to this plan before the BLM takes any action in this HMA. This is not an academic question; excessively low AML determinations, not backed by rigorous scientific justification and without benefit of public input and oversight regularly result in both the devastation of federally protected wild equines and massive waste of taxpayer dollars. This proposed action also threatens the thriving natural ecological balance (TNEB) of this HMA by removing an environmentally beneficial species. In this case, the very existence of the Sinbad herd is imminently threatened by the proposed roundup pursuant to a dangerously, arbitrarily, and unjustifiably low AML determination.	Refer to response to comment #24 in regard to population growth rate. Refer to response to comment #6 in regard to pending studies. Refer to response to comment #18 in regard to Metapopulations.

		Drastically reducing the size of this herd would place captured burros at grave risk of injury and death during roundup operations themselves, as well as in the aftermath of such operations, as they face even greater risks than wild horses. Very few Americans are in a position to adopt even one burro, and the likelihood of these animals being "adopted" by qualified persons with good intent and adequate resources is very low indeed. Staff at the Bureau must surely be aware that many of the captured equines which it so cavalierly offers for "adoption" or sale often end up being sent to slaughter, despite the fact that the sale of America's wild equines for slaughter is expressly prohibited by federal law and strongly opposed by the vast majority of Americans. Recent credible and well-researched investigative reports confirm that large numbers of captured equines are in fact being sold to slaughter under the auspices of the Bureau's failed "Adoption Incentive Program" (AIP), which in fact has become a laundering operation to enable those with criminal intent to evade the prohibition against abuse and sale for slaughter in 1971 Wild Horses and Burros Act to do so with impunity, with the help of taxpayer dollars. The situation is especially dire for burros; while there are very few persons with good intent willing and able to adopt burros, there is an illicit worldwide market for their hides. In rounding up and removing hundreds of legally protected burros from our public lands, where the animals cost taxpayers nothing and actually contribute to improved ecosystems, the Bureau is intentionally dooming these animals to the most inhumane of deaths. This is utterly unacceptable. The proposed plan is also unjustifiable on environmental and land management grounds. The removal of burros from the arid and semi-arid public lands of Utah's Sinbad HMA is particularly misguided, as burros evolved in just such arid and semi-arid environments and are therefore well adapted to them. Not only do burros have a relatively light environmental impact on such arid and semi-arid environments; research recently published in Nature and National Geographic has confirmed that burros in fact significantly improve access to water resources for multiple species, including American badgers, black bears, mule deer, bighorn sheep, river toads, and multiple birds, including declining species such as elf owls. The burros' habit of digging wells also improves ecosystem and rangeland health by facilitating the growth of desert trees such as willows and cottonwoods.	Please refer to response to comment #10 in regard to the CAWP. Refer to response to comment #31 in regard to adoptions. Refer to response to comment # 57 in regard to slaughter. Refer to response to comment #65 in regard to the AIP. Comment is speculative in nature, and beyond the scope of the EA. Refer to response to comment #7 in regard to research completed by Lundgren and benefits of burros.

		As we face ever increasing threats to our public lands from climate change, including desertification and loss of forests, responsible land management compels the BLM, whose primary duty is to responsibly manage the lands under its purview, to do everything it can to protect these lands from the effects of climate change. The instant misguided proposal to remove large numbers of beneficial burros from the landscape cannot be justified, as it would likely exacerbate and accelerate the most dangerous impacts of climate change. As burros have a substantial positive impact on the environmental health of arid and semi-arid lands, the BLM should ensure their continued survival in this HMA. Because of burros' beneficial impact on the environment and native species, removing them from this HMA has the potential to create significant adverse environmental impacts on the ecosystem up to and including local species extinction. The Bureau must take the threat of environmental harm associated with removing burros very seriously: it is obligated to thoroughly analyze potential adverse environmental impacts from the proposal to remove burros from this HMA, and to adjust its plans to avoid such adverse impacts. Rather than removing ecologically beneficial burros, to responsibly manage this HMA to ensure a TNEB, the Bureau must down-adjust forage allocated for privately owned livestock. While the Bureau proposes removing approximately 268 ecologically beneficial burros - animals which are well-adapted to the semi-arid conditions of this region, it permits over 3,000 AUMs to privately owned livestock to graze within the HMA. These livestock are far less well-adapted to its semi-arid environment, and do great harm through depletion of water resources, trampling of riparian areas and overgrazing. These problems are greatly exacerbated by the fact that these livestock are permitted to graze in spring. Every responsible farmer knows that allowing ruminants to graze intensively in spring is injurious to forage crops, as they tend to graze the crop down to the roots, thus destroying forage resources for the season. To address these serious environmental and equity issues, the Bureau must down-adjust the 3,000 AUMs of forage currently allocated to privately owned livestock in this HMA and concomitantly raise AUMs allocated to the burros which call this HMA home. The proposed action is patently irresponsible public lands management and threatens to destroy the vitality of these lands. It also fails to take into account applicable federal law.	Refer to response to comment C, #19, and #44 in regard to livestock. Refer to response to comment #19 and #44 regarding decreasing Livestock and increasing burros.

		The plain language of the 1971 Wild Free-Roaming Horses & Burros Act clearly states that these Herd Management Areas should be "devoted principally" to the welfare of wild horses and burros. I note in this regard that the Sierra Club has revised its policy on wild equines on our nation's public lands in light of evolving science. The policy states, in part, "In Wild Horse and Burro Herd Management Areas and Territories, and any other federal public lands designated for wild horse and burro use, livestock should be eliminated to avoid overgrazing and degradation of wildlife habitat, riparian areas and water quality." Given its legal obligations under the 1971 statute, as well as the ecological importance of the burros in the Sinbad HMA, as well as the well-documented environmental and forage destruction wrought by livestock grazing in this area, it is incumbent upon the Bureau to substantially down adjust if not entirely phase out livestock grazing in this HMA to fulfill its statutory and land management responsibilities.	Refer to response to comment #16 in regard to the WFRHBA.
		The plan provides for fertility control to be used to control the population growth rate of the burros in the HMA. While in principal I support PZP (porcine zona pellucida) fertility control treatment in populations of wild ungulates, any population management measures in the instant proposal are premature, because the data from USGS population dynamics study on this herd are not yet in. Should the pending study find that population management measures are indicated, then PZP, which has 30 years of proven efficacy backing its use, should be the population management method of choice. By contrast, IUDs raise significant veterinary risks from potentially serious and even life-threatening peri-and post-procedural complications including but not limited to severe chronic pain, infection, and interference with other organs. Managers would not be able to monitor these effects in this population of wild burros, let alone effectively ameliorate them. Also, IUDs are incompatible with provisions in the 1971 Act which require the Bureau to preserve the wild, free-roaming nature of these animals and manage them "at the minimum feasible level". Given these veterinary safety and legal concerns, IUDs should be eliminated from further analysis.	Refer to response to comment D, E, #2 and #4 in regard to the use of PZP. Refer to response to comment #5 and #6 in regard to the use of IUDs.
		If, despite the compelling reasons to call off this ill-considered action, the Bureau nonetheless decides to move forward with removals within the HMA, they should be done exclusively through bait-trapping and incrementally, over time, to meet adoption demand.	Refer to response to comment A and #10 in regard to bait and water trapping and the use of helicopters.

		Under no circumstances should helicopters be used to round up burros in this HMA. The use of aircraft to round up wild equines has long been widely acknowledged as inherently inhumane and dangerous. Because of safety and humane concerns surrounding the use of aircraft to round up wild equines, the practice was banned outright by the 1959 predecessor to the 1971 Act. The many tragic, well-documented instances of serious injuries and fatalities resulting from helicopter roundups in the intervening years clearly show that helicopters remain an inhumane and inappropriate means of rounding up wild equines, being neither safe nor cost-effective. Burros are even more susceptible to serious injuries and fatalities from helicopter roundup operations than are wild horses, and helicopters must not be used to round them up. The use of helicopters is also indefensible from the perspective of environmental protection. Using low-flying helicopters in close proximity to sensitive habitats is a clear violation of the 1976 Federal Lands Policy and Management Act, which requires the BLM to manage the nation's public lands "in a manner that will protect the quality of [their] scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values". Flying helicopters in close proximity to environmentally sensitive, arid habitats to round up wild burros is inherently dangerous and environmentally disruptive. Helicopter operations are also extremely expensive and cannot be justified on fiscal grounds. In conclusion, this proposed action should be called off for the following compelling reasons: 1. The proposed AML for this herd is not based in science, and the Bureau itself admits that the results of the USGS population study on this herd remain pending. The proposed action, based on an AML number which is not grounded in science and which was arrived at without sufficient data, cannot be justified. 2. The proposal to reduce this herd to just 60 animals, which is well below the number considered genetically viable by population biologists, would be genetically devastating for this herd and would likely result in its extinction from this area. In addition to obviously harming the herd, it would also harm the land (see item #3). 3. Recent published, well-researched scientific studies prove that burros, which evolved in and are well adapted to arid and semi-arid environments, have a significant beneficial impact on these areas through	

		enhancement of water resources, with multiple ancillary benefits for environmental health and wildlife species3. The instant proposal to remove large numbers of burros could therefore have significant negative environmental impacts on this HMA's environment and wildlife. These impacts must be thoroughly analyzed before moving forward with any removals. 4. Livestock grazing at unsustainable levels, especially in the spring, is having significant negative environmental impacts on this HMA's environment, and severely threatens rangeland health and TNEB. This issue must be addressed by down-adjusting livestock AUMs before any burros are removed. 5. There are already far more captured equines in BLM custody than can realistically be safely adopted, and recent revelations confirm that the Bureau's so-called AIP program is in fact facilitating large-scale illegal sale for slaughter of captured wild equines. This is in clear violation of federal law, is contrary to the wishes of the American public. Capturing even more wild equines, which cost taxpayers nothing when they are left on the public lands set aside for them, would only add to this crisis by placing even more animals at extreme risk of maltreatment and inhumane death. 6. The use of helicopters is particularly dangerous for wild burros and inevitably results in serious injuries and deaths. Low-flying helicopters also raise clouds of dust and otherwise disturb sensitive arid environments which the Bureau is charged with protection. And, helicopters are an unjustifiable fiscal expense to taxpayers. As a citizen who cares deeply about our nation's wild horses and burros, and about the environmental health of our public lands, I urge the Bureau of Land Management, in the very strongest terms possible, to call off this destructive and ill-considered proposal, to wait until the population data from the USGS study are in, and to fully analyze the environmental impacts of removing such a large percentage of the environmentally beneficial burros from the Sinbad HMA in Utah. Both the existence of this herd and the environmental health of the land in this HMA are at stake.	
120	59708	"I was disappointed to learn that The Bureau of Land Management (BLM) released an Environmental Assessment and "Gather Plan" that will result in the removal of hundreds of the Sinbad wild burros. You are planning to remove approximately 268 wild burros and leave only 60 burros on over 99,000 acres of Utah's public lands.	Refer to response to comment B, #15 and #18 in regard to AML. Refer to response to comment #7 in regard to the benefits of burros.

