ENVIRONMENTAL ASSESSMENT

Marietta Wild Burro Range Gather Plan

DOI-BLM-NV-C010-2022-0017-EA

Department of the Interior Bureau of Land Management Carson City District Stillwater Field Office 5665 Morgan Mill Road Carson City, Nevada 89701 (775) 885-6000

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Acronyms	
AML	Appropriate Management Level
AUM	Animal Unit Month
BCS	Body condition score
BLM	Bureau of Land Management
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CRMP	Consolidated Resource Management Plan
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FLPMA	Federal Land Policy and Management Act
FONSI	Finding of No Significant Impact
GAO	Government Accountability Office
GHMA	General Habitat Management Areas
GRSG	Greater Sage-grouse
HMA	Herd Management Area
Но	Heterozygosity
IM	Instruction Memorandum
MOU	Memorandum of Understanding
MUD	Multiple Use Decision
MWBR	Marietta Wild Burro Range
NEPA	National Environmental Policy Act
NRC	National Research Council
OHMA	Other Habitat Management Areas
ORP	Off-Range Pastures
PFC	Proper Functioning Condition
PHMA	Priority Habitat Management Areas
PJ	pinyon and juniper
PMU	Population Management Unit
PZP	Porcine Zona Pellucida
RDF	Required Design Features
RFFA	Reasonably Foreseeable Future Actions
SOP	Standard Operating Procedure
TNEB	Thriving Natural Ecological Balance
USFWS	United States Fish and Wildlife Service
WFRHBA	Wild Free Roaming Horses and Burros Act
WSA	Wilderness Study Area

1.0 Introduction

1.1 Introduction to this EA

The Bureau of Land Management Stillwater Field Office (BLM) is proposing to gather and remove excess wild burros from within and outside the Marietta Wild Burro Range (MWBR) and excess wild horses from within the MWBR. The MWBR was designated for the management of wild burros, no horses were present at the time of the passage of the Wild Free-Roaming Horses and Burros Act (WFRHBA) of 1971 therefore this area is not managed for wild horses. Approximately 50 wild horses from neighboring Herd Management Areas (HMAs) have established themselves within the MWBR.

In compliance with the National Environmental Policy Act (NEPA), this Environmental Assessment (EA) is a site-specific analysis of potential impacts that could result from implementation of the Proposed Action or Alternatives. If the BLM determines significant impacts could occur, an Environmental Impact Statement (EIS) would be prepared for the project. If no significant impacts are expected, an EIS would not be required, and a decision would be issued along with a Finding of No Significant Impact (FONSI) documenting the reasons why implementation of the selected Alternative would not result in significant environmental impact.

Incorporation by reference and tiering provide opportunities to reduce paperwork and redundant analysis in the NEPA process. When incorporating by reference, the author refers to other available documents that cover similar issues, effects, and/or resources considered in the NEPA analysis that is being prepared. Incorporation by reference allows brief summarizations of relevant portions of other documents rather than repeating them.

1.2 Background

Since the passage of the WFRHBA, BLM has refined its understanding of how to manage wild burro population levels. By law, BLM is required to control any overpopulation, including by removing excess animals once a determination has been made that excess animals are present and that removal of the excess animals is necessary. Program goals have always been to establish and maintain a "thriving natural ecological balance," which requires identifying the Appropriate Management Level (AML) for individual Herd Management Areas or Ranges. Over the past two decades, goals have also explicitly included conducting gathers and applying contraceptive treatments to achieve and maintain wild horse and burro populations within the established AML, so as to manage for healthy wild horse and burro populations, healthy wildlife populations, and healthy rangelands. The use of fertility control methods helps reduce total wild horses and burros population growth rates in the short term, increases the length of time between gathers, and decreases the number of excess wild horses and burros that must be removed from the range in the long term. Other management efforts include collecting genetic baseline data to support genetic health assessments. Decreasing the numbers of excess wild burros in the MWBR is consistent with findings and recommendations from the National Academy of Sciences, American Horse Protection Association, the American Association of Equine Practitioners, Government Accountability Office (GAO), Office of Inspector General, and current BLM policy.

The gather area includes a total of 569,862 acres, including 88,234 acres of lands managed by the Forest Service, 451,622 acres managed by the BLM, 8,782 managed by Department of Defense, and 21,224 privately owned land. The MWBR contains 66,045 acres of public and private lands (64,466 acres of which are public), consisting of a vast, and remote desert landscape. The MWBR lies about 45 miles south of Hawthorne, Nevada in Mineral County (Figures 1 and 2). The MWBR is within the boundaries of the Bellville Allotment, but was originally within three grazing allotments: Marietta, Bellville, and Candelaria. The wild burro AML for the MWBR is 78 to 104 burros and was set in 1998 in a Multiple Use Decision (MUD). The MUD merged the Candelaria Allotment into the Belleville Allotment, converted all of the AUMs within the Marietta Allotment to burros, and evenly divided the AUMs within the Bellville Allotment between burros and livestock. There were no horses present in 1971 when the WFRHBA was enacted, therefore it is to be managed only for burros. Domestic livestock have not grazed the northern portion of the MWBR since at least the 1980s, and the southern portion since 2013.

Allotment	Percent of	Acres	Burro	Livestock	Year last
	MWBR		AUMs	AUMs	grazed by
					livestock
Marietta	63%	40,900	834	0	Prior to the
					1980's
Belleville	37%	24,600	416	416	2013

Table 1: Allotments, Percent of MWBR and AUMs





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. N a xar Earths Nevada BLM Carson City District Project Area Legend Burros and Horses (H) • United States Department of the interior Bureau of Land Management Carson City Diskict Office 5665 Morgan Mill Rd. Carson City, NV. 88701 (775) 885-6000 Herd Management Area (HMA) Polygons

Figure 2: Animal Distribution Map

The MWBR contains many unique and important biological, geological, scenic, and cultural resources. Besides providing forage and habitat for wild burros, the MWBR provides important habitat for many wildlife species, including mule deer, pronghorn, bighorn sheep. The other predominant land uses within the MWBR are wilderness recreation, and general recreation (both motorized and non-motorized), including hunting, hiking, and exploring. Domestic livestock have not grazed the MWBR in over 35 years.

The AML range for the MWBR is 78 to 104 wild burros. The AML upper limit is the maximum number of wild burros that BLM has determined the MWBR can support, while maintaining a thriving natural ecological balance (TNEB) and multiple use relationship on the BLM-administered public lands in the area.¹ Establishing AML as a population range allows for the periodic removal of excess animals (to the low end of the AML range) and subsequent population growth (to the high end of the AML range) between removals. The AML for the MWBR was established in the 1987 MWHB HMAP, re-established at the same level in the Multiple Use Decision (MUD; BLM 1998), and reaffirmed in the Carson City Field Office Consolidated Resource Management Plan (CRMP; BLM 2001). The AML was determined based on an in-depth analysis of habitat suitability, resource monitoring, and population inventory data following opportunity for public involvement.

In 2017, a total of 129 wild burros were gathered and removed from within and outside the MWBR. Post-gather, approximately 285 burros and 56 horses remained. BLM did not have sufficient funding at the time to remove more than the 129 animals.

The most recent aerial survey within and outside the MWBR occurred in March 2022. Based on an analysis of double-observer data (Griffin et al. 2020) from that survey, and the known undercounting that even double-observer analysis yields for burros, the most likely number of burros in the herd was at least approximately 500 adult burros at that time, within and outside of the MWBR. The double-observer based estimate for burro numbers was 401 adult burros (Crabb 2022a), but recently published, peer-reviewed work by USGS (Hennig et al. 2022) indicates that even simultaneous double-observer direct counts can underestimate true numbers of burros present in an area by 25% or more. Therefore, for planning and decision purposes, the BLM expects that the total number of adult burros on and near the MWBR in March 2022 was likely to be at least 401, plus 25% of 401, which is approximately 500 adult burros. It is not possible, with available data, to know by how much even that value is an underestimate of what the true burro herd size was in March 2022. Starting with those 500 adults and applying a 15% annual growth rate for burros – which is consistent with typical BLM practice and with a published meta-analysis of burros demographic rates (Ransom et al. 2016) – this means that by fall 2022 it is

¹ The Interior Board of Land Appeals (IBLA) defined the goal for managing wild horses (or burro) population in a thriving natural ecological balance as follows: "[T]he '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.'" *Animal Protection Institute of America*, 109 IBLA 112, 115 (1989) (*citing Dahl v. Clark*, 600 F.Supp.585 (D. Nev. 1984)).

likely that 575 burros will be present in and near the Range. The double-observer data indicated that were also an estimated 29 adult wild horses in the same areas (Crabb 2022b), but that number is also thought to be a severe underestimation of actual wild horse numbers, and based on supplemental information from ground observations, the BLM expects that the true number of wild horses in the area is at least 51.

The 575 burros by fall 2022, and 51 horse estimate is based on aerial survey observations made using the simultaneous double-observer method, in which observers in an aircraft independently observe and record groups of wild horses (Lubow and Ransom 2016), and on a 15% annual growth rate for burros. Sighting probabilities for the observers are estimated from the information collected, and those are used to estimate the total herd size (Griffin et al. 2020). Direct counts of wild horse and burro populations have been proven to consistently underestimate the true populations (National Research Council (NRC) 2013); Lubow (2021) estimated that 7% of the animals present in the survey area during an aerial survey are not seen by any observer.

Census/Removal	Date	Number of Burros Counted	Comments
Census	1973	68	
Census	1975	111	
Census	18 Dec 79	246	Helicopter
Census	10 Sep 82	264	
Census	16 May 83	398	
Removal	1983	(357)	
Census	10 Jun 86	139	plus 30 horses
Census	29 May 87	163	
Removal	1987	(94)	
Census	18 Mar 88	50	
Census	14 Sep 88	63	
Census	8 Nov 89	58	
Census	11 Sep 90	60	
Census	18 Nov 91	75	
Census	18 Nov 93	91	
Census	3 Aug 94	70	
Census	22 Jun 95	95	
Census	11 Dec 96	77	
Census	13 Aug 97	111	
Removal	1997	(18)	
Census	31 Oct 02	54	
Census	11 Aug 05	92	
Census	2007	102	
Removal	Aug/Sep09	(6)	6 burros known killed in vehicle collisions. Sergeant Biehl NHP *
Removal	22 Sep 09	(6)	Removed burros that were along highway
Removal	Sep 09	(3)	Resident reported 3 burros killed along highway**
Census	8Jun11	144	73 horses were also seen
Census/est	14Aug14	268	41 horses
Census/est	10 Nov 15	226	40 horses
Removal	10 Nov 16	(12)	Nuisance burros Mina, traffic and private prop
Removal	Aug 17	(129)	Inside and outside
Removal	Jan 18	(3)	Nuisance Mina
Census/est	Jun 18	295	56 horses
Census/est	Mar 20	477	51 horses

Table 2: Marietta HMA Census and Removal Record: Minimum number of Burros and Horses

Census/Removal	Date	Number of Burros Counted	Comments
		or (Removed)	
Census	Mar 22	419	51 horses estimated

*NHP only records animals killed on highways if the vehicle operator requests an accident report, therefore the number of animals killed is likely a substantial underestimate since apparently most truck operators don't request an accident report. **BLM does not know if these 3 burros were reported to the NHP

Based on all information available at this time, the BLM has determined that excess wild burros and horses exist within and outside the MWBR and need to be removed. This assessment is based on the following factors that include but are not limited to:

- This area is in very poor conditions due to decades of overgrazing by wild burros. As a result of the degraded range horse numbers do not appear to increase very rapidly. It is not uncommon to see horses in very poor condition which results in increased mortality and decreased foal survival. It is likely that many horses were missed during the last inventory therefore the estimated horse population is approximately 50 and is not expected to increase by much this year.
- In March 2022, the BLM conducted an aerial survey of the MWBR and counted 27 wild horses and 336 wild burros. Based on that count, the most likely total number of adult wild burros in the area was at least approximately 500 wild burros and 29 adult horses. Far fewer wild horses were seen than expected, they were most likely missed since the census conditions were very poor and one of the observers got airsick and could not continue; based on supplemental ground observations, the BLM believes that the more likely number of wild horses is at least 51. By fall 2022 it is expected that the number of wild burros in and near the range will be at least 575. Given the impacts of overgrazing on vegetative and riparian resources caused by the overpopulation of wild burros and wild horses, BLM has determined animals above low AML are excess animals that need to be removed, and that the population needs to be maintained at AML over the 10-year gather plan period to allow sufficient opportunity for degraded resources to recover.(Crabb 2022). Considering that the low end of AML is 78 animals, the BLM has determined that as of March 2022, approximately 50 excess wild horses and 500 adult wild burros were within and outside of the MWBR and need to be removed. Based on a
- These excess wild horse and burro numbers are almost certainly an underestimate for two reasons. First, the populations increase annually due to foaling (which typically occurs during the spring. that leads to 15-20% population growth. This means that statistically corrected estimates for herd size in burro aerial surveys can lead to underestimates of the true number of animals present, by 25% or more. When a gather takes place, a greater number of excess wild horses and burros would need to be removed to reach the low AML. Second as explained above several issues during the most recent census very likely led to a substantial under count.

- 15 percent rate of increase the wild burro population is expected to be approximately 575 wild burros by the end of the summer.
- Riparian proper functioning assessments completed in 2018 and 2019 documented wild horse and burro use as a significant, causal factor in not achieving wetland-riparian area standards, due to extensive spring degradation, streambank alteration, trailing damage, and utilization of forage within riparian and wetland habitats. As noted elsewhere, there is no permitted livestock grazing in the MWBR.
- Land health evaluations and determinations are underway. Field Data was collected between 2018 and 2022. Preliminary observations indicate the wild horse and burro overpopulation is contributing to degradation of Standards 1: Soils, 2: Riparian/Wetland, 4: Plant and Animal Habitat.

1.3 Purpose and Need for Action

The purpose of the BLM's action is to remove excess wild burros and horses from the MWBR, and to achieve and maintain the wild burro population within the established AML range over a sufficient period of time that range resources have the opportunity to recover.

The need for the action is to prevent undue or unnecessary degradation of the public lands associated with excess wild burros and wild horses, and to restore a thriving natural ecological balance and multiple-use relationship on the public lands, consistent with the provisions of Section 1333 (b) of the WFRHBA.

1.4 Land Use Plan Conformance

This EA is in conformance with the Carson City Field Office Consolidated Resource Management Plan (CRMP) (May 2001):

- □ WHB-1,2. "Remove excess wild horses and burros from public land to preserve and maintain a thriving ecological balance and multiple-use relationship."
- □ WHB-2, Desired Outcomes #2 "Maintain sound thriving populations of wild horses and burros within herd management areas."
- □ WLD-2, Desired Outcomes #4 "Maintain and improve wildlife habitat, including riparian/stream habitats, and reduce habitat conflicts while providing for other appropriate resource uses."

1.5 Relationship to Laws, Regulations, and Other Plans

The Proposed Action and Alternatives are in compliance with the following federal, state, and local plans:

- □ Federal Land Policy and Management Act (FLPMA) of 1976 (43 U.S.C. 1701 et seq.);
- □ Fundamentals of Rangeland Health (43 CFR [Code of Federal Regulations] 4180);
- □ Migratory Bird Treaty Act, 1918, as amended, and Executive Order 13186;
- □ National Environmental Policy Act of 1969, as amended;
- □ National Historic Preservation Act of 1966, as amended;
- □ Public Rangelands Improvement Act of 1978;

- □ State Protocol Agreement between the BLM, Nevada and the Nevada Historic Preservation Officer (2014);
- □ Special Status Species Manual and Direction for State Directors to Review and Revise Existing Bureau Sensitive Species Lists (IM No. NV-2011-059);
- □ Taylor Grazing Act of 1934, as amended;
- □ Wild Free-Roaming Horses and Burros Act of 1971, as amended (WFRHBA);
- Protection, Management, and Control of Wild Free-Roaming Horses and Burros (43 CFR 4700);
- □ Wild Horses and Burros Management Handbook (H-4700-1).
- □ Marietta Wild Burro Herd Management Area Plan 1987

Refer to Appendix A for additional 'Additional Federal Laws and Regulations, Plans, Programs, and Policies'.

The Proposed Action and action Alternatives (except Alternative 4) are consistent with the applicable regulations at 43 CFR 4700 and are also consistent with the WFRHBA, which mandates that BLM "prevent the range from deterioration associated with overpopulation," and "remove excess wild horses in order to preserve and maintain a thriving natural ecological balance and multiple use relationships in that area." Additionally, federal regulations at 43 CFR 4700.0-6 (a) state that, "Wild horses shall be managed as self-sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat."

- □ 43 CFR 4710.4: Constraints on management. "Management of wild horses and burros shall be undertaken with the objective of limiting the animals' distribution to herd areas. Management shall be at the minimum feasible level necessary to attain the objectives identified in approved land use plans and herd management area plans."
- □ 43 CFR 4720.1: "Upon examination of current information and a determination by the authorized officer that an excess of wild horses or burros exists, the authorized officer shall remove the excess animals immediately."
- □ WFRHBA 1333 (b) (2) (iv) states that once the Secretary determines "…that an overpopulation exists on a given area of the public lands and that action is necessary to remove excess animals, he shall immediately remove excess animals from the range so as to achieve appropriate management levels."

The Interior Board of Land Appeals (IBLA) in <u>Animal Protection Institute et al.</u>, (118 IBLA 75 (1991)) found that under the Wild Free-Roaming Horses and Burros Act of 1971 (Public Law 92-195) "excess animals" must be removed from an area in order to preserve and maintain a thriving natural ecological balance and multiple-use relationship in that area. Regulations at 43 CFR 4700.0-6(a) also direct that wild horses be managed in balance with other uses and the productive capacity of their habitat. The proposed Action is in conformance with federal statute, regulations and case law.

1.6 Conformance with Rangeland Health Standards and Guidelines

From 1977 to 2022, the BLM established and/or monitored numerous plots for land health assessments within the MWBR. The BLM completed an LHA and SDD for the Belleville

Allotment in 2006. As of 2006, the Belleville Allotment had met standards (BLM, 2006 SDD pages 1-5).

1.7 Decision to be Made

The Authorized Officer would determine whether to implement all, part, or none of the Proposed Action as described in Section 2.2.1 to manage wild burros within the MWBR. The Authorized Officer's decision may select gather methods, numbers of horses and burros gathered and removed, and population growth suppression technique(s) depending on the alternative or parts of any alternative chosen. The gather plan decision would not set or adjust AML, nor would it adjust livestock use, as these were set through previous land use planning and multiple use or grazing decisions, both requiring adherence to regulatory processes in 43 CFR Part 4100 and 4700.

1.8 Internal and External Review

In accordance with the BLM Handbook H-1790-1, internal scoping was conducted by the BLM Stillwater Field Office Interdisciplinary (ID) team to identify potential resources which may be impacted by implementation of the Proposed Action and alternatives. Relative to the BLM's management of wild burros in the MWBR, the BLM interdisciplinary team identified issues through internal scoping. For this assessment, the BLM also considered issues from previous scoping with the public during

1. Impacts to individual wild burros and horses and the population. Indicators for this issue include the following:

- □ Projected population size and annual growth rate
- □ Effectiveness of proposed fertility control application
- \Box Impacts to animal health and condition

2. Impacts to vegetation/soils, riparian/wetland, and cultural resources. Indicators for this issue include the following:

- □ Forage utilization and alteration
- □ Impacts to vegetation/soils and riparian/wetland resources assessed by Proper Functioning Condition (PFC) (BLM 2020)

3. Impacts to wildlife, migratory birds, and threatened, endangered, and special status species and their habitat. Indicators for this issue include the following:

- □ Displacement, trampling, or disturbance
- □ Competition for forage and water

The public scoping period for the preparation of the MWBR EA was conducted, with the 30-day public review period April 15, 2022, to May 15, 2022. Mailings included the BLM Media, Nevada State Clearinghouse distribution, Stillwater Field Office NEPA, and Carson City District Office Wild Horse and Burro email lists. Individuals on these lists included local and state governments, media, and members of the public. There were approximately 14 non-form letters submitted and two different form letters submitted by about 8,180 people. The scoping comments were considered during the development of this EA.

In addition to the external scoping period letters that were sent out to the tribe, the BLM notified the Yomba Shoshone Tribe of the proposed gather EA in a letter sent on May 9, 2022. The letter included a description of proposed gather projects for analysis in the EA, and an invitation for comments or feedback regarding the EA. The BLM has not received any responses from the Tribes regarding the EA; however, consultation with the Tribes is ongoing and will continue through the decision and the implementation.

The preliminary EA was available for a 30-day public comment review period from July 22, 2022 through August 22, 2022. Mailings included the BLM Media, Nevada State Clearinghouse distribution, Stillwater Field Office NEPA, and Carson City District Office Wild Horse and Burro email lists. Individuals on these lists included local and state governments, media, and members of the public. The preliminary EA was available for viewing on the BLM ePlanning webpage.

The BLM received comments from 8 form letters and 6 individual letters including one each from the Nevada Department of Water Resources and Nevada Department of Wildlife. Appendix J includes the public comments received and the BLM's responses.

2.0 Description of the Alternatives

2.1 Introduction

This section describes the Proposed Action and Alternatives, including any that were considered but eliminated from detailed analysis. For this EA, four Alternatives are analyzed in detail including the preferred Alternative (Table 2-2).

The action Alternatives were developed in response to the identified resource issues and the purpose and need, as described in Section 1.8. A summary description of alternatives analyzed in detail is as follows:

Alternative	Title	Description
Alternative 1	Proposed Action:	Initial gather(s) to remove all excess wild burros
	Gather and	above low AML, adjust sex ratios, and implement
	Removal of Excess	population control measures, then conduct
	Burros to Low-	maintenance gathers as needed over the life of the
	AML, Sex Ratio	plan to maintain population at low AML.
	Adjustment, and	
	Population Growth	Gather, and remove all wild horses as excess within
	Suppression and	the MWBR gather area.
	remove all excess	
	wild horses within	
	the MWBR gather	
	area (Figure 1)	
Alternative 2	Remove burros to	Initial gather(s) to remove all excess wild burros
	Low-AML and all	above low AMLthen conduct maintenance gathers
	wild horses within	as needed over the life of the plan to maintain

Table 2-2:	Summary	of Alternative	Actions
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Alternative	Title	Description
	the MWBR gather	population at low AML. Would not implement
	area	population control measures nor adjust sex ratios.
		Gather, and remove all wild horses as excess within
		the MWBR
Alternative 3	Removals of	Same as Alternative 1, with the addition of gelding,
	burros to Low-	spaying or tubal ligation
	AML with	
	Temporary	
	Fertility Control	
	and Some Physical	
	Sterilization of	
	the MWDD and	
	remove all wild	
	horses from within	
	the MWBR gather	
	area (Figure 1).	
Alternative 4	No Action	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.
		The No Action Alternative would be in violation of
		the WFRHBA, which requires the BLM to
		immediately remove excess wild horses and burros
		when a determination is made that excess animals
		are present, and that action is necessary to remove
		excess animals and maintain a thriving natural
		ecological balance.

2.2.1 Management Actions & Environmental Protection Measures Common to Alternatives 1 through 3

- □ The gathers would begin after the initial gather is scheduled by the BLM National Wild Horse and Burro Program Office. Several factors such as animal condition, herd health, weather conditions, or other considerations could result in adjustments in the schedule.
- □ The duration, number, and timing of the initial and subsequent gathers would depend on the number of animals approved for removal following coordination with the National Wild Horse and Burro Program Office. Subsequent gathers to reach and/or maintain AML may take place within the 10-year period that would begin at the time of the initial gather.
- □ Gather operations would be conducted in accordance with the Comprehensive Animal Welfare Program (CAWP) for Wild Horse and Burro Gathers, which includes provisions of the Comprehensive Animal Welfare Program (BLM Permanent Instruction Memorandum 2020-002; Appendix B).
- □ A combination of gather methods may be used to complete the management actions and the methods to be used would depend on the needs of the specific actions including management

needs regarding emergency situations. Methods would include the helicopter-drive trapping method. The use of roping from horseback could also be used when necessary. Bait and water trapping may also be used to capture animals for removal or for fertility control treatment. Trapping methods would be determined on a case-by-case basis. The BLM may conduct in house gather operations to facilitate with administrating population growth suppression treatments and/or remove excess wild burros and horses.

- BLM would make every effort to place gather sites in previously disturbed areas, but if a new site needs to be used, they would be inventoried for cultural resources and sensitive species. If cultural resources or sensitive species are encountered, these locations would not be used unless they could be modified to avoid impacts.
- □ Multiple, temporary gather sites (traps) would be used to gather excess wild horses and burros both from within and outside the MWBR. In addition to public lands, other property may be utilized for gather sites and temporary holding facilities (with the landowner's or managing agency's written permission/authorization).
- □ Any trapping activities would be scheduled in locations and during time periods that would be most effective to gather sufficient numbers of animals to achieve management goals for the areas being gathered. The most efficient gather technique would be chosen as determined by the gather needs of the specific area and funding and logistic constraints at that time.
- □ Temporary gather and holding sites would be no larger than 0.5 acres. Bait or water trapping sites could remain in place up to one year. Temporary holding sites could be in place for up to 45 days depending on length of gather. The exact location of gather sites and holding sites may not be determined until immediately prior to the gather because the location of the animals on the landscape is variable and unpredictable.
- □ A U.S. Department of Agriculture Animal and Plant Inspection Service, or other licensed veterinarian, would be on call or on site or as needed for the duration of the gather to examine animals and make recommendations to the BLM for the care and treatment of wild horses and burros, and ensure humane treatment. Additionally, animals transported to all BLM Off Range Corral facilities are inspected by facility staff and the contract Veterinarian, to observe health and ensure the animals have been cared for humanely.
- □ Decisions to humanely euthanize animals in field situations would be made in conformance with BLM policy (Permanent Instruction Memorandum 2021-007 or most current)2021-007 https://www.blm.gov/policy/pim-2021-007
- □ Data including sex and age distribution, 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).
- □ Genetic monitoring of captured animals would inform the BLM about the current conditions of genetic diversity, in accordance with BLM IM 2009-062 or current policy and the WHB Handbook BLM-4700-1.
- □ During or after gathers, 1-3 males or females from a different HMA, with similar or desired characteristics of the burros within the MWBR could be released to increase the genetic diversity.
- □ Funding limitations and competing priorities may require delaying the gather and population control component, which would increase the number of excess wild burros and horses and burros that would need to be gathered.
- □ All animals outside of established MWBR boundaries would be removed. No burros would be returned to areas outside the MWBR.

Population inventories and routine resource/habitat monitoring would be completed every two to three years to document current population levels, growth rates, and areas of continued resource concerns (burro concentrations, riparian impacts, over-utilization, etc.). This information would be used to inform the timing and extent of fertility control activities and follow-up gathers.

Helicopter Drive Trapping

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

Per BLM WO IM No. 2013-059 and BLM WO IM No. 2010-164, helicopter landings would not be allowed in wilderness except in the case of an emergency. Helicopter-drive trapping may be needed to meet management objectives to capture the highest percentage of wild horses and burros and horses possible. The appropriate gather method would be determined by the Wild Horse and Burro Specialist based on the location, accessibility of the animals, local terrain, vegetative cover, and available sources of water and forage. Roping from horseback could also be used when necessary. Based on wild horse and burro locations in this area, it is estimated that multiple trap sites may be used during trapping activities.

Helicopter drive trapping involves use of a helicopter to herd wild burros and horses into a temporary trap. The SOPs outlined in Appendix B would be implemented to ensure that the gather is conducted in a safe and humane manner, and to minimize potential impacts or injury to the wild burros and horses. Utilizing the topography, traps would be set in areas with high probability of burro and horse access. This would assist with capturing excess wild burros and horses residing nearby. Traps consist of a large catch pen with several connected holding corrals, jute-covered wings, and a loading chute. The jute covered wings are made of fibrous material, not wire, to avoid injury to the burros and horses. The wings form an alley way used to guide the burros and horses 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 and horses 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 wild horse herd approaches the trap the pilot applies pressure and a prada horse is released, guiding the wild horses into the trap. The pilot also brings the burros into the trap at an easy pace. Once burros and horses are gathered, they are removed from the trap and transported to a temporary holding facility where they are sorted.

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

Bait/Water Trapping

Bait and/or water trapping would be used as appropriate to gather wild burros and horses efficiently and effectively. Bait and water trapping may be utilized, when wild burros and horses are in an area where there are limited resources (such as food or water). The use of bait and

water trapping, though effective in specific areas and circumstances, would not be timely, costeffective, or practical as the primary or sole gather method for the MWBR. However, water or bait trapping could be used as a supplementary approach to achieve the desired goals of Alternatives 1-3 throughout portions of the MWBR and gather area. 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 or horses residing within the area and at the most effective time periods, time is required for the burros and horses to acclimate to the trap and/or decide to access the water/bait. Trapping involves setting up portable panels around an existing water source or in an active wild burro or horse area, or around a pre-set water or bait source. The portable panels would be set up to allow wild burros or horses to go freely in and out of the corral until they have adjusted to it. When the wild burros or horses fully adapt to the corral, it is fitted with a gate system. The period of adaptation for the animals creates a low stress trapping method. During this acclimation period the wild burros or horses would experience some stress due to the panels being setup and perceived access restriction to the water/bait source. See Water and Bait Trapping SOP Appendix B.

Gathering excess horses or burros using bait/water trapping could occur at any time of the year and traps would remain in place until the target numbers of animals are removed. As the proposed bait and/or water trapping in this area is a lower stress approach to gathering wild burros and horses, such trapping can continue into the foaling season without harming the females or foals.

Gather-related Temporary Holding Facilities (Corrals)

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

Transport, Off-range Corrals, and Adoption Preparation

All gathered wild burros and horses would be removed and transported to BLM off range corrals where they would be inspected by facility staff (and if needed by a contract veterinarian) to observe health conditions and ensure that the animals are being humanely cared for.

Those wild burros and horses removed from the range would be transported to the receiving ORCs, (formerly short-term holding facility) in a gooseneck stock trailer or straight-deck semitractor trailers. Trucks and trailers used to haul the wild burros and horses would be inspected prior to use to ensure wild burros and horses can be safely transported. Wild burros and horses would be segregated by age and sex when possible and loaded into separate compartments. females and their unweaned foals may be shipped together. Transportation of recently captured wild burros and horses is limited to a maximum of 10 hours. Excess animals would be transported to BLM off-range corrals where they would be prepared (e.g., freeze marked, micro chipped, vaccinated, de-wormed, and gelded) for adoption, sale (with limitations), transfer to an authorized government agency, or off-range pastures (ORP).

Upon arrival, recently captured wild burros and horses are off-loaded by compartment and placed in holding pens where they are provided good quality hay and water. Most wild burros and horses begin to eat and drink immediately and adjust rapidly to their new situation. At the ORC, a veterinarian provides recommendations to the BLM regarding care, treatment, and if necessary, euthanasia of the recently captured wild burros and horses. Any animals affected by a chronic or incurable disease, injury, lameness or serious physical defect (such as severe tooth loss or wear, club foot, and other severe congenital abnormalities) would be humanely euthanized using methods acceptable to the AVMA. Wild burros and horses in very thin condition, or animals with injuries, are sorted and placed in hospital pens, fed separately, and/or treated for their injuries.

After recently captured wild burros and horses have transitioned to their new environment, they are prepared for adoption, sale, or transport to ORPs. Preparation involves freeze marking the animals with a unique identification number, vaccination against common diseases, castration, microchipping, and deworming. At ORC facilities, a minimum of 700 square feet of space is provided per animal.

Adoption

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

Sale with Limitations

Buyers must fill out an application and be pre-approved before they may buy a wild burro or horse. A sale-eligible wild burro or horse 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 or horse to anyone who would sell the animals to a commercial processing plant. Sales of wild burros and horses are conducted in accordance with the 1971 WFRHBA and congressional limitations.

Off-Range Pastures

In Off-Range Pastures (ORP), females and sterilized males (geldings) are segregated into separate pastures. Although the animals are placed in ORP, they remain available for adoption or sale to qualified individuals; and foals born to pregnant females in ORP are gathered and weaned when they reach about 8-12 months of age and are also made available for adoption. The ORP contracts specify the care that eild horses and burros must receive to ensure they remain healthy and well-cared for. Handling by humans in minimized to the extent possible although regular on-

the ground observation by the ORP contractor and periodic counts of the wild horses to ascertain their well-being and safety are conducted by BLM personnel and/or veterinarians.

Even though it is permissible for wild burros to go to off-range pastures, in practice this is extremely rare because almost all excess wild burros are adopted or purchased with limitations. At present there are no burros living in off-range pastures.

Shipping

When shipping wild horses for adoption, sale, or ORP 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.

Euthanasia or Sale without Limitations

Under the WFRHBA, healthy excess wild burros and horses can be euthanized or sold without limitation if there is no adoption demand for the animals. However, while euthanasia and sale without limitation are allowed under the statute, for several decades Congress has prohibited the use of appropriated funds for this purpose. If Congress were to lift the current appropriations restrictions, then it is possible that excess burros and horses removed from the range 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 and horses unable to maintain an acceptable body condition (greater than or equal to a Henneke Body condition score (BCS) of 3) or with serious physical defects would be humanely euthanized either before gather activities begin or during the gather operations as well as within ORCs. Decisions to humanely euthanize animals in field situations would be made in conformance with BLM policy (Permanent Instruction Memorandum (PIM) 2021-007 or the most current edition) 2021007 2021-007.

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 WO IM No. 2013-058 and the Visitation Protocol and Ground Rules for Helicopter WH&B (Wild Horses and Burros) Gathers within Nevada (Appendix B). This protocol is intended to establish observation locations that reduce safety risks to the public during helicopter gathers (e.g., from helicopter-related debris or from the rare helicopter crash landing, or from the potential path of gathered wild burros and horses), to the wild burros and horses (e.g., by ensuring observers would not be in the line of vision of wild burros and horses being moved to the gather site), and to contractors and BLM employees who must remain focused on the gather operations and the health and well-being of the wild burros and horses. Observation locations would be located at gather or holding sites and would be subject to the same cultural resource requirements as those sites.

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

2.2.2 Alternative 1: Gather and Removal of Excess Wild Burros to Low- Appropriate Management Level (AML), Sex Ratio Adjustment, and Population Growth Suppression and remove all excess wild horses with in the MWBR gather area (Figure 1)

Alternative 1 would be to conduct an initial gather or gathers and remove all excess wild burros above low AML, gather and remove all wild horses as excess, adjust sex ratios, and implement population control measures. Under this alternative, excess wild burros would be gathered and removed to achieve the low AML of 78 wild burros. All wild horses would be removed from within the MWBR because it is designated solely for the management of burros, so they are all considered excess. This alternative would include an initial gather or gathers and removal of a sufficient number of burros (approximately 497 burros if a gather would occur in 2022, more if the initial gather takes place later) to bring the population down to the low AML of 78 burros along with the gather and removal of all captured wild horses as this area is not designated for the management of wild horses. If at least 530 burros can be gathered initially, population controls and sex ratio adjustments could be applied for released animals within low AML. Follow-up or maintenance gathers would occur over the following ten-year period to apply population control measures and to remove excess wild burros above AML or wild horses that evaded capture. A ten-year gather plan is needed to remove excess wild horses and burros and bring the population down to low end of AML, implement population control measures over a sufficient period of time to reduce population growth and measurably reduce the number of excess animals that would need to be removed from the MWBR and to provide sufficient time for vegetative and riparian resources to recover and reestablish. Due to gather efficiency and aerial survey under estimation of existing populations and population reproduction growth it is anticipated that after the initial gather follow-up gathers will be needed in order to reach low end of AML and remove excess animals and to ensure that population control measures are applied. All burros residing outside the MWBR boundary would be gathered and removed. This Alternative would allow BLM to achieve management goals and objectives by attaining a herd size that is at the low range of AML, reduce population growth rates, and would allow for a thriving natural ecological balance on the range as required under the WFRHBA.