		Wild burros actually benefit the ecosystems in which they live. I'd like to encourage you to cease seeing equines as “invasive” species harmful to their environments. Wild burros are part of our history which many Americans embrace."	
121	59731	"Its time the BLM brought their ""scientific reseach"" into this century! These animals are not and never have been ""invasive species"". Removing all but 60 animals from thousands of acres is idiotic. There is much scientific evidence that shows wild burros actually benefit the ecosystems in which they live. It would seem the BLM ignores this evidence. But then science has never been the BLM's strong suit.	Refer to response to comment #7 in regard to the benefits of burros.
122	59756	Research shows that wild burros promote biodiversity in ecosystems -- so it is beside the point to call them an "invasive species." That's just one reason why the BLM should do more to protect wild horses and burros from slaughter. The BLM must conduct a thorough investigation into the AIP, which has failed. It's shameful that the AIP in fact ends by promoting the slaughter of many of these iconic animals. Before the BLM goes forward with its plan remove hundreds of the Sinbad wild burros, it must properly analyze recent scientific research showing the beneficial impact that burros have on ecosystems. I believe that should result in the BLM deciding to significantly change its plan for these burros.	Refer to response to comment #7 in regard to benefits of burros. Refer to response to comment #65 in regard to the AIP.
123	59764	"I'm writing to express by concern over the BLM's plan to remove hundreds of the Sinbad wild burros in Utah. This plan defies logic, and would leave ONLY 60 burros on thousands of acres of Utah's public lands! Why on earth would the BLM even consider such an irresponsible plan? There's plenty of available scientific evidence that shows the value wild burros contribute to our ecosystem.	Refer to response to comment #7 in regard to benefits of burros.
124	59781	To the BLM -- Your failed strategies with wild horses are not any better for wild burros & donkeys. The Sinbad Wild Burro Gather is yet another example of selling out to ranchers - who want the land for their own grazing. In addition, your numbers don't add up. Your plan to remove 268 wild burros will leave only 60 burros moving across 99,000 acres of Utah's public lands. Furthermore, research shows that wild burros actually benefit the eco-system.	Refer to response to comment B, #15 and #18 in regard to AML. Refer to response to comment #7 in regard to benefits of burros.
125	59786	"I wish to comment on the Sinbad Wild Burro Roundup and Removal Plan. First, I want to acknowledge that the BLM is becoming increasingly well known for failing to appropriately manage wild equines, and I	Refer to response to comment B, #15 and #18 regarding AML.

		appreciate that public input is being solicited – I hope that it is truly taken into consideration as you move forward. To start, please stop viewing wild burros and horses as invasive species and accept that their welfare is the BLM's responsibility. In this case, please reevaluate the number of burros the 99,000+ acres in question can support. The recommended 50-70 seems ridiculously limited and a decision biased toward the livestock industry. If the BLM is adamant about removal, please do not resort to the infamous helicopter roundups but instead opt for a gradual removal using bait trapping. For maintenance of herd size, I hope you use PZP fertility control, which is humane and effective.	Refer to response to comment A and #10 in regard to the use of Bait Traps and Helicopters. Refer to response to comment D, E, 32 and #4 in regard to the use of PZP.
126	59805	Obviously, the employees of the BLM never had basic arithmetic in grammar school. 99,000 acres for 60 Burros. Thwere is more than enough room for the other 268, leave them in their homes with their families.	Refer to response to comment B, #15 and #18 in regard to AML.
127	59814	scientific evidence shows that wild burros actually benefit the ecosystems in which they live. Please do not cling to the outdated and unscientific notion that wild burros are an "invasive" species. Please stop the roundup plans.	Refer to response to comment #7 in regard to benefits of burros.
128	59825	The BLM continues to ignore scientific evidence that shows wild burros actually benefit the ecosystems in which they live. Your decision to remove so many burros is outdated and remains based on the unscientific notion that wild burros are "invasive" species and harmful to their environment. Please reconsider this decision.	Refer to response to comment #7 in regard to benefits of burros.
129	59826	The BLM continues to ignore scientific evidence that shows wild burros actually benefit the ecosystems in which they live. Instead, the agency clings to the outdated and "unscientific" notion that wild burros are "invasive" species harmful to their environments.	Refer to response to comment #7 in regard to benefits of burros.
130	59833	I will add, that the BLM must stop ignoring scientific evidence that shows wild burros actually benefit the ecosystems in which they live. Research shows the beneficial role wild burros play in promoting biodiversity in their environment. The removal of burros has been associated with species extinction in the ecosystem. The BLM has failed to address this research, thus adopting the outdated and unscientific notion that wild burros are an "invasive" species, harmful to their environments. Before the BLM moves forward with its plan for the Sinbad burros, it must properly analyze this scientific data. The BLM's plan to remove approximately 268 wild burros by reducing the numbers to 60 burros, on over 99,000 acres of Utah's public lands, would leave only one	Refer to response to comment #7 in regard to benefits of burros. Refer to response to comment B, #15 and #18 in regard to AML.

		burro for every 1,654 acres! This number is too low to maintain a self-sustaining, genetically viable population.	Refer to response to comment D, #18 regarding genetic diversity and comment #7 regarding benefits of burros.
131	59840	"This irresponsible plan seeks to achieve the unscientific "Appropriate" Management Level of just 50-70 wild burros on over 99,200 acres. Even at the goal of 60 burros, that's one burro for every 1,654 acres which is completely outrageous considering the numbers of livestock allowed to graze using the same land acreage! This obviously unscientific population number is far too low to maintain a self-sustaining, genetically viable population of wild burros in the Herd Management Area (HMA). These burros support a healthy and ecologically sound range and have it has been proven that their well digging abilities support multiple species in this arid landscape that they have evolved in unlike domestic cattle and sheep. The plan provides for fertility control to be used to control the population growth rate of the burros in the HMA. However, the BLM admits that it does not yet fully understand the population growth rate, including mortality rates, of the burros. A U.S. Geological Survey (USGS) study on the herd's population growth rate is still pending in the HMA. Those results must be released to the public for review and a comment period in relation to this plan made available before the BLM takes an action in the HMA. Therefore, in relation to fertility control, if it is chosen for implementation - even after the release and review of the USGS study - BLM must consider how: (1) the use of these options will impact the health of the herd when the population is maintained at such a small population; (2) PZP has over 30 years of proven efficacy, and proven efficacy in burros, and should be the preferred tool for use in the HMA; (3) IUDs have not been proven humane or effective in wild, free-roaming herds, horses or burros, and should be eliminated from further analysis. At a population of 60, within the AML, wild burros are provided just 720 Animal Unit Months (AUMs) while livestock are permitted over 3,000 AUMs to graze within the HMA. Importantly, livestock are permitted to graze in spring, a sensitive growing season. The	Refer to response to comment B, 15, 18 regarding AML. Refer to response to comment D, #18 regarding genetic diversity and comment #7 regarding benefits of burros. Refer to response to comment #6 regarding USGS studies. Refer to response to comment D, E, #2 and #4 in regard to the use of PZP. Refer to response to comment #5 and #6 in regard to the use of IUDs.