Over the 10-year period following the initial gather(s) to reach low AML, subsequent gathers will occur as needed to treat and retreat females to reduce population growth and to maintain the wild burro population within the AML range so that degraded range resources have sufficient time to recover. Maintaining the population within AML over a ten-year period under a gather plan is also consistent with BLM's mandate to manage for healthy rangeland resources and for a thriving natural ecological balance and multiple uses of the public lands by providing a sufficient period of time for recovery of degraded range resources.

The management objective for the MWBR would be to gather and remove excess wild burros and horses within and outside the MWBR to achieve and maintain AML. In addition to removals of excess animals, BLM would maintain AML through population growth suppression measures to include:

- Administration of fertility control vaccines (i.e. PZP vaccines, GonaCon-Equine or newly developed vaccine formulations) to released females.
- Adjustment of sex ratios to achieve a 60% male to 40% female ratio.

While in the temporary holding corral, wild burros would be identified for removal or release based on age, gender and/or other characteristics. As part of periodic genetic sampling to monitor wild burro genetic diversity in the MWBRs samples would be collected for analysis to assess the levels of observed heterozygosity, which is a measure of genetic diversity (BLM 2010) within the MWBR and may be analyzed to determine relatedness to established breeds and other wild burro herds. Females identified for release would be aged, micro chipped and freeze-marked for identification prior to being released to help identify the animals for future treatment/boosters and possibly assess the efficacy of fertility control treatment.

All wild horses captured within the MWBR would be shipped to an ORC for processing.

Population Growth Suppression Methods

Alternative 1 would include population growth suppression methods such as fertility control vaccines, and sex ratio adjustments in the herd. In cases where a booster vaccine is required, females could be held for approximately 30 days and given a booster shot prior to release. Over the course of multiple gathers over the 10-year time period, BLM would treat/retreat females with fertility control to help meet herd management objectives. Since release of the 2013 NRC Report, the BLM has supported field trials of potential fertility control methods that may be used in WHB management, but inclusion of any particular method as a part of management does not depend on completion of any given research project. The use of any new fertility control method would conform to current best management practices at the direction of the National Wild Horse and Burro Program.

Sex Ratio Adjustment

Sex ratio adjustment, leading to a reduced proportion of females in the herd, can be considered a form of contraceptive management, insofar as it can reduce the realized per-capita growth rate in a herd. By reducing the proportion of breeding females in a population (as a fraction of the total number of animals present), fewer foals would be born, relative to the total number of herd size. Sex ratio is typically adjusted in such a way that 60 percent of the burros are male. In the absence of other fertility control treatments, this 60:40 sex ratio alone can temporarily reduce population growth rates from approximately 20% to approximately 15% (Bartholow 2004). While such a decrease in growth rate may not appear to be large or long-lasting, the net result can be that fewer foals are born, at least for a few years – which can extend the time between gathers and reduce impacts on-range and costs off-range.

Contraception

The BLM has identified fertility control as a method that could be used to protect rangeland ecosystem health and to reduce the frequency of wild horse and burro gathers and removals. Expanding the use of 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 the BLM to pursue contraception in wild burros and horses as a population management tool.

Contraception has been shown to be a cost-effective and humane treatment to slow increases in wild horse and burro populations or, when used with other techniques, to reduce population size (Bartholow 2004; de Seve and Boyles-Griffin 2013; Fonner and Bohara 2017, Kahler and Boyles Griffin 2022)

Porcine Zona Pellucida (PZP) Vaccine

Immunocontraceptive vaccines such as Porcine Zona Pellucida (PZP) vaccines are currently being used on over 75 areas managed for wild horses and burros by the National Park Service, U.S. Forest Service, and the Bureau of Land Management and its use is appropriate for freeranging wild horse and burro herds. Taking into consideration available literature on the subject, the National Research Council concluded in their 2013 report that PZP vaccine was one of the preferred available methods for contraception in wild horses and burros (NRC 2013). PZP vaccine use can reduce or eliminate the need for gathers and removals (Turner et al. 1997). 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 is being increasingly used in burros, including in a population of feral burros in the Caribbean (Turner et al. 1996) and on BLM-managed burros in Arizona (Kahler and Boyles-Griffin 2022). PZP vaccine can be relatively inexpensive, meets BLM requirements for safety to females and the environment, and is commercially produced as ZonaStat-H, an EPA-registered product (EPA 2012, SCC 2015), or as PZP-22 vaccine, which is a formulation of PZP in polymer pellets that can lead to a longer immune response (Turner et al. 2002, Rutberg et al. 2017, Carey et al. 2019). ZonaStat-H can easily be remotely administered (dart-delivered) in the field, but only where females are relatively approachable.

Under the Proposed Action, females being treated for the first time could receive a liquid primer dose of ZonaStat-H, along with the PZP-22 time release pellets. BLM would return to the MWBR as needed to re-apply PZP-22 and/or ZonaStat-H vaccines and initiate new treatments in order to maintain contraceptive effectiveness in controlling population growth rates. Application methods could be by handled in a working chute during gathers, or through field darting if females in some portions of the MWBR prove to be approachable and appropriately identified females can be accurately identified and distinguished. 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, females would return to fertility, and also that not all females would be treated or receive boosters within the MWBR due to the sheer numbers of the population, the large size of the MWBR and logistics of wild burro gathers where gather efficiencies fall below 100%. Once the population is at AML and population growth seems to be stabilized, BLM could use population planning software (such as PopEquus, currently in development by USGS Fort Collins Science Center) to determine the required frequency of re-treating females with PZP or other fertility control methods.

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 burro and 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). In 2013, the NRC suggested that additional studies be done on the contraceptive efficacy and behavioral effects of GonaCon-Equine, and such suggested studies have been published since that time (see Appendix C). GonaCon-Equine has been used on feral horses in Theodore Roosevelt National Park (Baker et al. 2018), and on BLM-managed wild horses in over 15 HMAs since 2020. GonaCon-Equine can be remotely administered in the field in cases where females 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 meters or less (BLM 2010). As with other contraceptives applied to wild burros or horses, the long-term goal of GonaCon-Equine use is to reduce or eliminate the need for gathers and removals (NRC 2013). Like ZonaStat-H, GonaCon-Equine vaccine is an EPA approved pesticide (EPA, 2009a, 2013, 2015); it is relatively inexpensive, meets BLM requirements for safety to females and the environment, and is produced in a USDA-APHIS laboratory. It is considered a pesticide in that its use can mitigate the growth rate of wild horses and burros, but the vaccine is merely immunocontraceptive, not toxic 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-Equine is produced as a pharmaceutical-grade vaccine, including aseptic manufacturing technique to deliver a sterile vaccine product (Miller et al. 2013). If stored at 4° C, the shelf life is 6 months (Miller et al 2013).

Miller et al. (2013) reviewed the vaccine environmental safety and toxicity. When advisories on the product label (EPA 2015) are followed, the product is safe for users and the environment (EPA 2009b). EPA waived a number of tests prior to registering the vaccine, because GonaConwas deemed to pose low risks to the environment, so long as the product label is followed (Wang-Cahill et al. in press).

Under Alternative 1, the BLM would return to the MWBR as needed to re-apply GonaCon-Equine and initiate new treatments in order to maintain contraceptive effectiveness in controlling population growth rates. Booster dose effects may lead to increased effectiveness of contraception, which is generally the intent. GonaCon-Equine can safely be reapplied as necessary to control the population growth rate. Even with one booster treatment of GonaCon-Equine, it is expected that most, if not all, females 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 females 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 would make a determination as to the required frequency of new jenny treatments and Jenny re-treatments with GonaCon-Equine or other fertility control methods, to maintain the wild burro population within AML. Please refer to Appendix C for further information on BLM's use of contraception in wild burro and horse management and the effects of those various contraceptive methods and refer to Appendix D for procedures to be followed for implementation of fertility controls.

2.2.3 Alternative 2: Remove burros to Low-AML and all wild horses within the MWBR gather area (Figure 1)

Under Alternative 2, BLM would gather and remove excess animals to within AML range inside and outside the MWBR and surrounding areas which could include Forest Service lands, no traps would be placed on Forest Service or Department of Defense land. Burros would be gathered in all areas and horses would be gathered only within the MWBR. The Proposed Action would include an initial gather and removal of a sufficient number of burros to bring the population down to the low AML of 78 burros and the gather and removal of all captured wild horses as this area is not designated for the management of wild horses. Because the burro herd size was at least approximately 500 adult burros in March 2022, along with approximately 75 foals by late summer 2022, that means that if the initial gather occurred in 2022, approximately 497 burros would need to be removed to bring the herd to low AML. The burros would be gathered without use of any fertility control methods or sex ratio adjustments. Impacts from this alternative would be similar to the gathering and handling impacts under the Alterative 1, however there would be no burros released or fertility control administered to released burros. While wild burros and horses would be gathered to the low AML of 78 for burros and to the AML of 0 for horses, the wild burro AML would be exceeded sooner than under Alternative 2, since fertility rates would be higher than if population controls were administered. This alternative may result in more gathers within the next 10 years since the population would be predicted to increase at a higher rate than Alternative 2. Also, more excess burros above AML would need to be removed over the next 10 years since more foals would be born.

Wild horses from nearby HMAs managed for wild horses are currently using the MWBR as their home range and may be removed during the gather.

2.2.4 Alternative 3: Removals of burros to Low-AML with Temporary Fertility Control and Some Physical Sterilization of animals returned to the MWBR and remove all wild horses from within the MWBR gather area (Figure 1).

This alternative would be similar to Alternative 1 in that BLM would gather and remove excess animals to low AML and implement fertility controls both chemical and physical and sex ratio adjustment, but BLM would also manage a portion of population as non-reproducing (after physical sterilization of females and/or gelding of males).

Male Sterilization

After low AML is reached, to reduce the number of animals in ORPs, a portion of male burros would be sterilized, either by gelding (neutering) or surgical vasectomy, and returned to the MWBR. These released non-reproducing males would bring the population on the range closer to mid-AML (instead of low AML), but the herd would not exceed a roughly 60:40 male to female ratio. All animals treated with any type of fertility control would be freeze marked and identified according to current guidelines. Intact males released back to the MWBR would be selected to maintain a diverse age structure, historical herd characteristics, and correct

conformation. The procedures to be followed for implementing male sterilization are detailed in Appendix E.

Neutering (gelding) or Vasectomy of males

In order to reduce the total number of excess wild burros that would otherwise be permanently removed from the MWBR, up to 25 percent of the male burro population would be managed as geldings, or vasectomized males but the total number of male burros would not exceed roughly 60 percent of the population.

The BLM routinely gelds all excess male burros that are captured and removed from the range prior to their adoption, sale, or shipment to off-range facilities. The gelding procedure for excess wild burros and horses removed from the range would be conducted at temporary (field) or ORCs by licensed veterinarians and would follow industry standards. Under Alternative 3, some burro geldings would be returned to resume their free-roaming behaviors on the public range instead of being permanently removed from the MWBR.

By including some geldings or vasectomized males in the population and having a slightly skewed sex ratio with more males than females overall in the potential breeding population, the anticipated result would be a reduction in population growth rates while allowing for management of a larger total wild burro population on the range. See Appendix C for an indepth discussion of the various fertility control techniques contemplated in this EA, and their potential effects.

Physical sterilization of Females

As with gelding, a certain number of females would be physically sterilized (i.e., ovariectomized, tubally ligated, oviducts occluded, or other forms of humane physical sterilization). Minimally invasive female horse and burro sterilization methods are described in Appendix C. In most cases the current contraceptive vaccines available for use in wild burros are only effective for one to several years unless a booster is given, and giving boosters are not feasible on an annual basis as a helicopter gather is often the only practical way to gather and booster the number of burros needed to substantially slow the population growth. Physical sterilization offers a permanent method to prevent pregnancies in treated females which would reduce the rate of population increase and potentially increase the interval between gathers while reducing the total number of animals that would need to be gathered and removed in the future.

2.2.5 Alternative 4: No Action

Under Alternative 4, no gather and no population management to control the size of the wild burro and horse populations within the MWBR or to remove excess animals would occur. Wild burros and horses are not a 'self-regulating species,' so in the absence of management actions to limit the herd size, the wild burro and horse population would increase to a point where the resources are depleted resulting in the irreversible loss of native vegetation, a loss of wildlife habitat (including riparian habitat) and eventually the potential for periodic die-offs of the wild burros and horses themselves (NRC 2013). This range has been over grazed by burros and horses to the point that most native bunch grasses have disappeared. During aerial inventories about ten percent of the animals are in bad shape and are at risk of death due to limited forage and water. The rangeland has deteriorated to the point that even some of the burros are showing signs of malnourishment. Most if not all of the native bunch grasses have disappeared due to over grazing by wild burros and horses.

2.3 Environmental Protection Measures

The BLM COR and PIs assigned to the gather would be responsible for ensuring contract personnel abide by the contract specifications and the SOPs (Appendix B). Ongoing monitoring of forage condition and utilization, water availability, aerial population surveys, genetic diversity, and animal health would continue.

Fertility control monitoring would be conducted in accordance with the SOPs (BLM IM 2009-090: https://www.blm.gov/policy/im-2009-090). Monitoring the herd's social behavior would be incorporated into routine monitoring. This would not constitute a research study; the objective of any additional monitoring would be to document anecdotal information as to whether or not additional studs form bachelor bands or appear to become more aggressive with breeding bands for the forage and water present.

Weed Management Required Design Features

- 1. If vehicles and equipment are working in known noxious weed infestations, equipment will be washed prior to entering the project area to remove noxious weed propagules.
- 2. Hay/Grass for working animals will be NDA certified weed free
- 3. Trap and holding sites will be inventoried for the presence of noxious weeds prior to being used, any species found would be flagged and avoided or would be mechanically removed prior to use.

The following RDFs would be applied to be consistent with the

Nevada and Northeastern California Greater Sage Grouse (GRSG) Approved ResourceManagement Plan Amendment and Record of Decision (GRSG Plan Amendment)

Greater Sage-Grouse Conservation Plan (2014):

- 1. RDF Gen 12: Control the spread and effects of nonnative, invasive plant species (e.g., washing equipment, minimize unnecessary surface disturbance). All projects would be required to have a noxious weed management plan in place prior to construction and operations.
- 2. RDF Gen 13: Implement project site-cleaning practices to preclude the accumulative of debris, solid waste, putrescible wastes, and other potential anthropogenic subsidies for predators of GRSG.
- 3. RDF Gen 19: Instruct all construction employees to avoid harassment and disturbance of wildlife, especially during the GRSG breeding (e.g., courtship and nesting) season. In addition, pets shall not be permitted on site during construction.
- 4. RDF Gen 22: Load and unload all equipment on existing roads, pull outs, or disturbed areas to minimize disturbance to vegetation and soil.

2.4 Alternatives Considered but Dismissed from Detailed Analysis

1. Exclusive Use of Bait and/or Water Trapping

This Alternative involves the use of bait (feed) and/or water to lure burros and horses into traps as the primary gather method. It would not be timely, cost-effective, or practical to use bait and/or water trapping as the primary gather method because the number of water sources on both public lands and other lands within and outside the MWBR would make it almost impossible to restrict wild burro and horse access to the selected water trap sites to capture enough excess burros to reach low AML or to remove all excess horses. Bait and/or water trapping may be used in strategic locations to assist in removals and fertility control treatments. As a result, this Alternative was dismissed from detailed analysis as the primary capture method.

2. Remove or Reduce Livestock within the MWBR

This Alternative would involve no removal of wild burros and horses and would instead remove or reduce authorized livestock grazing instead of gathering and removing wild burros and horses within the MWBR. This Alternative was not considered in detail because since these allotments have already been vacated of a grazing preference and no livestock are currently grazing within the MWBR. All grazing impacts in the MWBR are from burros and horses.

3. Gather the MWBR to the AML Upper Limit

Gathering wild burros to achieve a post-gather population size at the upper level of AML range would result in AML being exceeded with the next foaling season.

The upper levels of the AML range established for the MWBR represents the maximum population for which a thriving natural ecological balance can be maintained. The lower range represents the number of animals that should remain in the MWBR following a wild burro gather in order to allow for a periodic gather cycle of approximately every four years and to prevent the population from exceeding the established AML between gathers. The need to gather below the upper range of AML has been recognized by the IBLA, which has held that:

"...the term AML within the context of the statute to mean[s] that "optimum number" of wild horses which results in a thriving natural ecological balance and avoids a deterioration of the range." (Animal Protection Institute of America, 109 IBLA 112, 119 (1989)).

Proper range management dictates removal of burros before the herd size causes damage to the range land. Thus, the optimum number of burros is fewer than the number that would cause damage. Removal of burros before range conditions deteriorate ensures that burros enjoy adequate forage, and an ecological balance is maintained. (Animals Protection Institute of American, 118 IBLA 63 (1991)).

Additionally, gathering to the upper level of AML would result in the need to follow up with another gather within one year, and could result in over utilization of vegetation resources, damage to the rangeland, and increase stress to wild burros. For these reasons, this alternative did not receive further consideration in this document.

4. Control of Wild Horse and Burro Numbers by Fertility Control Treatment Only

This alternative would require repeated gathers of a significant portion of the existing population (95%) to implement fertility control treatments only, without removal of excess horses and was modeled using a three-year gather/treatment interval over a 20-year period. Based on preliminary modeling, this alternative would not result in attainment of the AML range for the MWBR and the wild burro and horse population would continue to increase, but at a slower rate.