		livestock thus are grazing down all potential new growth and then removed, leaving the burros nothing but the blame for the harm to the HMA. Thus, the BLM must adjust livestock use in the HMA in order to give wild burros their fair share of the resource. Cattle and sheep have not evolved to survive in these desert landscapes without the interference of humans - they are an Unsustainable business and they have NO business being on our Public Lands. Wild Burros on the flip side are an important and positive ecological influence on the desert landscape and I would prefer that my tax dollars be used to humanely and intelligently to properly manage these lands and the burros that sustain them. Research shows the beneficial role wild burros play in promoting biodiversity in their environment, and how the removal of burros has been associated with species extinction in the ecosystem. The BLM has failed to address this information and new research in this Plan and failed to consider the impacts of wild burro removal on the environment. Before the BLM moves forward with its plan for the Sinbad burros, it must properly analyze this scientific research. Chances are that once the agency does, the BLM will find ample reasons for the Plan to significantly change. If removals must occur within the HMA, they should be done exclusively through bait-trapping and over time, to meet adoption demand. Burros react differently than horses to helicopter removals, causing higher risk of injury and harm to the animals. BLM must only remove burros with bait trapping if removals are chosen in this plan. The BLM also has not taken into account the disruption of low flying helicopters to other species in the area and how the noise and vibrations impact avian, mammalian and reptilian species. As an American taxpayer I request an Ecological Impact Statement on the impact of All species that will be effected by helicopters and/or ATV use."	Refer to response to comment C, #19, and #44 regarding livestock Refer to response to comment C, #19, and #44 regarding livestock and response to comment #7 regarding benefits of burros. Refer to response to comment #7 regarding benefits of burros. Refer to response to comment A and #10 regarding the use of helicopters Refer to response to comment #10 regarding bait and water trapping. Refer to response to comment G, and #38 regarding preparation of and EIS.
132	59846	Donkeys have been proven to be beneficial to the range and can even dig for water, benefiting other wildlife. Please consider allowing more donkeys to remain in Sinbad and also more humane methods such as PZP birth control instead of roundups to control the Sinbad wild burro herds.	Refer to response to comment #7 regarding benefits of burros. Refer to response to comment D, E, #2, and #4 regarding the use of PZP.
133	59875	Removing the wild horses and burros --THAT THE TAXPAYERS WANT PROTECTED -- ALL THE WHILE NOT DOING ANYTHING as to the number of cattle grazing on our public lands is NOT the purpose	Refer to response to comment C, 19, and #44 regarding livestock

		of the BLM !! the meat from the cattle is shipped overseas --only 2% remains in the USA !!~ These roundups are CRUEL and a danger to the animals most of the public wants protected The burros are good for the eco system and saying they degrade it is also a lie --sheep and cattle overgraze our lands --it's been proven scientifically that the wild horses and burros are NOT destructive of our public lands BUT having thousands of cattle continuously grazing on OUR land is destroying the fauna and the land !!---	Refer to response to comment #16 regarding the WFRHBA and other laws that govern the BLM's management of the public lands. Refer to response to comment C, 19, and #44 regarding livestock
134	59903	"The Wild Burro of Sinbad have a right to the land they live on. It is their home and they are a part of the natural ecosystem there. Human greed is not a reason to remove them and there is research that shows the beneficial role wild burros play in promoting biodiversity in their environment, and how their removal from lands has been associated with species extinction in ecosystems. The BLM does not address this information in their plan and fails to consider the impacts of wild burro removal on the environment. The BLM MUST NOT BE ALLOWED to move forward with this plan until they analyze the scientific research.	Refer to response to comment #7 regarding benefits of burros.
135	59997	"The plan says it is appropriate to have 50-70 wild burros on over 99,200 acres--one burro for every 1,654 acres! This range is far too low to maintain a self-sustaining, genetically viable population of wild burros in the Herd Management Area (HMA). A U.S. Geological Survey (USGS) study on the herd's population growth rate is still pending in the HMA. Those results must be released to the public for review and comment in relation to this plan before the BLM takes an action in the HMA. Then BLM must consider how: (1) the use of these options will impact the health of the herd when the population is maintained at such a small population; (2) PZP has over 30 years of proven efficacy, and proven efficacy in burros, and should be the preferred tool for use in the HMA; (3) IUDs have not been proven humane or effective in wild, free-roaming herds, horses or burros, and should be eliminated from further analysis. At a population of 60, within the AML, wild burros are provided just 720 Animal Unit Months (AUMs) while livestock are permitted over 3,000 AUMs to graze within the HMA. Importantly, livestock are permitted	Refer to response to comment D, and #18 regarding genetic diversity. Refer to response to comment F, and #32 regarding population. Refer to response to comment #6 regarding USGS studies. Refer to response to comment D, E, #2, and #4 regarding the use of PZP. Refer to response to comment #5, and #6 regarding the use of IUDs. Refer to response to comment C, #19, and #44 regarding livestock.

		to graze in spring, so they could graze down all potential new growth, leaving burros nothing but the blame for the harm to the damage. Livestock use must be adjusted to give wild burros their fair share of the resource. Research shows that wild burros promote biodiversity; their has been associated with species extinction in the ecosystem. Before the BLM moves forward with its plan for the Sinbad burros, it must properly analyze the science on this subject. and consider changing the Plan. If removals must occur within the HMA, they should be done with bait-trapping only and over time, to meet adoption demand. Burros are at higher risk of injury from helicopter removals than are horses. BLM must only remove burros with bait trapping if removals are chosen in this plan."	Refer to response to comment B, #15, and #18 regarding AML. Refer to response to comment #7 regarding benefits of burros. Refer to response to comment A, and #10 regarding helicopters and #10 regarding bait and water trapping.
136	59999	The BLM continues to ignore scientific evidence that shows wild burros actually benefit the ecosystems in which they live. Instead, the agency clings to the outdated and unscientific notion that wild burros are “invasive” species harmful to their environments. Please do the right and humane thing and leave the Sinbad wild burros where they are.	Refer to response to comment #7 regarding benefits of burros.
137	60099	The BLM is planning to remove approximately 268 wild burros — leaving just 60 burros on over 99,000 acres of Utah’s public lands! Worse still, the BLM continues to ignore scientific evidence that shows wild burros actually benefit the ecosystems in which they live. Instead, the agency clings to the outdated and unscientific notion that wild burros are “invasive” species harmful to their environments.	Refer to response to comment F, and #32 regarding population. Refer to response to comment #7 regarding benefit of burros.
138	60145	"Wild burros are not an invasive species. Livestock, however, are invasive. They destroy the lands they graze on for any and all other animals already living in the area naturally. This plan leaves very few burros and very few AUMs for them. Yet the livestock - the actual invasive species here - receive far higher numbers on both counts. Why is this? The plan is called 'gathering' the burros when it fact it is vicious, terrifying clearing of them from the area in question. Would you do this to other species as well? Would you even consider doing it to cattle? This 'gathering' is actually more of a round up for a few to be adopted, and the rest sold or given to slaughter.	Refer to response to comment C, #19, and #44 regarding livestock. Refer to response to comment #57 regarding slaughter.

		Wiping out the wild population is a violation of ethics, honor, and even common sense.	
139	60164	This is in regard to the BLM's to the removal of approximately 268 of the Sinbad wild burros. This would leave only 60 burros for over 99,000 acres of Utah's public lands! This is unconscionable to me and there's no reason for doing this. In addition, the BLM does not follow the science in making this decision. They need to analyze the situation and have proper justification for removing the burros.	Refer to response to comment B, #15, and #18 in regard to AML.
140	60178	The arbitrarily determined "Management Level" of only 50-70 wild burros is horrifying. That range is way too low to maintain a healthy, and self-sustaining population. Wild burros play an important role in the environment. Why is the BLM not protecting the wild burros for that reason alone? The BLM needs to re-do its allowance for livestock grazing on our public land. The BLM lets the livestock graze in the spring, which is a delicate growing season, and then cattle leave nothing but dust. And then the wild burros are blamed. The BLM needs to be honest, ethical and fair. The BLM needs to limit cattle rancher's access to our public lands. Livestock gets 3,000 AUMs to graze and wild burros are only allotted 720 AUMs – which the land is the burro's land in the first place. The cattle don't belong there and are invasive. The BLM is allowing the livestock to destroy our public lands. The BLM must adjust livestock use in order to give wild burros their fair share of the resource. If the BLM admittedly doesn't understand wild burros, how does the BLM know the population and mortality growth rates? In regards to fertility control, the BLM must consider how the use of these options will impact the health of the herd when the population will be killed down to such a tiny population. PZP has over 30 years of proven efficacy in burros, and should be the preferred tool for use. IUDs are dangerous in wild, free-roaming herds, horses or burros, and should be removed from any consideration. The wild burros need to be left alone on their land. The BLM needs to adjust down the number of livestock allowed to graze on our public lands - which the livestock basically grazes for free.	Refer to response to comment B, #15, and #18 regarding AML. Refer to response to comment D, and #18 regarding genetic diversity. Refer to response to comment C, #19, and #44 regarding livestock. Refer to response to comment #6 regarding USGS studies. Refer to response to comment D, E, 2, 4 regarding PZP Refer to response to comment 5. 6 regarding IUD
141	60244	The BLM continues to ignore scientific evidence that shows wild burros actually benefit the ecosystems in which they live. Instead, the agency clings to the	Refer to response to comment 7 regarding benefit of burros

		outdated and unscientific notion that wild burros are "invasive" species harmful to their environments. The number of burros you are planning to remove is excessive. Leaving only 60 +/- burros on almost 100,000 acres is nowhere near as many as would be needed to assure adequate genetic diversity and a healthy herd. Herd population and actuarial studies have not yet been completed or released for public review. Further, various fertility options for controlling herd numbers have yet to be adequately studied, and not all are even practical, e.g. using IUD's in the mares,without a solid plan for monitoring.	Refer to response to comment B, 15, 18 regarding AML Refer to response to comment F, 32 regarding population Refer to response to comment D, 18 regarding genetic diversity Refer to response to comment 6 regarding USGS studies
142	60381	Please consider the scientific evidence in making the decision on if to gather these icons and special animals. As a retired Scientist, I can attest the absolute paramount importance of leaving numbers of burros to sustain a genetically viable population. Just look at the fate of the cheetahs whose numbers were bleakly affected when a disease struck their population and they had such little genetic variation their numbers died off drastically. Out burros are Protected by Federal Law and the numbers you are wanting to gather leave 1 burro for over 1,000 acres! 60 burros left is simply unsound genetic viability. Please leave the numbers where they are and use PZP fertility control.	Refer to response to comment D, 18 regarding genetic diversity. Refer to response to comment 16 regarding the WFRHBA Refer to response to comment D, E, 2, 4 regarding PZP
143	60600	"It is most distressing that you want to reduce the number of burros in the HMA to 60. This number is ridiculously low if you are to maintain healthy breeding of these animals and avoid producing an inbred population. Further, you intend to use IUDs to control the meager population once you have removed the other burros. These devices cause severe pain and infections and are not safe. The use of PZP has been proven to be both effective and safe. In addition, the burros are not harmful to their environment but are a necessary part of the ecosystem. You have not fully delved into the science of the project you wish to carry out. It is the cattle who graze in the early spring who decimate the vegetation for wildlife and burros. Cattle consume and destroy the new growth in the spring leaving the rest of the animals in the region with little or nothing to forage. It would be best not to remove the burros unless they are adopted and then remove only the ones who are adopted. In addition, as burros react differently from horses to planes and other vehicles, the use of baited traps would be the most humane method to capture them. Please consider doing what is best for these animals and the environment instead of the ranchers who have usurped	Refer to response to comment D, 18 regarding genetic diversity Refer to response to comment 5. 6 regarding IUD Refer to response to comment D, E, 2, 4 regarding PZP Refer to response to comment 7 regarding benefit of burros and response to comment 6 regarding USGS studies Refer to response to comment C, 19, 44 regarding livestock Refer to response to comment A, 10 regarding helicopters Refer to response to comment 10 regarding bait and water trappings