This alternative would not bring the burro or horse population to AML and would allow the wild burro and horse populations to continue to grow even further in excess of AML. Resource degradation would escalate, and implementation of this alternative would result in significantly increased gather and fertility control costs without achieving a thriving natural ecological balance. Existing studies also indicate that management plans that rely exclusively on fertility control methods will not lead to AML being achieved in the near future (i.e., Fonner and Bohara 2017). This alternative would not meet the purpose and need for the proposed action and therefore was eliminated from further consideration.

5. Raising the Appropriate Management Level for Wild Burros

The BLM has established current AML ranges based on many years of data collection, resource monitoring, and multi-agency planning efforts. The current AMLs are based on established biological resource monitoring protocols and land health assessments and were approved in the CRMP 2021. Delaying a gather until the AML can be reevaluated is not consistent with the WFRHBA, Public Rangelands Improvement Act, FLPMA, or the land-use plan. Monitoring data collected within the MWBR does not indicate that an increase in AML is warranted at this time. On the contrary, such monitoring data confirms the need to remove excess wild burros and horses to reverse downward resource trends and promote improvement of rangeland and riparian health. Severe resource degradation would continue to occur if excess animals are not removed and even larger numbers of excess animals would ultimately need to be removed from the MWBR to achieve AML or to prevent the death of individual animals under emergency conditions. This Alternative was eliminated from further consideration because it is contrary to the WFRHBA which requires the BLM to manage the rangelands to prevent resources from deterioration associated with an overpopulation of wild horses and burros. In addition, raising the AML where there are known resource degradation issues associated with an overpopulation of wild burros and horses does not meet the purpose and need of this EA to restore and maintain a thriving ecological balance. Once the AML has been achieved and the wild horse population has been managed at AML for sufficient time to monitor impacts, then changes to AML if appropriate (either upward or downward) would be based on an analysis of monitoring data, including a review of wild horse habitat suitability, such as the condition of water sources in the MWBR. For the reasons stated above, this Alternative was eliminated from further consideration.

6. Wild Burro and Horse Numbers Controlled by Natural Means

This Alternative was eliminated from further consideration because it is contrary to the WFRHBA which requires the BLM to prevent range deterioration associated with an overpopulation of wild horses and burros. The Alternative of using natural controls to achieve a desirable AML has not been shown to be feasible in the past. Wild burro and horse populations in the MWBR have not been shown to be controlled by predators or other natural factors. Even in places in the western United States where predators such as mountain lions do eat horses and

burros (i.e., Andreasen et al. 2021, Lundgren et al. 2022), they have not generally caused populations to decline (Andreasen et al. 2021). In addition, wild burros and horses are a long-lived species with documented survival rates that can exceed 95 percent (Ransom et al. 2016) and they do not self-regulate their population (NRC 2013).

This Alternative would result in a steady increase in the wild burro and horse populations which would continue to exceed the carrying capacity of the range resulting, eventually, in a catastrophic mortality of wild burros and horses in the MWBR (NRC 2013). The vegetative and water resources have already degraded to the point of no recovery because of the wild burro overpopulation, and wild burros and horses are starting to show signs of malnutrition and starvation. The weaker animals, generally the older animals, and the females and foals, are the first to be impacted. It is likely that more of these animals would die from starvation and dehydration which could lead to a catastrophic die off. Allowing burros and horses to die of dehydration and starvation would be inhumane treatment and would be contrary to the WFRHBA, which mandates removal of excess wild burros and horses.

This Alternative would also lead to increased irreparable damage to rangeland resources from excess wild burros and horses, which is contrary to the WFRHBA, which mandates the BLM to *"protect the range from the deterioration associated with overpopulation", "remove excess animals from the range so as to achieve appropriate management levels",* and *"to preserve and maintain a thriving natural ecological balance and multiple-use relationship in that area".* Wild burros and horses can be aggressive around water sources, and some wildlife may not be able to compete, which could lead to the death of individual animals. Wildlife habitat conditions are deteriorating as wild burro and horse numbers above AML reduce herbaceous vegetative cover, damage springs, and increase erosion, and has resulted in irreversible damage to the range. For these reasons, this Alternative was eliminated from further consideration. This Alternative would not meet the purpose and need for this EA which it is to remove excess wild burros and horses from within and outside the MWBR and to reduce the wild horse population growth rates to manage wild burros within established AML ranges.

7. Use of Alternative Capture Techniques Instead of Helicopter Capture

The BLM identified chemical immobilization, net gunning, and wrangler/horseback drive trapping as potential alternative methods for gather wild horses and burros. Net gunning techniques normally used to capture big game animals also rely on helicopters and may be associated with high injury rates. Chemical immobilization is very specialized technique and strictly regulated. Currently the BLM does not have sufficient expertise to implement either of these methods and it would be impractical to use given the size of the project area, access limitations, and difficulties in approachability of the wild horses and burros.

Use of wranglers on horseback drive-trapping to remove excess wild burros and horses can be somewhat effective on a small scale but due to the number of burros and horses to be gathered, the large geographic size of the MWBR, and lack of approachability of the animals, this technique would be ineffective and impractical as a substitute for helicopter trapping. Wild burros and horses often outrun and outlast domestic horses carrying riders. Helicopter assisted roping is typically only used if necessary and when the wild burros and horses are in close proximity to the gather site. For these reasons, this method for gathering the MWBR was eliminated from further consideration.

8. Field Darting PZP Treatment as Exclusive Method of Population Control

Under this scenario, BLM would administer PZP in the one-year liquid dose inoculations by field darting the females as the sole method of population management. This method is currently approved for use and is being utilized by BLM in a small number of HMAs. This alternative was dismissed from detailed study for the following reasons: (1) the size of the proposed gather area at 775,000 acres is too large to use this method; (2) the area has multiple wilderness areas which restricts access/activities within the area. (3) the presence of water sources on both private and public lands inside and outside the HMA would make it almost impossible to restrict wild burros and horse access to be able to dart animals consistently; (4) animal behavior limits their approachability/ accessibility, so that the number of females expected to be treatable via darting would be insufficient to control growth; and (5) BLM would have difficulties keeping records of unmarked animals that have been treated due to common and similar colors and patterns in this herd. For these reasons, this alternative was determined to not be an effective or feasible method for managing wild burros and horses within the gather area.

3.0 Affected Environment, Environmental Consequences, and Cumulative Impacts

The May 20, 2022 Phase I CEQ revisions at 40 CFR 1508.1(g) provide the following definitions: *Effects* or *impacts* means changes to the human environment from the proposed action or alternatives that are reasonably foreseeable and include the following:

- (1) Direct effects, which are caused by the action and occur at the same time and place.
- (2) Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

Cumulative effects, which are effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non- Federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time. Effects include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effects will be beneficial.

3.1 General Description of the Affected Environment

The MWBR encompasses 66,045 acres of public and private lands within the Carson City District Office in Mineral County, NV (Figure 1). The MWBR is an unfenced burro range. Therefore, the gather area encompasses lands that include the surrounding grazing allotments which include Garfield Flat, Little Huntoon, and Belleville, Basalt, and McBride Flat. The gather area includes a total of 569,862 acres, including 88,234 acres of lands managed by the Forest Service, 451,622 acres managed by the BLM, 8,782 managed by Department of Defense, and 21,224 privately owned land. Topography varies from a large playa and sandy areas to rugged to deeply dissected canyons. Elevation varies from approximately 5,000 feet to 7,500 feet. Precipitation averages 6 inches annually. Temperatures also vary from 20 degrees to over 100 degrees Fahrenheit.

The wild burros of the MWBR are descendants of 13 burros that a miner released in the area. The first aerial inventory of the MWBR was undertaken by the BLM in 1973, which identified 68 burros and no horses.

Vegetation is typical of sagebrush steppe with co-dominance of shrubs, and native perennial grasses (most have disappeared due to over grazing from wild burros). Water is available through a variety of undeveloped streams, springs, and seeps scattered throughout the MWBR.

A more detailed description of the MWBR, history, and elements of the affected environment can be found in the 1987 HMAP (pages 1-12) is incorporated into this assessment by reference. The HMAP explains the history, management revisions, and burro origin.

3.2 Internal Scoping and Issue Identification

Identification of Issues: Internal scoping was conducted by an interdisciplinary (ID) team on April 18, 2022, that analyzed the potential consequences of the Proposed Action. Potential impacts to the following resources/concerns were evaluated in accordance with criteria listed in the NEPA Handbook H1790-1 (BLM 2008) page 41, to determine if detailed analysis was required. Consideration of some of these items is to ensure compliance with laws, statutes or Executive Orders that impose certain requirements upon all Federal actions. Other items are relevant to the management of public lands in general, and to the Carson City District and BLM in particular.

Table 3 summarizes which of the supplemental authorities of the human environment and other resources of concern within the project area are present, not present or not affected by the Proposed Action.

3.3 Supplemental Authorities

CRITICAL ELEMENTS		
NA- Not Affected, PI- Potentially Impacted, or NP- Not Present*	Resource	Rationale for Determination
NA	Air Quality (The Clean Air Act of 1955, as amended)	Estimated air pollutant emissions attributable to the proposed actions are well below Federal Conformity de minimis thresholds. Therefore, the actions are expected to have only a <i>de minimis</i> impact on air

Table 3: Supplemental Authorities and Other Relevant Resources Brought Forward for Analysis

CRITICAL ELEMENTS		
NA- Not Affected, PI- Potentially Impacted, or NP- Not Present*	Resource	Rationale for Determination
		quality or air quality related values in or around the MWBR.
NP	Areas of Critical Environmental Concern (Federal Land Policy and Management Act of 1976)	There are no Areas of Critical Environmental Concern in the proposed Project Area
NA	Cultural Resources (National Historic Preservation Act of 1966, as amended)	In accordance with the SOPs for Gather and Handling Activities in Appendix III and Appendix A.10 of the Sate Protocol Agreement, gather facilities would be placed in previously disturbed areas outside of known historic properties. Should gather facilities be proposed in undisturbed areas that do not have previous cultural resources inventory, class III cultural resource inventories would be conducted to identify historic properties. Historic properties would be avoided with the Standard Measures listed in the State Protocol Agreement V.B.D.2.a in compliance with Sections II.A-E and V.B.
NA	Environmental Justice (Executive Order 12898)	The Proposed Action would not disproportionately impact social or economic values.
NP	Farmlands (Prime & Unique) (Surface Mining Control and Reclamation Act of 1977)	There are no unique farmlands exist in the State of Nevada. Prime Farmlands would not be affected by the proposed action or other action alternatives. The characteristics which make a soil potential Prime Farmland would not be altered. The limiting factor for soil becoming productive Prime farmlands would remain the future application of an adequate and dependable supply of irrigation water.
NP	Floodplains (Executive Order 11988)	There are no mapped FEMA 100-year floodplains in the project area.
PI	Weeds (i.e. Noxious, Invasive, Non-native, and Nuisance weed species) (Federal Noxious Weed Act of 1974, as amended)	Invasive and nuisance species should be brought forward for analysis as grazing, and especially heavy grazing can alter plant community dynamics in many ways, some of which include increasing weeds and invasive species. Although severe grazing may even reduce weedy species as animals must resort to lower quality forage. Noxious weeds have a relationship to grazing which would be affected by gathering burros. This should be brought forward for analysis even though the impact may be favorable. Refer to Section 3.4.8.
PI	Migratory Birds	Proposed action would be planned to occur outside of the majority of the Migratory Bird nesting season. However, habitat may be affected. Refer to Section 3.4.4.
NP	Native American Religious Concerns	No known Native American Concerns. BLM consulted with the Yomba Shoshone Tribe by letter
CRITICAL ELEMENTS		
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NA- Not Affected, PI- Potentially Impacted, or NP- Not Present*	Resource	Rationale for Determination
	(Executive Order 13007)	dated May 12, 2022, but the tribe did not express any concerns. The BLM will ensure that all known traditional, spiritual or religious areas will be avoided.
NP	Threatened, Endangered, or Candidate Plant Species (Endangered Species Act of 1973, as amended)	No known T&E plant species occur in the project area
NP	Threatened, Endangered, or Candidate Animal Species (Endangered Species Act of 1973, as amended)	No known T&E species occur in the project area
NP	Wastes (hazardous or solid) (Resource Conservation and Recovery Act of 1976, and Comprehensive Environmental Response, Compensation, and Liability Act of 1980)	There are no known hazardous or solid wastes which exist within the proposed project area, nor would any be introduced.
NA	Water Quality (drinking/ground) (Safe Drinking Water Act of 1974, as amended and Clean Water Act of 1977)	Gather activities would not impact water quality. Reduction in the number of WH&B might result in an improvement in water quality in the long term.
NA	Wetlands / Riparian Zones (Executive Order 11990)	Gather activities would not impact wetland/riparian zones. Reduction in the number of WH&B might result in an improvement in riparian functionality in the long term.
NP	Wild and Scenic Rivers (Wild and Scenic Rivers Act of 1968, as amended)	
NP	Wilderness (Federal Land Policy and Management Act of 1976 and Wilderness Act of 1964)	No Wilderness or Wilderness Study Areas in proposed project area
	Pasourca	
NP	Cave and Karst Resources	
NA	Fuels / Fire Management	The Proposed Action would not change the fire management in the analysis area.
PI	Special Status Species: Animals	Refer to Section 3.4.5.
РІ	General Wildlife	Refer to Section 3.4.4.
PI	Special Status Species: Plants	Refer to Section 3.4.6

CRITICAL ELEMENTS		
NA- Not Affected, PI- Potentially Impacted, or NP- Not Present*	Resource	Rationale for Determination
NA	Geology / Mineral Resources	There would be no modifications to mineral resources through the proposed project area.
NA	Climate Change/Greenhouse Gas Emissions	Greenhouse gas emissions related to the proposed actions would be less than 124 tons, the equivalent of 27 passenger cars driven for one year. These emissions would not be expected to change the current course of climate change and so would has only a <i>de minimis</i> impact on climate impacts in Nevada.
NA	Lands / Access / Rights-of- Way	The project, as proposed, would not affect access to public lands.
NA	Lands with Wilderness Characteristics	Lands with Wilderness Characteristics are managed commensurate with other uses.
PI	Livestock Grazing/Rangeland Management (Taylor Grazing Act of 1934, National Environmental Policy Act of 1969 Endangered Species Act of 1973, Federal Land Policy and Management Act of 1976, and the Public Rangelands Improvement Act of 1978)	Carried forward for analysis.
NA	Paleontology (Paleontological Resources Protection Act P.L. 111-011, HR 146)	Areas designated with Potential Fossil Yield Classification of 3 through 5 would be avoided.
NA	Recreation	The proposed action would not affect recreation due to the gather being temporary.
PI	Socioeconomics	Refer to Section 4.0.
PI	Soils	Refer to Section 3.4.2.
NP	Trails and Travel Management	
PI	Vegetation	Refer to Section 3.4.3.
NA	Visual Resource Management (FLPMA 1976, NEPA 1969)	The gather area has been classified VRM III. The proposed action would not impact VRM III objectives.
NA	Water Quantity, Surface/Ground	Project would not impact water quantity.
PI	Wild Horses and Burros (Wild and Free Roaming Horses and Burros Act of 1971, as amended)	Refer to Section 3.4.7.
NP	Wilderness Characteristics	
NP	Woodland / Forestry	

*

NP = not present in the area impacted by the proposed or alternative actions NA = present, but not affected to a degree that detailed analysis is required PI = present and may be impacted to some degree. Will be analyzed in affected environment and environmental impacts. (NOTE: PI does not mean impacts are likely to be significant in any way).

3.4 Past, Present, and Reasonably Foreseeable Future Actions

Past actions considered are those whose impacts to one or more of the affected resources have persisted to present day. Present actions are those occurring at the time of this evaluation and during implementation of the Proposed Action. RFFAs constitute those actions that are known or could reasonably be anticipated to occur within the analysis area for each resource, within a time frame appropriate to the expected impacts from the Proposed Action. The past, present, and RFFAs applicable to the assessment area are identified in the following Table 4.

Project Name or Description		Status (X)		
		Present	Future	
Issuance of multiple use decisions and grazing permits for ranching operations through the allotment evaluation process and the reassessment of the associated allotments.			Х	
Livestock grazing			Х	
Wild horse and burro gathers	Х	Х	Х	
Mineral exploration / geothermal exploration/abandoned mine land reclamation		Х	Х	
Recreation		Х	Х	
Range Improvements (including fencing, wells, and water developments)		Х	Х	
Wildlife guzzler construction		Х	Х	
Invasive weed inventory/treatments	Х	Х	Х	
Wild horse and burro management: issuance of multiple use decisions, AML adjustments and planning	Х	X	X	

Table 4: Past, Present, and RFFAs Applicable to the CESA

3.4 Description of Affected Resources/Issues

Table 3-1 lists the elements of the human environment subject to requirements in statute, regulation, or executive order which were considered for detailed analysis. The BLM has discussed all the resources mentioned below and has either incorporated and analyzed them within this EA or provided an explanation of why they were not analyzed in detail. Resources that may be affected by the Proposed Action and Alternatives were identified to be analyzed in detail. Resources that are not present or not affected by the Proposed Action and Alternatives were considered but eliminated from further analysis.

3.4.1 Livestock Grazing

Affected Environment

The gather project area (Figure 1) overlaps the Garfield Flat, Little Huntoon, Belleville and McBride Flat grazing allotments: Belleville, Little Huntoon, McBride Flat, and Basalt. These allotments do not have active grazing permits. Belleville and Little Huntoon have not been grazed since 2013. McBride Flat has not been managed for grazing since 1988 when the National Forest and Public Lands of Nevada Enhancement Act transferred most of the allotment to the US Forest Service management. Basalt has not had an active grazing permit since 1985. These four allotments are in the process of a land health evaluation to help inform land use alternatives including livestock grazing. The Marietta Burro Range, which was established in 1987, was formerly the Marietta grazing allotment. All livestock grazing ceased after the 1987 conversion to burro use. Today, a portion of the Belleville overlaps the MWBR.

Since livestock grazing does not occur within the MWBR stock water is not present, however, there are many seeps and springs within the MWBR.

Environmental Consequences to Livestock Grazing

Impacts of Alternatives 1-3

There are no expected impacts to livestock or range improvements a result of this action. There would be no disturbance to livestock operations since there are no active permits on the BLM grazing allotments in the project area. The quantity and quality of forage and water should stabilize or increase with the reduction of wild burros over the AML and removal of wild horses.

Impacts of Alternative 4 (No Action)

Wild burros are currently using more than their forage allocation in and outside the MWBR and along with wild horses are causing heavy to severe utilization of vegetation in some areas. The indirect impacts of Alternative 4 include increased damage to the rangelands, increasing wild burro population, and reduced quantity and quality of forage and water for burros and wildlife.

Cumulative Effects

Forage utilization during the 1900s was high when thousands of cattle, sheep, and horses grazed lands in northern Nevada. In the 1930s when overgrazing threatened to reduce Western rangelands to a dust bowl, Congress approved the Taylor Grazing Act (TGA) of 1934, which for the first-time regulated grazing on public lands. The TGA required ranchers who grazed horses or livestock on public lands to have a permit and to pay a grazing fee, but by that time, thousands of horses roamed the Nevada desert unbranded and unclaimed.

A series of livestock grazing decisions since the TGA have resulted in reductions in livestock numbers and changes in seasons of use and in grazing management practices to promote rangeland health within grazing allotments. Other management changes have also resulted in restrictions on when, where, and how long livestock can graze, to minimize potential impacts to rangeland health.

Removing excess wild burros and all wild horses that have come from other HMAS as described in Alternatives 1, 2, and 3 would reduce grazing pressure on forage plants, allowing plants to complete their annual growth cycle, strengthening root structure, and maintaining or increasing vigor and reproductive abilities. Plant communities that have been impacted by wildfire, drought, or past heavy grazing should improve in condition. Forage quality and annual production for remaining burros, wildlife, and potential future livestock grazing would be expected to be maintained or improve.

Implementation of Alternative 4 would result in substantial increases in wild burro numbers, an increase in wild horse numbers, and competition for forage and water would become more prevalent between wild burros and horses, wildlife, and potential future livestock grazing. Plant communities that are still recovering from the effects of past heavy burro grazing would be the most vulnerable to further degradation. As wild burro and horse numbers increase, plant communities would experience an even greater serious decline in condition, forage quality, and annual production.

3.4.2 Soil

Affected Environment

A wide range of soils occur within the gather area, ranging from playas and deep sands in lower elevations, to cobbly loam in the mid-elevations, and shallow well drained cobble soils at higher elevations in the mountain ranges. Soil development generally occurred under low precipitation regimes resulting in relatively slow development of soils.

Prior to the TGA, livestock grazing practices resulted in significant impacts to soil resources. The soil tolerance was exceeded and the soil medium for plant growth was not maintained. As a result, historic livestock grazing activities prior to the TGA had significant impacts on the vegetation resources within the impact assessment area by eliminating or greatly reducing the primary understory plants.

While the present efforts to manage the wild burro population within AML has helped reduce past historic soil impacts and has improved current soil resource conditions, the current overpopulation of wild burros and horses is resulting in areas of heavy vegetative utilization, trailing and trampling damage, and prevents BLM from managing public lands within the MWBR for rangeland health and for a thriving natural ecological balance.

Aerial assessment indicates trailing by burros between limited water sources and foraging areas, particularly in the Rock Springs area. Trailing and hoof action by burros and horses has the potential to accelerate erosion following intense summer convection storms or rapid snow melt through increased soil compaction and associated losses of vegetative cover. Burro utilization and trailing are occurring in BLM allotments outside the in the MWBR decreasing vegetative

cover while altering vegetative composition, particularly in areas of water sources and low elevation, gradually sloped topography. Changes in vegetative composition can reduce soil infiltration rates, which increases run off and consequently soil erosion, as well as decreased soil productivity.

Land Health indicators (TR 1734-6, V5) were assessed at 41 sites within the analysis area. The soil attribute results show 1 site with moderate-extreme departure from site potential near Rock House and Company Springs, 4 sites with moderate departure from site potential, 22 sites slight-moderate departure from potential, and 14 sites none-slight departure from potential.

Soil indicators such as frequent water flow paths, increased bare ground, wind deposition, and soil surface loss and resistance to erosion were apparent at study sites.

Environmental Consequences to Soil

Alternatives 1-3

Alternatives 1-3 could result in short-term impacts to soils at gather site locations and temporary holding facilities. These sites would likely occur in previously disturbed areas and are typically less than 0.5 acres. Some soils within these sites could become devoid of vegetation and be susceptible to soil erosion, however these areas are of limited size and are expected to recover within a short period of time. The long-term beneficial impacts to soil resources that would occur because of removing excess burros and horses to within the established AML ranges would outweigh any short-term effects to soils at trap sites and holding areas.

Trailing and hoof action across the landscape by wild burros and horses would be expected to decrease due to the decrease in wild burro and horse population levels within the MWBR and surrounding analysis area. This would lead to increased soil functionality and increased soil processing resulting in increased soil development, while decreasing potential erosion and soil loss.

Soil as a land health indicator could be maintained or improve, trending desired condition over time.

Alternative 4

The no action alternative would result in the continuation of erosion due to the trailing and hoof action by an overpopulation of wild burros. Compaction and soil loss are likely to accelerate as wild burro populations continue to grow.

Soil as a land health indicator could be at risk of moderate to extreme departure from desired condition.

Cumulative Impacts to Soil

Alternatives 1-3

Cumulative effects to soils under Alternatives 1-3 would be minimal and temporary. Some areas such as trap sites and holding facilities would experience some trampling, however these areas are generally small and are typically places in previously disturbed areas. Once animals are removed from these sites, soils are expected to recover. Reducing the population of wild burros

and horses to within the established AML range under Alternatives 1- 3 would significantly reduce the long-term damage to soils resulting from trampling and overgrazing of vegetation.

Alternative 4

Under Alternative 4, wild burro and horse populations would continue to increase and upland sites would become overgrazed by burros resulting in the loss of vegetative cover and litter to protect the soil surface. There would also be a decrease in biological soil crusts and an increase in soil erosion and bare ground. These sites typically produce lower amounts of plant biomass and cover, recruit fewer cohorts, and provide little soil stability.

3.4.3 Vegetation

Affected Environment

A variety of vegetation communities can be found in the analysis area because of the range in elevations, soils, geology, and climate. Dominant plant community types include Spiny menodora/Indian ricegrass-Desert needlegrass (4500-5500'), Shadscale/Indian ricegrass and Shadscale-Bud sage/Indian ricegrass (4400-6500'), Wyoming big sagebrush/Indian ricegrass (4800-6500'), Fourwing saltbrush/Indian ricegrass (3500-4500'), and some Singleleaf pinion/Mountain big sagebrush/Thurber's needlegrass (5000-8000').

Wild burro and horse utilization and trailing due to increasing numbers is occurring within and surrounding the MWBR and is reducing vegetative cover and vigor, particularly, in those areas near water sources and areas in low elevations with gradual sloped topography. The reduction of vegetative cover and increased trampling resulting from higher wild burro and horse numbers has led to increased soil disturbance, which negatively impacts the establishment of plants and root abilities of native vegetation. Changes to vegetation can also potentially accelerate run off and subsequent soil erosion. Utilization and range health indicator data illustrate wild burro grazing impacts.

Vegetation utilization measurements from October 2019 show severe utilization in the north-east portion on Belleville allotment caused by wild burros and horses (there has been no livestock grazing in that area since at least 2013. Eight key forage transects were taken in the Marietta Burro Range between June and September 2020. In those areas closest to water on the Belleville portion of the Marietta Burro Range, the key forage transects showed severe grazing. These transects also showed a trend in time with light utilization throughout the analysis area in June and July, increasing to moderate and heavy utilization in September.

Land health indicators (TR 1734-6, V5) were documented at 41 sites within the analysis area. The biotic attribute results show 3 sites with moderate-extreme departure from potential, 19 moderate departure from potential, 13 slight-moderate departure from potential, and 6 with a none-slight departure from potential.

The prevailing indicators found to be departed from potential are appropriate functional/structural groups, specifically grasses and forbs are present in trace amounts or entirely missing from the plant community, plant community composition and distribution relative to infiltration and runoff, and reproductive capability of perennial plants are all found to be either slight to moderately, moderately, or moderately to extremely departed from potential. Wild burros and horses generally prefer perennial grass species as forage when available. Shrubs are important wildlife forage. The mosaic of plant communities that are found throughout the analysis also support a wide variety of wildlife species that use the various habitats for food and water, thermal protection, escape cover and reproduction.

The current overpopulation of wild burros and horses is continuing to contribute to areas of moderate to severe vegetation use, trailing and trampling damage within uplands areas. Current wild burro and horse overpopulation is preventing the BLM from managing for rangeland health at a thriving natural ecological balance, as well as making it difficult to develop a multiple use relationship on BLM-administered lands in the area. This overpopulation has resulted in observed past and present degradation of upland vegetation areas.

The relative quantity of vegetative cover removed by grazing and trampling also affects soil properties. In general, vegetative cover provides shading for soils, which increases their ability to retain moisture, reduces soil erosion by intercepting precipitation and reducing surface wind velocities, and provides organic input into the soil (Beever and Herrick 2006).

Environmental Consequences to Soil

Alternative 1-3

Impacts associated with the action alternatives would consist of disturbance to soil surfaces and vegetation immediately in and around the temporary gather site(s) and holding facilities. Impacts would be created by vehicle traffic and hoof action as a result of concentrating burros and horses and could be locally high in the immediate vicinity of the gather site(s) and holding facilities. Generally, these sites would be small (generally less than 0.5 acre) in size and located in previously disturbed sites. Any impacts would remain site specific and isolated in nature. Impacts would be minimal as herding would have a short-term duration.

In addition, most gather sites and holding facilities would be selected to enable easy access by transportation vehicles and logistical support equipment. Normally, these gather sites are located near or on roads, pullouts, water haul sites or other flat areas, which have been previously disturbed. These common practices would minimize the potential impacts to soils and the associated native vegetative communities.

The action alternatives will reduce the WHB populations to within the established AML resulting in decreased pressure on vegetative resources within the uplands and riparian areas. This will allow for native species recovery, resulting in a lesser likelihood of invasive species and improve riparian and upland functionality within the HMA.

Impacts of implementing the action alternatives would be reduced concentrations of wild burros and horses, leading to reduced soil erosion, vegetation trampling, and utilization of areas most frequented in the MWBR by wild burros and horses. This reduction in soil erosion would be most notable and important in the vicinity of small spring meadows experiencing high levels of disturbance and bare ground from the current excess numbers of wild burros and horses.

Alternative 4

Under Alternative 4, wild burros and horses would not be gathered and removed from the

MWBR. There would be no impacts associated with gather activities such as disturbed vegetation. Not removing excess burros and horses would result in a continued increase in the number of wild burros and horses above AML resulting in increased utilization of vegetation and trampling. This would have compounding impacts on upland vegetation. Initial impacts would be seen in sites that are already close to crossing an ecological threshold, or on sites that are near water sources. The increased grazing pressure from burro and horse numbers in excess of the high AML range would result in a decrease in native perennial species, and an increase in bare ground, erosion, or shrubs tolerant of disturbance (e.g., rabbitbrush) that have lower forage value and provide fewer ecosystem goods and services (Chambers et al. 2014). These changes would decrease the stability, biodiversity, vigor, and production of native plant communities within the MWBR.

Cumulative Impacts to Vegetation

Under Alternatives 1, 2, and 3, wild burro and horse numbers would be reduced, and maintained within the AML range, which would result in decreased impacts to vegetation throughout the MWBR. While removal of excess wild burros and horses may not be able to restore plant communities that have lost functional/structural groups and seed bank, having the number of burros and horses in the MWBR within AML would help prevent areas with low perennial bunch grasses from further decline. Generally, the removal of grazing pressure from excessive numbers of wild burros and horses would lessen the impacts to perennial grasses and shrubs, thus allow them to better recover from natural disturbances such as fire and drought, and to compete with non-native annual grasses and forbs such as cheatgrass and halogeton.

Alternative 4 would result in an increase in wild burro and horse numbers and increased disturbance to native vegetation and soils, which could lead to increased damage to upland vegetation. Plant communities that have been and may be impacted by wildfires, drought, and annual invasive weeds would be more vulnerable to losing native perennial grasses and shrubs, due to the high amount utilization and trampling from excessive wild burros and horses. The constant overuse of rangeland vegetation would decrease the ability of plants to complete their growth cycle and recover from grazing. As a result, many sites that have been previously disturbed may irreversibly transition from native perennial plant communities to invasive annuals plant (e.g., cheatgrass) communities making these communities more vulnerable to fire. This change in functional/structural groups would have a negative impact on the vegetation resources in the MWBR, further affecting other aspects of these sagebrush and spiny menodora ecosystems such as soils and wildlife.

Maintaining a balance of grazing animals and controlling the timing and amount of forage that is consumed each year by all grazing animals is crucial to maintaining healthy upland plant communities within the analysis area. Year-round grazing on the upland vegetation from excess wild burros and horses does not allow upland sites to recover from past disturbances and those areas are in danger of trending downward in ecological health.

3.4.4 General Wildlife and Migratory Birds

Affected Environment

NDOW's Wildlife Action Plan (WAPT 2012) identifies 22 key habitat types within Nevada. The predominant key habitat types found within the MWBR include Intermountain Cold Desert

Scrub (\approx 54% or 129,605 acres), Sagebrush (\approx 30% or 70,356 acres), Lower Montane Woodlands and Chaparral (\approx 13% or 30,000 acres), and Cliffs and Canyons (\approx 2% or 3,866 acres). Other key habitats are sparsely distributed in small acreages throughout the MWBR and these are Grasslands and Meadows (\approx 530 acres), Intermountain Coniferous Forest and Woodlands (\approx 30 acres), Barren Landscapes (\approx 25 acres), Sand Dunes and Badlands (\approx 23 acres), Marshes (\approx 7 acres), Springs and Springbrooks (\approx 4 acres), Mojave Warm Desert and Mixed Desert Scrub (\approx 3 acres)

Wildlife species in the general area include mammals, birds, reptiles, amphibians, and invertebrates. Biological diversity varies according to topography, plant community, proximity to water, soil type, and season. Because intensive plant and animal surveys have not been completed, abundance and distribution of most wildlife species can only be inferred from available habitat. For a comprehensive discussion of potential wildlife species that may be present within the gather area, refer to CRMP (BLM 2001).

Big Game

The MWBR contains 11,611 acres of year-round mule deer (*Odocoileus hemionus*) habitat, 40,732 acres of winter range and 9,688 of critical winter range in the Excelsior Ranges, which equates to approximately 26 percent of the analysis area. Mule deer generally browse on forbs, grasses, and shrubs depending on the time of year. For instance, forbs and grasses are most important in spring and summer while shrubs are most utilized during winter and the dry summer months. Factors affecting mule deer across Nevada's range include loss of plant vigor, pinyon-juniper encroachment, overgrazing, invasive species, fire, drought, mining and other anthropogenic developments, and migration corridor impediments (Wasley 2004).

The MWBR contains 116,661 acres of year-round pronghorn antelope (*Antilocapra Americana*) habitat which equates to approximately 50% of the analysis area. Prong horn primarily eat forbs and shrubs with grasses being the least preferred forage. Vegetation height, cover, and community type, as well as elevation, topography, and distance to water, all influence pronghorn antelope habitat selection.

Migratory Birds

The Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. 703 *et. seq.*) protects migratory birds and their nests. A list of MBTA protected birds is found in 50 C.F.R. 10.13. The list of birds protected under this regulation is extensive and the project site has potential to support many of these species, including BLM sensitive species, and their nests. On January 11, 2001, President Clinton signed Executive Order 13186 (Land Bird Strategic Project) placing emphasis on conservation and management of migratory birds. Management for these species is based on Instruction Memorandum (IM) IM 2008-050 dated December 18, 2007 (BLM 2007). The 1988 amendment to the Fish and Wildlife Conservation Act mandates the USFWS to "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973." The USFWS list of Birds of Conservation Concern (BCC) for 2008 is the most recent effort to carry out this mandate. The MWBR falls in the Great Basin Region 9, Appendix H provides a list of Birds of Conservation Concern that may be present in the analysis area. Distribution of these species varies by year-round resident, summer breeding, winter and

migratory species. The NDOW Wildlife Action Plan (WAPT 2012) has detailed information on many of these birds of conservation concern, including habitat requirements, trends, distribution, and conservation needs. Numerous species of migratory and non-migratory birds, including raptors, utilize habitat such as trees, shrubs, cliffs, and other upland vegetation within the MWBR for shelter, nesting, and foraging. Desert shrub habitats provide nesting structure, protection from predators, and thermal cover for passerines as well as foraging habitat for raptors. Rock outcroppings/crevices provide nesting, roosting, protection from predators for some bird species and rocky ledges provide a nesting substrate, and protection from predators for several raptor species. Generally, migratory bird species occur in higher concentrations in riparian areas. Typically, the nesting season is when these species are most sensitive to disturbance, which occurs from March 1-July 31.

In general, monitoring data within the allotments show declining occurrence or absence of perennial grass species and a transition to shrub dominated states in the uplands. Riparian areas are scarce throughout the analysis area but are essential habitat for bird species of the arid and semiarid west and provide important stopping points for neotropical migratory birds passing through the desert. The current overpopulation of wild burros and horses is continuing to contribute to areas of heavy vegetation use and trailing and trampling damage within uplands and riparian-wetland areas.