		public land. Burros are iconic and necessary to the ecosystem. Please delve deeply into the science and the impact this project will have on the ecosystem before you implement your plan.	Refer to response to comment 10 regarding CAWP
144	60612	"It is amazing to me that the BLM feels that a sustainable herd is 1 burro for more than 1,500 acres. This is WRONG. HOW MUCH LIVESTOCK IS ALLOWED TO GRAZE? I AM TOLD MORE THAN 3,000 AND THEYA RE ALLOWED TO GRAZE IN THE SPRING, A MOST SENTITIVE TIME FOR NEW GROWTH. DO NOT REMOVE THE BURROS. REMOVE THE CATTLE, GRAZING AT THE EXPENSE FO THE WILDERNESS AND AT TAXPAYER MONEY. DO NOT USE IUDS. THESE ARE BARBARIC AND UNPROVEN. THE METHOD PZP IS WORKING FOR FERTILITY CONTROL.	Refer to response to comment C, 19, 44 regarding livestock Refer to response to comment 5. 6 regarding IUD
145	60614	There is no way the BLM "needs" to roundup the Sinbad wild burros! Aside from the fact they are federally protected animals, the BLM is once again overstepping their boundaries and bowing to cattle and sheep ranchers. The plans to so severely reduce the burro population is ridiculous...how does the BLM justify allowing over 3,000 Animal Unit Months and allow just 720 to a federally protected animal? Furthermore, by the time the livestock have chewed their way through all the new growth grass, the burros are blamed for the degradation of the land. The BLM needs to rethink its numbers! Also, time and again it has been shown how wild burros are key to an ecosystem's health and biodiversity. This agency removes the burros...this agency should be responsible for the (other) species extinction in the ecosystem. Also, using helicopters to roundup wild burros (and our wild horses in Onaqui and elsewhere) are just plain cruel and unnecessary.	Refer to response to comment 16 regarding WFRHBA Refer to response to comment B, 15, 18 regarding AML Refer to response to comment F, 32 regarding population Refer to response to comment C, 19, 44 regarding livestock Refer to response to comment 7 regarding benefit of burros Refer to response A, 10 regarding helicopters
146	60647	I oppose the planned roundup of the Sinbad wild burros. As it stands now, it proposes leaving a population too small for the health of the herd, while allowing a significantly larger number of livestock to graze in the same area. The livestock graze in the spring, grazing down all potential new growth, but the burros get blamed for the harm that is done.	Refer to response to comment F, 32 regarding population and D, 18 regarding genetic diversity Refer to response to comment C, 19, 44 regarding livestock

		Before considering population control, more needs to be known about the current population growth rate and mortality rates. Only after some study should it be undertaken, and then any population control should use proven fertility control such as PZP. IUDs are not proven either humane or effective, and should NOT be considered as an option. It appalls me to think that this would be considered for wild animals in an uncontrolled environment. If removals must occur they should involve the use of helicopters which cause injuries. Bait trapping and slow removals over time are much more humane, and can be adjusted to meet adoption demands. Bait trapping should be the only option considered. "	Refer to response to comment 6 regarding USGS studies Refer to response to comment D, E, 2, 4 regarding PZP Refer to response to comment 5. 6 regarding IUD Refer to response to comment A, 10 regarding helicopters Refer to response to comment 10 regarding bait and water trap
147	60649	Please leave the burros alone. You do not need to round them up with helicopters, if you need to remove SOME burros it can be done with baiting. Why do livestock always come first when it come to grazing allotments? The cattle industry has the BLM in their hip pocket.	Refer to response A, 10 regarding helicopters and response 10 regarding bait and water trapping Refer to response to comment C, 19, 44 regarding livestock
148	60731	"It looks like the BLM is eschewing scientific studies of wild burros and instead using arbitrary numbers that will not genetically sustain the herds (one burro for every 1,654 acres). You are jumping ahead of the U.S. Geological Survey (USGS) study on growth rates. Wouldn't it be prudent to learn from that study before taking action? This study's results must be open to the public for input before the BLM takes any action. The fact that these burros are being displaced in favor of livestock begs the question, "who is benefitting from this?" As to the need for fertility control, PZP has over 30 years of proven efficacy, in burros, and should be the preferred tool for use in the HMA. IUDs have not been proven humane or effective and must not be used. Wild burros play a beneficial role in promoting biodiversity in their environment. Removing burros will cause the extinction of other species, while grazing livestock degrades the land. Again, why is livestock given preference? Removals must be a last resort. If chosen within the HMA, they should only be done through bait-trapping and over time, to meet adoption demand. Burros react differently than horses to helicopter removals, causing higher risk of injury and harm to the animals. We hope you will consider burros as living beings, and not refuse to be done away with."	Refer to response to comment D, 18 regarding genetic diversity and response F, 32 regarding population Refer to response to comment 6 regarding USGS studies Refer to response to comment D, E, 2, 4 regarding PZP Refer to response to comment 5.6 regarding IUD Refer to response to comment 7 regarding benefit of burros Refer to response to comment A, 10 regarding helicopters Refer to response to comment 10 regarding bait and water trapping

149	60760	This current plan is based on an unscientific "Appropriate" Management Level of just 50-70 wild burros on over 99,200 acres. This range is far too low to maintain a self-sustaining, genetically viable population of wild burros in the Herd Management Area (HMA). Furthermore, BLM continues to ignore scientific evidence that shows wild burros actually benefit the ecosystems in which they live. Instead, the agency's outdated and unscientific notion that wild burros are "invasive" species harmful to their environments is not only baseless, it is offensive to the majority of American people who support protection of our iconic lands and human fertility management of burros.	Refer to response to comment B, 15, 18 regarding AML Refer to response to comment D, 18 regarding genetic diversity Refer to response to comment 7 regarding benefit of burros
150	60798	The BLM still uses the old, unscientific idea that wild burros are an invasive species and they are harmful to the environment. That is a blatant untruth. Ongoing scientific studies show that wild burros are of overwhelming benefit to the ecosystems they inhabit. Beyond that, removing 268 of the 328 wild burros of the Sinbad area in Utah is wrong and definitely unnecessary and it brutal. This area is PUBLIC LAND, and I, for one, own a part of that as do millions of citizens who concur that the burros should be protected by the BLM, not decimated.	Refer to response to comment 7 regarding benefit of burros Refer to response to comment F, 32 regarding population and response to comment D, 18 regarding genetic diversity
151	60800	Your Environmental Assessment and "Gather Plan' will result in the removal of 268 burros if the Sinbad Wild Burro Roundup & Removal Plan is approved. That only leaves 60 burros on 99,000 acres of Utah's public lands. The BLM continues to round up burros (& horses too). This is wrong! These wild burros deserve to remain in their habitat they call home. They are part of the ecosystem & are not an "invasive' species. Why is the BLM terrorizing, rounding up, & capturing these burros?? You do not have the funding nor the facilities to keep these animals. They should not be tamed & adopted out. Besides, there are not enough people to adopt them. So are they sent to slaughter or other countries to do hard labor? The BLM goes against the wishes of the American people to protect wildlife. You succumb to the demands of farmers & ranchers. Surely, there is enough public land for both livestock & burros & horses. There is no benefit in capturing burros. Please leave them to roam. The Wild Free-Roaming Horses & Burros Act was passed in 1971. Why is the BLM excluded from obeying it? Thank you for allowing me to submit my comments.	Refer to response to comment F, 32 regarding population, response to comment D, 18 regarding genetic diversity, and response to comment B, 15, 18 regarding AML Refer to response to comment 7 regarding benefit of burros Refer to response to comment 31 regarding adoption and response to comment 57 slaughter Refer to response to comment C, 19, 44 regarding livestock Refer to response to comment 16 regarding WFRHBA