Environmental Consequences to Wildlife and Migratory Birds Alternatives 1-3

Because of physiology, wild burros and horses primarily eat native bunchgrasses when available; consequently, dietary overlap between horses and burros and mule deer, as well as pronghorn, has been documented as minimal (1%). However, shrubs – including sagebrush – can represent a large part of wild burros' and horses' diet throughout the year. Dietary overlap of wild burros and horses with desert bighorn sheep has been documented around 50% when averaged throughout the year (Hanley & Hanley 1982; Hansen et al. 1977). However, native plant communities can only sustain a certain level of grazing utilization. The upper limit of the AML range is the maximum number of wild burros and horses that can be maintained to achieve a thriving natural ecological balance and not adversely impact the plant community in combination with other multiple uses such as wildlife and livestock grazing. These Action Alternatives would also help in achieving and maintaining the wild burro populations within AML and remove all wild burros and horses, thus vegetative health within key habitats would be promoted.

When AML is exceeded and maintained over time, overutilization of vegetation and water sources by wild burros and horses occurs, decreasing plant diversity and in turn changing habitat structure (Beever and Brussard 2000; and references therein). This is currently occurring in parts of the project area. Beever at al. (2008) conducted a study of vegetation response to removal of horses in 1997 and 1998. The paper concluded that horse-removed sites exhibited 1.1–1.9 times greater shrub cover, 1.2–1.5 times greater total plant cover, 2–12 species greater plant species richness, and 1.9–2.9 times greater cover and 1.1–2.4 times greater frequency of native grasses than in horse-occupied sites.

Effects of wild burros and horses are not uniform across the landscape. For instance, WH&B would most utilize areas of the MWBR that have more grasses because they are primarily

grazers. However, when WH&B are substantially over AML they would also overgraze shrub species such as winterfat, budsage, and four-wing salt bush, which takes away available forage for browsers such as mule deer. While impacts to water from WH&B are different than cattle due to behavior (WH&B tend to not linger at a source), decreased cover and diversity of grasses and shrubs as well as decreased mammal burrow density have been documented from wild horses at water sources (Beever and Brussard 2000; Ganskopp and Vavra 1986), wild burros would likely have the same effect as the above studies concluded for horses. Small mammals are a prey base for many species. Thus, less prey can negatively affect raptors and carnivores that may inhabit the area. Overall, under the Action Alternatives, it is expected that increased understory plant species and cover, healthier wet meadows throughout the MWBR, and maintaining less competition for forage would benefit species dependent on these key habitats for food, water, and cover. Additionally, species that prey on wildlife that inhabit these plant communities, such as golden eagles, and other raptors may benefit from an increased prey base over time.

Direct short-term impacts from gather activities include disturbance to wildlife and birds from the presence of people, vehicles, helicopters and wild horses and burros at the trap locations and temporary holding facilities during gather operations.

Implementation of Alternatives 1, 2, and 3 would provide the greatest benefit to wildlife. The habitat would be able to recover and improve, and there would be less competition for resources between WH&B and wildlife populations. Specifically, shrub, native grass, total plant cover and species richness would increase, and invasive species would decrease (Beever et al. 2003, 2008). Riparian areas and meadow function would also improve as well as their associated perennial grasses and forbs and other species, increase hiding cover, and result in the overall improvement of habitat quality for wildlife species.

Alternative 4

Over-utilization of forage by free-roaming WH&B would continue to occur if population numbers stay above or increase above the current level of above high AML for wild burros and for wild horse that are not completely removed from the area. Key Habitats could become further degraded would decrease forage and cover for wildlife species. Over time it is expected that the diversity and abundance of species that inhabit the project area would further decrease, which may in turn decrease the prey base for wildlife species that forage in the area.

The direct impacts of Alternative 4 would be to eliminate the short-term impacts from gather activities including disturbance to wildlife from the presence of people, vehicles, helicopters and wild burros and wild horses at the trap locations and temporary holding facilities during gather operations.

Indirect impacts from this Alternative would be the continued degradation of wildlife habitats including reduced quantity and quality of vegetation and degradation of riparian, meadows, and water resources necessary for wildlife. In the long-term, this Alternative would lower the

occurrence of native grasses, increase the presence of invasive species, and decrease vegetative cover (Beever & Aldridge 2011).

Cumulative Impacts to General Wildlife and Migratory Birds

When combined with the effects from past, present, and RFFAs, cumulative effects from the Action Alternatives to key habitats, and in wildlife, are expected to be negligible or positive. This is because the Action Alternatives would help accomplish the objectives of enhancing and/or maintaining resilient plant communities and watersheds by decreasing over-utilization of vegetative resources by excess WH&B; generally increasing plant diversity; and improving and maintaining wet meadows, springs, and riparian areas that are so crucial to wildlife in the project area.

Maintaining a balance of grazing animals and controlling the timing and amount of forage that is consumed each year by WH&B is crucial to maintaining healthy upland plant communities that provide important wildlife forage and cover. By removing excess WH&B, as described in Alternatives 1, 2, and 3, cumulative impacts to wildlife habitat are expected to be beneficial.

Cumulative impacts of Alternative 4 would result in an increase in wild burro and horse numbers and increased disturbance to plant communities and watersheds by increasing over utilization of vegetative resources ultimately causing a shift in the functional/structural groups. Potentially causing a transition from perennial plant communities to invasive annual plant communities further affecting wildlife habitat and forage for burros and wild horses. Ecological degradation would continue to occur and increase as climate change and other land uses compound these effects.

3.4.5 Sensitive Species: Animals Affected Environment

Per the BLM Special Status Species manual 6840, BLM special status species are: (1) species listed or proposed for listing under the Endangered Species Act (ESA), and (2) species requiring special management consideration to promote their conservation and reduce the likelihood, and need, for future listing under the ESA. Bureau sensitive species lists are reviewed, and updated every five years, by each State Director (BLM 2008). Additionally, all federal candidates, proposed, and delisted species in the five years following delisting are designated as Bureau sensitive species (BLM 2008). Many of these species as well as other wildlife species of concern are also discussed in the NDOW WAPT (WAPT 2012). Within the CCDO, 138 species were designated as BLM sensitive by the Nevada BLM State Director in 2017. The Nevada BLM Sensitive Species List contains a complete list of species and associated habitats that have the potential to be found in or near the allotment for the CCDO. These sensitive species include birds, reptiles, amphibians, mammals, fish, invertebrates, and plants. A few of the important special status animal species that occur or have the potential to occur in the MWBR include desert bighorn sheep (Ovis canadensis), multiple bat and lizard species, and pale kangaroo mouse (Microdipodops pallidus). Some of these species are described in further detail below and a complete list of sensitive animal species can be found in Appendix H.

Desert Bighorn Sheep — There are approximately 83,619 acres of occupied year-round habitat for desert bighorn sheep and approximately 53,519 acres of winter habitat within the analysis

area. Key habitats for desert bighorn include sagebrush communities, grasslands and meadows, riparian areas and springs. They prefer rough, rocky, and steep terrain, require freestanding water in summer months or during drought, and mainly eat grasses, forbs and shrubs. They occupy a variety of plant communities including alpine meadow to shrub-grasslands depending on the season, however, forage, water, and escape terrain are the most important components of their habitat. Forage, water, and escape terrain are the most critical components of their habitat (Van Dyke et al. 1983) and the main limiting factors to the desert bighorns habitat within the MWBR is water availability and competition with burro.

Bats

Five sensitive species of bats are known to inhabit Key Habitats within the project area. These include California myotis (*Myotis californicus*), Townsends's big-eared bat (*Corynorhinus townsendii*), western small-footed myotis (*Myotis ciliolabrum*), pallid bat (*Antrozous pallidus* and western pipistrelle (*Parastrellus Hesperus*). Bats have specific needs for roosting, nesting, and foraging. Roosting habitats include crevices in rock cliffs and rimrock, abandoned mines, abandoned structures, and in trees with loose bark such as junipers. There are known abandoned mine lands located within the MWBR. Foraging habitats include open grasslands, shrub-steppe, riparian areas, open water sources including water troughs, and in and around trees (BLM 2012). In general, the long-term persistence of North American bat species is threatened by the loss of clean, open water, modification of destruction of roosting and foraging habitat, and disturbance or destruction of hibernacula for hibernating species. Chemicals in the environment that affect bats or their prey are also threats. Bats may be minimally affected by burros, but the decline in plant community health, especially riparian areas, could negatively affect foraging conditions.

Environmental Effects to Sensitive Animals

Alternative 1-3

Impacts would generally be the same to BLM designated sensitive species as described in the environmental consequences section under Section 3.4.4 General Wildlife and Migratory Birds. Maintaining proper AML should also help maintain habitat conditions that, over time, may benefit sensitive species that utilize these key habitats by providing a diverse vegetation structure that provides for multiple life cycle requirements that any given species may need to successfully reproduce. If the Proposed Action is successful, decreasing competition for forage from wild horse and burros from current levels would benefit sensitive species dependent on these key habitats for food, water, and cover. Additionally, sensitive species such as golden eagle or burrowing owl that prey on wildlife that inhabit the analysis area should benefit from a robust prey base and proper functioning water sources.

Impacts of Alternative 4 (No Action)

Over utilization by wild horses and burros would continue to occur as the population numbers continue to increase. Special status species habitat would continue to degrade and competition for forage and habitat would continue to increase and potentially cause a decline in wildlife populations.

Cumulative Impacts to Sensitive Animal Species

When combined with the effects from past, present, and RFFAs, cumulative effects from the Action Alternatives to key habitats, and in turn sensitive species, are expected to be negligible or

positive. This is because the Action Alternatives would help accomplish the objectives of enhancing and/or maintaining resilient plant communities and watersheds by decreasing overutilization of vegetative resources by excess wild in some wet meadow areas; generally increasing plant diversity; and improving and maintaining wet meadows, springs, and riparian areas that are so crucial to multiple species in the project area.

Cumulative impacts of Alternative 4, no action, would result in an increase in burros and wild horses, decreasing the quality of wildlife habitat by further degrading the existing vegetation and possibly resulting in a reduction of perennial plant communities to a more dominant invasive annual state. Wet meadows would be further degraded resulting in further habitat loss to special status species. This would be compounded with drought and other activities in the area.

3.4.6 Sensitive Species: Plants Affected Environment

Within the CCDO, 138 species were designated as BLM sensitive by the Nevada BLM State Director in 2017. Of these special status species, there are 11 BLM sensitive plant species that have been found within or adjacent to the Marietta Burro Range, more specifically in the proposed gather area. These species include Alexander's buckwheat (*Eriogonum alexanderae*)*, Callaway milkvetch (*Astragalus callithrix*), Candelaria blazing star (*Mentzelia candelariae*), Lahontan Basin buckwheat (*Eriogonum rubricaule*)*, Mojave thistle (*Cirsium mohavense*), Nevada dune beardtongue (*Penstemon arenarius*), orcytes (*Orcytes nevadensis*), Sodaville milkvetch (*Astragalus lentiginosus var. sesquimetralis*), Watson spinecup (*Oxytheca watsonii*)*, and Williams combsleaf (*Polyctenium williamsiae*)*.

Alexander's Buckwheat

Habitat for this perennial plant includes light colored clay out crops, hillsides, and badlands in shadscale, sagebrush and pinyon juniper zones. Known locations of this plant are primarily found in a small portion of western Nevada and eastern California between the Wassuk and Sierra Nevada Mountain ranges.

Callaway Milkvetch

Habitat for this perennial plant consists of deep, sandy soil on the valley floor or dunes in barren openings with saltbush, rabbitbrush, and sagebrush. Known locations of this plant are found throughout southcentral Nevada into western Utah.

Candelaria Blazing Star

Habitat for this perennial plant includes barren, often calcareous, low-competition gravelly or clay soils on weathered volcanic ash deposits, scree slopes, hot spring mounds, washes, or road banks or other recovering disturbances, in the shadscale, mixed-shrub, and sagebrush zones. Known locations of this plant are found throughout western and southcentral Nevada.

Lahontan Basin Buckwheat

Habitat for this annual plant includes dry, open, light-colored, strongly alkaline shrink-swell clay soils on bluffs and badlands derived from fluviolacustrine silt, volcanic ash, or diatomite deposits, sometimes perched on dark basaltic slopes, in the shadscale, mixed-shrub, and lower sagebrush zones. Known locations of this plant are found throughout western Nevada.

Mojave Thistle

Habitat for this annual plant includes damp soils around desert springs, streams, and ditches. Known locations of this plant extend from central Nevada to southern Nevada and southern California.

Mono County Phacelia

Habitat for this annual plant includes alkaline, barren or sparsely vegetated grayish, brownish, or reddish shrink-swell clays of mostly andesitic origin, on various slopes and aspects, mostly on stabilized or low-intensity artificial or natural disturbances, most abundant on road berms that cross such soils, less frequently on naturally eroding badlands or apparently undisturbed soil, in the pinyon-juniper and mountain sagebrush zones. Known locations of this plant are limited to the western Nevada-eastern California border between the Sierra Nevada, Wassuk, and White Mountain Ranges.

Nevada Dune Beardtongue

Habitat for this perennial plant includes deep, volcanic, sandy soils at elevations of 3,940 to 4,430 feet above mean sea level; common associates include fourwing saltbush, littleleaf horsebrush, and greasewood. Known locations of this species are found throughout western and central Nevada.

Orcytes

Habitat for this annual plant includes deep loose sand of stabilized dunes, washes, and valley flats, on various slopes and aspects. Known locations of this species are found in western Nevada from the Black Rock Desert to Tonopah.

Sodaville Milkvetch

Habitat for this perennial wetland-dependent plant includes moist, open, alkaline hummocks and drainages near cool springs with saltgrass and greasewood. Known locations of this plant are very limited as near exhaustive surveys of habitat have revealed only two populations in Nevada; one in Mineral County and the other in Nye County.

Watson Spinecup

Habitat for this annual plant includes dry, open, loose and/or lightly disturbed, often calcareous, sandy soils of washes, roadsides, alluvial fans, and valley bottoms, in salt desert shrub communities. Known locations of this species are found in western and central Nevada.

Williams Combsleaf

Habitat for this perennial plant includes relatively barren sandy to sandy-clay or mud margins and bottoms of non-alkaline seasonal lakes perched over volcanic bedrock in the sagebrush, pinyon-juniper, and mountain sagebrush zones. Known locations of this plant are limited to the western Nevada-eastern California border between the Virginia, Sierra Nevada, Pine Nut, and White Mountain Ranges.

Current conditions of soil and vegetation within the analysis area show that wild burros and horses are concentrated in riparian areas and upland areas mainly through trailing and are

contributing to declines in vegetation and soil integrity. Utilization of perennial grasses and shrubs are causing changes in vegetation composition which negatively affect soil stability. Approximately half of all land health assessments completed showed a slight to moderate departure from reference for soil stability attribute and moderate departure for biotic integrity. Specifically, perennial grasses were missing from most of the areas assessed which negatively impact soil stability, infiltration, and other functions that are critical to functioning ecosystems that also support special status plant species. Riparian area function and integrity are particularly being affected by overpopulation of burros and horses. While special status species are often found in highly specific types of soils and vegetation communities, these general assessments echo the conditions of the area as a whole and most likely also impacting areas that special status plant species are found. In many cases, trampling and grazing of these special status species by burros and horses are likely to occur further impacting these species.

Environmental Consequences to Sensitive Plant Species Impacts of Alternatives (1, 2, 3)

Under Action Alternatives 1, 2, and 3, wild burro numbers would be reduced, and maintained within the AML range and all wild horses would be removed, which would result in a decrease in over utilization of resources by burros and horses, thus decrease the overall negative ecological impacts on special status plant species throughout the MWBR. The potential direct impacts associated for these alternatives would be short term impacts from placement of traps and herding wild burros and horses with a helicopter on or across the habitat of a special status plant species during the gather activities. However, design features in the Proposed Action that are applicable to all gather alternatives would mitigate these impacts. Specifically, the BLM would not construct trap locations or temporary holding facilities within known occupied habitat for sensitive plant species.

Additional indirect impacts to special status plants from the action alternatives could include the reduced risk of habitat degradation and increased plant vigor and growth. Maintaining the wild burro and horse populations within AML would decrease competition for available cover, space, forage, and water between burros, horses and special status species. Reduced trampling and consumption of general vegetation and special status plant species would result in increased plant vigor, production, seedling establishment, diversity, and ecological health of special status species habitat, particularly near wet meadow/riparian areas.

Impacts of Alternative 4

While no direct or indirect effects of gather operations will occur, direct impacts of sensitive plant species would likely include grazing and trampling of special status species under the no action alternative. Indirect impacts of Alternative 4 would result in an increase in wild burro and horse numbers and therefore increased utilization and disturbance to native vegetation and soils. Over time this degradation would further impact ecological health within and outside the MWBR as seen in the current monitoring data for the analysis area. This would likely lead to increased damage to upland and riparian vegetation which include sensitive plant species and their habitat that occur in the analysis area.

Cumulative Impacts Impacts of Alternatives 1, 2, and 3

Past and present impacts to special status plants in the gather area are generally related to mining, energy development, road development, grazing, dispersed recreation, wild horses and burros, and climate change. All of these activities and events would be expected to continue into the foreseeable future. Cumulative impacts associated with the Proposed Action from gather operations would be expected to be negligible based on the incorporated design features. Long-term impacts from removing excess wild burros and horses within and outside of the MWBR would be expected to decrease the amount of trailing and trampling damage to special status plants; however, if livestock grazing in the area were to be permitted at a future date, this could slow the recovery of degraded resources or contribute to continued degradation effects. If cattle grazing continues to be unpermitted, the amount of trailing activity and degradation would allow for slow ecological recovery by removing burros and horse, and their impacts.

Impacts of Alternative 4

Past and present impacts to special status plants in the action area would be the same as those analyzed for the Action Alternatives. Cumulative impacts from the no action alternative would be the continued trailing and trampling of special status plants by wild burros and horses. As wild burros and horse populations continue to grow into the future, trailing use would continue to increase as populations increase if no gathers/removals occur in the future. Ecological degradation would continue to occur and increase as climate change and other land uses compound these effects.

3.4.7 Wild Horse and Burro

Affected Environment

The majority of the burro herd is in reasonable health, although there are individual animals that rate lower than a 3 Henneke body condition score which indicates that they are not able to find sufficient forage to maintain a healthy weight. The continued growth of the herd over time and observed ratios of foals to adults indicate that the herd would maintain high reproductive rates, in the absence of fertility control. As the population increases, competition for resources, especially forage and water in drought years, would likely lead to even more animals in poorer body conditions.

The lack of forage within the MWBR has resulted in wild burros leaving the MWBR boundary in search of forage resources. They are also posing a public safety hazard on HWY 360, where it is not uncommon to see wild burro carcasses along the highway as a result of vehicle collisions. As resources continue to be depleted animals will continue to leave the MWBR boundary. The MWBR experienced persistent drought since 2019, with the MWBR lying well within the Extreme Drought zone starting on October 13, 2020.

Rangeland resources have been and are currently being impacted within the MWBR and degraded due to the over-population of wild burros and horses.

This action is necessary because an overpopulation of wild burros and horses are resulting in overuse of upland and riparian vegetation and is degrading burro and wildlife habitat. Native

bunch grasses, the primary forage for wild burros and many wildlife species are being over grazed to the point where most of the native bunch grasses have disappeared from the MWBR. Not only are native bunch grasses essential forage for native wildlife species, but these grasses also provide habitat for many native wildlife species. Overgrazing native bunch grasses can lead to the loss of the grasses, depriving wild burros and other grazing animals of the forage that they require to survive. Many rodents require the native bunch grasses, these rodents in turn provide a prey base for many raptors, and small carnivores. Additionally, pronghorn, deer, and bighorn sheep all require native vegetation and they in turn support carnivores. Riparian areas are also being degraded as a result of the wild burro and horse overpopulation; these areas are critical for many species of native wildlife.

Genetic Diversity

Because of history, context, periodic natural movements, and human-caused introductions, wild burros that live in the MWBR herd are not a truly isolated population. The National Academies of Sciences report to the BLM (NRC 2013) recommended that a given wild burro range should not be considered an isolated genetic population. 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. Previous genetic monitoring baseline sampling has not yet been completed in the MWBR. The initial gather will be an opportunity to collect samples for analyses that will inform the BLM about the status of the herd, in terms of observed heterozygosity levels. In the specific case of the MWBR, the source population for wild burros in this area is thought to be from 18 burros of unknown origin released onto public lands in the early 1960s.

Diet

While typically thought of as grazers, burros can survival on low-quality forage, switching to browse when grasses and forbs are scarce (Douglas and Hurst 1993). Numerous studies identify dietary overlap of preferred forage species and habitat preference between horses/burros, cattle, and wildlife species in the Great Basin ecosystems for all seasons (Ganskopp 1983; Ganskopp and Vavra 1986, 1987; McInnis 1984; McInnis and Vavra 1987; Smith et al. 1982; Vavra and Sneva 1978). A strong potential exists for exploitative competition between horses and cattle under conditions of limited forage (water and space) availability (McInnis and Vavra 1987, Douglas and Hurst 1993).

Although horses/burros and cattle are often compared as grazers, horses/burros can be more destructive to the range than cattle due to their differing digestive systems and grazing habits. The dietary overlap between wild horses/burros and cattle is much higher than with wildlife, and averages between 60 and 80% (Hanley 1982; Hansen et al. 1977; Hubbard and Hansen 1976; Krysl et al. 1984; McInnis and Vavra 1987). Horses/burros are cecal digesters while most other ungulates including cattle, pronghorn, and others are ruminants (Beever 2003; Hanley and Hanley 1982). Ruminants, especially cattle, must graze selectively, searching out digestible tissue (Olsen and Hansen 1977). Horses/burros, however, are one of the least selective grazers in the West because they can consume high fiber foods and digest larger food fragments (Beever 2003; Bauer et al. 2017; Hanley and Hanley 1982).

Wild horses/burros can exploit the high cellulose of graminoids, or grasses, which have been observed to make up over 88% of their diet (Hanley 1982; McInnis and Vavra 1987). However, this lower quality diet requires that horses/burros consume 20-65% more forage than a cow of equal body mass (Hanley 1982, Menard et al. 2002). With more flexible lips and upper front incisors, both features that cattle do not have, wild horses/burros trim vegetation more closely to the ground (Beever 2003; Menard et al. 2002; Symanski 1994). As a result, areas grazed by horses/burros may retain fewer plant species and may be subject to higher utilization levels than areas grazed by cattle or other ungulates.

Wild horses/burros also compete with wildlife species for various habitat components, especially when populations exceed AML and/or habitat resources become limited (i.e., reduced water flows, low forage production, dry conditions, etc.). Smith (1986a, b) determined that elk and bighorn sheep were the most likely to negatively interact with wild horses. Hanley and Hanley (1982) compared the diets of wild horses, domestic cattle and sheep, pronghorn antelope, and mule deer and found that horse and cattle diets consisted mostly of grasses, pronghorn and mule deer diets consisted mostly of shrubs (>90%) and sheep diets were intermediate. Due to different food preferences, diet overlap between wild horses, deer, and pronghorn rarely exceeds 20% (Hanley and Hanley 1982; Hanse et al. 1977; Hubbard and Hansen 1976; Meeker 1979).

There is growing concern about limited water and forage available to wild horses/burros, livestock, and wildlife in the desert climate of the Great Basin. Heavy use of forage near available water and competition between wild horses, livestock, and wildlife for limited forage and water has increased. In addition, wild horses and burros can have an impact on native wildlife around water sources (Gooch et al. 2017, Hall et al. 2016, Crist et al. 2019). Game camera photographs taken within this district have shown multiple times mule deer leaving a water source as wild horses' approach.

Because there are limited sources of water in the MWBR, the wild burros and horses tend to stay closer to, and concentrate around, those sources of water. Forage around the water sources is heavily impacted because of the high concentration of wild burros and horses in those areas—even in the absence of any livestock grazing. Wild burros and horses must travel greater distances to meet both their forage and water needs. As reviewed in appendix C, wild burros (and, less frequently, wild horses) have been observed digging 'wells' in intermittent stream beds where subsurface water is available 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. Increasing competition at the water source, can cause increased stress to the animals and can lead to emergency conditions where a failure to act may result in the suffering or death of individual wild burros or horses.

WinEquus Population Modeling

WinEquus (Jenkins 1996) is designed for wild horses, but not burros. Therefore, it is not appropriate to use that software to model the effects of fertility control on wild burro populations. The BLM does not use other modeling software for burro population projections at this time. Empirical evidence, supported in a 2016 metaanalysis (Ransom et al. 2016), indicates that burro herds do tend to grow, typically at rates of 15% per year.

Due to the large number of excess burros on the MWBR at this time it is unlikely that enough burros would be captured during the initial gather for the treat and release management actions. However, if enough burros are gathered, it possible that 25% of the jennies may be treated during the initial gather, as follows. The low AML is 78 burros. If the herd was brought to low AML and an additional 20 burros were captured, then 10 female burros could be treated then released with 10 male burros. If 10 of the approximately 40 female remaining burros were treated the population rate of increase would be decreased by approximately 25 percent of the original growth rate -- in other words, from a rate of 15% down to a rate of 11.25%. The result would still be an increasing population, but at not quite as high a rate as if the population was not treated at all. Skewing the sex ratio in the population would also occur leaving fewer females to treat. Therefore, with only a fraction of the female burros anticipated to be treated, it is expected that the herd will continue to grow to reach high AML over several years.

Environmental Consequences to Wild Horse and Burro Impacts of Alternative 1

Under Alternative 1, wild burros would be released back to the range to achieve a post-gather sex ratio of 60:40 percent males to females at low AML for the potential breeding population. Under this Alternative competition for females would be expected to increase, recruitment age for reproduction among males would be expected to decline. These effects would be slight, as the proposed sex ratio is not an extreme departure from normal sex ratio ranges (refer to review in Appendix C). Modification of sex ratios for a post-gather population favoring males would further reduce growth rates in combination with fertility control.

Although some fertility control treatments may be associated with potential physiological, behavioral, demographic, and genetic effects, those impacts are generally minor and transient, do not prevent overall maintenance of a self-sustaining population, and 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; Appendix C). Fertility control methods that affect individual burros do not prevent the BLM from ensuring that there would be self-sustaining populations of wild burros in this MWBR. Available information about genetic diversity and relatedness to other herds gives no indication for concern about maintenance of self-sustaining population in the MWBR, particularly as fertile animals can be introduced into the herd, if results of genetic baseline sampling indicate that would be warranted. Although treated individuals may experience long-lasting effects, even including sterility in some cases, that does not of itself cause significant negative impacts at the level of populations, which are the object of BLM management.

Impacts of Alternative 2

Alternative 2 would have similar impacts to Alternative 1, except that there would be no impacts to individual females from administering a contraceptive.

Impacts Common to Alternatives (1 and 3)

Contraception

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 burros or horses from an MWBR's population, so if a wild burros population is in excess of AML, then contraception alone would result in some continuing environmental effects of overpopulation. Successful contraception reduces future reproduction.

Successful contraception would be expected to reduce the frequency of gather activities, as well as wild horse and burro management costs to taxpayers. Bartholow (2007) concluded that the application of 2 or 3-year contraceptives to females could reduce operational costs in a project area by 12 to 20 percent, or up to 30 percent in carefully planned population management programs. He also concluded that contraceptive treatment would likely reduce the number of wild horses that must be removed in total, with associated cost reductions in the number of private placements and total holding costs. Population suppression becomes less expensive if fertility control is long-lasting (Hobbs et al. 2000). BLM acknowledges that some females treated four or more times with fertility control may become sterile (Nunez 2018). Although contraceptive treatments may be associated with potential physiological, behavioral, demographic, and genetic effects, detailed in Appendix C, 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) to ensure rangeland health and allow for a thriving natural balance.

Fertility Control Vaccines, and Physical Sterilization,

Fertility control vaccines (also known as immunocontraceptives) meet the BLM requirements for safety to females and the environment (EPA 2009a, 2012). Because they work by causing an immune response in treated animals, there is no risk that vaccines, or physical sterilization methods would cause hormones or toxins to be taken into the food chain when a treated animal dies. Refer to Appendix C for a detailed analysis of various fertility control techniques that may be employed in the MWBR, and their potential effects.

Impacts of Alternative 3

Implementation of Alternative 3 would result in the need to gather and remove fewer excess wild burros in the future than Alternatives 1 or 2. Alternative 3 would be similar to Alternative 1 except that some females could be physically sterilized, and some males could be gelded such that up to 25 percent of the male burros could be released as sterilized animals to bring the population to mid-AML. At no time would the sex ratio exceed roughly 60 percent males.

Effects of Sterilization

Various forms of fertility control can be used in wild burro herd management. These can help with the goals of maintaining herds at or near AML, reducing fertility rates, and reducing the frequency of gathers and removals. The WFRHBA specifically provides for sterilization (16 U.S.C. 1333 section 3.b.1). Fertility control measures have been shown to be a cost-effective and humane treatment to slow population increases in wild burro herds or, when used in combination with gathers, to reduce herd size (Bartholow 2004; de Seve and Boyles-Griffin 2013; Fonner and Bohara 2017). An extensive body of peer-reviewed scientific literature details the expected impacts of various fertility control methods on wild horses and burros (see Appendix C). No finding of excess animals is required for BLM to pursue sterilization in wild horses or burros as a management tool.

Population growth suppression becomes less expensive if fertility control is long-lasting (Hobbs et al. 2000), such as with spaying and neutering. Here, 'neutering' is defined to be the sterilization of a male either by removal of the testicles (castration, also known as gelding) or by vasectomy, where the testicles are retained but no sperm leave the body as a result of severing or blocking the vas deferens or epididymis.

Impacts Common to Alternatives 1, 2, and 3

For over 40 years, various impacts to wild horses and burros as a result of gather activities have been observed. Under Alternatives 1, 2, and 3 impacts to wild burros and horses would be both direct and indirect, occurring to both individual animals and the population as a whole.

In any given BLM wild horse and/or burro gather, gather-related mortality averages only about one half of one percent (0.5 percent), which is very low in comparison to the mortality rates typical in wild animal capture efforts (Scasta 2020). Approximately, another six-tenths of one percent (0.6 percent) of the captured animals could be humanely euthanized due to pre-existing conditions and in accordance with BLM policy (GAO 2008, Scasta 2020). These data affirm 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. The BLM also avoids gathering wild horses and burros by helicopter during the 6 weeks prior to and following the peak foaling season (i.e., March 1 through June 30).

Impacts to Individual Burros and Horses

Individual, direct impacts to animals include the handling stress associated with the roundup, capture, sorting, handling, and transportation of the animals. The intensity of these impacts varies by individual and is indicated by behaviors ranging from nervous agitation to physical distress. When being herded to trap site corrals by the helicopter, injuries sustained by animals may include bruises, scrapes, or cuts to feet, legs, face, or body from rocks, brush, or tree limbs. Rarely, animals would encounter barbed wire fences and would 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 an animal 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, animals may sustain spinal injuries or fractured limbs but based on prior gather statistics, serious injuries requiring humane euthanasia occur in less than one animal per every 100 captured. Similar injuries could be sustained if animals 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 result from kicks and bites, or from collisions with corral panels or gates.

To minimize the potential for injuries from fighting, the animals are transported from the trap site to the temporary 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 horses and burros, they are not as calm, and injuries are more frequent. Overall, direct gather-related mortality averages less than one (1) percent (GAO 2008, Scasta 2020).

Indirect individual impacts are those which occur to individual animals after the initial event. These may include miscarriages in females, increased social displacement, and conflict between males. 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 1 to 2-minute skirmish between older males which ends when one male retreats. Injuries typically involve a bite or kick with bruises which do not break the skin. Like direct individual impacts, the frequency of these impacts varies with the population and the individual. Observations following capture indicate the rate of miscarriage varies but can occur in about one to five percent of the captured females, particularly if the females are in very thin body condition or in poor health.

A few foals may be orphaned during a gather. If the dam rejects the foal, the foal becomes separated from its mother and cannot be matched up following sorting, the mother dies or must be humanely euthanized during the gather, the foal is ill or weak and needs immediate 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 may be in poor, unthrifty 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 would be taken to the Northern Nevada Correctional Center to receive additional care. Despite these efforts, some orphan foals may die or be humanely euthanized if the prognosis for survival is very poor.

In some areas, gathering animals during the winter may avoid the heat stress that could be associated with a summer gather. By fall and winter, foals are of larger body size and sufficient age to be weaned. Winter gathers are often preferred when terrain and higher elevations make it difficult to gather wild animals during the summer months. Under winter conditions, horses are often located in lower elevations due to snow cover at higher elevations. This typically reduces the distance between animal concentrations and trap sites reducing the potential for fatigue and stress. While deep snow can tire animals as they are moved to the trap, helicopter pilots allow the animals to travel slowly at their own pace. Trails in the snow are often followed reducing the stress to the trap site. On occasion, trails can be plowed in the snow to facilitate the safe and humane movement of animals to a trap. Wild burros and horses may be able to travel farther and over terrain that is more difficult during the winter, even if snow does not cover the ground. Water requirements are lower during the winter months, making distress from heat exhaustion extremely rare. By comparison, during summer gathers, animals may travel long distances between water and forage and become more easily dehydrated.

Through the capture and sorting process, animals are examined for health, injury, and other defects. Decisions to humanely euthanize animals in field situations would be made in conformance with BLM policy. The BLM Policy for Animal Health, Maintenance, Evaluation and Response PIM 2021-007 is used as a guide to determine if animals meet the criteria and should be euthanized. Animals that are euthanized for non-gather related reasons include those with old injuries (broken 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, animals that have serious physical defects such as club feet, severe limb deformities, or sway back. Some of these conditions have a causal genetic component and the animals should not be returned to the range to prevent suffering, as well as to avoid amplifying the incidence of the problem in the population.

Wild burros and horses not captured may be temporarily disturbed and move into another area during the gather operation. Except for changes to herd demographics from removals, direct population impacts have proven to be temporary in nature with most, if not all, impacts disappearing within hours to several days of release. No observable effects associated with these impacts would be expected within one month of release, except for a heightened awareness of human presence.

It is not expected that genetic diversity would be unduly impacted by the action Alternatives. Baseline genetic diversity sampling would be conducted Furthermore, periodic, ongoing genetic monitoring is included in Alternatives 1-3. That genetic monitoring would inform the BLM as to whether genetic diversity, as measured by observed heterozygosity is acceptable, or whether any mitigating actions would need to be taken (BLM 2010). If monitoring of observed heterozygosity levels, as measured from genetic monitoring samples, gives indication that genetic diversity should be increased, the BLM may consider introducing animals to the herd. Under Alternatives 1-3, management of the MWBR herd could continue to use wild burro introductions from other HMAs to augment observed heterozygosity, the result of which would also be to reduce the risk of inbreeding-related health effects. Introducing a small number of fertile animals every generation (about every 8-10 years) is a standard management technique that can alleviate potential inbreeding concerns (BLM-4700-1).

Even if it is the case that repeated treatment with a fertility control vaccine may lead to prolonged infertility, or even sterility in some females, most wild burros have only a low risk of loss of genetic diversity if logistically realistic rates of contraception are applied to females. Roelle and Oyler-McCance (2015) used the VORTEX population model to simulate how different rates of female 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 showed that the risk of the loss of genetic heterozygosity is extremely low except in cases where all of the following conditions are met: starting levels of genetic diversity are low, initial population size is 100 or less, the intrinsic population growth rate is low (5% per year), and very large fractions of the female population are permanently sterilized. None of those conditions are likely to be risk factors in MWBR.