152	60946	I am concerned that (1) the Sinbad Wild Burros Gather Plan fails to consider research on the impact of burros on maintaining water sources and biodiversity;(2) reducing the wild burro population to 50 to 70 individuals in an area of over 99,000 acres is too low to maintain a genetically viable population; (3) the proposed possible use of IUDs has not been proven to be effective or humane for equine birth control; (4) spring livestock grazing will eliminate new growth that could be utilized by burros; and (5) helicopter removals and the standard BLM adoption program are inhumane and a channel to slaughter. I favor greater protection of the Sinbad burros than your plan provides with maintenance of a larger burro population, the use of PZP fertility control that has been shown to be effective, the reduction of numbers of livestock grazing; and the phased removal of any necessary burros as secure adoption placement becomes available.	Refer to response to comment 7 regarding benefit of burros Refer to response to comment D, 18 regarding genetic diversity and response to comment F, 32 regarding population Refer to response to comment 5.6 regarding IUD Refer to response to comment C, 19, 44 regarding livestock Refer to response to comment A, 10 regarding helicopters, response to comment 31 regarding adoptions, response to comment 65 regarding AIP, and response to comment 57 regarding slaughter Refer to response to comment D, E, 2, 4 regarding PZP
153	60976	"My understanding is there would be 50-70 wild burros on over 99,200 acres. With the goal of 60 burros, that's one burro for every 1,654 acres. And livestock is permitted at 3000 AUMs leaving burros nothing but the blame for using the HMA? Is that right? I also understand that the plan provides for fertility control to be used to control the population growth rate of the burros in the HMA. I certainly hope you will be using PZP and will not be torturing burros with cruel, inhumane IUDs. Maybe women who have used IUDs should be making this decision? I have heard that research shows the beneficial role wild burros play in promoting biodiversity in their environment, and how the removal of burros has been associated with species extinction in the ecosystem. The BLM has failed to address this information and new research in this plan and failed to consider the impacts of wild burro removal on the environment. Before the BLM moves forward with its plan for the Sinbad burros, maybe it should analyze scientific research? I don't even want to hear about helicopter removals. When I tell my friends about the possible removal of burros from HMAs, they get so excited about being able to go see wild burros. They are horrified with the idea of them being removed. When I tell them about the cattle they have to compete with, they tend to be angry that that their government land is used for pennies at the expense of our wild burros and horses. Maybe all	Refer to response to comment B, 15, 18 regarding AML Refer to response to comment F, 32 regarding population Refer to response to comment C, 19, 44 regarding livestock Refer to response to comment D, E, 2, 4 regarding PZP and response to comment 5.6 regarding IUD Refer to response to comment 7 regarding benefit of burros Refer to response to comment A, 10 regarding helicopters Refer to response to comment C, 19, 44 regarding livestock

		Americans should have a say as to how our land is being used and not just cattle owners."	
154	60988	Wild burros are an integral part of the eco-system. They are not invasive. They are beneficial to the land and to the other wildlife. Please do not roundup these vital animals who have been a successful part of the eco-landscape for hundreds of years.	Refer to response to comment 7 regarding benefit of burros
155	61010	I'm writing to request that the BLM burro removal plan be changed to support the survival of this important species! Research shows the beneficial role wild burros play in promoting biodiversity in their environment, and how the removal of burros has been associated with species extinction in the ecosystem. The BLM has failed to address this information and new research in this Plan and failed to consider the impacts of wild burro removal on the environment. Before the BLM moves forward with its plan for the Sinbad burros, it must properly analyze this scientific research.	Refer to response to comment 7 regarding benefit of burros
156	61029	I want to go on record as being strongly opposed to the Sinbad Wild Burro Roundup and Removal plan. Science does not support the proposed management level, reducing the wild burro population to a level of only 50 - 70 burros for nearly 100,000 acres of land. that is very likely not genetically sustainable. Wild burros and horses are being treated unfairly and cruelly in general on U.S. public lands by the BLM, seemingly in favor of the interests of the cattle industry. Helicopter round-ups of wild burros and horses are cruel and inhumane and should be stopped immediately. 80% of Americans do not want our tax dollars to be used in for such inhumane treatment of our wild horses and burros. It is just plain wrong and a disgrace to these magnificent animals. Please allow more scientific data and research to be gathered before removing the burros from their natural habitat. Research shows that presence of the burros equates to a healthier ecosystem and that the premature removal of burros has led to other species going extinct in the ecosystem.	Refer to response to comment B, 15, 18 regarding AML Refer to response to comment 6 regarding USGS studies and research Refer to response to comment D, 18 regarding genetic diversity Refer to response to comment A, 10 regarding helicopters Refer to response to comment 7 regarding benefit of burros
157	61038	The plan provides for fertility control for the growth rate of the population, but the BLM does not know or understand the actual growth rate or mortality rate of the burros in this area. Those rates need to be reviewed and the public needs to be informed, before the BLM takes any kind of action. From the study provided, it appears that the herd numbers are low for maintaining a viable burro population. This low genetic variability of the population can impact the health of the herd in the coming years. PZP has a proven efficacy and should	Refer to response to comment 6 regarding USGS studies and research Refer to response to comment D, 18 regarding genetic diversity Refer to response to comment D, E, 2, 4 regarding PZP

		be the preferred method of controlling burro populations. Other forms of birth control are not humane, cost effective, or effective for wild populations and should not be used. They should be eliminated.	
		With low burro populations and much higher cattle populations in grazing areas, it appears that the cattle are effecting the grazing areas much more than the burros. The cattle are put in these areas to graze during the spring when the grasses are just beginning to grow. They eat the new vegetation and then are removed from the grazing areas, leaving the burros who then receive the blame for the overgrazing. It is the cattle who are grazing on the new growth areas. Most farmers or cattlemen do not put herds of cattle on their pastures in the early spring. They allow their pastures to get some growth, before turning animals out in them.	Refer to response to comment C, 19, 44 regarding livestock
		Burros, according to the research, promote biodiversity in their environments, so how can the removal of burros be associated with species extinction? Where is this addressed in this plan? Before removal is considered, the scientific research should be properly analyzed.	Refer to response to comment 7 regarding benefit of burros
		If any burros are to be removed, they should only be removed if there is an adoption plan in place and a demand for adopting them. The method of removal should insure that the risk of injury and harm is minimal if this is the only feasible plan adopted.	Refer to response to comment 31 regarding adoption and response to comment 65 regarding AIP
158	61285	The Sinbad Wild Burro Gather Plan' seeks to achieve the ARBITRARY ""Appropriate Management Level"" (ALM) of 50-70 wild burros on 99,200+ acres. At 60 burros, that's one burro for every 1,654 acres! Far too low a number to maintain a self-sustaining, genetically viable population in the Herd Management Area (HMA).	Refer to response to comment B, 15, 18 regarding AML Refer to response to comment D, 18 regarding genetic diversity
		The plan provides for fertility control even though BLM admits it doesn't fully understand the burro population growth rate, including their mortality rate. A USGS study on the herd's population growth rate is not yet complete: BLM should take NO ACTION until after release of the USGS study and the legally required public comment period.	Refer to response to comment 6 regarding USGS studies and research
		At an ALM population of 60 and with the current formula, the wild burros would be allowed 720 Animal Unit Months (AUMs) vs. livestock, permitted over 3,000 AUMs to graze within the HMA. That makes no sense! Those privately-owned livestock are permitted to graze in the spring, then removed having grazed down all potential new growth, and leaving the burros next to nothing. How is that justified?	Refer to response to comment C, 19, 44 regarding livestock

		BLM ignores the beneficial role wild burros play in promoting biodiversity in their environment, and that the removal of burros has been associated with species extinction in the ecosystem. Before BLM moves forward with this plan, it MUST be required to analyze the currently available environmental impact research. If/when burro removals must occur within the HMA, they should be done exclusively through bait-trapping and over time to meet adoption demand. Burros react differently than horses to helicopter removals, causing an even higher risk of injury and harm to these protected animals. Helicopter removals must be banned! It should be BLM's mission to protect and save, not destroy, America's Wild Free-Roaming Horses and Burros, per the 1971 federal law enacted to prevent their "capture, branding, harassment, and death." BLM should go back to that mission."	Refer to response to comment 7 regarding benefit of burros Refer to response to comment 10 regarding water and bait trapping Refer to response A, 10 regarding helicopters Refer to response 16 regarding the WFRHBA
159	61382	Research shows the beneficial role wild burros play in promoting biodiversity in their environment, and how the removal of burros has been associated with species extinction in the ecosystem. The BLM has failed to address this information and new research in this Plan and failed to consider the impacts of wild burro removal on the environment. Before the BLM moves forward with its plan for the Sinbad burros, it must properly analyze this scientific research. Chances are that once the agency does, the BLM will find ample reasons for the Plan to significantly change. The plan seeks to achieve the unscientific "Appropriate" Management Level of just 50-70 wild burros on over 99,200 acres. Even at the goal of 60 burros, that's one burro for every 1,654 acres! This range is far too low to maintain a self-sustaining, genetically viable population of wild burros in the Herd Management Area (HMA). If removals must occur within the HMA, they should be done exclusively through bait-trapping and over time, to meet adoption demand. Burros react differently than horses to helicopter removals, causing higher risk of injury and harm to the animals. BLM must only remove burros with bait trapping if removals are chosen in this plan.	Refer to response to comment 7 regarding benefit of burros Refer to response to comment B, 15, 18 regarding AML Refer to response to comment F, 32 regarding population Refer to response to comment D, 18 regarding genetic diversity Refer to response to comment A, 10 regarding helicopters, response to comment 10 regarding bait and water trappings, and response to comment 10 regarding CAWP
160	61702	I oppose the gather of the Sinbad wild burros. The number of burros that the BLM is proposing to remove from the land is entirely too many for the number of	Refer to response to comment B, 15, 18 regarding AML