By maintaining wild burro population size within the AML range, there would be a lower density of wild burros across the MWBR, reducing competition for resources and allowing wild burros to utilize their preferred habitat. Maintaining population size within the established AML would be expected to improve forage quantity and quality and promote healthy, self-sustaining populations of wild burros in a thriving natural ecological balance and multiple use relationship on the public lands in the area. Deterioration of the range associated with wild burro overpopulation would be avoided. Managing wild burro populations in balance with the available habitat and other multiple uses would lessen the potential for individual animals or the herd to be affected by drought and would avoid or minimize the need for emergency gathers, which would reduce stress to the animals and increase the success of these herds over the longterm.

Water/Bait Trapping

Bait and/or water trapping generally requires a long window of time for success. Although the trap would be set in a high probability area for capturing excess animals residing within the area and at the most effective time periods, time is required for the animals to acclimate to the trap and/or decide to access the water/bait.

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

When actively trapping animals, the trap would be checked on a daily basis. Wild burros and horses 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 of the excess animals utilizing bait/water trapping could occur at any time of the year and would extend until the target number of animals are removed to relieve concentrated use by animals in the area, reach AML, to implement population control measures, and to remove animals residing outside MWBR boundaries. 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 animals 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 animals at a given location, which can also relieve the resource pressure caused by too many animals. As the proposed bait and/or water trapping in this area is a low stress approach to gathering of animals, such trapping can continue into the foaling season without harming the females or foals. Impacts to individual animals would be similar to those for helicopter gathers and could occur as a result of stress associated with the gather, capture, processing, and transportation of animals. The intensity of these impacts would vary by individual and would be indicated by behaviors ranging from nervous agitation to physical distress. Mortality of individual animals from these activities is rare but can occur. Other impacts to individual animals include separation of members of individual bands and removal of animals from the population.

Indirect impacts can occur to animals after the initial stress event and could include increased social displacement or increased conflict between males. These impacts are known to occur intermittently during gather operations. Traumatic injuries could occur and typically involve bruises caused by biting and/or kicking. Animals may potentially strike or kick gates, panels or the working chute while in corrals or trap which may cause injuries. These impacts, like direct individual impacts, are known to occur intermittently during gather operations. Since handling, sorting and transportation of animals would be similar to those activities under Helicopter drive trapping, the direct and indirect impacts would be expected to be similar as well. Past gather data shows that euthanasia, injuries and death rates for both types of gathers are similar.

Transport, ORCs, ORPs, and Adoption Preparation

During transport, potential impacts to individual animals can include stress, as well as slipping, falling, kicking, biting, or being stepped on by another animal. Unless animals are in extremely poor condition, it is rare for an animal to die during transport.

Recently captured animals, generally females, 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.

During the preparation process, potential impacts to animals are similar to those that can occur during transport. Injury or mortality during the preparation process is low but can occur.

Mortality at ORCs facilities averages approximately 5% (GAO-09-77, Page 51), which includes animals euthanized due to a pre-existing condition, animals in extremely poor condition, animals that are injured and would not recover, animals that are unable to transition to feed; and animals that die accidentally during sorting, handling, or preparation.

ORPs, known formerly as long-term holding pastures, are designed to provide excess horses with humane, and in some cases life-long care in a natural setting off the public rangelands. There, animals 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. Females and sterilized males (geldings) are segregated into separate pastures. About 37,000 animals that are in excess of the current adoption or sale demand (because of age or other factors such as economic recession) are currently located on private land pastures in Oklahoma, Kansas, Iowa, Missouri, Montana, Nebraska, Utah, Wyoming, and South Dakota. The establishment of ORPs is

subject to a separate NEPA and decision-making process. Located mainly in mid or tall grass prairie regions of the United States, these ORPs are highly productive grasslands compared to more arid western rangelands. These pastures comprise about 400,000 acres (an average of about 10-11 acres per animal). Of the animals currently located in ORP, less than one percent is age 0-4 years, 49 percent are age 5-10 years, and about 51 percent are age 11+ years. Excess burros are adopted so they are not placed in ORPs.

Potential impacts to animals from transport to adoption, sale or ORPs are similar to those previously described. One difference is when shipping animals for adoption, sale or ORPs, 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 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.

A small percentage of the animals may be humanely euthanized if they are in very poor condition due to age or other factors. Animals residing on ORP facilities live longer, on the average, than animals residing on public rangelands, and the natural mortality of animals in ORP averages approximately 8% per year, but can be higher or lower depending on the average age of the animals pastured there (GAO 2008, Page 52)

Burros remaining or Released Back into the MWBR following Gather Under Alternative 1 and Alternative 3.

The burros that are not captured may be temporarily disturbed and may move into another area during the gather operations. With the exception of changes to herd demographics, the direct population- wide impacts from a gather 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 animals are released back into the MWBRs.

No observable effects associated with these impacts would be expected within one month of release, except for a heightened awareness of human presence, and possible changes in specific band composition. There is the potential for the animals that have been desensitized to vehicles and human activities to return to areas where they were gathered if released back into MWBR's. The burros that remain in the MWBR following the gather would maintain their social structure and herd demographics (age and sex ratios) as the proposed gathers would mainly be targeting specific individual or bands. No observable effects to the remaining population from the gather would be expected. Since the MWBR is managed only for burros all wild horses would be removed.

Impacts of Alternative 4 (No Action)

Under Alternative 4, there would be no active management to control the population size within the established AML at this time. If there is no gather, animal populations would continue to

grow. Without gather and removal now, the burro population could reach 2,326 burros in 10 years at an average rate of increase of 15 percent per year. However, limited forage and or water resources would likely cause a mass die off of wild burros, wild horses and native wildlife before the population reached this level through starvation and or dehydration. Similarly, the current population of 50 wild horses could increase to 200 wild horses in 10 years. This number is based on an average rate of increase of 15 percent since the wild horses in this area do not increase at the average rate of 20 to 25 percent annually due to the poor habitat conditions.

Grazing use by wild burros and horses would continue to exceed the amount of available forage. Competition between wildlife, livestock and wild burros and horses for limited forage and water resources would continue (NRC 2013). Damage to rangeland resources would continue or increase. Over time, the potential risks to the health of individual animals would increase, and the need for emergency removals to prevent their death from starvation or thirst would also increase. Over the long-term, the health and sustainability of the wild burro population is dependent upon achieving a thriving natural ecological balance and sustaining healthy rangelands. Allowing wild burros or horses to die of dehydration or starvation would be inhumane and would be contrary to the WFRHBA which requires that excess animals be immediately removed when necessary to achieve a thriving natural ecological balance. Allowing rangeland damage to continue to result from wild burro and horse overpopulation would also be contrary to the WFRHBA which requires the BLM to "protect the range from the deterioration associated with overpopulation", "remove excess animals from the range so as to achieve appropriate management levels", and "to preserve and maintain a thriving natural ecological balance and multiple-use relationship in that area."

Cumulative Effects

Impacts Common to Action Alternatives (1, 2, and 3,)

The cumulative effects associated with the capture and removal of excess animals includes gather-related mortality of less than one (1) percent of the captured animals, about five (5) percent per year associated with transportation, short-term holding, adoption or sale with limitations and about eight (8) percent per year associated with ORPs. In general animals live longer on ORPs because adequate forage and water are available, the higher mortality rate is because the younger animals are adopted thus the animals on the ORPs are older than the average animal on the range. This compares with natural mortality on the range ranging from about five to eight percent per year for foals (animals under age 1), about five percent per year for horses ages 1 to 15, and 5 to 100 percent for animals ages 16 and older (Garrott and Taylor 1990; Jenkins 2000). In situations where forage and/or water are limited, mortality rates increase, with the greatest impact to young foals, nursing females and older animals. 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 damn, or animals may become too weak to travel. After suffering, often for an extended period, the animals may die. Before these conditions arise, the BLM generally removes the excess animals to prevent their suffering from dehydration or starvation.

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

The other cumulative effects which would be expected under the Action Alternatives would include continued improvement of upland vegetation conditions, which would in turn benefit native wildlife and burro population as forage (habitat) quality and quantity is improved over the current level. Benefits from a reduced burro population and removal of wild horses would include fewer animals competing for limited forage and water resources. Cumulatively, there should be more stable burro populations, healthier rangelands, healthier burros, and fewer multiple use conflicts in the area over the short and long-term. Over the next 15 to 20 years, continuing to manage wild burros within the established AML range would achieve a thriving natural ecological balance and multiple use relationship on public lands in the area.

Cumulative Impacts of Alternatives 1 and 3 (Proposed Action)

Application of fertility control, implementation of a non-reproducing portion of the male population and adjustment in sex ratios to favor males should slow population growth and result in fewer gathers and less frequent disturbance to individual wild horses and the herd's social structure. However, return of wild burros back into the MWBR could lead to decreased ability to effectively gather burros in the future as released burros learn to evade the helicopter.

Cumulative Impacts of Alternative 2

Because contraceptives, spaying and skewing the sex ratio to favor males would not be done, more burros would need to be removed in the future as a result of a greater rate of population increase, compared to Alternatives 1 or 3.

Cumulative Impacts of Alternative 3

Impacts would be similar to Alternative 1 except that some animals would be spayed or neutered. Spaying results in a permanent sterilization of female animals which would require fewer gathers to retreat females if only contraceptives were used as contraceptives are only effective for one to a few years.

Cumulative Impacts of Alternative 4 (No Action)

Under the No Action Alternative, the wild burro and horse population could exceed 1,000 wild burros and 80 horses in four years. Movement outside the MWBR and onto private lands would be expected as greater numbers of wild burros and horses search for food and water for survival, thus impacting larger areas of public lands. Heavy to excessive utilization of the available forage would continue and the water available for use could become increasingly limited. Ecological plant communities would be further damaged to the extent that they are no longer sustainable, and the wild burro and horse populations would be expected to crash periodically (NRC 2013).

Emergency removals could be expected to prevent individual animals from suffering or death because of insufficient forage and water. These emergency removals could occur as early as a few years. During emergency conditions, competition for the available forage and water increases. This competition generally impacts the oldest and youngest animals as well as lactating females first. These groups would experience substantial weight loss and diminished health, which could lead to their prolonged suffering and eventual death. If emergency actions are not taken, the overall population could be affected by severely skewed sex ratios towards males as they are generally the strongest and healthiest portion of the population. An altered age structure would also be expected.

Cumulative impacts would result in foregoing the opportunity to improve rangeland health and to properly manage wild burros in balance with the available forage and water and other multiple uses, and irreversible losses of native vegetation. Attainment of site-specific vegetation management objectives and Standards for Rangeland Health would not be achieved. AML would not be achieved and the opportunity to collect the scientific data necessary to re-evaluate AML levels, in relationship to rangeland health standards, would be foregone.

3.4.8 Weeds (i.e. Noxious, Invasive, Non-native, and Nuisance weed species) Affected Environment

Noxious weeds are defined by the Nevada Department of Agriculture as any species of plant which is, or is likely to be, detrimental or destructive and difficult to control or eradicate. Control of these species is regulated by state and federal law. Invasive species are any non-native plant that easily multiplies and causes multiple negative impacts on the natural ecosystem or landscape. A nuisance weed, as defined by the Nevada Department of Agriculture is any plant which is seen as bothersome and is ordinarily found throughout the state. These nuisance weeds have varying levels of negative impact and are not regulated by the state. All of these categories of weeds may be a non-native species, meaning it originated in an area outside the local geography. Non-native species frequently lack the ecological control mechanisms from where they originated and can become invasive in new landscapes. All of these species can be analyzed together in regards to the alternatives in this environmental assessment.

Several noxious weeds have been found in both the project area and the cumulative impact area, including but not limited to Salt Cedar and Russian Knapweed. Because a comprehensive weed inventory has not been completed for the entire area, we would expect the cumulative and project area of analysis to be typical of the Carson City District and it may have undetected weed populations.

Grazing, especially at heavy and severe intensities, can alter plant community dynamics in many ways. One of these changes includes an increase in noxious, invasive, non-native and nuisance weed species compared to more desirable species. When burros exceed the upper AML, we would expect to see an increase in these weedy species. At the most severe levels of grazing, even noxious weed species may be consumed by mal-nourished animals in search of forage. Many of these species are toxic to wild burros and horses, and this toxicity can be even more dangerous when animals are in a weakened condition.

Impacts Common to Action Alternatives (1, 2, and 3)

Under the three alternatives that aim to lower the burro population, it is expected that there would be a positive influence in reducing the weed population and spread. This would also mitigate the danger that noxious weeds could poison the wild burros if the grazing persists into more severe levels.

Gather operations create a potential to introduce new weed species into the specific trap, viewing and holding areas through equipment, hay for domestic work horses and vehicles.

Impacts under Alternative 4

Under the No Action Alternative, heavy grazing by wild burros and horses will continue to alter the plant community in a way that spreads weed species. As the grazing becomes severe, these weed species may be consumed by wild burros and horses that have no other available forage. Under stressful conditions, such as drought and lack of forage, these species, some of which are toxic, could harm burros and horses.

Cumulative Impacts to Weeds

Cumulative impacts common to Action Alternatives (1, 2, and 3)

Under the alternatives that would lower the burro population, a positive influence in reducing the weed population and spread would be expected, both over a longer time frame and also from a larger area perspective. This would also mitigate the danger that noxious weeds could poison the wild burros if the grazing persists into more severe levels.

Cumulative impacts under Alternative 4

Under the No Action Alternative, it would be expected to see a spread and proliferation of weed species as well as an increased threat to wild burros and horses under times of severity. The cumulative effect of no action would enlarge this trend to a broader area and impact additional areas beyond the burro range and immediate vicinity. The problem would continue to spread within and outside the MWBR until the population was brought under control.

3.5 Socioeconomics

The Socioeconomics is considered to be the value placed on the MWBR wild horses that may be contributed to economies. At this time there are no registered guided tours or known sales of commercial pictures being sold to increase the value to the communities from the wild horses and burros that reside within or outside the MWBR. It is acknowledged that some people that drive through the general area may stop and view or photograph the horses.

There can also be a negative impact on socioeconomics due to the overpopulation of wild horses and burros. This coming from impacts to wildlife enthusiasts that hunt, photograph, and guide big game, that have since left the area or are in poor condition due to the degraded range conditions caused by overpopulation of wild horses and burros. Although grazing permits have not occurred within the MWBR, the strain of excess horses and burros on the land as well as impacts from recent drought and fires have cumulatively put a strain on many agricultural related businesses in the area.

It is not possible to quantify the revenue or losses attributable to the MWBR wild horses and burros. It is recognized that for local industries the excess wild horses and burros cause a negative impact to resources and to many businesses that rely on healthy range conditions, and healthy wildlife in the area. It is also recognized that any revenue brought by tourism, and photography of wild horses and burros in the MWBR is unknown.

4.0 Mitigation Measures and Suggested Monitoring

Proven mitigation and monitoring are incorporated into the Proposed Action through SOPs, which have been developed over time. These SOPs (Appendix II, III, and IV) represent the "best methods" for reducing impacts associated with gathering, handling, and transporting wild horses and collecting herd data. Hair follicle samples would be collected to establish a genetic baseline for the wild burros and horses from the MWBR; additional samples would be collected during future gathers (in 10-15 years) to determine trend. If monitoring indicates that genetic diversity (as measured in terms of observed heterozygosity) is not being adequately maintained, 5-10 young females from HMAs in similar environments may be added every generation (every 8-10 years) to avoid inbreeding depression and to maintain acceptable genetic diversity. Samples may also be collected for genetic ancestry analysis or curly gene characteristics. Ongoing resource monitoring, including climate (weather), and forage utilization, population inventory, and distribution data would continue to be collected.

5.0 List of Preparers

The following list identifies the interdisciplinary team member's area of responsibility:

Name	Title	Project Expertise
John Axtell	Project Lead; WH&B Specialist; Wildlife Biologist	Wild Horses & Burros
Stacy Sylvester	Rangeland Management Specialist	Migratory Birds; Threatened or Endangered Species; Sensitive Species Animals; General Wildlife
Jason Wright	Archaeologist	Cultural Resources; Native American Religious Concerns; Paleontology, Visual Resources
Dave Schroeder	Environmental Compliance Specialist	Wastes, Hazardous or Solid; Geothermal Resources
Cassandra Rivas	Natural Resource Specialist	Sensitive Species Plants
Sabrina McCue	Rangeland Management Specialist	Livestock Grazing, Soils
Ben Noyes	Ely District Office Wild Horse and Burro Specialist	Socioeconomics
Matt Fockler, PhD	Socioeconomic Specialist Great Basin Zone (NV, ID, UT)	Environmental Justice
Donald Shannon	Fire Ecologist	Fire Management
Kenneth Depaoli	Geologist	Geology; Mineral Materials
Mark Mazza	Weeds Coordinator	Invasive and Non-native Species, and Noxious Weeds
Melanie Hornsby	Planning and Environmental Coordinator / Military Liaison	NEPA Compliance

Table 5: BLM Preparers/Reviewers

Name	Title	Project Expertise	
Robert Gibson	Hydrologist	Farmlands (Prime & Unique), Floodplains,	
		Water Quality (Surface/Ground),	
		Wetlands/Riparian Zones, Water Quantity	
		(Surface/Ground)	
Paul Amar	Outdoor Recreation Planner	Recreation; Travel Management;	
		Wilderness/WSA; Lands with Wilderness	
		Characteristics	
Katy Paiva	Realty Specialist	Land Use Authorization; Access	
Frank Giles	State Air Resource	Air Ovelity, Climete Chenned/CHC Emission	
	Specialist	Air Quanty, Chinate Change/GHG Emissions	

WH&B: Wild Horse and Burros; NEPA: National Environmental Policy Act; WSA: Wilderness Study Area; GHG: Greenhouse Gases

5.1 Persons, Groups, or Agencies Consulted

Table 6: Persons, Groups or Agencies Consulted

- Nevada Department of Wildlife
- Walker River Paiute Tribe
- United States Fish and Wildlife Service
- Mineral County
- Fallon Naval Air Station
- United States Forest Service, Humboldt Toiyabe National Forest and Carson Ranger District

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