		acres that are available. The burro is an essential part of the dessert eco system and science has proven that they are imperative for the spread of essential plants and for finding and digging a water source that other animals rely upon.	Refer to response to comment 7 regarding benefit of burros
		The number of burros in the Sinbad area is a small number for the amount of land that this available. Removing the number they are proposing is like removing the ENTIRE population. The population of the herd can be managed humanely with PZP fertility control, which has been proven effective, and is a much more humane way of dealing with the wild burro population. There are groups that will assist with the PZP darting, including the Cloud Foundation and American Wild Horse Campaign, among others.	Refer to response to comment F, 32 regarding population Refer to response to comment D, E, 2, 4 regarding PZP
		Aside from those facts, a helicopter round up is INHUMANE. Numerous injuries and too-close-contact with the helicopter and horses has been recently documented at Antelope and Onaqui. Helicopters are particularly dangerous for burros, they are not like wild horses, they can not be run for long periods of time, they suffer physical injury at a higher rate, they also suffer physiologically. IT IS FAR TO DANGEROUS for them. Once captured they are not adopted out like a horse. Many people do not understand what an amazing, intelligent animal they are, and they will end up going to slaughter. DO NOT let this be another way to funnel these beautiful animals into the slaughter pipeline, I am BEGGING YOU.	Refer to response to comment A, 10 regarding helicopters Refer to response to comment 10 regarding CAWP Refer to response to comment 65 regarding AIP Refer to response to comment 57 regarding slaughter
		I just returned from a week in Moab (August 15-20 - I am writing this in the Moab airport) and took a trip out to the Sinbad region specifically to see the burros on my vacation. I was fortunate to spot these amazing creatures with binoculars, but If the herd is so small that visitors cannot see them, the area will lose tourist revenue like mine (we ate and stopped in shops near by).	Although there could be some increase in recreation visitation to view wild horses and burros, most of the economic value is likely non-market in nature (essentially a “non-use” value”. See response to comment #20 regarding non-market values.
		Taking the current herd down to 60 burros will decimate the heard and make them far to difficult to spot.	Refer to response to comment F, 32 regarding population
		These burros are an important part of the eco system of the dessert, they are loved by the American people, and as a TAXPAYER, I demand that they remain on the public land where they belong. Please do the right thing and allow them to stay free, as God intended.	Refer to response to comment 7 regarding benefit of burros
161	61736	Please do not remove the wild burros. They are an important part of the ecosystem and the current management techniques are cruel and inhumane.	Refer to response to comment 7 regarding benefit of burros and comment 10 regarding CAWP.
162	62224	As an American with a lifelong love of all equines, I'm writing regarding the BLM plan to ""remove"" approximately 268 wild burros from PUBLIC land in	Refer to response to comment B, 15, 18 regarding AML

		Utah. First, I do not understand the math. Remove these burros will leave just 60 burros on over 99,000 acres of Utah's public lands! Worse still, the BLM continues to ignore scientific evidence that shows wild burros actually benefit the ecosystems in which they live. Instead, it seems the agency is clinging to the outdated and unscientific notion that wild burros are "invasive" species harmful to their environments. It's 2021 which is not news that I'm sharing. However we have humane methods now to reduce populations by humane sterilization. The Porcine Zona Pellucida (PZP) vaccine provides a safe, humane, cost-efficient and effective alternative to the current wild horse management approach of roundup, removal and stockpiling of horses in government holding facilities. Please review other suggestions made by the American Wild Horse Campaign https://americanwildhorsecampaign.org/media/awhcs-response-blms-announced-changes-its-wild-horse-burro-adoption-program	Refer to response to comment 7 regarding benefit of burros Refer to response to comment D, E, 2, 4 regarding PZP
163	63762	"Please use birth control PZP instead of rounding up the wild burros. They should be protected and cattle grazing should NEVER take precedence over horse and burro grazing. Its a miserable life for a horse or burro to be confined to pins for the rest of their lives. It is our responsibility to manage them appropriately instead of the constant needless round ups.	Refer to response to comment D, E, 2, 4 regarding PZP Refer to response to comment C, 19, 44 regarding livestock Refer to response to comment 31 regarding adoption and long-term holding
164	63800	I oppose the removal of wild burros from the HMA and adjoining areas. The project claims that the goal is to protect degradation of public lands. It aims to have just 60 burros on 1,654 acres! Gentlemen and ladies, that is just 0.03 burros on each acre! You are seeking an unscientific "appropriate" management level, when you don't have any data to back up what "appropriate" would be. Science requires DATA and you don't have the data. You're just guessing, and guessing is not science. A far bigger problem than burros is CATTLE. Burros on the landscape promote biodiversity, cattle, it is pretty well understood, destroy it. I live in a lush, well-watered state, and even here every cattle pasture I've ever seen is a disaster. Biodiversity, as you know (or should) is crashing the world over. If the BLM is	Refer to response to comment B, 15, 18 regarding AML Refer to response to comment 7 regarding benefit of burros

		serious about wanting to protect biodiversity (personally, I have my doubts that you are as your actions don't back it up) you'd get rid of or vastly reduce the numbers of cows on public land AND charge ranchers REALISTIC fees for letting those fewer cows use the PUBLIC land. I am the public. I like seeing burros and wild horses on the land. Cows? Not so much. Leave the burros alone, at least until you have some science to show us.	Refer to response to comment C, 19, 44 regarding livestock
165	63941	Please do NOT harm wild burros or blame them for the damage caused by livestock. Rounding them up with helicopters is potentially a disaster because they could be injured. These burros play a beneficial role in promoting biodiversity in their environment. Do not remove these lovely creatures. Furthermore, do not cause harm to them. I cannot believe some of the sadistic things the BLM does to animals. Like a bunch of serial killers with a thirst for equine death and blood. Please stop the bizarre and inhumane behavior at the BLM. Leave the Sinbad burros alone please.	Refer to response to comment C, 19, 44 regarding livestock Refer to response to comment 7 regarding benefit of burros Refer to response to comment 10 regarding CAWP
166	64558	I oppose this decision because it is unfair treatment for the burros. There are 99,000 acres of Utah's public lands that should be able to accommodate them. It has been said that the wild burros are harming the public lands and deteriorating the environment. However, studies have found that burros tend to dig groups of wells that sometimes go as deep as five feet where the groundwater is found. This creates water sources for other wildlife to enjoy. I am hoping that you reconsider ending burro round up. There are other humane ways to deal with them. Fertility programs are available and have been very successful.	Refer to response to comment B, 15, 18 regarding AML Refer to response to comment 7 regarding benefit of burros Refer to response to comment D, E, 2, 4 regarding PZP
167	64752	Most disturbing to me that the ONLY solutions the BLM seems to have is to either terrorize these animals with brutal helicopters, remove them permanently from their rightful homes on OUR public lands, stick in crowded holding pens forever or ship them to slaughter. Now I learn about your insidious plans remove as many as 230 of 290 burros in this herd in Utah, leaving just 50 to 70 animals in the herd. I am totally OPPOSED to your removing any burros from Sinbad HMA, skew the sex ratio which would negatively impact the genetic health of the population, eventually driving them to extinction. These hardy little animals, unlike cattle herds, ARE beneficial to the environment! NOTHING happens with reducing livestock on our public lands. Nope, herds INCREASE every year. CATTLE DO FAR MORE DAMAGE TO THE LANDS THAN EITHER WILD HORSES OR BURROS. It is a well known scientific FACT that these large populations of cattle are contributing in a	Refer to response to comment 10 regarding CAWP Refer to response to comment A, 10 regarding helicopters Refer to response to comment 31 regarding adoptions Refer to response to comment F, 32 regarding population Refer to response to comment D, 18 regarding genetic diversity Refer to response to comment C, 19, 44 regarding livestock

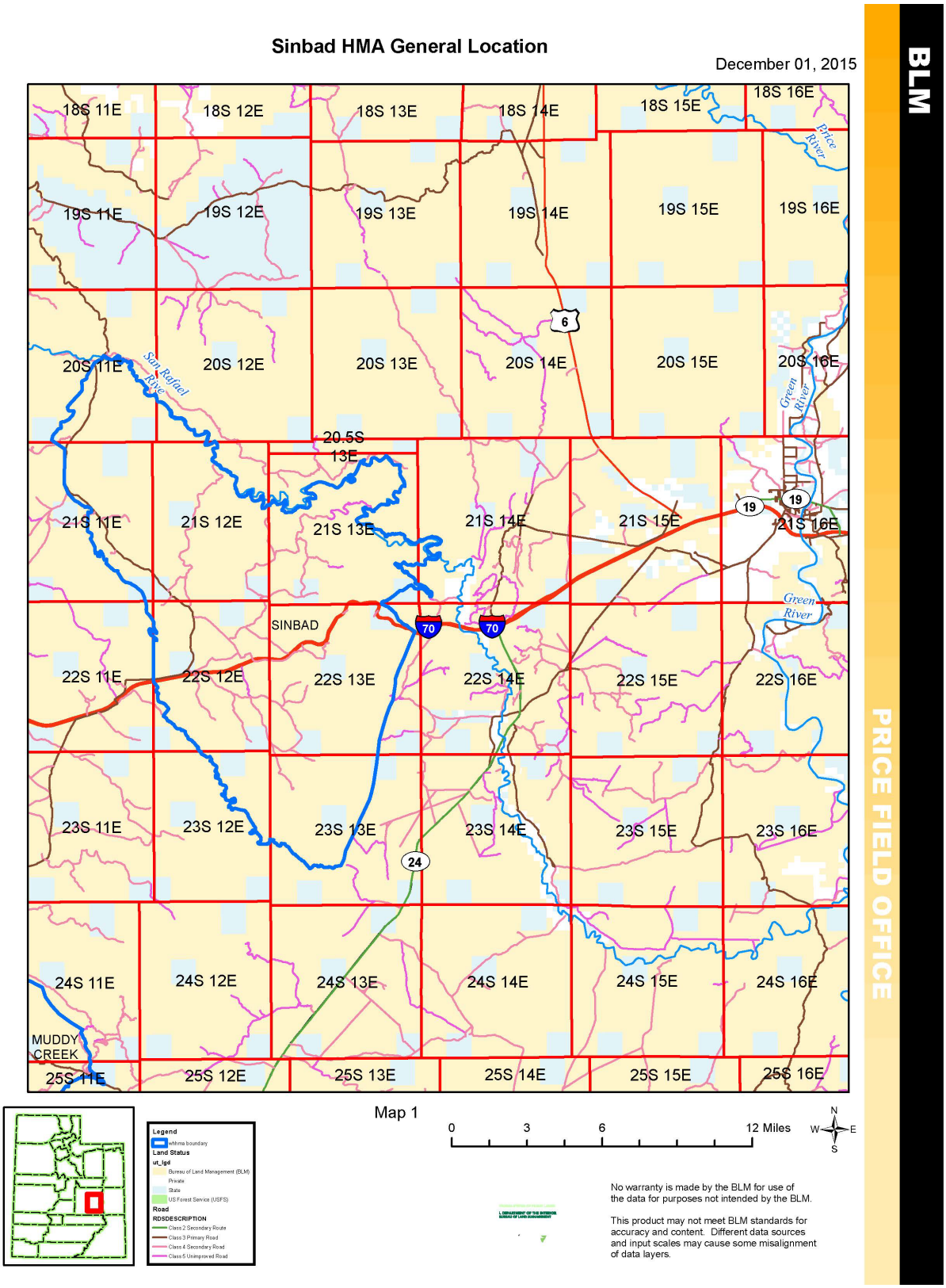
		huge way to climate change. But I guess you would rather listen to wealthy ranchers than listen to overwhelmingly majority of Americans who do NOT WANT TO SEE OUR BURROS AND WILD HORSES disappear from the landscape!! Instead of removing them, use available and more humane methods to control populations, like PZP.. The BLM's 'unscientific"" Appropriate Mgmt Level (AML) really stands in the way of any humane alternative to roundups. In your rigged ""AML"" system, ANY animal over BLM's arbitrary quota is considered ""overpopulation"". The only way to fix this to REDUCE LIVESTOCK GRAZING and INCREASE the numbers of burros on the range!	Refer to response to comment B, 15, 18 regarding AML
168	65494	The round up of these burros needs to be stopped. There will be a potential inbreed and genetic crisis facing these burros Your plan intends to leave just a few burros which will be terrible. Livestock grazing needs to be reduced and increase of burros needs to happen. Livestock has more land and rights then burros do. Do not just leave 60 burros. You need at least 150 of animals on the land to prevent inbreeding. Also no helicopter round up bait and trap only if you have to do a round up. Helicopters are terrible for wild horses and even worse for burros. More injuries and deaths unfortunately. Please ditch the round up.	Refer to response to comment D, 18 regarding genetic diversity Refer to response to comment C, 19, 44 regarding livestock Refer to response to comment A, 10 regarding helicopters Refer to response to comment 10 regarding CAWP
169	65600	These burros should not be handled in such an archaic way. Using low-flying helicopters to frighten and traumatize animals should be abolished. If removals must occur within the HMA, they should be done exclusively through bait-trapping and over time, to meet adoption demand. BLM must only remove burros with bait trapping if removals are chosen in this plan. Furthermore, removing burros and horses under the guise of draught and management while the amount of cattle only increases is unacceptable.	Refer to response to comment A, 10 regarding helicopters Refer to response to comment 10 regarding bait and water trapping Refer to response to comment 16 regarding the WFRHBA
170	65618	"Regarding the Sinbad Wild Burro proposed Gather. I would like to point out the recent scientific reseearch by Erick Lundgren et al, regarding the contribution that wild burros make to the ecosytem. Equids engineer desert water availability ERICK J. LUNDGREN HTTPS://ORCID.ORG/0000-0001-9893-3324 DANIEL RAMP	Refer to response to comment 7 regarding benefit of burros

		HTTPS://ORCID.ORG/0000-0003-3202-9898JULIET C. STROMBERG HTTPS://ORCID.ORG/0000-0002-1803-8440JIANGUO WU HTTPS://ORCID.ORG/0000-0002-1182-3024NATHAN C. NIETOMARTIN SLUK HTTPS://ORCID.ORG/0000-0003-4360-1650KARLA T. MOELLER HTTPS://ORCID.ORG/0000-0003-4785-8162AND ARIAN D. WALLACH HTTPS://ORCID.ORG/0000-0002-6640-3887 Authors Info & Affiliations SCIENCE • 30 Apr 2021, Vol 372, Issue 6541, pp. 491-495, DOI: 10.1126/science.abd6775 Wild Burros dig wells in areas they live in, providing water for many animals and plants. This boosts diversity. At times, the only water in the area comes from the wells dug by the Wild Burros. Please see study for more information. ""Digging for water Water is scarce in dryland ecosystems. Some larger animals in these regions dig wells that may provide water to other species. This behavior may have been common among megafauna that are now extinct, especially in North and South America, where megafaunal extinctions were the most severe. Lundgren et al. tested whether feral equids (horses and donkeys) reintroduced to desert regions in the North American southwest dig wells that provide ecosystem-level benefits. They found that equid-dug wells increased water availability, were used by a large number of species, and decreased distance between water sources. Abandoned wells also led to increased germination in key riparian tree species. Such equid-dug wells improve water availability, perhaps replacing a lost megafaunal function. Science, this issue p. 491 I believe this is significant finding. Wild Burros seemingly contribute to the ecosystem in a very important way. This also appears to be new information. Therefore it is actually important for the ecosystem to understand the important and specific contribution of Wild Burros."	

171	65623	"I am absolutely against this roundup. I'm disgusted and appalled at the lack of science and ecological evidence that is not provided and quite obviously ignored by the BLM. I request that the BLM takes a pause on this round up to get second and third party input by qualified professionals such as environmental scientists to investigate these matters the BLM says are the reasoning for the roundup. We cannot rely on friends of cattle farmers using all our tax dollars to act out horrific helicopter roundups when various ecological proof states opposite claims from the BLMs. We cannot continue this because of the OVERWHELMING opinions of the people that should be served by the BLM, not ignored. I'm ashamed by the abuse the one caretakers of the United States are acting out.	Refer to response to comment 6 regarding USGS studies and research Refer to response to comment A, 10 regarding helicopters Refer to response to comment 10 regarding CAWP
172	65625	"Reducing the herd from 328 to 60 animals will decimate the herd and is far too low a number to maintain a genetically viable population of wild burros in the HMA. In regard to fertility control, further study of the wild burro population growth is crucial prior to any action being taken on the Sinbad wild burro herd. Research is critical before blindly taking action on fertility control of the herd and/or removal from the land. Adjust or halt the livestock use in the HMA in order for the wild burros to be given their fair share of the land resources. Keep the burros on the land to maintain and promote biodiversity on said lands. Wild burros will dig for water which in turn will aid other species on the lands. More research in this regard is required prior to any consideration of removal. In the event that removal is deemed the ""only"" course of action - AFTER ADDITIONAL RESEARCH HAS BEEN COMPLETED in conjunction with affiliated agencies - bait and trapping should be utilized over a period of time. The use of helicopters should NOT be an option. It is an inhumane method of gathering wild animals and it simply has to stop. These animals deserve much more than what is being proposed. Thank you."	Refer to response to comment F, 32 regarding population Refer to response to comment D, 18 regarding genetic diversity Refer to response to comment D, E, 2, 4 regarding PZP Refer to response to comment 4, 5 regarding GonaCon Refer to response to comment 5, 6 regarding IUD Refer to response to comment C, 19,44 regarding livestock Refer to response to comment 7 regarding benefit of burros Refer to response to comments A, 10 regarding helicopters Refer to response to comment 10 regarding water and bait trapping
173	65631	To round up animals to have a population of only 50-70 wild burros will set the stage for inbreeding.	Refer to response to comments D, 18 regarding genetic diversity

		You must leave at lease 120-175 wild burros to allow for a healthy burro population. Reduce of completely eliminate grazing. The cows are decimating the range. Start a humane PZP program with a health number of animals- 175 would be appropriate."	Refer to response to comments F, 32 regarding population Refer to response to comment B, 15,18 regarding population Refer to response to comments C, 19, 44 regarding livestock Refer to response to comments D, E, 2, 4 regarding PZP
174	65651	"Stop these inhumane roundups. You are violating the Wild Horse and Burro Act and ruining our environment. https://www.horsetalk.co.nz/2021/05/02/feral-desert-donkeys-digging-wells-water-parched-wildlife/?fbclid=IwAR179ik1lEidt-U2p4rQH51thC5Lk0eAWHSqCipB0YeFXEeJRZIRBnVOvN4"	Refer to response to comments 16 regarding the WFRHBA
175	65652	Wild burros are a benefit to the land they live on. Rounding them up will lead to eventual extinction of our wild burros. Put a halt to all roundups of our wild horses and burros.	Refer to response to comment 7 regarding benefit of burros
176	65653	They bring beneficial ecological results to the land they reside upon. Burros dig into the ground and leave holes that fill with water for themselves and local fauna and flora. Their browsing and grazing are far more gentle to the range than cattle, sheep, drilling, logging, and off-road vehicles. Their hooves pack down the clay soil as and after they roll on their backs which creates shallow water holes for other local creatures. They create pathways for smaller animals to follow in the brush or other high density foliage. Their manures replenish the ground and don't overwhelm riparian sources unlike the cattle. They have families and suffer greatly from separation of the herd. They manage to control the sex ratio within their herds and need no human interference. Many of the same arguments apply to the wild horses. It is a travesty to their systems to apply any degree of birth control to them. Wild predators feed on the wild equines and keep a healthy balance for all. The BLM is favoring livestock ranchers and trophy hunters over the scientifically sound management of native, threatened, and unique creatures and flora of the land.	Refer to response to comment 7 regarding benefit of burros Refer to response to comments C, 19 ,44 regarding livestock Refer to response to comment E, 11 regarding predators

APPENDIX K: MAPS


Sinbad HMA General Location
December 01, 2015
BLM
PRICE FIELD OFFICE
18S 11E
18S 12E
18S 13E
18S 14E
18S 15E
18S 16E
19S 11E
19S 12E
19S 13E
19S 14E
19S 15E
19S 16E
20S 11E
20S 12E
20S 13E
20S 14E
20S 15E
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21S 16E
22S 11E
22S 12E
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24S 11E
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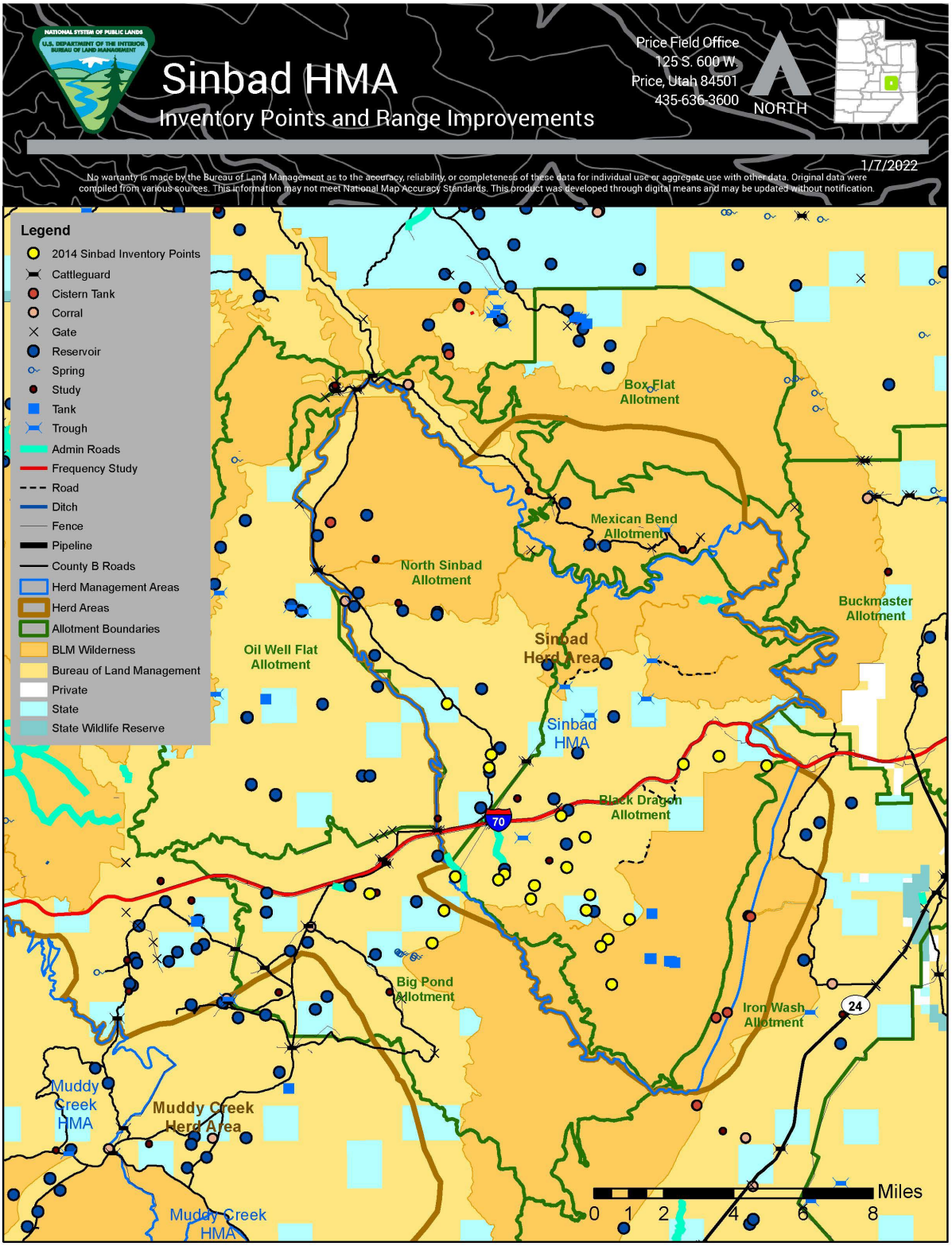
24S 13E
24S 14E
24S 15E
24S 16E
25S 11E
25S 12E
25S 13E
25S 14E
25S 15E
25S 16E
SINBAD
MUDDY CREEK
San Rafael River
Price River
Green River
Green River
6
19
19
70
70
24
Map 1
0
3
6
12 Miles
N
W
E
S
Legend
wthma boundary
Land Status
ut_lgd
Bureau of Land Management (BLM)
Private
State
US Forest Service (USFS)
Road
RDSDESCRIPTION
Class 2 Secondary Route
Class 3 Primary Road
Class 4 Secondary Road
Class 5 Unimproved Road
No warranty is made by the BLM for use of the data for purposes not intended by the BLM.
This product may not meet BLM standards for accuracy and content. Different data sources and input scales may cause some misalignment of data layers.


Sinbad HMA
Inventory Points and Range Improvements
Price Field Office
125 S. 600 W.
Price, Utah 84501
435-636-3600
NORTH
1/7/2022
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.
Legend
2014 Sinbad Inventory Points
Cattleguard
Cistern Tank
Corral
Gate
Reservoir
Spring
Study
Tank
Trough
Admin Roads
Frequency Study
Road
Ditch
Fence
Pipeline
County B Roads
Herd Management Areas
Herd Areas
Allotment Boundaries
BLM Wilderness
Bureau of Land Management
Private
State
State Wildlife Reserve
Box Flat Allotment
Mexican Bend Allotment
North Sinbad Allotment
Buckmaster Allotment
Oil Well Flat Allotment
Sinbad Herd Area
Sinbad HMA
Black Dragon Allotment
70
Big Pond Allotment
Iron Wash Allotment
24
Muddy Creek HMA
Muddy Creek Herd Area
Muddy Creek HMA
Miles
0 1 2 4 6 8

APPENDIX L: GENETICS REPORT

Genetic Analysis of
the Sinbad, UT Feral
burro herd

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July 3, 2002

A total of 30 blood samples were received at the University of Kentucky on June 15, 2001. Each sample was tested for variation at nine equine microsatellite systems by use of PCR and fragment separation by an automated DNA sequencer. The systems were *AHT4, AHT5, ASBl* 7, *ASB23, HMS3, HMS6, HMS7, HTGlO,* and *LEX33.* Measures of genetic variability calculated were observed heterozygosity *(Ho),* expected heterozygosity *(He),* estimated inbreeding level *(Fis=l-Ho/He),* effective number of alleles *(Ae),* total number of variants *(TNV)* and percentage of rare alleles *(Ar).* Data from this herd were compared to that of other feral herds and to four domestic donkey breeds. Genetic similarity of the Sinbad herd to domestic breeds and other feral herds also was calculated.

Values for measures of genetic variation for the Sinbad herd are shown in Table 1. Also given are data from four domestic donkey breeds and mean values for the domestic donkey and for other feral burro populations.

Genetic variability of the Sinbad herd is relatively high. All measures were higher than the average values for feral burros and only two other feral herds tested had higher values. The Sinbad population is the only feral burro herd yet tested where *Ho* is higher than *He* which yields a negative *Fis* value. This negative *Fis* indicates there is no evidence of inbreeding within this population. However, *Fis* calculated from microsatellite data can be misleading as the Poutou donkey also shows a negative *Fis* and this rare breed is known to be highly inbred.

Allelic diversity in the Sinbad herd is relatively low. *Ae* and TNVvalues are below the feral mean. However, the proportion of rare variants is fairly low so that the risk of loss of alleles in the near future is not high.

Population size of the Sinbad herd is quite low as is the maximum AML. Both are below the minimum number of individuals required to

maintain genetic variability. Even though the

estimates of variation in this herd are among the highest for a feral her they are low compared to e domestic populations, including the inbred Poutou breed.

The Sinbad burro population had its greatest similarity with the Poutou donkey among the domestic breeds. The Poutou is a very rare French breed that was used for draft mule production mainly prior to the 20th century. It is unlikely that this breed has any direct relationship to the Sinbad population. Second highest S was with the Standard donkey. This is probably the type of donkey that Sinbad population is derived from. All similarity values are low. This is probably due to a loss of variability due to founder effect and small population size.

Similarity to other feral burro populations also was low. Highest S was to California populations, especially the Picacho herd. However, all feral herds tested to date are geographically distant from the Sinbad population and are only related by similar ancestry to the common domestic donkey of the American West.

RECOMMENDATIONS

Little is known about genetic variation in donkey populations. Genetic variation in the Sinbad burros is lower than that of the Poutou donkey which is a breed that has experienced a drastic population reductio11 and therefore has relatively high inbreeding and low genetic variation. Population size of this herd is well below the minimum viable population level.

Based upon population size and variability level it is recommended that this herd be closely monitored. It would probably be advisable to introduce female burros from other feral populations at some point. One young sexually mature female every two years for the next 10 years should be sufficient to prevent severe inbreeding for the next 20 to 50 years.

Table 1. Genetic variation measures.

Population	*Ho*	*He*	*Fis*	*Ae*	*TNV*	*Ar*
Sinbad, UT	.466	.430	-.084	2.066	27	.14
Poutou Donkey	.533	.515	-.036	2.501	42	.38
Mammoth Jack	.58ji	.602	.028	2.602	35	.37
Miniature Donkey	.546	.566	.019	3.015	51	.33
Standard Donkey	.562	.623	.099	3.483	57	.40
Domestic Mean	.539	.656	.046	2.900	40.6	.30
Feral Mean	.398	.445	.104	2.190	30.6	.20

Table 2. Genetic similarity of the Sinbad feral burro herd to domestic donkey breeds.

	S
Poutou Donkey	.723
Mammoth Jack	.593
Miniature Donkey	.613
Standard Donkey	.676

Figure 1. Dendrogram of genetic similarity among domestic and feral burro populations.